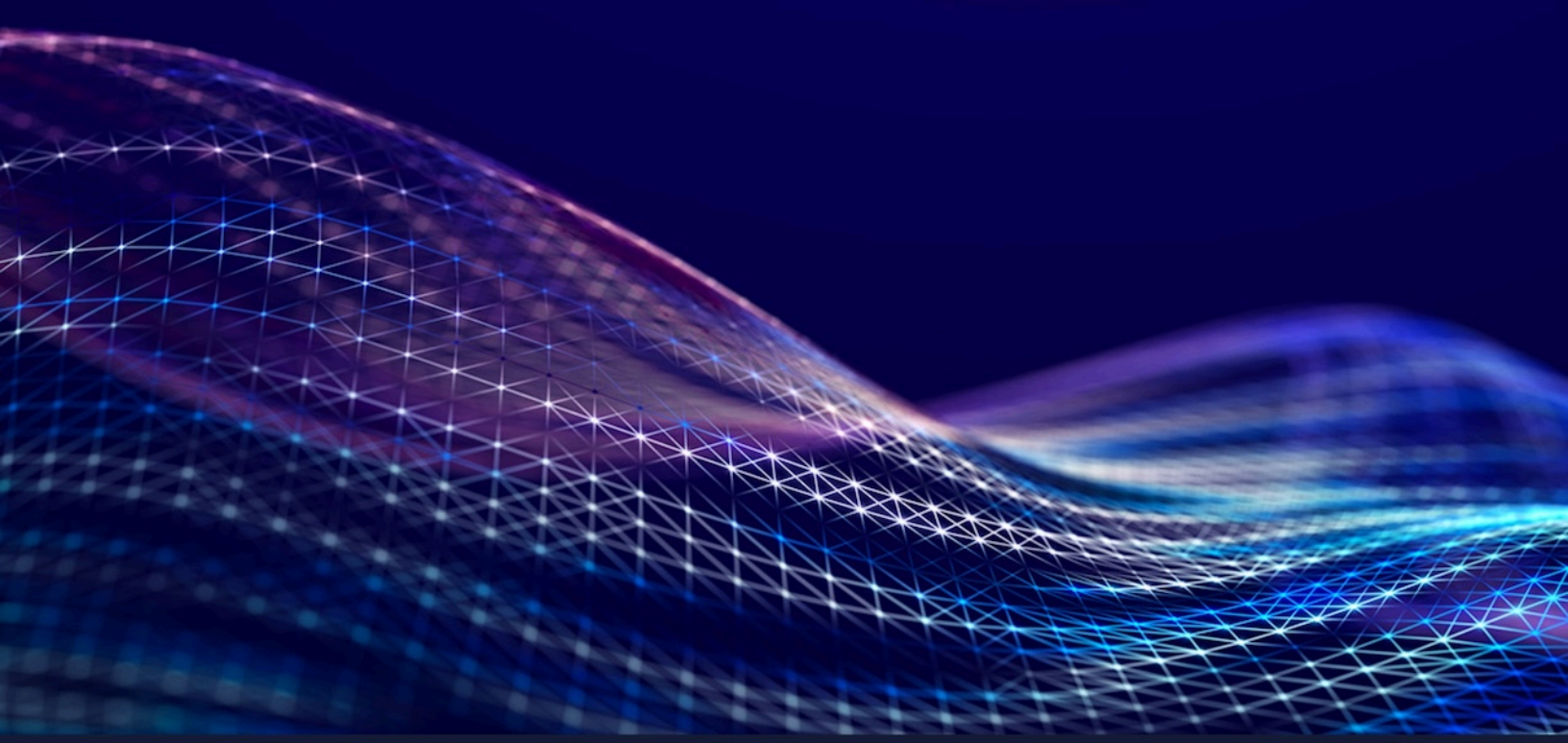

AP Essentials
Admin Center Help

TUNGSTEN AUTOMATION

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Chapter 1

Welcome

Welcome to AP Essentials Help. The content you see depends on whether you access help from AP Essentials Office or AP Essentials Admin Center.

- **Office Help**: for AP Essentials users who verify and approve documents as part of their daily work.
- **Admin Center Help**: for administrators who set up and maintain AP Essentials. Admin Center Help is the more comprehensive of the two help systems and includes Office Help also. You're reading *Admin Center Help* now.

Upcoming changes to email template customizations

As part of our ongoing efforts to align with modern practices and provide a more consistent and reliable experience, we are making changes to the availability of account-management email templates. As of October 31, the following email templates will no longer be customizable:

- Account activated
- Account deactivated
- Account reactivated
- Add new user
- Forgot password
- Reset password

These changes are being introduced as a security precaution to help protect account-related communications and ensure the integrity of important notifications.

If you have customized any of these email templates, your customizations will be automatically replaced with new templates that cannot be customized when this change is implemented.

Important security update

⚠ Starting November 1, 2026, the SFTP connector will no longer support Digital Signature Algorithm (DSA) keys.

DSA keys are no longer considered secure and do not protect against modern attacks. This change is necessary to keep your data transfers secure and aligned with current industry standards.

If you use DSA keys, switch to a modern, secure key type before the deadline to avoid service disruption.

Upcoming changes to the Email Input service

⚠ Effective August 3, 2026, we will begin a phased rollout of updates to improve security and performance.

Email size limits

To ensure reliable delivery, email attachments must be kept to 30 MB or less. While the system supports a maximum email size of 40 MB, attachments are encoded during sending, which increases their size

For larger payloads, please use the API, which supports file sizes up to 100 MB.

Encryption requirements

As part of our security improvements, we are moving toward requiring TLS 1.2 or higher for encryption on all incoming emails. Most customers are already compliant and will not experience any changes.

If you are currently receiving email that does not use TLS 1.2 encryption, Tungsten Support will contact you with guidance.

What's new

See what's new in AP Essentials.

Getting started

If you're new to AP Essentials, get started with these topics:

- System requirements
- An overview of AP Essentials
- Accounts and customers
- Partner tasks
- Add a new account
- Add a new customer
- Enable and disable services
- Download sample documents for testing
- Send invoices to AP Essentials
- Select invoices for verification
- Verify invoices
- Delete batches

Troubleshooting

Need more help? Troubleshooting has answers. Contact support if you can't find the answer you're looking for or need assistance with other issues.

Information about third-party copyright notices.

Chapter 2

What's new

View the list of newly introduced AP Essentials features, or access the archive to view previous updates.

October 7, 2026

New features are deployed to the US, Asia, and Australia on Wednesday, October 7; and to Europe on Thursday, October 8.

Feature	Description
AP Essentials Office search results	The search results count in the document list view updates automatically as you enter search terms or apply filters to individual columns, making it easier to see how many results match your criteria.
Currency identification	Currency identification now supports currency symbols, such as €, £, and $. Currency symbols are highlighted and can be selected by drawing around them or double-clicking them during verification.
Password security	The minimum password length of 15 characters is now unified between the UI and API. Non-Latin Unicode characters are allowed in passwords.
Coupa AP integration	The integration is certified for Coupa version R46.
API SDK	A new version of the AP Essentials API SDK is available.

⚠ Starting October 31, the following email templates will no longer be customizable:

- Account activated
- Account deactivated
- Account reactivated
- Add new user
- Forgot password
- Reset password

These changes are being introduced as a security precaution to help protect account-related communications and ensure the integrity of important notifications.

If you have customized any of these email templates, your customizations will be automatically replaced with new templates that cannot be customized when this change is implemented.

September 17, 2026

New features are deployed to the US, Asia, and Australia on Thursday, September 17; and to Europe on Friday, September 18.

Feature	Description
CII invoice image	When processing Cross-Industry Invoices (CII) XML invoices, you can choose whether to view the original invoice image or an invoice image rendered from the XML data. You can change this setting in the Extraction service.

September 8, 2026

New features are deployed to the US, Asia, and Australia on Tuesday, September 8; and to Europe on Wednesday, September 9.

Feature	Description
E-invoicing compliance	There are many new ESXML mappings to support updated requirements. When you reject documents from e-Invoice Connect, the reject code description is now included along with the reject code and the additional information text from the Reject document dialog. Previously, only the reject code and additional information were included.

Feature	Description
CII XML invoice image generation	When verifying a CII XML invoice (ZUGFeRD, Factur-X, or XRechnung), the system now generates the invoice image from the XML data, even when the invoice includes an embedded image or PDF attachment. This ensures the displayed image matches the authoritative invoice data.
Document output	When you select **Export original document** and **Embed image and exported attachments in XML output** in the SFTP target system settings or the Email target system settings, the original input document is embedded in the XML output in addition to the invoice image and attachments. ℹ The XML schema has been extended to support this feature.
AP Essentials Connect	AP Essentials Connect update URLs have changed. Computers running AP Essentials Connect must have access to the update URL for your region to continue receiving updates. We no longer support versions older than 10.4.6.7451 (released December 2021), and these versions do not receive updates. To check the installed AP Essentials Connect version, see **Add/Remove Programs** in Windows, or **Apps** > **Installed Apps** in newer Windows versions. This version number may differ from the version shown in the AP Essentials Connect window title bar. If you are running an unsupported version, AP Essentials Connect shows a warning every 15 minutes.
NetSuite integration	The NetSuite integration is now certified for NetSuite version 2026.2.
API	The API includes a new method, `ResetPassword3`, that lets you reset the password for a user account programmatically.
API SDK	A new version of the AP Essentials API SDK is available.

August 3, 2026

New features are deployed to the US, Asia, and Australia on Monday, August 3; and to Europe on Tuesday, August 4.

Feature	Description
Inactive user management	The system automatically disables users who have not signed in for six months and sends an email notification two weeks in advance. Unlike paused accounts, which a customer or partner administrator can resume, only Tungsten Automation personnel can enable disabled accounts. Users with single sign-on or two-factor authentication are excluded from this process. This feature helps ensure that unused credentials do not remain active.
API SDK	A new version of the AP Essentials API SDK is available here.

July 8, 2026

New features are deployed to the US, Asia, and Australia on Wednesday, July 8; and to Europe on Thursday, July 9.

Feature	Description
E-invoicing compliance	To support updated invoice requirements, ESXML and FatturaPA mappings now include the VAT-inclusive amount (`InvoiceTotalVatIncludedAmount`) and the amount due (`InvoiceTotalAmountDue`). If you are an existing customer, consider updating your document types to include these mappings.
E-Invoice Connect service	The e-Invoice Connect service in AP Essentials can send custom rejection codes to e-Invoice Connect, as required for French e-invoicing compliance with the "cycle de vie" (CDV) process.

June 29, 2026

New features are deployed to the US, Asia, and Australia on Monday, June 29; and to Europe on Tuesday, June 30.

Feature	Description
Advanced engine	The Advanced extraction engine supports searchable PDF output. With this addition, the Advanced engine surpasses the Classic engine across all key capabilities. To improve interpretation accuracy and reduce manual work, select the **Advanced engine** in the Extraction service settings.

Feature	Description
Session duration limits	Users are now logged out of Admin Center, AP Essentials Office, and Mobile Approval after 15 minutes of inactivity. The maximum session length is limited to 12 hours. Users must reauthenticate after 12 hours of continuous activity. This applies to AP Essentials Office, Admin Center, Mobile Approval, and API integrations. AP Essentials Connect is not affected because it automatically reauthenticates at regular intervals.
Preserve embedded ESXML attachments	When processing ESXML documents, embedded attachments with specific attributes are automatically extracted and saved as the original document. If the Storage service is enabled, embedded attachments can be added to the Attachments tab in AP Essentials Office. This feature is helpful for organizations that need to save original documents for legal, compliance or archival purposes.
French e-invoicing compliance	Field mappings for ESXML and Cross-Industry Invoice (CII) formats have been added and updated to support compliance with French e-invoicing requirements.
Report data limits	Reports for Microsoft Excel and the Document volumes report view in Admin Center have been updated to limit date range selections to the previous two years relative to the current date. The same two-year retention limit also applies to the following API methods. • GetDocumentsDetailsHistory • GetDocumentProcessStatusHistory • GetDocumentConsumptionDetails
Two-factor authentication (2FA) reminders	If you sign in to Admin Center without single sign-on (SSO) and do not have two-factor authentication (2FA) enabled, you will see a reminder to set up 2FA. 2FA helps protect your account by adding a security layer beyond just your password.
API	The API now includes three workflow methods: `ApproveDocument2`, `LockDocument`, and `UnlockDocument`, enabling applications to approve, lock, and unlock documents programmatically.
API throttling	To further promote stability and fair usage of the system, additional API methods are now throttled in the Documents service.
API SDK	A new version of the AP Essentials API SDK is available here.
Coupa AP integration	The integration is now certified for Coupa version R45.

⚠ With the upcoming August 2026 release, AP Essentials Connect will use new URLs to access updates. Ensure that computers that run AP Essentials Connect have access to the URL below that corresponds to your location.

- Europe: https://connect-updates-prod-eu.readsoftonline.com
- Asia and Australia: https://connect-updates-prod-as.readsoftonline.com
- North America: https://connect-updates-prod-na.readsoftonline.com

May 26, 2026

New features are deployed to the US, Asia, and Australia on Tuesday, May 26; and to Europe on Wednesday, May 27.

Feature	Description
Analytics reports	Data retention periods for many Analytics reports have changed. Data older than the new retention periods will be removed on June 14. Note: The same retention periods will be applied to data accessed through the API and to Reports for Microsoft Excel in a future release.
Password policy	The minimum password length has increased from 8 to 15 characters. Existing users are not required to update their passwords immediately; the new requirement applies the next time they change their password. For API integrations that set passwords programmatically, passwords shorter than 15 characters are currently accepted. In a later phase, the API will reject attempts to set passwords that do not meet the minimum length requirement. Existing users and integrations using shorter passwords will still be able to sign in without interruption.
Inactive user management	Inactive user accounts are now paused automatically. Users who have not signed in for three months are automatically paused, with advance email notification sent two weeks before. Customer and partner administrators can resume these users in Admin Center. Users with single sign-on or two-factor authentication are excluded from this process. This feature helps ensure that unused credentials do not remain active, while still allowing administrators to quickly restore access when needed.
Email notifications	Email notification subjects now include the name of the originating partner account or customer account.

Feature	Description
Workflow approval hierarchy	When defining approval hierarchies, you can now configure monetary limit checks to evaluate the absolute value of document amounts. When enabled, the system ignores whether an amount is positive or negative and validates the amount itself against the defined limits. This ensures that negative amounts, such as those on credit notes, are also checked against approval limits. Enable the **Check monetary limits using absolute values** setting to utilize this feature.
Reports for Microsoft Excel	Several reports now include file name and document external ID information, providing better traceability between documents in AP Essentials and external systems. File name information is available for existing and new documents. Document external ID information is available only for new documents that enter the system after this release.
Coupa AP integration	You can now filter synchronized purchase orders by creation date in the Coupa AP integration using the **PO date filtering** setting. Restricting synchronization to a relevant date range improves search efficiency and reduces unnecessary requests to Coupa. Custom XSLT transformations in the Coupa AP integration can now access purchase order data retrieved from Coupa through the new `PurchaseOrders` parameter, and can also return custom validation errors to AP Essentials using the new `processing-error` element.
AP Essentials Connect	AP Essentials Connect has been updated to version 2026.2.1.8224.
API SDK	A new version of the AP Essentials API SDK is available here.

April 20, 2026

New features are deployed to the US, Asia, and Australia on Monday, April 20; and to Europe on Tuesday, April 21.

Feature	Description
Email templates	The document ID variable (`%DocumentId%`) is now available in all document-related email templates, making it easier to reference the document ID in email notifications. In some templates, `%DocumentId%` returns the track ID instead of the document ID. This will be corrected in an upcoming update. For details about current behavior and upcoming changes, see "Edit email templates."
Validation services	Previously, the **VAT rate** validation displayed a warning that the VAT rate was a calculated value, even if the calculated value passed validation. The warning is no longer shown for valid calculated values, improving straight-through processing rates.
Admin Center	The Admin Center user interface has been improved to provide a more intuitive and efficient experience.
NetSuite integration	The NetSuite integration is now certified for NetSuite version 2026.1.
Microsoft Dynamics 365 for Finance and Operations integration	The integration now supports Microsoft Dynamics 365 for Finance and Operations version 10.0.47.

March 16, 2026

New features are deployed to the US, Asia, and Australia on Monday, March 16; and to Europe on Tuesday, March 17.

Feature	Description
Tungsten Copilot services	The Tungsten Copilot service now supports the gpt-5-mini model. If you use the OpenAI service, no action is required. If you use Azure OpenAI service, you must update the deployment and model settings before gpt-4o-mini retires.
Office document list view	Administrators can now add supplier and customer master data fields as additional filter columns in the document list view. This enhancement lets Office users filter and find documents using relevant master data criteria that were previously not available as filter options.
Extraction	Data capture has been improved for all header fields, with the greatest impact on amount fields.
FatturaPA input	AP Essentials now maps CodiceCUP, CodiceCIG, InvoiceTypeId, and ContractNumber fields.

Feature	Description
API SDK	A new version of the AP Essentials API SDK is available here.
Coupa AP integration	The integration is now certified for Coupa version R44.
Oracle Financials Cloud integration	The integration now supports filtering suppliers by site purpose during master data synchronization. Filtering reduces unnecessary suppliers and improves supplier recognition. You can now control which purchase order line statuses are synchronized when matching POs in Office. By default, only OPEN and CLOSED FOR RECEIVING lines are synced. Additional PO line statuses can be configured in the **Additional PO line statuses** setting, ensuring that only relevant and unmatched PO lines are shown during matching.

February 16, 2026

New features are deployed to the US, Asia, and Australia on Monday, February 16; and to Europe on Tuesday, February 17.

Feature	Description
Advanced extraction engine	The Advanced extraction engine is now generally available for all customers. The Advanced extraction engine features improved interpretation of noisy images and handwriting and offers an option to use a pre-trained document library to improve first-time extraction. This helps interpret documents from new suppliers more accurately, reducing manual corrections and speeding up automation.
VAT rate updates	VAT rates have been updated for Finland, Germany, Lithuania, and Netherlands. Up-to-date VAT rates increase interpretation rates and improve internal validation rules.
Indian QR code	The MainHsnCode field of the Indian QR code is now mapped to the MainHSNCode field in Indian document types.
ESXML field mapping	ESXML field mappings have been updated with many new fields and improved logic.
Dynamics 365 for Finance and Operations integration	The integration now supports Microsoft Dynamics 365 for Finance and Operations version 10.0.45.

January 19, 2026

New features are deployed to the US, Asia, and Australia on Monday, January 19; and to Europe on Tuesday, January 20.

Starting March 31, 2026, Tungsten AP Essentials will use new IP addresses to connect to various target systems. If you restrict access by IP address, you must update your network configuration before this date.

As of March 31, the old IP addresses will no longer be used.

Feature	Description
Improved supplier and customer identification	Supplier and customer identification has been improved for suppliers and customers with closely related names and similar details. Previously, identification could be inconsistent when records shared similar names or other key attributes, as is common with hotel chains and large service groups. The system now requires consistent matches across multiple checks before making a selection, reducing errors and the need for manual corrections.
Oracle Financials Cloud integration	The integration now supports exporting original emails to Oracle Financials Cloud. This feature lets you retain the full email context alongside invoice data, which improves traceability and auditability. The new setting, **Export original email**, is available in the target system settings. The integration now supports data templates for global payables descriptive flexfields in Oracle. Specify the data template in the new **Global descriptive flexfield template** setting. The integration now includes updated PO master data mappings for the CreatedBy, VatAmount, DeliveryDate1, and DeliveryDate2 fields. A new buyer-specific setting lets you disable Oracle's **Pay alone** setting for credit memos only, overriding the supplier setting. Standard invoices continue to inherit the pay alone value from the supplier.

Release notes archive

Looking for older release notes? See the archive dating back to October 25, 2011.

Release notes archive

This archive includes release notes that no longer appear in What's new.

December 15, 2025

New features are deployed to the US, Asia, and Australia on Monday, December 15; and to Europe on Tuesday, December 16.

- Several extraction-configuration API methods, such as `GetBuyerExtractionConfiguration`, `GetCustomerExtractionConfiguration`, `GetAccountExtractionConfiguration`, and more, now include a `ConfigurationLevel` property. Its value, 1 (partner), 2 (customer), or 4 (buyer), shows whether the configuration is defined at the organization itself or inherited from a parent organization.
- A new version of the AP Essentials API SDK is available.
- **Oracle Financials Cloud integration**

  The integration now supports exporting original input documents to Oracle Financials Cloud. The new setting, **Export original document**, is available in the target system settings. You can also optionally choose to compress original documents in a ZIP file before they are sent to Oracle Financials Cloud.

  Supplier master data field mappings now include updated mappings for the Description, PaymentTerm, and RequirePoForInvoices fields.
- **Coupa AP integration**

  Improved the invoice posting process by removing the retry policy for POST requests. Users now decide whether to repost an invoice in case of errors, preventing duplicate invoices when responses are delayed.

  Improved error handling for master data imports that exceed the supported size limits.

⚠ Important security update

Starting November 1, 2026, the SFTP connector will no longer support Digital Signature Algorithm (DSA) keys.

DSA keys are no longer considered secure and do not protect against modern attacks. This change is necessary to keep your data transfers secure and aligned with current industry standards.

If you use DSA keys, switch to a modern, secure key type before the deadline to avoid service disruption.

November 19, 2025

New features are deployed to the US, Asia, and Australia on Wednesday, November 19; and to Europe on Monday, November 24.

- The maximum file size for documents uploaded through Office, Connect, or the API has been increased from 50 MB to 100 MB.

- You can now use the **Use default value** setting and the **Use master data to improve extraction** setting when buyer or seller classification is enabled, or when extraction settings are configured on the buyer or seller. Previously, these conditions prevented the use of default field values, limiting configuration flexibility.
- AP Essentials Connect has been updated to version 2025.3.3.8144.
- Analytics reports now load faster with improved overall performance.
- The SFTP target system now supports SSH key authentication, allowing you to securely connect using a private key.
- Store accounts that are not renewed within 90 days are now automatically deleted. To ensure a smooth renewal process, customers receive reminder emails at regular intervals before account deletion.
- The Copilot dialog has been updated to comply with European Union AI Act regulations.

October 20, 2025

New features are deployed to the US, Asia, and Australia on Monday, October 20; and to Europe on Tuesday, October 21.

- VAT rates have been updated for Portugal, Malaysia, Thailand, and Romania. Up-to-date VAT rates increase interpretation rates and improve internal validation rules.
- **Coupa AP integration**

  Master data synchronization has been optimized to load larger data sets.

  The integration is now certified for Coupa version R43.
- **Dynamics 365 for Finance and Operations integration**

  The integration now supports exporting original input documents to Dynamics 365, which improves auditability. The new setting, **Export original document**, is available in the target system settings. You can also optionally choose to compress original documents in a ZIP file before they are sent to Dynamics 365.

  You can now create custom date fields for use with the integration. Previously, this was not possible because AP Essentials exported custom date fields in an incompatible format.

September 23, 2025

New features are deployed to the US, Asia, and Australia on Tuesday, September 23; and to Europe on Wednesday, September 24.

- The Advanced extraction engine now offers an option to use a pre-trained document library to improve first-time extraction. This helps interpret documents from new suppliers more accurately, reducing manual corrections and speeding up automation.

  This feature is available in private preview. It is still under development, but interested customers can try the initial version by requesting that the preview feature be enabled.
- ESXML field mappings have been updated with many new fields and improved logic.
- When processing XML invoices in the Cross Industry Invoice (CII) standard (ZUGFeRD, Factur-X, XRechnung), AP Essentials now supports two additional field mappings: InvoicePrepaidAmount and LIT_BuyerArticleNumber.

August 26, 2025

New features are deployed to the US, Asia, and Australia on Tuesday, August 26; and to Europe on Wednesday, August 27.

- In Admin Center, pagination has been added to the **Workflows** and **Triggers** views, making it easier to browse and manage long lists.
- Data Import for Microsoft Excel now supports the latest master data fields: LockOnlineLearning, BypassVerification, RequirePoForInvoices, and RequirePoForCreditNotes.
- VAT rates have been updated Estonia, Israel, and Vietnam. Up-to-date VAT rates increase interpretation rates and improve internal validation rules.
- **Coupa AP integration**

  Master data synchronization now filters out duplicate records.

  The integration is now certified for Coupa version R42.
- **Dynamics 365 for Finance and Operations integration**

  You can now fine-tune which procurement categories are imported from Dynamics 365 by specifying a category hierarchy, a parent category, or by filtering categories based on whether they have sub-categories or codes. These new settings give you greater control over procurement data and help reduce unnecessary entries.

  The integration now supports the import of supplier bank account master data.
- The NetSuite integration is now certified for NetSuite version 2025. 2.

May 19, 2025

New features are deployed to the US, Asia, and Australia on Monday, May 19; and to Europe on Tuesday, May 20.

- The advanced interpretation engine is now generally available for all customers. The advanced engine is enabled by default on all new partner accounts. Existing partner accounts are unaffected.
- The Malaysian document type now interprets QR codes and extracts relevant information to document fields.
- You can now use the line-item row count in custom validation rules. A new system field, LineItem.RowCount, lets you reference the number of line items in your validation expressions. This is useful, for example, for skipping validations when no line items are present.
- The Extraction service now supports XML document subtypes. Previously, only a generic XML document type was available. Now all three subtypes (Purchase order invoice, Expense invoice, Credit note) are available for XML documents. This enhancement allows automatic document classification of XML documents and enables a more refined application of validation rules for XML documents, offering greater flexibility and precision in XML processing.
- AP Essentials Connect has been updated to version 2025.1.5.8102.
- VAT rates have been updated for South African document types. Up-to-date VAT rates increase interpretation rates and improve internal validation rules.
- **Dynamics 365 for Finance and Operations integration**

The integration now supports exporting original emails to Dynamics 365. This feature lets you retain the full email context alongside invoice data, which improves traceability and auditability. The new setting, **Export original email**, is available in the target system settings.

You can now determine which Dynamics 365 field populates the item master data in AP Essentials. Previously, item master data was synchronized with product numbers. Now, you can use the **Item number mapping source** setting to choose between the Item number or Product number field when mapping item master data.

The integration is now certified for Microsoft Dynamics 365 for Finance and Operations version 10.0.43.

- **Coupa AP integration**

  The integration has a new setting, **Simplified Coupa XML without lines**, that omits invoice lines and tax lines from Coupa XML while replacing lines and header tax lines with empty collections. This feature can be helpful if you use custom XSLT transformations to generate line items and header tax lines dynamically based on header data and other sources.

  The behavior of the **Use supplier sites** setting has improved. Now, if Coupa provides a supplier site address, it is used instead of always importing the main supplier address.

April 14, 2025

New features are deployed to the US, Asia, and Australia on Monday, April 14. New features are deployed to Europe on Tuesday, April 15.

- Several improvements have been made to the advanced extraction engine, including interpretation improvements for languages—such as Chinese and Japanese—that do not use spaces between words. These updates improve accuracy when extracting data from documents in these languages.
- The NetSuite integration now supports posting non-PO invoice lines as item lines when an item code is specified during verification. This feature allows better control over how non-PO invoices are handled in NetSuite while maintaining backward compatibility.

March 17, 2025

New features are deployed to the US on Monday, March 17. New features are deployed to Europe, Asia, and Australia on Tuesday, March 18.

- The Extraction service now offers a new interpretation method, called the Advanced engine, which improves the interpretation of noisy images and handwriting. Unlike the Classic engine, the Advanced engine currently does not support searchable PDF output. This feature is available on a private preview basis.
- AP Essentials now supports ZUGFeRD 2.3 XML input, as well as Factur-X 1.0 and XRechnung 3.0.
- VAT rates have been updated for several countries such as Estonia, Finland, Israel, Norway, Slovakia, and Turkey. Up-to-date VAT rates increase interpretation rates and improve internal validation rules.
- The SAP S/4HANA Cloud ES integration now supports the import of work breakdown structure (WBS) master data. The WBS data can be connected to fields and used for field value suggestions, validation, and export to SAP.
- The Coupa AP integration now supports the configuration of the tax registration number source when importing supplier master data. You can also specify the priority of the sources, ensuring that the most relevant tax number is used.

- The Coupa AP integration supports new field mappings for PO master data.
- The NetSuite integration is now certified for NetSuite version 2025.01. You must update the NetSuite bundle to take advantage of the latest improvements. If you use token-based authentication, you must add the **Accounting Lists** permission to your role and set the **Level** setting to **View**.
- AP Essentials Connect has been updated to version 2025.1.3.8085.
- AP Essentials Connect no longer supports Windows Server 2012, as it has reached its end of life.

February 17, 2025

New features are deployed to the US on Monday, February 17. New features are deployed to Europe, Asia, and Australia on Tuesday, February 18.

- Many document types now recognize alternative spellings and additional abbreviations of month names. These improvements enhance accuracy and reduce the need for manual verification.
- Manual verification has been further streamlined by optimizing extraction validation rules for header fields. Previously, overlapping internal validations caused confusion by triggering validation warnings for seemingly disabled rules. This update reduces both manual verification and overall verification time.
- To enhance system stability and ensure fair usage, API methods for uploading images (UploadImage, UploadImage2, UploadImage3) are now limited to 4,000 requests per hour.
- A new version of the AP Essentials API SDK is available here.
- The SAP S/4HANA Cloud ES integration now supports enhanced 3-way matching. This improvement ensures that goods receipts are validated against the corresponding purchase order and invoice, and the goods receipt number is included in the posted invoice.
- The Coupa AP integration is now certified for Coupa version R41.

January 20, 2025

New features are deployed to the US on Monday, January 20. New features are deployed to Europe, Asia, and Australia on Tuesday, January 21.

- New versions of the AP Essentials add-ins for Microsoft Excel are now available in the Microsoft Store. If you use these apps, you must update to the latest version, as the old versions are no longer available. Updates may occur automatically, depending on your Excel version.
  - Reports for Microsoft Excel (AP Essentials Reports)
  - Data Import for Microsoft Excel (AP Essentials Data Import)
- The UploadImage3 API method now supports specifying header field values during document upload. This feature is helpful for specifying field values that do not already exist on the document, such as document priority or category fields. When specified, these field values remain unchanged during data extraction, allowing you to tag documents with additional context and streamline workflows.
- A new version of the AP Essentials API SDK is available here.
- The Coupa AP integration has two new features.
  - Exchange rates in currency master data — The integration can determine the base currency automatically via the default chart of accounts in Coupa. Alternatively, you can specify a single base currency for all buyers or different base currencies for individual buyers.

- Automatic net amount calculation — If the net amount (InvoiceTotalVatExcludedAmount) is missing, it is automatically calculated by subtracting InvoiceTotalVATAmount from InvoiceTotalVatIncludedAmount. Enable the new setting (**Calculate missing net amounts**) in the target system settings.

January 7, 2025

New features are deployed to the US on Tuesday, January 7. New features are deployed to Europe, Asia, and Australia on Wednesday, January 8.

- A new service, Tungsten Copilot, is available that lets you incorporate generative AI capabilities with AP Essentials Office. This feature lets users ask natural language questions, such as "How much did we buy from this supplier last month?" or "What is the average total cost on invoices from this supplier?" Tungsten Copilot interprets the queries and returns relevant results, streamlining your verification and approval processes.
- A new master data setting lets you **Restore learning data for suppliers reinstated within 7 days of deletion**. The new feature is beneficial because it saves you the time of re-learning invoices tied to suppliers that were removed and later reinstated. By automatically restoring the previously trained data, you can immediately continue processing invoices accurately, without requiring manual intervention or retraining.
- It is now possible to create custom validation rules on the customer account level.
- Extraction validation rules have been optimized even further, resulting in less manual verification and reduced verification time.
- New metrics (sender number, lock online learning, and bypass verification) enhance the Verification Touch Rate report by providing deeper insights into document performance. Knowing the sender number helps identify problematic senders for targeted troubleshooting. Seeing whether online learning is locked highlights if poor performance is due to restricted learning, while understanding whether verification is bypassed explains unusually high zero-touch rates. Both offer clearer insights into automation levels and anomalies.

  The new metrics apply only to documents processed after this release. Existing sender rows will not be retroactively updated with the new metrics. Instead, new rows will be created. This means that within the date range of your report, the same sender might appear twice—once with metrics up to the release date and again with the new metrics starting from the release date.
- The Mobile Approval interface is now more intuitive and efficient, providing an improved user experience.
- A new target system setting for the Dynamics 365 for Finance and Operations integration lets you determine whether you want to import purchase order data to AP Essentials. Previously, purchase order data was always imported. You can also define which POs to import based on their status using the **PO statuses to synchronize** setting.
- The SAP S/4HANA Cloud ES integration now supports posting purchase order invoices that contain service lines with and without service entry sheets. New settings allow invoices to be parked automatically when service entry sheets (SES) are missing, unapproved, or ambiguous. This ensures smoother invoice processing by reducing rejection rates and enabling manual resolution of SES-related issues.
- AP Essentials Connect has been updated to version 2025.1.0.8074.

November 11, 2024

New features are deployed to the US on Monday, November 11. New features are deployed to Europe, Asia, and Australia on Tuesday, November 12.

- Custom validation rules for amount fields are now generally available for all customers.
- To further promote stability and fair usage of the system, new limits are placed on Workflow services.
- The Admin Center user interface has been enhanced for a more intuitive and efficient user experience, featuring improved behavior of drop-down lists.
- Manual verification has been further streamlined by optimizing extraction validation rules for the invoice number field. The result is less manual verification and reduced verification time.
- The Coupa AP integration has several new features.
  - You can now apply **Content group filtering** to contracts, so only contracts that belong to the content groups specified in the **Content group mapping** settings are imported.
  - It is now possible to exclude contracts by contract number during master data import. It is helpful, for example, to exclude the pucnhout catalog to prevent duplicate contract numbers from being imported. The new setting is called **Excluded contract numbers**.
  - The **Replace invalid characters** setting helps ensure smooth master-data import by automatically replacing invalid characters, such as line breaks, with the character you specify. This reduces import failures, making the process more efficient and reliable.
  - Delta synchronization has been improved to include suppliers whose sub-entities have changed. This enhancement ensures the latest supplier master data is retrieved from Coupa.
  - Purchase order synchronization no longer excludes POs from inactive accounts. In other words, POs from inactive accounts are now imported.
- The NetSuite integration now supports general ledger coding for PO invoices and credit notes.
- The Dynamics 365 for Finance and Operations integration is now certified for Microsoft Dynamics 365 for Finance and Operations version 10.0.41.
- The SAP S/4HANA Cloud ES integration supports automatic multiple-account assignment of purchase order lines.

October 7, 2024

New features are deployed to the US on Monday, October 7. New features are deployed to Europe, Asia, and Australia on Tuesday, October 8.

- It is now possible to create custom validation rules for amount fields. AP Essentials offers many pre-defined validation rules that cover most needs. However, if you have specialized requirements that are not covered by the standard rules, you can create custom rules to ensure accuracy and correctness of your document data. By implementing custom validation rules, you can minimize errors, prevent data discrepancies, and streamline financial processes, ultimately enhancing the reliability of your financial reporting and reducing the risk of costly mistakes.

  This feature is available on a private preview basis. As it is still under development, changes in functionality may occur.
- Manual verification has been streamlined by optimizing extraction validation rules. The result is less manual verification and reduced verification time.

- The user experience in AP Essentials Office has been enhanced by adding more context-sensitive help links to dialogs throughout the application.
- AP Essentials Connect was updated to version 10.6.14.8045.
- The Oracle Financials Cloud integration has been enhanced to automatically classify line types as goods or services based on the quantity and price fields.
- The NetSuite integration is now certified for NetSuite version 2024.2.
- The Coupa AP integration is now certified for Coupa version R40.

September 9, 2024

New features are deployed to the US on Monday, September 9. New features are deployed to Europe, Asia, and Australia on Tuesday, September 10.

- Supplier master data now includes two new optional settings
  - **Invoices require PO** — Improves automatic document type classification by requiring PO numbers on invoices on a supplier basis. When you enable this setting on a supplier, its documents are classified as purchase order invoices, even if the purchase order number is absent from the document. This is helpful because it prevents documents from being classified incorrectly.
  - **Credit notes require PO** — Ensures all credit notes received by the specified supplier have a purchase order number. Unlike **Invoices require PO**, this setting does not affect automatic document classification.
- The document history log has been enhanced to record when Office users change the supplier, document subtype, or debit/credit field.
- Date fields for the Latvian document type have been updated to include short month names.
- The Coupa AP integration has several improvements.
  - Mapping of the tax registration number field has been improved. Now the integration looks for tax registration numbers in two additional locations.
  - It is now possible to map remit-to fields on the buyer level, so you can specify different field mappings for each buyer.
  - A new target system setting (**Chart of Accounts for POs**) limits purchase order import to the chart of accounts (CoA) you specify. This setting is helpful because it ensures only relevant purchase orders are synchronized and available during PO matching. Buyer-specific settings offer more control and efficiency by limiting POs to corresponding buyers.
  - During setup, it is no longer necessary to create an API response filter in Coupa.
  - The logic which determines the invoice line type has been improved to better handle non-PO invoices. Previously, the integration determined the invoice line type solely based on the quantity field. Now the integration checks for the presence of the unit of measure field when determining the line type. If the unit of measure is missing, the line type defaults to amount (InvoiceAmountLine). This change ensures that expense lines, which do not typically include a unit of measure, are correctly processed, preventing calculation errors and ensuring accurate line totals in Coupa. Optionally, you can specify a default unit of measure to use if the unit of measure field is missing and quantities are specified.
  - Small changes were made to supplier site settings to improve usability.

- The NetSuite integration has several improvements.
  - A new target system setting (**Import only billable POs**) lets you filter the purchase orders you import, so you can import only billable purchase orders. Note: You must update the NetSuite bundle before you can take advantage of this feature.
  - The NetSuite integration can now include IBAN bank account numbers during supplier master data import. Importing supplier banks requires the "Electronic Bank Payments" bundle from NetSuite (previously known as "NetSuite Electronic Payments"). Note: You must update the NetSuite bundle before you can take advantage of this feature. If you have not already installed the Electronic Bank Payments bundle, you must install it before you update the AP Essentials NetSuite bundle.
  - If your NetSuite solution uses SuiteTax engine and tax code master data, enter "customsearchapstaxcodes" in the new target system setting (**TAX CODES** > **Saved search ID**) to import tax codes correctly. If you do not use SuiteTax engine, you can leave this setting empty to continue importing tax code master data as usual. Note: You must update the NetSuite bundle before you can take advantage of this feature.
- AP Essentials Connect has been updated to version 10.6.13.8029.

August 13, 2024

New features are deployed to the US on Tuesday, August 13. New features are deployed to Europe, Asia, and Australia on Wednesday, August 14.

- Interpretation performance has been improved for accounts receivable documents.
- Automatic buyer classification has been improved in cases where multiple buyers have the same address.
- AP Essentials now supports PDF files from version 1.3 to 2.0 as input.
- The Coupa AP integration can now automatically submit documents to Coupa after they have been successfully posted in the draft state.
- The legacy Coupa integration supports automatic net amount calculation. Enable the new setting (**Calculate missing net amounts**) in the target system settings.
- Invoice Portal, the universal connection point for sending and receiving electronic invoices, has changed its name to e-Invoice Connect.
- VAT rates have been updated for several countries such as China, Finland, Singapore, and Vietnam. Up-to-date VAT rates increase interpretation rates and improve internal validation rules.
- The colors of several Analytics reports have changed to improve usability and readability.
- The SFTP target system supports the latest ciphers.

June 17, 2024

New features are deployed to the US on Monday, June 17. New features are deployed to Europe, Asia, and Australia on Tuesday, June 18.

- Office users can now capture line-item fields that span multiple rows on any line-item text field. Previously, this feature was limited to line-item description fields.
- AP Essentials Connect has been updated to version 10.6.11.7938. The robustness of AP Essentials Connect has been improved. We recommend upgrading to the latest version.
- Many Analytics reports have been improved for better usability. Changes include additional tables with more information and more logical sorting orders.

- The Coupa AP integration now includes a test mode, which lets you bypass Coupa and send output to an SFTP server for testing purposes. This is helpful if you use custom XSLT to transform output because you can test the output to make sure your XSLT transform is functioning properly without disturbing the production system.
- The Coupa AP integration is now certified for Coupa version R39.
- The NetSuite integration has several new features.
  - A new target system setting (**Calculate use tax automatically**) lets US SuiteTax accounts determine whether they want to use tax calculations from SuiteTax engine or tax data from AP Essentials.
  - If your NetSuite solution uses SuiteTax engine, you can optionally override tax calculations in SuiteTax engine with data from AP Essentials.
  - The latest NetSuite bundle includes improved functionality for mapping the tax registration number to supplier master data. If Tax Reg. Number (vatregnumber) is not found, Default Tax Reg. (defaulttaxreg) is used.
- When processing FatturaPA documents, AP Essentials now maps withholding tax amount fields.
- ESXML field mappings have been updated with new fields and business logic. See these fields for more information.
  - CreditedInvoiceNumber
  - TotalTaxAmountInTaxCurrency
  - InvoiceTaxCurrency
  - LIT_PO_RowIdentifier
  - LIT_AdditionalReference
  - LIT_AdditionalReferenceType
  - InvoiceTotalLineAmount
  - InvoiceCode
  - LIT_UniqueArticleNumber
- Purchases made through the Store are now performed using the latest iteration of the 3DS authentication protocol.
- The Data import and Reports add-ins for Microsoft Excel include user authentication improvements, which provide a more seamless experience with Safari and other browsers.

May 13, 2024

New features are deployed to the US on Monday, May 13. New features are deployed to Europe, Asia, and Australia on Tuesday, May 14.

- New document types for Australian and Norwegian purchase orders are available for accounts receivable processes. These document types are currently available on a preview basis.
- Accounts payable document types for Greece and Israel are now generally available for all customers. .
- New features for drawing line-item fields, such as drawing descriptions that span multiple rows and capturing partial values, are now generally available for all customers.
- When using Workflow services and the **Balancing against total amount** setting is disabled, empty accounting rows are no longer automatically generated. This saves you time and reduces the likelihood of coding errors caused by empty lines.

- Support for named groups in regular expressions now extends to all line-item fields whose field type is set to text. Named groups are helpful, for example, if you want to exclude certain characters from extracted field values. Previously, only purchase order fields were supported.
- It is now possible to add contact information to company profiles in Admin Center. Contact information ensures seamless communication and quick assistance when needed. You can add contact information to company profiles on all levels (subsidiary, partner, partner group, customer, customer group, buyer, seller).
- It is now possible to determine whether e-Invoice Connect copies suppliers that are blocked in AP Essentials. You can specify this feature when you specify supplier synchronization. Previously, blocked suppliers were copied automatically.
- Several volume reports for Analytics reports have been improved for better usability.
  - A table has been added to the **Volume by organization** report to make it easier to view document counts.
  - The **Volume by sender** report now displays information sorted by the number of documents processed in a bar graph. Previously, the chart was a pie graph, alphabetically sorted by organization name.
  - The **Document processing** report now displays information sorted by the number of documents received. Previously, the report was sorted alphabetically by organization name.
  - A table has been added to the **Process time by sender** report. In addition to process times, the table also displays document counts.
- Several drop-down lists in Analytics reports now support multi-item selection. For example, in the Workload overview report, you can select multiple organizations in the **Organization** list. Previously, you could only select one organization or all organizations.
- Audit trail logs have been improved to include information about the number of uploaded master data items. Previously, only the number of updated, created, and deleted items was logged.

The original Coupa integration will be disabled in the US production system soon. If you want to integrate with Coupa on the US system, please use the Coupa AP integration.

April 8, 2024

New features are deployed to the US on Monday, April 8. New features are deployed to Europe, Asia, and Australia on Tuesday, April 9.

- When drawing line-item fields, AP Essentials has new, intelligent methods for capturing values enclosed in parenthesis. This feature is available on a private preview basis.
- When drawing line-item description fields that span multiple rows, it is now possible to capture descriptions that are split across page breaks. This feature is available on a private preview basis.
- The interpretation of all line-item fields has been greatly improved. AP Essentials now recognizes that the number of decimal places can differ across rows for all line-item fields, including custom line-item fields. The result is increased confidence rates, which translates to an increase in automation and less manual verification. Previously, this feature only applied to line-item quantity and unit price fields.
- New purchase order document types are available for Denmark and France for accounts receivable processes. These document types are currently available on a preview basis.
- The Dynamics 365 for Finance and Operations integration now supports the Vendor invoice document attachment V2 entity. To use the new feature, you must create a new recurring data

job and clear the **Use Vendor invoice document attachment V1** setting in the target system settings.

- The Coupa AP integration is now generally available for all customers.
- The NetSuite integration has several new enhancements.
  - The NetSuite integration can perform preliminary registration of invoices directly after verification, before starting a workflow. This is helpful because it lets organizations reclaim VAT more quickly, without having to wait for the workflow to complete.
  - A new NetSuite bundle (version 1.33) is available for installation, which includes additional fields for purchase order synchronization. Be sure to update your bundle.
  - The NetSuite integration is now certified to support NetSuite version 2024.1.
- The PROCESS DIRECTOR AP integration has been improved to be more resilient against issues with poor network connectivity.
- AP Essentials Connect has been updated to version 10.6.9.7822.
- Account creation has been improved to prevent unnecessary activation of extra services. When you add a new customer account, Storage and Workflow services are no longer enabled automatically.
- The default sorting order of several Analytics reports has been improved for better usability. For example, the **By reject code** report now displays information sorted by the number of rejected documents instead of sorting alphabetically by reject code.
- When importing users using CSV files, it is now possible to specify the **Allow access to unclassified documents** setting.
- It is now possible to specify Invoice Portal connections on the buyer level. In other words, you can specify different e-Invoice Connect members for each buyer. Previously, you could only specify one e-Invoice Connect member at the customer account level.
- It is now possible to automatically pause and resume customer group accounts when a service plan volume and/or subscription period reaches its limit. When a customer group is paused, all customer accounts that belong to the group are also paused. Users can continue working normally. However, no output is sent to the target system. If the service plan is renewed, the customer group resumes automatically. Active customer accounts within the group are also resumed automatically, unless they exceed the limits specified in their own service plans.
- To further promote stability and fair usage of the system, new limits are placed on the number of allowed users, user groups, customers, customer groups, buyers, and sellers.
- A new API method is available, which lets you retrieve batches as initially uploaded in their original file format.

February 26, 2024

New features are deployed to the US, Asia, and Australia on Monday, February 26. New features are deployed to Europe on Wednesday, February 28.

- Kofax is now Tungsten Automation. The choice to embrace Tungsten Automation as our new name reflects the growth of our company and the need for a brand that more closely aligns with our present identity and future aspirations. This transformation highlights our expanded capabilities and robust solutions, and our dedication to excellence, adaptability, and growth. It signifies our commitment to customers and partners, assuring them that we will endure as a trusted partner, offering unwavering support throughout their transformation journeys.

To reflect this new change, the default AP Essentials branding now features the Tungsten Automation logo.

- It is now possible to determine which attachment formats are accepted when receiving documents via email input. This is helpful, for example, if you only want to process certain file types.
- When drawing line-item amount fields, you can capture partial text that is split by a slash. This feature is available on a private preview basis.
- Currency field extraction has been improved with greater confidence when processing documents from suppliers/customers that send documents in multiple currencies.
- Supplier identification improvements using master data are now generally available for all customers.
- A new document type for German purchase orders is available for accounts receivable processes. This document type is currently available on a preview basis.
- The Coupa AP integration has been improved with several new features.
  - All target system settings containing lists now use semicolons to separate list items. Previously, some settings used commas, while others used semicolons.
  - The integration can now import supplier sites by creating a supplier in AP Essentials for each supplier site in Coupa. You enable this feature in the target system settings, where you can also choose to exclude inactive supplier sites.
  - You can now specify which purchase orders and purchase order lines to import based on their statuses.
  - Coupa clients that integrate with multiple ERP systems simultaneously can now use PO prefix templates to avoid issues with PO matching.
  - When delta synchronization is enabled, and you change the email of a user in Coupa, a new user is created in AP Essentials. However, the old user remains. To periodically remove the unused users, you can perform a full synchronization using the **Days between full synchronization** setting.
- It is now possible to automatically pause and resume customer accounts when the service plan volume and/or subscription period reaches its limit.
- Developers who create custom integrations via the REST API can now authenticate users without using cookies. This is helpful if you make REST requests from a system that does not support cookies.
- A new version of the AP Essentials API SDK is available.

January 29, 2024

New features are deployed to the US on Monday, January 29. New features are deployed to Europe, Asia, and Australia on Tuesday, January 30.

- When drawing line-item description fields that span multiple rows, it is now possible to specify the maximum number of rows you want to capture. Specifying the maximum number of rows improves the interpretation of description fields that span multiple rows. This feature is available on a private preview basis.
- The interpretation of line-item quantity (LIT_DeliveredQuantity, LIT_PO_OrderedQuantity) and unit price (LIT_UnitPriceAmount, LIT_PO_UnitPriceAmount) fields has been greatly improved. Previously, AP Essentials expected quantity and unit price fields to have the same number of decimal places across rows, and if they did not, the fields were marked as uncertain. For example,

AP Essentials expected the line-item quantity to have the same number of decimal places on all rows. However, now AP Essentials recognizes that the number of decimal places can differ across rows for these fields. The result is increased confidence rates, which translates to an increase in automation and less manual verification.

- A new privilege is available for Office users that determines whether user interactions affect online learning during verification. The new privilege is called **Update online learning** and is enabled on users by default. Administrators can disable this privilege to prevent new or inexperienced users from having a detrimental effect on documents that have high identification and extraction rates.
- The NetSuite integration now supports the mapping of custom coding fields to expense records in NetSuite. This feature opens new workflow possibilities for NetSuite users. The new target system setting is called **Custom expense field mapping for accounts**. Note also that the **Custom expense field mapping** setting has been renamed to **Custom expense field mapping for line items**.
- It is now possible to pause customer groups. When you pause a customer group, all customer accounts within the group are automatically paused. When an account is paused, users can continue working normally. However, no output is sent to the target system. After you resume a group that was paused, you must resume each individual customer account manually.

December 18, 2023

New features are deployed to the US on Monday, December 18. New features are deployed to Europe, Asia, and Australia on Tuesday, December 19.

- It is now possible to lock online learning to prevent verification changes from having a detrimental effect on accounts receivable documents that already have high identification and extraction rates. Previously, this feature was only available for accounts payable documents.
- Images of successfully processed documents are now visible in Admin Center and Office. Previously, you could not view the image of a document after it was successfully processed, even though it remained in the system for up to three months.
- It is now possible to define usage warning notifications on the customer group level, providing more flexibility and control over AP Essentials usage monitoring by letting you send usage notifications to customer group users.
- AP Essentials Connect has been updated to version 10.6.6.7798.

November 20, 2023

New features are deployed to the US on Monday, November 20 and to Europe on Tuesday, November 21. New features are deployed to Asia and Australia on Wednesday, November 22.

- When specifying the field format of purchase order fields, it is now possible to adjust the extracted value using regular expressions. This is helpful, for example, if you want to exclude certain characters from extracted purchase order numbers.
- When using buyer or seller classification, there is a new setting which lets you grant users access to unclassified documents while still controlling which buyers/sellers users can access and assign documents to. The new setting is called **Allow access to unclassified documents**, and it is available to users and user groups.
- History variables in data templates have been improved with new parameters in several integrations. If a history variable has multiple records associated with it, you can now append

history variables with additional parameters to specify whether you want the first record, last record, or all records. For example, if a document is approved by multiple users, the history variable returns the last approver by default. However, by specifying an additional parameter, you can get the first approver instead. This feature is currently only available for the Coupa AP integration.

- Supplier identification has been improved for the XML document type by ignoring special characters and spaces in extracted values and master data.
- The Bulgarian document type is now generally available for all customers.

October 23, 2023

New features are deployed to the US, Asia, and Australia on Monday, October 23. New features are deployed to Europe on Tuesday, October 24.

- The Coupa AP integration has been updated with several new features.
  - You can now filter master data import according to content groups.
  - It is now possible to automatically submit documents to Coupa after being successfully posted in the draft state.
  - It is now possible to specify whether credit note amounts are exported as positive or negative amounts. It is also possible to let Office users determine the sign during verification. You can specify this setting on the customer account level or buyer level.
  - The **Enforce line-level taxation** and **Calculate missing tax rates** settings now have buyer-specific settings. This is beneficial because it lets you configure different settings for each buyer.
  - You can save space in Coupa by linking to invoice images in Tungsten AP Essentials storage instead of sending invoice images to Coupa. When viewing invoice information in Coupa, you can select a link to open the invoice image in your web browser. This feature is only available if the Storage service is enabled in Tungsten AP Essentials.

  The Coupa AP integration is currently only available for select customers on a preview basis.
- The **Line-item total amount** validation for remittance advices is improved with a new setting that lets you set a margin of error.
- When processing FatturaPA documents, AP Essentials now maps line-item order number and delivery note fields.

September 25, 2023

New features are deployed to the US, Asia, and Australia on Monday, September 25. New features are deployed to Europe on Tuesday, September 26.

- Accounts receivable features are now generally available to all customers. Accounts receivable features let you processes incoming purchase orders and remittance advices on behalf of sellers.
- It is now possible to improve supplier identification using master data for XML documents. This feature is currently only available for select customers on a public preview basis.
- Extraction of the invoice order number field (`InvoiceOrderNumber`) has been improved when used in combination with field format settings. Administrators can adjust these settings in the Field view.

August 29, 2023

New features are deployed to the US, Asia, and Australia on Tuesday, August 29. New features are deployed to Europe on Monday, September 4.

- The Coupa AP integration now supports user synchronization. This feature automatically imports users from Coupa which you can use as field suggestions to easily specify requesters during verification. You enable this feature in the target system settings.

  The Coupa AP integration is currently only available for select customers on a preview basis.
- The NetSuite integration is now certified to support NetSuite version 2023.2.

July 31, 2023

New features are deployed to the US, Asia, and Australia on Monday, July 31. New features are deployed to Europe on Tuesday, August 1.

- It is now possible to add custom fields to purchase order document types in accounts receivable processes.
- The SFTP target system service now supports additional encryption algorithms.
- When processing FatturaPA documents, AP Essentials now maps these additional fields:
  - ChargeAmount1, ChargeAmount2
  - DeliveryCost
  - DiscountAmount1, DiscountAmount2
  - InvoiceTaxCode1, InvoiceTaxCode2, InvoiceTaxCode3, InvoiceTaxCode4
  - InvoiceTaxDescription1, InvoiceTaxDescription2, InvoiceTaxDescription3, InvoiceTaxDescription4
  - InvoiceTaxType1, InvoiceTaxType2, InvoiceTaxType3, InvoiceTaxType4
  - LIT_DiscountPercent
  - LIT_DiscountAmount
  - LIT_DeliveryCost
  - LIT_VATCode
- When processing ESXML documents, AP Essentials now maps these additional fields:
  - ContractNumber
  - Projectnumber
  - InvoiceObject
  - DeliveryAddressName, DeliveryAddressStreet, DeliveryAddressCity, DeliveryAddressCountry, DeliveryAddressZIP
  - AdditionalReference1, AdditionalReference2
  - SupplierBankDetails1
  - InvoiceTaxCode1, InvoiceTaxCode2, InvoiceTaxCode3, InvoiceTaxCode4
  - InvoiceTaxDescription1, InvoiceTaxDescription2, InvoiceTaxDescription3, InvoiceTaxDescription4
  - LIT_UniqueArticleNumber
  - LIT_UnitPriceBasis

- LIT_DeliveryDate1, LIT_DeliveryDate2
- LIT_DeliveryNote
- LIT_ArticleTraceNo
- LIT_ArticleRegNo
- LIT_ArticleSerialNo
- LIT_ArticleManufactureDate
- LIT_VATCode
- LIT_VATDescription

June 26, 2023

New features are deployed to the US, Asia, and Australia on Monday, June 26. New features are deployed to Europe on Tuesday, June 27.

- A new Coupa integration is available on a preview basis. The new integration is called the Coupa AP integration, and it uses the latest Coupa API.
- The **Prevent total amount of zero** validation rule is now available for remittance advices in accounts receivable processes.
- Many new fields are available for British, Swedish, and US purchase order document types in accounts receivable processes. If you use any of these document types, check the Extraction service settings to review the new fields.
- A new document type for Dutch (Netherlands) purchase orders is available for accounts receivable processes. This document type is currently available on a preview basis.
- Credit note classification has been improved for the Czech Republic and Netherlands document types.
- The NetSuite integration is now certified to support NetSuite version 2023.1.

May 9, 2023

New features are deployed to the US, Asia, and Australia on Tuesday, May 9. New features are deployed to Europe on Wednesday, May 10.

- During extraction of accounts-payable documents, it is now possible to ignore order-number field suggestions that do not match the format you specify. This feature can improve automatic document type classification and prevent incorrect fields from being captured. The new setting, **Only accept extracted values that match the format**, is available for header and line-item order number fields in supplier invoice document types.
- The Indian document type now interprets Indian QR codes and extracts relevant information to document fields.
- Analytics reports are now available for accounts receivable customers. Many improvements have been made to Analytics reports relating to accounts receivable processes.
  - Analytics reports now filters out accounts receivable organizations from reports that are specific to accounts payable processes. This improvement affects accrual, workload by due date, workload by user, and workflow queue reports.
  - The **Workload overview** report now contains detailed document information for AR documents. When a partner user clicks the **Documents** button, the view that appears is now organized into two tabs, one for AP documents and one for AR documents.

  - Labels in the **Billing** report have been updated to account for accounts receivable processes. For example, the "Buyer" column has been changed to "Suborganization" because it can now include buyers or sellers.
  - Several reports now include data from accounts receivable processes. For example, the **Volume by supplier** report, is now the **Volume by sender** report and includes accounts-receivable data. Other reports that now include accounts-receivable information are **Process time by sender**, **Verification time by sender**, and **Verification touch rate**.
- Credit note classification has been improved for the German document type.
- The Hungarian document type is now generally available for all customers.
- To keep data manageable and relevant, some audit trail entries are now retained for only one year from the time of creation.
- Mobile Approval performance has been improved.
- AP Essentials Connect has been updated to version 10.5.13.7759.

April 11, 2023

New features are deployed to the US, Asia, and Australia on Tuesday, April 11. New features are deployed to Europe on Wednesday, April 12.

- AP Essentials can use purchase order information to automatically route problem documents to purchase order creators or requisitioners for correction.
- AP Essentials now supports barcode interpretation for custom fields. New barcode formats are also supported for page separation. AP Essentials supports these barcode formats for page separation and field extraction:
  - Code 128
  - EAN-8
  - EAN-13
- New validation rules are available for purchase order documents in accounts receivable processes.
  - **Line-item total amount**
  - **Line items cannot be empty**
- The Admin Center user interface has been updated to improve usability and performance.
- The Master-data import app for Microsoft Excel now supports several new fields for purchase order data. Purchase order data supports two new fields, RequisitionedBy and CreatedBy. Purchase order line data supports these new fields: VatAmount, DeliveryNoteNumber, DeliveryDate1, DeliveryDate2, UniqueArticleNumber.
- A new document type for Swedish purchase orders is available for accounts receivable processes. This document type is currently available on a preview basis.
- The E-conomic integration has been updated to use E-conomic's latest integration framework (REST API).

March 15, 2023

New features are deployed to the US on Wednesday, March 15. New features are deployed to Europe, Asia, and Australia on Thursday, March 16.

- The Romanian document type is now generally available for all customers.

- Several validation rules are now available for purchase order documents in accounts receivable processes.
  - **Duplicate purchase order check**
  - **Line-item row**
  - **Prevent total amount of zero**
- The Coupa integration is now certified for Coupa version R35.
- The Oracle Financials Cloud integration now supports Oracle Financials Cloud version 23A.
- To further promote stability and fair usage of the system, additional API methods are now throttled in the Authentication service.

February 13, 2023

New features are deployed to the US on Monday, February 13. New features are deployed to Europe on Tuesday, February 14. New features are deployed to Asia and Australia on Monday, February 20.

- The Dynamics 365 for Finance and Operations integration has a new target system setting that lets you choose whether to add a default line to documents with no line items and no PO number. Previously, a default line was always added to documents with no line items. The new setting is enabled by default for backwards compatibility.
- Several new line-item and header fields are available for purchase order data (for accounts payable PO invoices). You can use the new fields to filter the **Purchase orders** view in Admin Center and the **Search purchase orders** and **Search purchase order lines** dialogs in AP Essentials Office. These are the new fields:
  - Requisitioned by (header field)
  - Created by (header field)
  - VAT amount (line-item field)
  - Delivery note number (line-item field)
  - Delivery date 1 (line-item field)
  - Delivery date 2 (line-item field)
  - Unique article number (line-item field)

  Currently, none of the new fields are used for line pairing. They are only available in the list views and dialogs to help you identify purchase orders.

- A new validation, **Maximum total amount**, is now available for purchase order documents in accounts receivable processes.
- It is now possible to capture and extract document data from Greece using the new Greek document type. Purchase order invoices, expense invoices and credit notes are supported.

  This document type is currently only available on a preview basis.

- It is now possible to create user groups on the customer group level. It is also possible to assign these groups to steps in workflows.
- Credit note classification has been improved for Australian and Spanish document types.

- Document types for Hong Kong, Indonesia, and Taiwan are now generally available for all customers.
- AP Essentials Connect has been updated to version 10.5.10.7745.

January 16, 2023

New features are deployed to the US on Monday, January 16. New features are deployed to Europe, Asia, and Australia on Tuesday, January 17.

- AP Essentials now supports Open Fixed-layout Document (OFD) input.
- The **Total amount** validation is now available for purchase order documents in accounts receivable processes.
- Credit note classification has been improved for Danish document types.
- AP Essentials Connect has been updated to version 10.5.9.7732.

December 5, 2022

New features are deployed to the US on Monday, December 5. New features are deployed to Europe, Asia, and Australia on Tuesday, December 6.

- The new **Delivery date** validation rule makes sure the delivery date is a valid date which occurs on or after today's date and does not occur too far in the future. This rule is only available for purchase order documents in accounts receivable processes.
- To promote stability and fair usage of the system, some key API methods are now throttled.
- It is now possible to capture and extract document data from Bulgaria using the new Bulgarian document type. Purchase order invoices, expense invoices and credit notes are supported.

  This document type is currently only available on a preview basis.

- Credit note classification has been improved for French, Swedish, and US document types.
- New versions of the AP Essentials add-ins for Microsoft Excel are now available in the Microsoft Store. If you use either of these apps, you must download the latest version because the old versions are no longer available via Microsoft.
  - Reports for Microsoft Excel
  - Data Import for Microsoft Excel
- Interpretation of Czech dates has been improved.

November 7, 2022

New features are deployed to the US on Monday, November 7. New features are deployed to Europe, Asia and Australia on Tuesday, November 8.

- When importing users using CSV files, it is now possible to determine whether new users should be granted default privileges.
- Tungsten AP Essentials now supports extraction of dates in YYYY-MM-DDTHH:mm:ss format for all document types. Although the time is included in the newly supported format, only the date is extracted and displayed during verification.

- Credit note classification has been improved for Irish and Norwegian document types, and we will continue improving additional countries in upcoming releases.
- AP Essentials Connect officially supports Windows Server 2019 Datacenter.
- AP Essentials Connect has been updated to version 10.5.7.7719.

October 10, 2022

New features are deployed to the US, Asia and Australia on Monday, October 10. New features are deployed to Europe on Tuesday, October 11.

- There are two new validation rules for accounts receivable document processes:
  - **Order date** - makes sure the order date is a valid date which occurs before or equal to today's date and does not occur too far in the past.
  - **Line-item total amount** - Ensures that the total amount matches the sum of all line-item rows when verifying line items on remittance advices.
- The **Auto-rotation** setting has been greatly improved to automatically detect document orientation, so you no longer have to specify which directions you want to detect. Administrators can enable this setting in the Extraction service.
- Many significant improvements have been made to image reading and extraction, resulting in higher interpretation rates for PDF documents.
- The Dynamics 365 for Finance and Operations integration lets you specify which fields need to have negative amounts when sending credit notes to the target system. You specify the field type names in the target system configuration settings.
- Supplier upload performance has been improved.
- Belgian and Vietnamese date interpretation has been improved.

September 12, 2022

New features are deployed to Asia and Australia on Monday, September 12. New features are deployed to Europe and the US on Tuesday, September 13.

- Tungsten AP Essentials now supports the processing of remittance advices. Remittance advices belong to the accounts-receivable process. In order to process remittance advices, you must enable a remittance advice document type in the Extraction service. Likewise, you must specify a remittance advice document type when sending remittance advices to Tungsten AP Essentials.

  Remittance advice features are currently only available for select customers on a preview basis.
- The NetSuite integration now supports NetSuite version 2022.2.
- The Coupa integration is now certified for Coupa version 33.
- If you have a custom API integration, we've created new requirements to keep your code running efficiently.
- Credit note classification has been improved for Belgium, United Kingdom and Finland, and we will continue improving additional countries in upcoming releases.

August 16, 2022

New features are deployed to the US, Asia and Australia on Tuesday, August 16. New features are deployed to Europe on Wednesday, August 17.

- The **Total amount** and **Total tax amount** validations have been improved to handle decimals more accurately in the **Maximum difference allowed** setting.
- The interpretation and learning of Vietnamese long date formats has been improved.
- Tungsten AP Essentials Connect has been updated to version 10.5.4.7618

July 6, 2022

New features are deployed to the US, Asia and Australia on Wednesday, July 6. New features are deployed to Europe on Thursday, July 7.

- The Dynamics 365 for Finance and Operations integration can now consolidate output to the target system at regular intervals. This new feature greatly increases performance for large-volume data transfer by reducing the number of connections to the target system.

June 13, 2022

New features are deployed to the US, Asia and Australia on Monday, June 13. New features are deployed to Europe on Tuesday, June 14.

- It is now possible to edit customer master data in Admin Center.
- Specifying a customer number is now optional when adding a customer during verification in AP Essentials Office. In addition, you can now edit customer numbers.
- It is now possible to capture and extract document data from Romania using the new Romanian document type. Purchase order invoices, expense invoices and credit notes are supported.

  This document type is currently only available on a preview basis.

- The Korean document type is now generally available for all customers.
- When accessing document images in Storage via an image link, the image display has been improved to accommodate documents of various sizes in landscape and portrait orientations.
- Authentication messages logged in audit trail have been improved to include the TLS version in use. This feature can help administrators identify users that are using outdated TLS versions.
- The Admin Center user interface has been updated to improve usability and performance.

May 17, 2022

New features are deployed to the US, Asia and Australia on Tuesday, May 17. New features are deployed to Europe on Wednesday, May 18.

- The Master-data import app for Microsoft Excel now supports uploading customer master data.
- It is now possible to capture and extract document data from Hungary using the new Hungarian document type. Purchase order invoices, expense invoices and credit notes are supported.

This document type is currently only available on a preview basis.

- The Oracle Financials Cloud integration has been improved, so you can exclude inactive supplier sites from master data import. This is beneficial because it decreases bandwidth between systems, and it reduces the number of suppliers available for selection during verification. You enable this feature using the **Exclude inactive supplier sites** setting.
- This release of the Oracle Financials Cloud integration also includes a new setting that lets you specify purchase-order statuses that you want to synchronize in addition to the default statuses, "OPEN" and "CLOSED FOR RECEIVING". You specify the statuses in the **Additional PO statuses** setting.

Admin Center and Mobile Approval no longer support older versions of Chrome. You must use the latest version of Chrome when using Admin Center or Mobile Approval.

April 5, 2022

New features are deployed to the US on Tuesday, April 5. New features are deployed to Europe, Asia and Australia on Wednesday, April 6.

- Tungsten AP Essentials now offers accounts receivable services for automatic processing of purchase orders on behalf of seller organizations.

  When you create a new customer account, you choose which document process you want to use, accounts payable or accounts receivable. After you create an account, you cannot change the document process of the account. If you need to process accounts payable and accounts receivable documents, you must create two accounts, one for each process.

  Accounts receivable settings mirror accounts payable settings in many ways and are supported by all the features you expect in a document automation solution from Tungsten Automation. New document types are available specifically for processing purchase orders. Purchase order processing is made easier by the use of customer master data, which you can upload via AP Essentials Connect and the API.

  Accounts receivable features are currently only available for select customers on a preview basis. At the moment, there are only purchase order document types for the US and Great Britain. However, we will be adding more document types in future releases.

- A new integration is available for SAP S/4HANA Cloud ES. The SAP S/4HANA Cloud ES integration can process purchase order and non-PO invoices as well as credit notes (credit memos). Account coding, master-data synchronization and many other time-saving features are supported.
- The Thai and Vietnamese document types are now generally available for all customers.
- The Coupa integration now supports OAuth 2.0 token-based authorization.
- The Microsoft Dynamics 365 for Finance and Operations integration supports Dynamics 365 version 2021.
- The NetSuite integration now supports NetSuite version 2022.1.

NetSuite has deprecated support for accessing its API using user credentials. To align with this decision, authentication by user credentials has been removed from the target system settings. If you have not already, check your NetSuite target system settings to make sure you use token-based authentication.

- Tungsten AP Essentials Connect has been updated to version 10.4.9.7577.

February 21, 2022

New features are deployed to the US on Monday, February 21. New features are deployed to Europe, Asia and Australia on Tuesday, February 22.

- It is now possible to lock online learning to prevent verification changes from having a detrimental effect on documents that already have high identification and extraction rates.
- Analytics reports has a new view, **Touch rate**, which displays the percentage of documents that have bypassed manual verification (zero touch) in relation to the total number of documents verified over time. By examining the touch rate, you can determine, for example, which supplier's documents pass through the system easily without manual intervention.
- Tungsten AP Essentials Connect has a new button which lets you manually upload individual master-data files. This is useful for one-time uploads, such as currency master data. Tungsten AP Essentials Connect has been updated to version 10.4.8.7537.
- The **Empty value by default** setting is now generally available for all customers, giving you more control over how missing or invalid amounts are handled.
- The Visma Business integration now supports Visma Business 16.
- When editing supplier master data, audit trail information has been improved to include more details about what was changed. For example, you can see which fields were changed, and you can see the previous field values as well as the new values.

January 17, 2022

New features are deployed to the US on Monday, January 17. New features are deployed to Europe, Asia and Australia on Tuesday, January 18.

- The single sign-on (SSO) feature now supports multi-tenant authentication if you use Microsoft Azure Active Directory (Azure AD) as your identity provider. This option is beneficial because it allows customers to login using their own Azure AD tenants with only one configuration on the partner level.
- Interpretation has been improved for amount fields that use commas as decimal points on Vietnamese documents.
- It is now possible to capture and extract document data from Singapore using the new Singaporean document type. Purchase order invoices, expense invoices and credit notes are supported.

December 6, 2021

New features are deployed to the US on Monday, December 6. New features are deployed to Europe, Asia and Australia on Tuesday, December 7.

- Mapping custom form IDs for NetSuite has been improved with the ability to specify multiple custom form IDs, where each ID correlates to a document subtype (purchase order, general expense, credit note). In this manner, you can route document data from specific document subtypes to specific forms in NetSuite. This new enhancement also includes buyer-specific settings to specify custom form IDs for individual buyers.
- Tungsten AP Essentials Connect has been updated to version 10.4.6.7451. The new version requires .NET Framework 4.8 and enforces TLS 1.2. Eventually, older versions of the TLS protocol will no longer be supported by Tungsten AP Essentials, so be sure to install this version of AP Essentials Connect for a worry-free transition.
- It is now possible to capture and extract data from Philippine documents using the new Philippine document type. Purchase order invoices, expense invoices and credit notes are supported.
- The extraction of Malaysian month names has been improved.
- The Swiss QR code validation has been improved to handle various formatting errors.
- It is no longer possible to specify duplicate trigger names in the Workflow service.

November 1, 2021

New features are deployed to the US on Monday, November 1. New features are deployed to Europe, Asia and Australia on Tuesday, November 2.

- You can now optionally treat missing amount fields as empty. This is helpful in cases where you want an amount to be empty, rather than a zero amount (0.00).

  This feature is currently only available on a preview basis for select customers.
- The Coupa integration is now certified for Coupa version 31.
- Administrators with the Manage identity providers privilege now have the ability to edit the **SINGLE SIGN-ON** settings in the **User management** view. In other words, they can enable/disable single sign-on on the account level. Likewise, they can change the **Identity provider** setting and the **Tenant ID** setting (if available). Previously, this privilege only granted administrators the right to add, edit and delete identity providers in the **Identity providers** view.

October 4, 2021

New features are deployed to the US on Monday, October 4. New features are deployed to Europe, Asia and Australia on Tuesday, October 5.

- To improve buyer classification, you can now designate multiple buyers as lower priority using the "careof" technique.
- Two new administrator privileges are available to provide more specificity and control over administrators:
  - **Manage resources** - Grants administrators the right to add, delete, download, trust and untrust resources.

    - **Manage identity providers** - Grants administrators the right to add, edit and delete identity providers.
- The integration for Dynamics 365 for Finance and Operations has a new setting, which offers more flexibility in choosing how to populate the tax registration number field with master data. Use the **Tax registration number source** setting to choose one of these Dynamics 365 fields to import:
    - **Registration number**
    - **Tax exempt number**
    - **Foreign vendor tax registration ID**
- The **Document type** view has been improved to include new columns showing the field type. The **TYPE** column appears on the **Header fields** and **Line-item fields** tabs and makes it easier to get an overview of your current configuration.
- The Japanese document type is now generally available for all customers.
- The **Audit trail** view has a new time-saving search box, which searches across multiple audit-trail columns simultaneously.

September 7, 2021

- It is no longer necessary to verify invoices from at least 5 different suppliers in order for Tungsten AP Essentials to learn how to identify suppliers correctly. Now invoices from new suppliers can be correctly identified after being verified only once.
- Deleting a buyer now also deletes all in-progress documents attached to the buyer. Previously, only supplier master data and email addresses (for email input) were deleted.
- Analytics reports now includes information about documents with the *Request for information* status. The new reports display the number of Request for information documents, organized into two reports: **By requested user** and **By requested recipient**. You find the reports by navigating to **Workload** > **Request for information**.
- The Oracle Financials Cloud integration supports custom mapping of dynamic flex fields to line-item fields.
- It is now possible to change your email address after sign-up in the Online Store.
- Interpretation of Japanese date fields has been improved to account for dates in YYYYMMDD format which also include Japanese characters. For example, 2021年07月31日 is now interpreted correctly.
- Tungsten AP Essentials Connect has been updated to version 10.4.3.7364.

August 11, 2021

- As an AP Essentials Office user, you can specify your own substitute in the user profile view, which is accessed by clicking your username in the main menu.
- Line-item matching is now easier with the ability to copy imported purchase order lines to an invoice. This is helpful, for example, if supplier invoices do not include purchase order lines in a standard format, and the automatic line pairing feature is unable to find a match.
- It is now possible to save field changes on documents which are on hold. When a document is on hold, you cannot process the document until you unhold it. You cannot perform actions such as verifying, approving, or rejecting the document. However, you can save changes to field values, add comments and attachments, or delete the document.

- Field mapping of ESXML invoices has been improved with the addition of several new fields. Tungsten AP Essentials maps these additional fields to ESXML invoices:
  - ChargeAmount1, ChargeAmount2, ChargeAmount3, ChargeAmount4
  - DiscountAmount1, DiscountAmount2, DiscountAmount3, DiscountAmount4
  - InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3, InvoiceTaxRate4
  - InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3, InvoiceTaxAmount4
  - InvoiceNetAmount1, InvoiceNetAmount2, InvoiceNetAmount3, InvoiceNetAmount4
- Field mapping of UBL invoices has been improved with the addition of several new fields. Tungsten AP Essentials maps these additional fields to UBL invoices and credit notes:
  - ChargeAmount1, ChargeAmount2, ChargeAmount3, ChargeAmount4
  - DiscountAmount1, DiscountAmount2, DiscountAmount3, DiscountAmount4

  Two previously existing field mappings for UBL invoices (DeliveryCost and InvoiceDiscountAmount) have also changed.
- Tungsten AP Essentials's extraction and learning functionality has many improvements in these areas:
  - Order-number extraction.
  - Line-item extraction.
  - Extraction of Thai dates.
  - Learning of date fields.
- The interpretation of Latvian dates has been improved to include dates which contain "gada", the Latvian word for year.

July 12, 2021

- When selecting values from a drop-down list during verification, mouse behavior has been improved to prevent accidental selection of autocomplete values. Currently, pressing ENTER (or TAB) confirms the current value in the field box. Pressing ENTER (or TAB) does not select the highlighted field in the drop-down list. This behavior applies to all fields with autocomplete values in AP Essentials Office.

  In the image above, pressing Enter will confirm Anconia Corp as the supplier because "Anconia Corp" is displayed in the **Supplier name** box. "Billgore Devices" will not be selected when pressing Enter, even though it is highlighted by the mouse.
- New columns have been added to the **Buyers** view to provide more information about each buyer and give you a better overview of your buyer organizations. The new columns include information such as country, organization number and VAT number.
- Tungsten AP Essentials can now send invoice status information to e-Invoice Connect. This is helpful because it provides feedback to suppliers that have submitted invoices to e-Invoice Connect.
- The Dynamics 365 for Finance and Operations integration has changed how the supplier tax registration field is synched to supplier master data. Previously, the tax registration field in supplier master data was mapped from the ForeignVendorTaxRegistrationId field in Dynamics 365. Now the data is taken from the registration number of the primary address of the supplier (vendor) in Dynamics 365.

- The Oracle Financials Cloud integration has a new setting that you can use to determine which suppliers are imported. When importing supplier master data, only suppliers that match the supplier types you specify in the **Filter supplier types** setting are imported. You can leave the setting blank to import all suppliers as usual.

June 14, 2021

- Enhanced workflow services are now generally available for all customers. The Workflow service now includes new forms of approval: linear approval, single-point approval, first-action parallel approval and unanimous parallel approval.
- The Oracle Financials Cloud integration has been improved with two new features:
  - You can use data templates to map data to payables line-item fields in Oracle. This is helpful if you want to override an existing mapping or map to a line-item field that is not mapped by default.
  - Specifying tax codes is even easier than before. You can import location master data from Oracle, which you can use for field suggestions to specify ship-to locations during verification. This is beneficial because ship-to locations can be used to perform tax calculations in Oracle. Also, the use of master data prevents errors which otherwise occur during manual entry. Previously, only tax-classification data was available.
- It is now possible to capture and extract data from Indonesian invoices using the new Indonesian document type.

  This document type is currently only available on a preview basis.

- Tungsten AP Essentials maps these additional fields to FatturaPA invoices:
  - InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3 and InvoiceTaxRate4.
  - InvoiceNetAmount1, InvoiceNetAmount2, InvoiceNetAmount3 and InvoiceNetAmount4. Also, InvoiceTotalVatExcludedAmount equals the sum of these fields.
  - InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3 and InvoiceTaxAmount4. Also, InvoiceTotalVATAmount equals the sum of these fields.
- The Coupa integration is now certified for Coupa version 30.
- Analytics **Extraction** data is now saved for up to six months. Note that the update frequency schedule has also changed.

May 17, 2021

- There is a new button ( ) in AP Essentials Office, which lets users send documents back to verification. The button is visible when viewing documents with the statuses *pending approval*, *approval rejected*, *pending correction* and *correction in progress*.
- It is now possible to filter the **Substitute** setting in the **User** view, making it easier to locate users in large organizations.
- The e-Invoice Connect integration is now available for all customers. The e-Invoice Connect integration lets you connect to e-Invoice Connect using single sign-on and synchronizes supplier master data at the select of a button.
- Usage summary view performance has increased dramatically, so data in the view loads much faster.

- The **Document process status** and **Document process status history** reports that are generated by Reports for Microsoft Excel now include buyer information (BuyerID, BuyerName, BuyerExternalId).
- The Oracle Financials Cloud integration has been improved to synchronize only relevant purchase orders by matching the Bill-to Business Unit (**Bill-to-BU**) in the purchase order to a buyer in Tungsten AP Essentials.
- The Coupa integration is now certified for Coupa version 29.
- If you use the e-conomic integration with project or employee master data, a new Agreement Grant Token (Tungsten AP Essentials version 2) must be generated. Project and employee master data cannot be synchronized until you specify the new Agreement Grant Token and select **Use e-conomic integration version 2** in the target system settings.

April 12, 2021

- We are proud to announce three new integrations are approved for general availability for all customers:
  - Coupa
  - Dynamics 365 for Finance and Operations
  - Oracle Financials Cloud
- It is now possible to define service plans for customer groups. When you create a service plan for a customer group, the usage data reflects the combined usage of all the member accounts of the group, making it easier to identify groups that are approaching or exceeding usage expectations.
- For added security, when you change your password in Tungsten AP Essentials Office or Admin Center, you are automatically logged out of other sessions that are present in web browsers other than the current browser.
- A new NetSuite bundle (version 1.12) is available for installation. The new bundle fixes issues where the supplier number was incorrectly set while using the **Use Supplier Entity ID as supplier number** setting.
- The NetSuite integration has been improved to properly handle credit notes with negative amounts.
- It is now possible to use the XML document type together with document subtypes, even if you chose to only use country-specific subtypes in the Extraction service settings.

March 8, 2021

- The Oracle Financials Cloud integration now lets you map buyers in Tungsten AP Essentials to legal entities in Oracle. Previously, it was only possible to map buyers to business units in Oracle. The new mapping options, which include buyer-specific settings for mapping multiple buyers, can accommodate Oracle configurations that were previously not possible.
- The Oracle Financials Cloud integration now lets you use data templates to map data to payables header fields in Oracle. This is helpful is you want to override an existing mapping or map to a field that is not mapped by default.
- When specifying data templates for the Oracle Financials Cloud integration, you can now define the date format of date variables.
- Supplier identification has been improved with new functionality to increase confidence rates. The end result is more suppliers with *Complete* status () that you can rely on.
- The Tungsten AP Essentials integration for NetSuite is now certified for NetSuite 2021.1

- Tungsten AP Essentials Connect has been updated to version 10.3.5.7330.

February 8, 2021

- Custom reject codes can now be used to trigger workflows. Currently, rejection workflows can only be started by triggers. However, manual selection of rejection workflows will be available in a future release.
- Analytics reports now displays information about documents rejected using custom reject codes. The new reports display the number of rejected documents, organized into two reports: **By reject code** and **By user**.
- Using the API method, GetBatchOriginalEmail, it is now possible to retrieve the original email of a batch, regardless of whether the Storage service is activated. Learn more about the API here.
- It is now possible to capture and extract data from Vietnamese invoices, using the new Vietnamese document type.
- When mapping fields from incoming XML in UBL (OIOUBL) format, Tungsten AP Essentials supports multiple new fields for invoices and credit notes:
  - InvoiceNetAmount1, InvoiceNetAmount2, InvoiceNetAmount3 and InvoiceNetAmount4
  - InvoiceTaxAmount1 (previously available), InvoiceTaxAmount2, InvoiceTaxAmount3 and InvoiceTaxAmount4
  - InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3 and InvoiceTaxRate4

  Note: The new fields above are only available in the XML document type.
- When mapping fields from incoming XML in Svefaktura format, Tungsten AP Essentials supports multiple new fields that you can use for capturing delivery costs:
  - ChargeAmount1, ChargeAmount2, ChargeAmount3 and ChargeAmount4
  - DiscountAmount1, DiscountAmount2, DiscountAmount3 and DiscountAmount4

  Note: The new fields above are only available in the XML document type.

January 18, 2021

- Previously, AP Essentials Office users could only manually type reasons for placing documents on hold. In this release, users can now choose custom on-hold codes and corresponding descriptions from a drop-down box. Administrators define the custom codes and descriptions in Admin Center.
- Reject codes and on hold reasons are now available as searchable columns in the document list views in Online Office and Admin Center.
- Mobile Approval now supports the use of reject codes and on hold reasons.
- The Visma Business integration now supports Visma Business version 14.
- The NetSuite integration has been certified for use with NetSuite version 2020.2.

December 7, 2020

New features are deployed to the US on Monday, December 7. New features are deployed to Europe, Asia and Australia on Tuesday, December 8.

- It is now possible to specify individual buyers for email input addresses. This is helpful because it lets you determine which buyers are used when buyer classification is performed.
- If the default reasons that are available for selection when rejecting documents do not fit your solution, administrators can now create custom rejection codes and corresponding descriptions.
- Master data import for the Microsoft Dynamics 365 for Finance and Operations integration has been improved. When importing items master data, Tungsten AP Essentials imports items in the language specified in the Dynamics 365 language settings (**System Administration** > **Setup** > **System Parameters**) if translations are available.
- **Document processing** reports are now available in Analytics reports. This report displays the current number of in-progress, rejected, processed and deleted documents. The basis for this report is the number of documents received during the specified time period. Unlike other document volume reports, in this report the *Received* documents equal the sum of the other statuses.

November 4, 2020

- Interpretation accuracy is now monitored and improved automatically, so it is no longer necessary to submit feedback manually using the **Feedback** dialog. The **Feedback** dialog will eventually be phased out in favor of the new, automated technology.
- The Oracle Financials Cloud integration lets you configure master data synchronization of coding segments using the Oracle REST API. This improvement greatly reduces configuration complexity, as it is no longer necessary to create Oracle reports and jobs that run them.
- User export has been improved to include sub-organization access at the user and group levels.
- A new privilege is available to provide more specificity and control over administrators. **View supplier bank account numbers** determines whether administrators can view supplier banks account numbers. Without this privilege, account numbers are masked.
- When exporting Analytics reports, the default file names of the files you download have been improved to reflect the current view more accurately.
- Additional short month names have been added to the French document type.

October 5, 2020

- Document subtypes are now generally available for all customers.
- In addition to archiving output images, the PROCESS DIRECTOR AP integration now supports the archiving of original images and emails. You specify the archiving settings in the target system settings.
- Partner administrators with the **Manage accounts** privilege can now download resources from the **Resources** view.
- Tungsten AP Essentials can now capture amount fields that are preceded by a plus (+) or an asterisk (*).

- It is now possible to capture and extract data from Israeli invoices, using the new Israel document type.
- Utility bill verification has been improved to correctly differentiate date formats (YYYY and MMYY) when creating invoice numbers.
- Search results for field suggestions (autocomplete) have been improved.
- The **Document volumes report** is now available in Admin Center.
- User export has been improved to include privilege settings from the user and group levels.
- The NetSuite integration now lets you specify buyer-specific saved search settings.
- The list field functionality of the NetSuite integration now supports transaction column fields. Previously, only transaction body fields were supported.

September 7, 2020

New features are deployed to the US, Asia and Australia on Monday, September 7. New features are deployed to Europe on Tuesday, September 8.

- If you use the document subtype preview feature, a new setting is available to ensure your organizations are set up properly. The new setting is called **Only use country-specific subtypes**, and it is available in the **Extraction** settings.

August 10, 2020

New features are deployed to the US, Asia and Australia on Monday, August 10. New features are deployed to Europe on Tuesday, August 11.

- Integrations that support delta synchronization can now import master data up to 32 times per day. Previously, all master data could only be imported up to 4 times per day. Now there is a separate setting in the **Master data** view on the partner level, which distinguishes between "normal" master data import and master data import using delta synchronization.
- When exporting user information, you can now see the last login date of each user and whether users have two-factor authentication enabled. Exporting users is helpful for administrators who need to get an overview of users and their settings.
- Document subtypes have been improved. If you change the subtype during verification, any fields that use default values, (specified in the **Use default value** setting), are also updated according to the default value of the current subtype.
- To help keep track of production efficiency, Analytics reports now displays document volume reports by user according to document status. In Analytics, you can navigate to **Volume** > **By user** to view the new report.
- There is a new setting in the embedded Dynamics AX integration which lets you prevent blocked dimensions (dimensions that are "Suspended" or set to "Do not allow manual entry" in Dynamics AX) from being synchronized when master data is synchronized. This is beneficial because it saves time and bandwidth when synchronizing master data.

July 6, 2020

New features are deployed to the US, Asia and Australia on Monday, July 6. New features are deployed to Europe on Tuesday, July 7.

- A new view, **Usage summary**, is available in Admin Center on the subsidiary, partner and partner group levels. This easy-to-read view displays document-volume and licensing information, so administrators can get an overview of customer account usage.
- Changing the master data upload settings now affects which master data is visible in the master data views. For example, if you upload **Master data on buyer level** and then switch to uploading **Master data on customer level**, any master data that was previously uploaded on the buyer level is no longer visible in the master data views. Conversely, if you upload **Master data on customer level** and then switch to uploading **Master data on buyer level**, any master data that was previously uploaded on the customer level is no longer visible in the master data views.

  Master data is not deleted in either case, so if you revert to your previous setting, the master data remains.
- This release builds on the previous releases by offering even more new privileges, which provide more specificity and control over administrators. This is helpful because it lets you define more specific administrator roles, rather than giving broad powers to all administrators.
- Line-item pairing has been improved. By utilizing purchase order line numbers, Tungsten AP Essentials can pair matching lines more accurately.
- Supplier validation has been improved. If multiple fields are used for supplier validation, you can specify whether one field or all fields are required to validate correctly.
- The Oracle Financials Cloud integration now supports data templates for payables descriptive flexfields.
- Previously, the Oracle Financials Cloud integration automatically created separate suppliers for each supplier site. You can now disable this behavior by deselecting **Create a supplier for each supplier site** in the target system settings.
- Notification messages for the NetSuite integration have been improved to be more helpful when the wrong account is used.
- Tungsten AP Essentials can now capture data on all pages (both sides) of duplex invoices. This feature is now generally available for all customers.
- Tungsten AP Essentials can now learn the format of manually entered invoice numbers on utility bills. Previously, only one static format was allowed. This feature is now generally available for all customers.

June 1, 2020

New features are deployed to the US on Monday, June 1. New features are deployed to Asia, Australia and Europe on Tuesday, June 2.

- Many usability improvements have been made to Admin Center.
- The **Substitute** setting is now available for all users with the **User** role when Workflow services are enabled. Previously, you could not specify substitutes for users on the partner level.

- The Self-service service has been replaced by new settings. Previously, the Self-service service provided privileges that let customer administrators manage extraction and target-system service settings. Now the privileges are available to customer administrators without the need of this extra service.
- This release builds on the previous release by offering more new privileges, which provide more specificity and control over administrators. This is helpful because it lets you define more specific administrator roles, rather than giving broad powers to all administrators.
  - **Manage email input settings** - Grants permission to edit Email input service settings.
  - **Manage workflow settings** - Grants permission to edit Workflow service settings.

May 4, 2020

- The Analytics service is now available for all partners.
- The document list views in AP Essentials Office contain the most popular fields you need to filter the list and find the documents you need. Sometimes, however, you want to filter the document list view by fields that are not available by default. To solve this issue, administrators can now add up to four additional fields to the document list views in AP Essentials Office.
- A new setting in the Master data service lets you **use supplier master data to validate suppliers**. This is helpful because it safeguards against choosing the wrong supplier during extraction and verification.
- New validation rules are available:
  - **Swiss QR reference** - Checks the validity of QR references found in QR-IBAN numbers.

    This validation is only available for Swiss document types and requires the `QrReference` field.
  - **Creditor reference** - Performs length, identifier and checksum validations on the `PaymentReferenceNumber` field to ensure the validity of creditor reference numbers.

    This validation is currently only available for Swiss document types.
- The document view now displays origin information about the current document. For example, if Tungsten AP Essentials receives a document via email input, the email address of the sender and recipient are displayed along with the email subject in the information tab ( ). Origin information is also displayed in the document history.
- New privileges are available to provide more specificity and control over administrators. This is helpful because it lets you define more specific administrator roles, rather than giving broad powers to all administrators.
  - **Manage services** - Grants permission to add, remove and edit services.
  - **Manage user accounts** - Grants permission to add, delete, enable/disable and edit users. This privilege also grants the ability to reset passwords and import/export users.
  - **Manage user groups** - Grants permission to add, delete and edit user groups.

March 25, 2020

- The Swiss document type now interprets QR codes from Swiss QR-bills and extracts relevant information to invoice fields.
- There is a new validation rule available for all document types which ensures the validity of IBAN numbers.

- Two new privileges are available to provide more specificity and control over administrators:
  - **Process documents** - Grants administrators the right to view, edit and process documents. Among other things, this privilege lets you open documents via the **Documents** view in Admin Center and process them in AP Essentials Office.
  - **View documents** - Grants administrators the right to view documents and document data via Admin Center. You must have this privilege to access, for example, the **Documents** view. This privilege also lets you open documents in read-only mode in AP Essentials Office.

  At the time of this release, all administrators are granted these new privileges automatically for backwards compatibility. If you create an admin user after this release, these new privileges are not added to the admin user by default.
- **Feedback** reports are now available in Analytics reports. The Feedback report displays customer feedback that AP Essentials Office users have submitted, so administrators can review the feedback status and gain insight to problem areas.
- Several document types have been improved, so they can extract the month names of neighboring languages. The Spanish document type can interpret Catalan months. The Estonian document type can interpret Latvian and Lithuanian months. The Latvian document type can interpret Estonian and Lithuanian months. The Lithuanian document type can interpret Estonian and Latvian months.
- Decimals in ESXML invoices are now interpreted correctly. Previously, commas were incorrectly treated as decimals in amount and quantity fields for some document types.
- The Oracle Financials Cloud integration has several new features and improvements.
  - When importing purchase order data from Oracle, Tungsten AP Essentials only imports purchase orders with the "open" status.
  - There is a new target system setting that you can use to automatically add net-amount lines to invoices that are missing line-item tables.
  - A new header field (`TaxClassification`) is available which lets you specify a tax classification value that is used when the tax classification value is missing in line-item fields.

  This integration is currently only available for select customers on a preview basis.

February 26, 2020

New features are deployed to the US, Asia and Australia on Wednesday, February 26. New features are deployed to Europe on Thursday, February 27.

- Invoice approval is now available in a light-weight app for mobile devices, so you can perform workflow and approval activities on the go. This feature is now generally available for all Tungsten AP Essentials Office users who use Workflow services.
- Line-item interpretation has been improved, so line items that break across pages are now interpreted correctly.
- Tungsten AP Essentials can now capture data on all pages (both sides) of duplex invoices. This feature is currently only available on a preview basis.
- Field extraction has been improved. By using information from previously verified invoices, Tungsten AP Essentials now extracts invoice fields more accurately.

- A new privilege, **Manage suborganizations**, is available which grants administrators the ability to create, update, delete, activate/deactivate, group/ungroup, pause/resume and move organizations.
- Many improvements have been made to the document list view in Admin Center. Columns that are irrelevant to your organization level are now automatically hidden. It is also possible to search the ID column, resize table columns, and much more.
- Now you can download accrual and billing reports in CSV format in Analytics reports.
- Usability has been improved for the **Total process time** and **Process time by supplier** Analytics reports. Labels on the data points now show simplified data which is easier to read. For more detailed information, you can hover your mouse over the data points.
- Field mapping in NetSuite has been simplified. Now the article name field (LIT_ArticleName) is used for item descriptions for PO and non-PO invoices. If the article name field is not specified during verification, the suggested value from NetSuite is used when the invoice is posted.
- The Oracle Financials Cloud integration has several new features and improvements.
  - Credit notes (credit memos) and PO-based credit notes are now supported.
  - Manual and automatic line-item pairing are supported.
  - Support for automatic and manual selection of payment methods.
  - You can save space in Oracle Financials Cloud by linking to invoice images in Tungsten AP Essentials storage instead of sending invoice images to Oracle. The link to the invoice image is added to the invoice as an attachment in Oracle. When viewing the invoice information in Oracle, you can select the link to open the invoice image in your web browser. You enable this feature in the target system settings.

  This integration is currently only available for select customers on a preview basis.

January 22, 2020

- Documents that have been rejected in a workflow can now be sent to manual separation by exception handlers.
- The **Documents** view is now available for Admin Center, so administrators can browse documents and batches, and examine documents in the Online Office document viewer.
- Branding settings are now accessible via Admin Center.
- It is now possible to adjust the field display order via Admin Center.
- Workflow triggers have been improved with a new condition, **Not in list**, which lets you evaluate if a field value does not appear in a list of values. You can use the new condition on supplier, buyer, coding field and text field types. The **In list** condition has also been improved, so you can use it on supplier, buyer, coding field and text field types. Previously, the **In list** condition was only available for supplier and buyer field types.
- The Oracle Financials Cloud integration has been improved. By matching business units to buyers, it filters supplier and purchase order master data, so only relevant information is available to AP Essentials Office users. In addition, the Oracle Financials Cloud integration now supports 3-way matching.

  This integration is currently only available for select users on a preview basis.
- Tungsten AP Essentials accepts electronically signed XML invoices (P7M files) as input. Note, however, encrypted P7M files are not supported.
- Supplier identification has been improved for customers that use supplier master data.

- It is now possible to synchronize master data from PROCESS DIRECTOR AP using Tungsten AP Essentials Connect.
- The PROCESS DIRECTOR Accounts Payable integration has also been improved with the addition of a new setting, **System ID (SYSID)**, which is needed to improve load balancing via the message server.

December 4, 2019

- To improve performance of the NetSuite integration, saved searches are now required. Previously, saved searches were optional.

  If you use the NetSuite integration, and you have not previously configured saved searches, these will not be synchronized until you configure saved searches.

- Administrators can now enable and disable preview features in Admin Center.
- Tungsten AP Essentials can now learn the format of manually entered invoice numbers on utility bills. Previously, only one static format was allowed. This feature is currently only available for select users on a preview basis.
- Mobile approval users can now perform more actions such as:
  - Handling requests for information.
  - Rejecting invoices.
  - Deleting invoices.
  - Holding and unholding invoices.
  - Viewing coding lines.

  Mobile approval is currently only available for select users on a preview basis.
- The NetSuite integration now supports the processing of multiple purchase orders per invoice.
- Tax handling for the NetSuite integration has been improved. Previously, the integration relied on NetSuite to calculate tax amounts using entered tax codes. If the supplier used a different rounding method to calculate the tax, NetSuite's calculated amount could differ from the captured tax amount. This discrepancy could prevent invoices from being processed in NetSuite. To overcome this issue, Tungsten AP Essentials now also sends the captured total tax amount value when creating vendor bills in NetSuite.
- Three new analytics reports are available to help keep track of production efficiency:
  - **Total verification time by user** - Displays the total time (in hours) a user has spent verifying documents during the given time period on a daily basis. Only the top 50 users who spend the most time verifying documents are displayed. This report helps you see how much time, in total, your users spend verifying documents. You can also compare users to see who spends the most time verifying documents.
  - **Verification time by supplier** - Displays the average time users spend verifying one document for each supplier. In other words, this report tells you which supplier's invoices take the longest time to verify on average. Only the top 50 suppliers that take the most time are displayed.
  - **Verification velocity** - Displays the average time (in minutes) it takes for a user to verify one document over time on a daily basis. This report is helpful because you can easily see if users are maintaining reasonable verification speeds. Decreasing trends in the line graph indicate users are verifying documents more quickly, whereas increasing trends indicate it is taking more time. A new user, for example, might display a gradually downward trending graph

as the user becomes more proficient at verifying documents. In contrast, large volumes of problem documents, or long documents with large numbers of line-items, might decrease user efficiency, causing an upward trend in the graph. You can also use this report to compare verification velocities between users.

- Several new **Extraction** reports are available. These reports depict how well Tungsten AP Essentials automatically finds fields on documents.
- A new target system integration is available which connects Tungsten AP Essentials with Oracle Financials Cloud. This feature is currently only available for select users on a preview basis.

November 6, 2019

- Many improvements have been made to image quality, image panning and zooming and document alignment in Tungsten AP Essentials Office.
- The detachable invoice view is now available for all customers.
- Invoice approval is available in a light-weight app for mobile devices, so you can perform workflow and approval activities on the go. This feature is currently only available for select users on a preview basis.
- Tungsten AP Essentials can now automatically create invoice numbers for utility bills, so Office users no longer need to enter them manually. This feature is currently only available for select users on a preview basis.
- It is now possible to create custom fields which skip extraction. This is helpful if you want to manually add information to documents during verification by setting a value on a field that does not exist on the incoming documents. The new setting is called **Skip extraction**, and it is only available for custom header fields.
- A new validation rule, called **Line items cannot be empty**, ensures that line items are captured on incoming invoices. This prevents invoices from skipping verification if no line items are found during extraction, and your data verification settings are set to only process invoices with field errors.
- Improvements have been made to the PROCESS DIRECTOR AP integration, so it is easier to specify its target system settings.

October 11, 2019

- Remittance advice interpretation has been improved. In addition to performance improvements, line-item tables are now automatically interpreted on the first try without needing to manually draw line-item fields. This feature is currently only available for select users on a preview basis.
- There is a new validation called the **Remittance advice line-item total amount** validation, which you can use to ensure that the total amount matches the total sum of all line-item rows on remittance advices. This validation is only available for remittance advice document types.
- If your computer is connected to two monitors, you can now use both monitors by displaying an extra, detached invoice image view in a new window. The position, size and zoom level of the detached window are remembered when navigating between documents and login sessions. Alternatively, you can use the detached invoice image view on a single monitor as well. This feature is currently only available for select users on a preview basis.
- The performance of AP Essentials Office has been improved when verifying invoices with line-item tables that span over many pages.
- A progress indicator now appears in Online Office when processing invoices with large amounts of line items.

September 11, 2019

- Tungsten AP Essentials now automatically extracts English date formats when using non-English document types. Previously, if you used a non-English document type, date fields containing English month names caused validation errors.
- Tungsten AP Essentials now accepts signed SAML assertions when using single sign-on. Optionally, you can also choose to encrypt your SAML assertions.
- Line-item pairing, also known as matching, now supports unit-of-measure fields, so you can automatically update the fields from your master data, if the fields are missing on the invoice.
- It is now possible to capture and extract data from Thai invoices, using the new Thailand document type. This feature is currently only available for select users on a preview basis.
- Automatic page separation can now be achieved by using barcodes to indicate the first page of each invoice.
- Company profiles at the partner and customer level now have a **Notes** setting that administrators with the *Manage accounts* privilege can use to save additional text information about the organization.
- A new privilege, called *Manage service plans*, is available. Users with this privilege can edit licenses and service plans via the **Service plan** view (Admin Center), **Profile** view (Control Center) and the API.

  The *Manage service plans* privilege is automatically enabled for partner administrators who have the *Manage accounts* privilege prior to this release. For new users created after this release, the privilege can only be added by users who have the *Manage service plans* privilege.

- Privileges have been improved to prevent unauthorized and accidental changes. Administrators can no longer grant or remove privileges that they do not have themselves.
- Purchases made through the Store are now performed using 3D Secure 2.0 (3DS 2.0), the next iteration of the 3DS authentication protocol which satisfies Strong Customer Authentication (SCA) requirements in the EU.
- The Visma Business integration no longer includes the Visma distributed DLL libraries. If the AP Essentials Connect configuration wizard cannot find a Visma Business installation on your computer, a dialog prompts you to specify the location of the integration DLL.

August 21, 2019

- It is now possible to configure the embedded integration for Dynamics AX via Admin Center.
- When exporting documents using the SFTP target system, you can now include the original input email with the output.
- Document subtypes are now available on the buyer level. This feature is currently only available for select users on a preview basis.
- Departments that are blocked in E-conomic are no longer included in master-data synchronization.
- In the NetSuite integration, it is now possible to map the NetSuite supplier entity ID to the supplier number in Tungsten AP Essentials.
- The NetSuite integration supports NetSuite 2019.2.

- Accrual reports are now available in Admin Center via Analytics.

July 16, 2019

NetSuite integration users, please note: The **System URL** setting has been removed because the system URL is now detected automatically. No user action is required.

- New Analytics reports are available in Admin Center. The new reporting system, which is enabled via the new Analytics service, contains detailed information about document status, document volume and performance statistics in and easy-to-use interface.
- Now administrators can add partners and organize them into groups using Admin Center.
- Automatic coding suggestions can now be specified for individual fields by using the **Include in coding suggestion** setting. This is helpful if you want to turn off coding suggestions for specific fields.

  Include in coding suggestion is already enabled on existing coding fields, and it is enabled by default when you add a new coding field.

- Classification synchronization for the NetSuite integration has been improved. Now the synchronization uses saved searches in NetSuite to increase performance.

  If you used the **Classifications** master data prior to this release, the synchronization will not work until you install the latest Tungsten AP Essentials bundle in NetSuite and configure the new saved search ID (*customsearchrsoclassifications*) in the **Classifications** setting.

- Service plan settings are now accessible via the API.
- Now you can use general-ledger master data to suggest field values for header and line-item fields without using the Workflow service.
- Support for ZUGFeRD XML input is now generally available for customers.

June 12, 2019

- Now you can specify validation tolerances for the **Purchase order quantity** and **Purchase order unit price** validations. This is helpful because you can increases efficiency by avoiding validation errors on small price or quantity changes.
- It is now possible to import and export users in Admin Center using CSV files. This is helpful because it lets you quickly and easily create or update up to 500 users at once, using a CSV file that contains user information and settings. This feature is supported in the **Users** view at the partner and customer level.
- It is now possible to create workflows for automatic invoice approval by creating a workflow with no steps. For example, if you want invoices with amounts less than $20 to be approved automatically, without user interaction, create a workflow without steps and create a trigger to direct invoices with amounts less than $20 to that workflow.
- You can now edit service plans in Admin Center.
- Using Admin Center, it is now possible to specify extraction settings on the buyer level. Reverting changes back to the settings of the parent account is as easy as clicking a button.

- The NetSuite integration now supports specifying general ledger accounts on either the header level, or for each line-item row, without using the Workflow service.

May 15, 2019

- The Workflow service now includes new forms of approval: linear approval, single-point approval, first-action parallel approval and unanimous parallel approval. Learn more about how these new methods use managerial hierarchies and monetary limits to create dynamic, time-saving workflows. These features are currently only available for select users on a preview basis.
- The due-date validation can be enhanced using payment-terms master data. Previously, the due date validation only checked if the due date occurred within realistic date boundaries and if the value was a valid date. Now you can use supplier master data to create individual settings for each payment term. The new settings determine:
  - whether to empty the due-date field or fill it with a calculated value.
  - how to calculate the due date.
  - when to use the calculated due date.
- Adding new customers is easier than ever before in Admin Center. Now you can add a new customer by copying the settings of an existing customer. This saves you time and reduces the risk of making mistakes.
- Admin Center now makes it possible to configure single sign-on for OpenID and SAML 2.0.
- Tungsten AP Essentials now supports ZUGFeRD 2.0 XML input.
- To improve field mapping with ESXML, a new field has been added to Tungsten AP Essentials. The Tungsten AP Essentials field, `DeliveryAddressLocationId`, maps to `locationId` in ESXML.
- The image representation of FatturaPA XML invoices has been improved to include more field values.
- The default behavior for determining the currency of an invoice has changed. If Tungsten AP Essentials finds a currency on an invoice, that currency is used. If no currency is found, the currency of the most recently verified invoice from the same supplier is used.

April 10, 2019

The **Verify** button is no longer available at the top of the **Explore** view in Control Center. To open a document in AP Essentials Office from the **Explore** view, expand a batch row and select .

- The **Resources** view is now available in Admin Center. You can use external resources, such as XSLT files or ZIP files containing plug-ins, to provide custom functionality to Tungsten AP Essentials services.
- The duplicate invoice check validation is now more flexible. Namely, the **Invoice date** and **Invoice amount** checks are now optional and can be toggled in the **Duplicate invoice check** setting. The supplier number and invoice number checks are still always performed with this validation, and they are not optional.
- Creating user groups just got easier with privilege presets, which are now available in the **User group** view in Admin Center. Presets are a convenient way to apply commonly used privileges to a group, based on the role of the group.

- In the NetSuite integration, it is now possible to get the tax code from the supplier data in NetSuite, if the tax code field is undefined or left blank during verification. Enable the **Use tax code from supplier** setting to unitize this feature.
- It is now possible to configure two-factor authentication in Admin Center.
- Japanese and Korean document types are now available on a preview basis.
- Audit trail information has been improved for Email input, Extraction and Workflow services.
- Usability improvements have been made to Admin Center, such as new context menus for performing actions in the **Partners** view and the **Customers** view. Also, the API key is displayed in the **Target system** view.

March 13, 2019

- 3-way matching has been improved. If the **Goods received quantity** validation fails, Tungsten AP Essentials can automatically recheck the goods received quantity for you until the document passes validation or until the number of days you specify in the **Automatic retry (days)** setting passes, whichever comes first.
- It is now possible to create user groups in Admin Center. If you manage an organization with many users, assigning users to groups makes it easier to manage privileges, customer access and buyer access.
- It is now possible to create triggers for correction workflows in Admin Center. You can use triggers to automatically assign invoices to workflows according to field values. For example, you can make a trigger based on the invoice amount, so invoices with high amounts are handled by a workflow with users that are authorized to approve high amounts. Triggers are activated after an invoice is verified, but before a workflow is chosen.
- A new view is available in Admin Center that uses the combined **Approval** settings of each user to display the approval hierarchy in a way that is easy to understand. This feature requires linear approval, which is currently only available for select users on a preview basis.
- Field mapping in the NetSuite integration has been improved. Memo fields on expense rows are now mapped to one of two fields in Tungsten AP Essentials, depending on which one has a value. If LIT_Memo is defined and has a value, it is used. Otherwise, the value from LIT_ArticleName is used.
- The NetSuite integration has been improved, so it is possible to post credit notes that only contain the gross amount. In other words, you can post credit notes that do not include the net amount or tax amount.
- The NetSuite integration now supports custom field mapping for item fields and expense table fields.

February 15, 2019

- Now you can hold invoices to prevent them from changing and moving through the system. This is helpful, for example, if an invoice lacks information, and you want to make sure it does not get processed until the issue is resolved. After you resolve the issue, you can "unhold" the invoice, and it will resume processing.

  You can also create notifications based on the *Held* event to make sure invoices placed on hold get attention.
- The usability of the field validation messages that you see while verifying invoices has been improved. Now all validation errors for the current field are shown at once. If your settings let

you override validation errors, and you try to override them, a dialog appears that asks you if you want to override all of the validation errors on the current field.

- It is now possible to open documents in AP Essentials Office in the new user experience from the **Explore** view and the **Documents** view in Control Center. With this feature in place, the classic Office interface is no longer needed and will eventually be phased out.
- Audit trail logs have been improved to include more information about changes to the Notification and Validation services.
- It is now possible to configure the Validation service and the Classification service in Admin Center. Also, accessibility of both services has been improved by letting partner administrators specify the default service settings for new customers, a feature which is not available in Control Center.
- The NetSuite integration now supports NetSuite 2019.1.
- Many usability improvements have been made to Admin Center.

January 17, 2019

- The SFTP target system service now supports sending ZIP files using Pretty Good Privacy (PGP) encryption.
- Cloud-to-cloud integrations, such as the NetSuite and E-conomic integrations, now support partial master data synchronization. This means you can choose to synchronize a single master data type, instead of synchronizing all master-data types at once. This feature is only available in Admin Center. You can synchronize each master-data type from its view in Admin Center. This is beneficial because partial synchronization is faster and takes less bandwidth from your financial system.
- It is now possible to configure Workflow services using Admin Center.
- It is now possible to export attachments with output. Any files that are attached to a document during verification or approval can also be included with the output. You can enable this setting in target systems that produce XML output using Tungsten AP Essentials XML 2.0, such as the SFTP, local XML and Email target systems.
- Interpretation of order number fields has been improved.
- The Document volumes report is now available for customer groups in Admin Center.
- The NetSuite integration has been improved so purchase-order data that is uploaded from NetSuite now includes unit-of-measure and line-description data.

2018 and older

December 6, 2018

- The NetSuite integration supports general ledger coding of non-PO invoices.
- Linear approval provides a new way of routing invoices according to monetary limits that you set on user accounts. This new feature can dramatically reduce the number of workflows that you need to create and maintain.

  This feature is currently only available for select users on a preview basis and is restricted to customer accounts.
- New field validations are available which provide support for 2-way and 3-way matching of line items with purchase orders.
- Single sign-on, using OpenID Connect, is now available for all customers.

- Now you can organize customer accounts into groups in Admin Center. Previously this feature was only available in Control Center.
- Tungsten AP Essentials can interpret invoices in FatturaPA format, the official invoice format used by public administrations in Italy.
- Tungsten AP Essentials can now extract and process Austrian invoices.
- The Tungsten AP Essentials Store now supports orders from Ireland and Singapore.
- It is now possible to embed invoice image files in XML output. You can enable this setting in target systems that produce XML output using Tungsten AP Essentials XML 2.0, such as the SFTP, local XML and Email target systems.
- Audit trail logs have been improved to include information about changes that are made to process control and purchase order service settings.
- New email templates have been added for notifications that previously could not be customized.

November 8, 2018

- Admin Center takes the monotony out of creating users by offering new ways to quickly and easily create multiple users simultaneously.
- You can now manually send *Complete* documents to the target system from the document list view in **Documents** mode. Previously, you could only perform this action in **Batches** mode.
- Automatic coding suggestions are now available for all coding fields. Previously, automatic coding suggestions were only available for accounts and amounts. Now automatic coding suggestions are available for all coding dimensions as well.
- During account coding, it is now possible to clone coding lines with the select of a button.
- When editing email templates, you can now choose whether you want to update the current template only, or existing templates of the immediate sub accounts. This is helpful because it gives administrators more flexibility, and it is much easier to update templates for multiple sub-accounts.
- It is now possible to add customers and buyers using Admin Center.
- Line-item interpretation has been improved by ignoring vertical text that is sometimes found in margins on the invoice image.
- The NetSuite integration has been improved so you no longer receive errors when tax codes are missing from line items with purchase orders.
- The NetSuite integration now supports approval workflows. Currently, the NetSuite integration only supports approval workflows without account coding. In other words, you can use Tungsten AP Essentials's workflow service to create approval routes that determine which users must approve an invoice before sending it to NetSuite.

October 4, 2018

- Tungsten AP Essentials now supports single sign-on using OpenID Connect. Currently, this feature is only available for select customers.
- New email notification templates are available for workflow summaries. Summary emails are sent when you choose to send alerts on a daily basis, instead of instantly, in the **Alerts** settings. Learn more about automatic notifications.
- It is now possible to adjust the **Email forwarding** settings in Admin Center.
- Audit trail logs have been improved to include information about changes that are made to storage and verification service settings.
- The extraction service in Admin Center now supports the compact format for field validation.

- Tungsten AP Essentials administrators can now easily change the names of document types at partner level in Admin Center. Contact support if you would like to change the names of your document types.

September 6, 2018

- Email templates have been improved so more template variables are available for use with more templates. For example, previously the `%CustomerName%` variable was not available in the export-failed template.
- Email templates are now available on the customer level. When a partner creates a new customer, the initial templates are copied from the partner to the customer. Existing customer templates do not inherit changes made to partner templates.
- There are two new workflow-related email templates that you can customize to notify users when a document is rejected, or when information is requested. Previously, these messages were sent automatically by the system, but you could not customize the contents of the email.
- Tungsten AP Essentials supports SSL/TLS encryption for email communication.
- The new user experience is now the default web interface for Tungsten AP Essentials Office. If your web browser supports Silverlight, the classic interface is still available, however we recommend using the new user experience.
- The Extraction service is now accessible via Admin Center.
- Original emails containing invoices can be viewed on the **Attachments** tab, during verification and approval, by Office users that have the **Access Storage** privilege.
- The NetSuite integration now supports NetSuite 2018.2.
- You can now view master data in Admin Center.
- Many improvements have been made to the new user experience in Admin Center and Office.

June 27, 2018

- AP Essentials Admin Center is now available for select users on a preview basis. Admin Center is a web-based control panel that administrators can use to set up and manage Tungsten AP Essentials. Admin Center is the successor of the Control Center, which will eventually be phased out in favor of the new technologies that Admin Center offers.
- The Tungsten AP Essentials Store has been redesigned, and more importantly, the new store accepts credit card and PayPal payment and offers automatic subscription renewal.
- In previous releases of Tungsten AP Essentials, notifications were sent to all users, even if the **Role** was set to **Admin**. This has been corrected, so some users may experience a decrease in notifications because they were previously receiving notifications that were intended for administrators.

June 7, 2018

- It is now possible to set a **Default value** for custom fields. The default value is used if the field is not found during extraction. This is helpful, for example, if you want to add information that does not always appear on the invoice image.
- Line-item extraction has been improved for many specific customer cases.

May 9, 2018

- In the NetSuite integration, it is now possible to determine whether you want to include hierarchical information in the Name field of Locations, Departments and Classifications master data. Location master data has also been improved by adding address information to the Description field.

- A new option is available in the Output image format setting in the NetSuite integration. Now you can choose to not send invoice images to NetSuite. This reduces storage redundancy, if you already store invoice images in storage.
- Now you can use Name and Description values from generic master data to improve extraction results. You enable this feature with the Use master data to improve extraction setting.
- It is now easier to filter field suggestions for general ledger accounts during account coding. Previously the "begins with" search style was performed only on the first word. Now searches are performed on each word of the master-data name and value. For example, suppose you have an account Name "Some Account" with the corresponding Value "123 456". Typing either "S" or "A" will match the field suggestion for the account name. Likewise, typing "1" or "4" will match the value.
- It is now easier to search field suggestions during verification. For master data that uses Name and Value elements, such as generic master data, the name and value are treated as one, when it comes to filtering field suggestions and drawing fields during verification. For example, suppose you have a Name "ABC" with the corresponding Value "123". Typing either "ABC" or "123" will match the field suggestion.
- Office users can now hide unused fields on a supplier basis. This is helpful because it alleviates the repetitiveness of clearing unused fields and removes clutter from the workspace. This feature, which was previously only available on a preview basis, is now available for all users.
- The total amount validation no longer includes a VAT rate validation.

April 17, 2018

- If you have multiple suppliers with the same name, it is now possible to designate a preferred supplier by excluding suppliers from automatic identification.
- The Document separation setting in the Upload view has been improved in the new user experience. Now the most recent selection is saved and used as the default setting the next time you use the Upload view. The default selection is saved across web browser sessions. The initial default selection has been changed to One document per file.
- Input performance has been improved to handle large batches and documents with greater efficiency.

March 16, 2018

- Now Office users can hide unused fields on a supplier basis. This is helpful because it alleviates the repetitiveness of clearing unused fields and removes clutter from the workspace. This feature is currently available on a preview basis for select customers.
- For enhanced security, the new user experience now requires TLS 1.1 or newer. Control Center still supports TLS 1.0.
- Settings for bypassing verification per supplier have moved, but don't worry, we have copied the current settings to the new location for you. For your reference, the current settings will remain visible in the Process control service in a read-only state for a limited time. Learn how the new settings work here.
- The feedback list in Control Center has been improved so you can see which supplier was selected during verification. This is helpful because partner administrators can now sort the exported report by supplier, or supplier number, to easily identify large numbers of problem invoices from a particular supplier.
- The NetSuite integration now imports tax codes from NetSuite if you have tax code fields enabled in the header or line-item level.
- now supports NetSuite version 2018.1.

- The file-size limit for uploading attachments to the new user experience has increased from 25 MB to 50 MB.

February 15, 2018

- The SFTP target system now supports output consolidation. When Consolidate output is enabled, XML data for multiple documents is sent to the target system a single XML file at regular intervals. This is helpful because it can reduce the number of connections to the target system.
- Administrators can now temporarily pause customer accounts.

January 18, 2018

- You can now return email to senders when email validation fails in the Email input service. This is helpful because it informs the sender of the problem, so the email can be corrected and sent again.
- The SFTP target system service now supports saving files with the CSV file extension. This is helpful because it makes it easier for target-system applications to identify the contents of the file.
- Office users can now specify if complete documents can bypass verification. Administrators can enable this ability using a new privilege.This feature is only available in the new user experience.
- now supports the interpretation of long Lithuanian dates.
- The NetSuite integration now supports invoices that only have gross amounts. This feature is only included in the US document type.

December 7, 2017

- Now you can create email notifications that notify suppliers when email input fails. This is helpful because it informs the supplier when there is a problem receiving an email invoice, which needs to be corrected and sent again.
- The E-conomic integration now supports token-based authentication.
- Barred cost types are no longer imported from E-conomic. This makes invoice approval easier because it reduces the number of cost types you need to go through when approving invoices.
- It is now possible to search customer feedback using the API.
- Many improvements have been made to user controls in the new user experience.

November 2, 2017

- The NetSuite integration now supports subsidiary-specific saved searches (only applicable for NetSuite OneWorld).
- For enhanced security, the characters that you can use when naming objects in Tungsten AP Essentials are now limited.
- PDF interpretation has been improved.
- This release contains many performance improvements and security enhancements.

  September 28, 2017
- Password requirements have been improved to provide more security. Commonly used passwords are no longer allowed. For example, you cannot use "Password1" or "Qwerty123". If you try to change your password to a commonly used password, a dialog prevents you from doing so.
- There is a new button in the document list view that lets you send Complete documents to the target system, while leaving incomplete documents behind to continue processing. This is helpful, for example, if you keep batches together and have a large batch of invoices that are

ready to be sent to the target system, except for one invoice that is being delayed for some reason. In this case, you can select the **Send complete documents** button ( ) to send all of the Complete documents in the batch to the target system.

- You can now increase interpretation rates of VAT registration fields by providing your organization's VAT number in the **Profile** view. In many cases, VAT registration numbers for the buyer and the supplier appear in the invoice header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number.
- Line-item extraction is now available in the Freemium version of Tungsten Automation Invoice Capture Service for Microsoft Dynamics NAV.
- A new document type is available for processing Estonian invoices.

September 7, 2017

- Now you can help prevent Office users from accidentally overriding validation errors by requiring additional confirmation via a dialog. A new setting in the Verification service lets you display validation errors in a dialog that requires user interaction, so Office users cannot accidentally override the errors by simply pressing Tab or Enter. This feature is only available in the new user experience.
- The usability of the accounting table has been improved in the new user experience. Among other things, columns are now resizable and the widths are remembered across sessions, keyboard navigation works more smoothly, and new rows are inserted according to your current position.
- Additional usability improvements have been made in the line-item and accounting tables in the new user experience. Now there is an easy way to:
  - apply the same value to all fields in a column in the line-item table and the accounting table.
  - set all of the field statuses in the column to Complete in the line-item table.

    Simply select the check box at the top of a column and change the value of a field in the same column, or press Enter to override a validation error. After you press Enter, use the dialog that appears to select the actions that you want to perform on all fields in the column.

August 10, 2017

- Tungsten Automation Mobile now supports two-factor authentication.
- If you use the purchase order service to import PO data, the order number header field is now searchable during verification. You can select **Order number** in the document view to display a search dialog, or take advantage of the auto-complete feature by typing a field value. If you change the order number, the PO values are also updated in the line-item table.
- Keyboard shortcuts have been changed to prevent the accidental validation of incorrect values. You can no longer override validation errors by pressing Tab. Now you must press **Enter** to override validation errors, and you can only use Tab to move to the next field.
- It is now easier to draw and capture multi-row line items in the new user experience.

June 28, 2017

- Administrators can now easily enforce 2FA for all users in the Control Center. Administrators can also exclude users from 2FA on an individual basis in the Users settings.
- The document list view now remembers which pane is displayed when you close your web browser, so you return to the same pane the next time you log in. For example, if the Verify pane is displayed when you close your web browser, you return to the Verify pane the next time you log in.

- Now you can print documents when viewing document images in the document list view.
- Tungsten AP Essentials Data Import app for Microsoft Excel and Tungsten AP Essentials Reports for Microsoft Excel now support two-factor authentication.
- There is a new view in the document list view for displaying Rejected documents and batches. Note that Rejected documents no longer appear in the **Verify** view.
- The purchase order validation has been improved to include purchase order header fields, and it uses imported PO data for validating.
- The Dynamics AX (Embedded) integration can now pass cash discounts to invoice journals.
- It is now easier to draw and capture multi-row line items in the classic view.

May 30, 2017

- It is now possible to draw and interpret custom line-item fields during verification. In previous versions of Tungsten AP Essentials, custom line-item fields required manual entry. Now you can draw custom line-item fields on the invoice image, so Tungsten AP Essentials can interpret their values. Also, if an administrator enables the preview feature, Internal custom field line item extraction, Tungsten AP Essentials learns the positions of the custom fields, so they are automatically interpreted the next time you process an invoice from the same supplier.
- For your security, Tungsten AP Essentials supports two-factor authentication by utilizing mobile devices to provide an additional layer of authentication. This feature is currently available on a preview basis, so customers can get early access and provide feedback. Administrators can enable preview features in the **Settings** view.
- Invoice number formats are now automatically optimized to provide better interpretation and identification.
- Image preprocessing has been enhanced to handle lager batches and image processing in general is now more robust.
- Many performance improvements and enhancements were made to the new user experience.

April 27, 2017

- Tungsten AP Essentials has new terms of service. When logging in, an administrator can agree to the terms on behalf of your organization.
- Now you can use the check box at the top of each column to quickly apply a value to all cells in a column in a line-item table.
- The single sign-on feature now supports SHA-256 and SHA-512 signed tokens for SAML SSO.
- Many performance improvements and enhancements were made to the new user experience.

> When logging in to Tungsten AP Essentials Office, you are automatically redirected to the new user experience if your browser does not support Silverlight. Administrators who use Tungsten AP Essentials Control Center, however, require a browser that supports Silverlight, such as Internet Explorer.

March 30, 2017

- The new user experience is now ready for general availability.
- Account coding is easier than ever before in the new user experience. Now you can use the check box at the top of each column to quickly apply a value to all cells in a column.
- The NetSuite integration now supports NetSuite 2017.1.

- The document type is now displayed in the information tab in the document view of Tungsten AP Essentials Office.
- Several integrations have been improved to handle high document volumes with greater efficiency:
  - Email
  - SharePoint
  - Reviso
  - Primobox
- Line-item column widths are saved between sessions in the new user experience.
- The new user experience has been translated to:
  - Chinese (Simplified)
  - Danish
  - Dutch
  - Finnish
  - French
  - German
  - Norwegian
  - Portuguese (Brazil)
  - Spanish
  - Swedish
- The Dynamics AX 2012 integration now handles scenarios where the unit of measure differs between the purchase order and inventory.

March 8, 2017

- Tungsten AP Essentials can now use line-item values to create automatic coding suggestions.
- You can now filter the document list view by searching individual columns in the new user experience.
- Document counters are now visible in the new user experience, so you can quickly see how many documents are waiting to be processed. There are document counters for the Assigned to me, Verify and **In progress** views.
- The Visma Business integration now supports Visma Business 11.
- You can now view invoice images from the document list view in the new user experience.
- The NetSuite integration has been improved to handle high-volume output with greater performance.
- If you try the new user experience, you can specify whether you want to use the new user experience by default when logging in. A new dialog appears in the new user experience, which you can use to make your selection.

February 22, 2017

- You can now toggle the document list view to display documents or batches in the new user experience.
- You can now view the history of each document in the document list view.

- You can now refresh coding suggestions during approval in the new user experience. The **Refresh** button lets you update coding suggestions from the master data, so you can perform your duties with the most up-to-date information.
- The new user experience now supports coding suggestions for credit notes.
- Many performance improvements were made to the new user experience.

January 12, 2017

- The Tungsten AP Essentials Data Import app for Microsoft Excel now supports master data on the buyer level.
- You can now use the new user experience to manually separate documents.
- The Document detail history data set in Tungsten AP Essentials Reports for Microsoft Excel now includes information about the time each document was successfully processed.
- E-conomic integration performance has been improved to process large volumes of documents more efficiently.
- Tungsten AP Essentials Connect now supports Windows Server 2016.
- Confidence rates have been improved for supplier fields and the invoice number field. The improved features are currently available as a preview for select customers.
- Customer feedback has been improved with a new escalation status, Analysis, which informs customers that the feedback is currently being analyzed.
- It is now possible to mark suppliers as blocked from the Control Center and during verification using the Edit supplier dialog.

November 24. 2016

- The Document process status data set in Tungsten AP Essentials Reports for Microsoft Excel now includes the latest comment for each document.
- The validation service has a new validation to ensure that the total amount field value is not zero.
- The validation service has a new validation that makes sure that the total amount field does not exceed the value you specify. You can also specify a maximum value that prevents the invoice from being processed.
- You can now change your password using the new user experience.
- The new user experience now supports automatic line-item pairing.
- The duplicate invoice check is now performed before documents are sent to the target system (before document registration and posting). This ensures that duplicate invoices cannot coexist during verification or workflow processes without warning. Also, customers who do not use document registration can now use this validation.
- If a user overrides a validation during verification, it is now noted in the document history. Currently, this feature does not apply to validations that are overridden during approval workflows.
- The Sage integration now supports versions 22 and 23.
- The NetSuite integration now supports manual and automatic PO line pairing.

October 27, 2016

- You can now choose whether PDF output is color or black and white in the target-system settings.
- The NetSuite integration now supports billing in advance of receipt. This is helpful if you need to bill purchase orders before they are received in NetSuite.
- Added a new API method, GetAttachments, that you can use to retrieve invoice attachments.

- You can now search for suppliers during verification in the new user experience.
- You can now perform manual line-item pairing in the new user experience.
- You can now upload invoices in the new user experience.

September 28, 2016

- Tungsten AP Essentials can now process documents from Iceland.
- Tungsten AP Essentials Reports for Microsoft Excel includes a new data set (Document consumption details) that you can use to collect data that is useful for billing.
- The Document process status data set in Tungsten AP Essentials Reports for Microsoft Excel now includes information about request-for-information documents.
- The NetSuite integration now supports version 2016.2.
- You can now start a workflow during verification using the new user experience.
- You can now manually assign the next user in a workflow using the new user experience.

August 31, 2016

- Improved the Reports Add-in for Microsoft Excel with the ability to retrieve document details and document-process status data sets.
- Storage services are no longer required for the duplicate-invoice validation.
- Improved the Rule dialog by increasing the number of buyers and suppliers you can add to 1,000.
- The new user experience now supports all of the same validation rules as the classic view.
- PDF output now retains color information. Note that color PDFs can result in larger output file sizes.

August 3, 2016

- Added language support for Irish English.
- Added support for Dynamics AX 2012 R3 CU11 to the Dynamics AX 2012 integration.
- Improved the API with two new functions for the metering service: GetDocumentDetails and GetDocumentProcessStatus. You can use these functions to retrieve analytic data and process statistics.

July 7, 2016

- Automatic buyer classification now uses more fields to increase the confidence of the buyer identification.
- The new user experience is now available for preview for all Office users. Simply select **New view** in Tungsten AP Essentials Office to try it out. Your feedback about the new user experience is greatly appreciated.
- Added the ability to upload files to storage in the new user experience.
- Many improvements have been made to the new user experience, including enhanced validation rules and more consistency in the UI design.
- Using the API, you can now upload attachments to existing invoices.
- External IDs are now available in feedback reports.
- When using the reports add-in for Microsoft Excel, document statuses are now included in the pending-invoice report.

June 8, 2016

- You can now add up to 50 steps in a workflow.

- Customer-group users now inherit workflow alert settings from the partner account.
- Improved the invoice-date validation with an additional expiration date that you cannot override during verification.
- The E-conomic integration supports payment-type validations for Swedish and Norwegian document types.
- You can now use the API to retrieve the sender, recipient and subject of the original input email.
- Made many improvements to document extraction, image processing and PDF interpretation.
- You can now download the Dynamics AX 2012 model file directly from Help.
- Added the **Storage** view to the new user experience. Unlike the traditional user interface, you can view all of the document data, including line items.
- Improved document sorting for Tungsten Automation Mobile.
- Improved the accrual reports to include the latest user comment.
- You can now prefix tracking IDs with the external reference IDs of the customers.
- Field validation behavior has changed. Previously, some empty fields passed validation, even if Accept empty value was not selected. Now you must select **Accept empty value** for empty fields to pass validation.

May 11, 2016

- You can now specify the field format for custom fields and for some predefined buyer fields, using a compact format specification.
- You can now capture information for custom fields with fixed positions. Previously, custom fields required manual data entry. Now custom fields with fixed positions can be interpreted during extraction, just like predefined fields.
- You can now use invoice journals for PO invoices in the Dynamics AX embedded target system.
- You can now specify a data template for the document field in Dynamics AX. This feature is only available if you use the embedded target system.
- Improved the Document volumes report with the ability to display user information across customer organizations. In previous versions, if you had a partner administrator who handled invoices for several customers, you had to compile separate reports for each customer to see all of the activity of the user. Now, however, you can produce one report that covers all customers.
- Improved the document list view in the new user experience with new filter categories.
- Modified the field mapping of the PaymentReferenceNumber field for ESXML.
- Improved image preprocessing with enhanced rotation, deskewing and thresholding. Currently this feature is only available for some customers.
- Partner administrators can now view customer feedback in Control Center.
- Improved notification emails by ensuring that recipients only receive relevant notices based on their privileges.
- You can now specify the default account type to use when coding invoices.
- You can now start workflows manually in the new user experience.

April 13, 2016

- Tungsten AP Essentials Reports for Microsoft Excel is now available. This app lets you easily create reports from Tungsten AP Essentials in Microsoft Excel.
- Supplier-identification performance is greatly improved. If supplier identification is uncertain, the supplier is highlighted during verification ( ). The identification can be uncertain, for example,

if the invoice cannot be completely matched to the historical data that is used to process the invoices of the supplier. This functionality will help avoid processing invoices with the wrong supplier. It also means that even an identified invoice can be marked as uncertain, which is a change of the behavior, but still preferred to avoid late discoveries of incorrect identification.

- Improved document interpretation performance.
- You can now choose the display format of fields that use master data. For example, you can choose to display the field value as well as its name. You can choose the display format for extraction fields, and coding fields and account types. Note that the default format for account fields is the account code and the account name: 1234 (Account name).
- You can now print all pages of a document at once in the new user experience.
- You can now define default tax codes for your suppliers using master data. When a supplier is identified or selected during verification, the default tax code is automatically applied to the tax field.
- When using the NetSuite integration, you can now see that tax rates are displayed with corresponding tax codes when you change the tax-code field value during verification. This helps you choose the correct tax code during verification. You can also see that the tax rates are automatically appended to the Name field in the TaxCode master-data view in the Control Center.
- You can now use the default expense account on a NetSuite supplier regardless of the account type.
- You can now specify whether usage notifications are triggered by document volumes, account expiration or both.
- Improved line-item drawing usability in the new user experience.
- Added the ability to search the document list view in the new user experience.
- Added the ability to use field suggestions with line items in the new user experience.
- Added support for latest versions of Microsoft Dynamics AX 2012 (AX 2012 R2 CU9 and AX 2012 R3 CU10).
- Improved the audit trail feature, so changes to resource files are logged.
- Improved accrual reports with more information about workflow processes.

March 16, 2016

- Added support for payment type +75 to the E-conomic integration.
- Added support for new fields (Location, Department, Classification and Memo) to the NetSuite integration.
- Improved the PROCESS DIRECTOR AP integration with support for saving local copies of output (XML and images).
- Partner administrators with the Manage accounts privilege can now enable preview features.
- You can now toggle the Accept empty value setting for line-item fields. This setting is selected by default.
- Improved the new user experience with enhancements such as:
  - Continuous paging in the document list view.
  - Users with the Manage privilege can now unlock documents in the document list view.
  - Support for the Delete documents privilege.
- Improved supplier identification.

February 17, 2016

- The NetSuite integration now supports token-based authentication.
- Added three new reporting views to the Control Center. The Documents in progress view displays all of the documents that are currently in progress in the organization that you specify. The Invoices per supplier view displays the number of documents received per supplier and is only available on the customer level. The Processing time view displays the average time documents spend in workflow processes.
- When adding or removing rows in a line-item table, the total-amount validation now runs again to ensure that the field values are captured correctly.
- Customer administrators can now specify custom extraction formats for some line-item fields which leads to improved performance and better validation results. This feature is currently available in preview mode.
- Improved learning and extraction of gross amounts for US invoices.
- Improved the new user experience with many enhancements, such as icons that differentiate customer users, partners users and groups.

January 13, 2016

- The line-pairing feature is no longer in preview mode and is available to everyone for use. The Purchase order service must be enabled to use the line-pairing feature.
- The user interaction during verification has been modified when it comes to unknown fields on multi-page invoices. Previously, Tungsten AP Essentials would jump to the first page, if you selected a field whose position was unknown. Now focus remains on the current page.
- For Tungsten AP Essentials Office users, a new user experience is available in preview mode. The new user experience provides a new interface for verifying and approving invoices. The new interface uses HTML instead of Silverlight, so Tungsten AP Essentials will be compatible with more browsers; however, the preview version has some feature limitations at the moment. Only the Tungsten AP Essentials Services Delivery team can enable the new user-experience preview.
- You can use Tungsten AP Essentials Connect to upload XML invoices combined with the original invoice image file. This is helpful because it offers the superior data capture of XML, while displaying the original invoice image, which might contain additional information that is not available in the XML. To use this feature, select **Allow upload of XML files with matching image file** in Tungsten AP Essentials Connect and make sure that the corresponding file pairs have the same file name.
- Tungsten AP Essentials supports a new target system, Reviso.
- Logging has been improved when importing master data from PROCESS DIRECTOR AP.
- Phone and fax numbers for suppliers are now imported from Netsuite, Dynamics AX 2012, E-conomic and PROCESS DIRECTOR AP.
- Tungsten AP Essentials Connect supports Windows 10.

November 25, 2015

- Administrator permissions have been isolated to a new privilege called the Manage accounts privilege. Administrators with this privilege can manages accounts, users and settings in Tungsten AP Essentials Control Center. Without this privilege, administrators can access the Control Center, but they can only edit master data and work in the **Explore** view.
- The Search purchase-order dialog has been improved, so you can move and resize it. The position and size are remembered across sessions.

- The Dynamics AX 2012 integration has been improved, so PO header field values do not have to be removed when processing PO-based invoices containing order items and additional service items.
- The purchase order service has been improved for the Dynamics AX integration, so PO header field values are no longer removed when line-item PO fields are found.
- E-conomic integration performance has been improved, especially during heavy loads.
- The Tungsten AP Essentials Data Import app for Microsoft Excel supports the import of purchase-order data.
- A new column, Invoice date, has been added to the MANAGE, APPROVE and **Documents** views.

October 29, 2015

- The E-conomic integration supports balancing against the net amount.
- When verifying line items with validation errors, you can choose to override all of the fields in a column by selecting Apply to all fields in this column in the dialog that appears.
- The API has been updated to limit the number of documents you can download at once. This prevents backups and timeouts for customers that process large numbers of documents. Up to 5,000 documents can be retrieved at a time.

September 30, 2015

- There are two new variables for email templates.
  - %EmailInputAddress% - Specifies the default email address for accepting invoices via Email input services. This is beneficial for administrators who want to include the input email address in the welcome email that they send to new accounts.
  - %PasswordLink% - Generates a link that the user can follow to set the password.
- The E-conomic integration supports a new payment type, Entry only, which allows customers to use Tungsten AP Essentials to process invoices that have already been paid. his saves time because customers no longer have to switch to E-conomic to process invoices of this type. Communication response times between E-conomic and Tungsten AP Essentials have also been improved significantly.
- Several improvements have been made to the line-item drawing capabilities (rubberbanding), including support for capturing subheaders and improved detection of the Euro sign (€).
- The Netsuite integration now supports release 2015.2.
- Access rights have been simplified for the Dynamics AX 2012 integration. Now you simply apply the “RsoIntegration” role to accounts that communicate between AP Essentials Connect and Dynamics AX services.
- The Visma Business integration now supports Visma version 10.

September 2, 2015

- There is a new target-system setting that determines whether the original image file should be sent to the target system, rather than the adjusted image that Tungsten AP Essentials uses for interpretation. This is helpful for jurisdictions which require that the original image is saved in the financial system.
- More enhancements have been made to the line-pairing features of the Purchase order service, which is available in preview mode.
- The document service in the API has been extended, so documents/batches can be retrieved from a specific customers by filtering on a unique batch IDs and batches that have not been processed.

- The user interface for mapping fields has been elevated from preview mode and is now officially supported.
- The Microsoft Dynamics 2012 integration supports the handling of remittance addresses.
- The verification user interface has been extended with new capabilities that aid line-item drawing, extraction and learning. Some of the features include the ability to redraw missing rows, delete all line items and draw line-item columns.

August 4, 2015

- There is a new preview feature for automatic and manual purchase-order matching. Currently this feature is only available in preview mode. When you select **Enable-line pairing**, settings for manual and automatic pairing are displayed in the Purchase order service.
- The Single sign-on (SSO) framework has been improved to prevent multiple SAML assertions.
- Many improvements have been made to the Edit transform dialog (Map Designer).
- Tungsten AP Essentials Connect has been improved by reducing the login frequency after a login attempt fails.
- The Dynamics AX 2012 integration supports the parking of all register journals.

July 8, 2015

- This release contains many improvements that make working with line items easier. The changes include:
  - You can select multiple line-item rows for simultaneous deletion, instead of deleting one row at a time. You can also delete field values of entire columns.
  - When you draw line items, Tungsten AP Essentials highlights all of the line-item rows that are captured on the invoice. This is useful to see if any fields were missed during extraction.
  - You can draw the missing line-item rows on the invoice while keeping existing rows. When you draw a missing row, the field values are automatically interpreted and inserted in the existing table at the correct position.
  - Drawing single columns in line-item tables is easier than previous version of Tungsten AP Essentials.
  - Validation icons have been removed and consolidated, so only one icon per row is displayed, and they are only displayed if there is a validation error.
  - It is possible to move between pages while drawing a line-item table on a multi-page invoice.
- Support for ZUGFeRD XML input is available for customers in preview mode.
- The E-conomic integration validates duplicate document posts. If a user tries to post a document that has already been posted to E-conomic, an error message is displayed.
- Error handling has been improved for the E-conomic integration.
- The NetSuite integration has been updated, so it is possible to send the line-item description field to NetSuite.
- Now you can import PO master data to Tungsten AP Essentials for the Dynamics AX 2012 integration.
- Line-item pairing has been improved for the Dynamics AX 2012 integration.

June 11, 2015

- The Tungsten AP Essentials Data Import app for Microsoft Excel lets you easily import master data from Microsoft Excel to Tungsten AP Essentials.
- The FortNox integration supports version 3 of the FortNox API.

- The Dynamics AX 2012 integration provides a new, easy way to assign procurement categories to line items during verification. Also, pending invoices can be created, even if goods receipts are missing.
- The Dynamics AX 2009 and 2012 integrations save Invoice IDs for pending vendor invoices in Tungsten AP Essentials.
- The Dynamics AX 2009 and 2012 integrations add the Swiss ESR Reference number to the AX invoice payment ID.
- The Swiss document type has a new validation for bank accounts.
- Now you can use the Keep batch together setting with or without Workflow services.
- Customer usage information is now available in the API via the Metering service.
- A new document type is available for processing Chinese invoices.

April 23, 2015

The April release of Tungsten AP Essentials focused on internal stability and performance enhancements.

- The Dynamics AX 2009 and 2012 integrations can use more master data from virtual companies within Dynamics AX. Previously, only supplier master data was supported. Now, GL accounts and coding dimensions are supported too.

March 25, 2015

- The Field view has been improved, so you can specify the master data that is used to suggest field values without using the naming conventions that were in place in previous versions of Tungsten AP Essentials. This is helpful because it lets you reuse the same master data for multiple fields.
- Tungsten AP Essentials can mark blocked suppliers with an icon during verification, so users can make better decisions when choosing suppliers.
- Now you can search and sort documents by PO number in the MANAGE, APPROVE and Documents views.
- The old licensing system has been replaced by an account-usage system.
- The performance of the NetSuite integration has been greatly improved.
- System performance has been improved, so the Document volumes and Document processing reports can be generated much faster.
- Security enhancements have been made to SAML SSO, which make it possible to specify a grace period for SAML ticket assertions in the Identity provider dialog.
- The Dynamics AX 2009 and 2012 integrations support coding during verification.
- The Dynamics AX 2009 and 2012 integrations have been improved, so line items are no longer converted to coding rows for PO invoices when the workflow service is enabled.
- Support for Visma Business 9 has been added to Tungsten AP Essentials.

February 25, 2015

- The Condition dialog and the Rule dialog support multiple conditions (up to ten) when creating workflow rules. There is also support for using coding fields to trigger conditions.
- In previous versions of Tungsten AP Essentials, the email notification for invoice approval was hard-coded in the system. Now you can customize the email notification in the same way that you edit other email templates.

- The Dynamics AX 2009 and 2012 integrations support processing non-PO invoices with invoice journals.
- Dynamics AX 2012 functionality has been improved to ensure that no duplicate posts are made.
- Closed accounts and dimension values are now flagged as inactive, and they are not shown during coding in the Dynamics AX integrations.
- The Dynamics AX interface version is now shown in the AP Essentials Connect configuration wizard. The wizard also performs new validations to make sure that the Dynamics AX configuration is correct.
- The NetSuite integration supports version 2015.1, and several performance improvements have been made.

January 19, 2015

- The Start workflow dialog has been improved, so users that are to be selected manually can be chosen directly in the dialog. Optionally, you can let the preceding user in the workflow choose the user during approval.
- The **Attachments** tab is now available in the **Approval** view, so you can view, add and delete attachments during approval.
- User selection during approval has been improved, so the content of drop-down list is filtered as you type, making it easier to find the user or group that you are looking for. This improvement has been added to dialogs such as the Reroute dialog, Select user dialog and Start workflow dialog.
- Support for handling suppliers that have the same name for different payment addresses (remittance addresses) is now supported for all document types.
- You can use master data to match PO numbers with suppliers, so when you verify an invoice, only PO numbers that match that particular supplier are valid. The valid PO numbers are also available for selection during verification. Currently, this feature is only enabled for Australian document types.
- The Visma Administration integration supports version 2014.2.
- The Dynamics AX 2009 integration can use master data from virtual companies within Dynamics AX. Note that only supplier (vendor) master data is supported.
- The Dynamics AX 2012 integration has been improved to make sure duplicate invoices and pending vendor invoices are not created.
- Now you can customize journal descriptions for the Invoice Register and Invoice approval journal for the Dynamics AX 2012 integration.
- The Dynamics AX integrations have been updated, so you can specify and limit the access rights of the integration user.

November 18, 2014

- If you use Workflow services, there is a news privilege that lets you select which workflow you want to send an invoice to from the **Verification** view. This is helpful if you want to override the default rules for a particular invoice.
- If your target system exports master-data to Tungsten AP Essentials, you can specify how many times per day you want to import master data.
- The Storage service has been improved, so users with the Delete documents privilege can delete attachments from the **Stored document** view.

- Audit trail information has been improved to include information about account changes that are made to groups.
- The Extraction service supports invoices from Slovakia.
- The Dynamics AX 2009 integration has been improved, so that invoice images are available in the Invoice Pool dialog in Dynamics AX (**Accounts payable** > **Inquiries** > **Invoice pool**) after register-journal creation.

October 21, 2014

- Now you can search documents by document ID in the **Explore** view.
- Notifications can be assigned to user groups in addition to individual users.
- Conditions for workflow rules for buyers and suppliers have been extended to include all master-data fields that are available. Previously, workflow rules for buyers and suppliers were only triggered by the name of the buyer or supplier. Now, however, you can trigger a rule based on any of the master-data fields that are available for buyers and suppliers. For example, now you can create rules based on supplier address information, account numbers and much more.Manually starting a workflow

If you have existing rules based on buyers or suppliers, they are automatically updated, so the trigger uses the Name field of the buyer or supplier.

- Workflow steps can be assigned to user groups in addition to individual users. This is beneficial because you no longer have to change workflow settings due to personnel changes.
- Map designer is available for customers in preview mode. Currently, only XSL mapping is supported in the SFTP target system.

Some target systems—such as Office 365 and PROCESS DIRECTOR AP—require that you map fields from Tungsten AP Essentials to the target system. If Enable preview features is selected, you can use the Edit transform dialog, which lets you connect corresponding fields and apply functions with an easy-to-use drag-and-drop interface.

The preview mode allows access to features that are under development, so you can explore new functionality and provide feedback while retaining the traditional features.

Although the preview mode is a test of new features, the work you perform in preview mode is real.

- Canadian document types have a new validation rule for tax fields.
- The Dynamics AX 2012 integration includes many improvements such as:
  - Support for AX 2012 R3.
  - Support for Payment ID (now passed to AX).
  - Support for credit notes.
  - Creating AX pending vendor invoices with matching discrepancy status.
  - Support for item dimensions in vendor invoices (now they are filled in).

September 24, 2014

- Are you tired of the plain-text notification emails? Try our new HTML email templates with a modern, responsive design.

Discounts are now supported on the line-item level during validation in Verify and APPROVE. This is common for wholesale and retail invoices. Discount support is also available for net amounts on the header level, which is very common in promotions.

- Master data synchronization performance has been greatly improved, allowing for faster synchronization of GL Accounts and other master data.
- PO matching in the Dynamics AX 2012 integration has been improved, so it can handle additional line-item fields--such as discounts and freight charges--that are not specified on the purchase order.
- Invoice deletion has been improved in the Dynamics AX 2009 and 2012 integrations. Now when you delete an invoice in Tungsten AP Essentials, the registration transaction is also reversed in Dynamics AX.
- The NetSuite integration includes support for making custom NetSuite lists (list/record fields) available during verification in Tungsten AP Essentials. This is beneficial, for example, if you want to create an employee field in Tungsten AP Essentials that is populated with a list of employees from NetSuite.
- The NetSuite integration supports NetSuite 14.2.
- The Sage 50 integration supports Sage 50 2015 (v21).

August 27, 2014

- The feedback function has been enhanced, so users who send feedback receive an automated confirmation email.
- Many improvements have been made to increase the performance of the master-data service. For example, master-data synchronization has been improved to handle large uploads more efficiently. Also, master-data uploads are noted in the Audit trail view along with a description of whether or not the operation succeeded. The master-data configuration has also been simplified, so it is no longer necessary to enter the API key, user name and password in the target system settings.
- The NetSuite integration provides support for the list field type.
- Continuous master-data synchronization has been improved for the Visma Business integration. Tungsten AP Essentials Connect synchronizes master data from one Visma Business company at a time, every two minutes, but no company is synchronized more than once every twelve hours.
- Plug-in version checking has been improved to reduce traffic between Tungsten AP Essentials Connect and Tungsten AP Essentials.
- An SDK is now available for developing plugin-ins for Tungsten AP Essentials Connect.
- Line-item support has been added to the Portuguese and Italian document types.
- Help has a new comment service that you can use to report errors in documentation.

If you have used the Dynamics AX 2012 integration previously, and you need to import a new model file, you must delete the old model file before you import a new one. This is because the new X++ solution has been moved to the proper VAR layer.

July 2, 2014

- Web browsers can remember user names and passwords with the new login view.
- The new look and feel of the preview mode has been applied to the **Verification** view and the **Approval** view. Among other things, the new look provides an improved user interface with less clutter and more room for line items.

- When approving invoices, captured line items are displayed in the **Approval** view, if the document type supports line items.
- You can use buyers to trigger automation rules for workflows.
- A new button ( ) has been added to several document list views, such as the **Documents** view, the **MANAGE** view and the **APPROVE** view. You can select the button to display the document image, so you can examine it or print it out.
- Now you can specify the state in the address information for buyers. The state is used for buyer classification.

June 4, 2014

- Tungsten AP Essentials now supports single sign-on (SSO) using SAML2.0 with the authentication initiated by the identity provider. SSO lets you log in to Tungsten AP Essentials from another system, without having to manually type your user name and password in Tungsten AP Essentials. This means that you can provide your credentials on another system, such as an external web site, and be redirected to Tungsten AP Essentials without having to login again.
- When verifying line items in preview mode, there is a new button ( ) that you can use to highlight captured rows on the invoice image. This provides a visual aid that helps you see which line items were on the captured on the invoice image.
- The E-conomic integration supports project and general ledger coding.
- The Dynamics AX 2009 and 2012 integrations have been improved so posting dates are handled similarly in both integrations.
- The Sage 50 integration lets you choose whether image links point to local files or files in storage.
- Several improvements have been made so Tungsten AP Essentials can handle greater volumes of invoices.

May 12, 2014

Preview mode

In this release, there are several new features that are available via a preview mode, which you can use during verification and approval. The preview mode is an alternate view in Tungsten AP Essentials Office that allows users to explore new functionality and provide feedback while retaining the traditional view. Subsidiary administrators can use the **Settings** view to enable the preview mode for partners and their member customers.

If preview mode is enabled, the **Start (preview)** button is displayed in the **Verify** view and the **APPROVE** view. If you select **Start (preview)** instead of the normal Start button, you work with invoices using a new interface, which has been optimized to use the screen area more effectively, especially when working with line items or account coding.

Although the preview mode is a test of new features, the work you perform in preview mode is real.

Other new features

- In preview mode, the Buyer box has been improved to make it easier to find the correct buyer during verification. When you begin typing in the Buyer box, Tungsten AP Essentials instantly displays buyers whose names, street addresses, and external IDs contain the text you type.

- In preview mode, the Request information dialog has been improved, so you can use it to send email with the current document as a PDF attachment. This feature is useful, for example, when you want to mail an invoice back to the supplier with a question.
- Currency master data supports exchange rates. Exchange rates are useful if you use workflow rules that are triggered by invoice amounts and you process invoices with different currencies. For example, assume you have rules that trigger workflows based on invoice amounts. Without exchange rates, Tungsten AP Essentials treats all currencies as your local currency, which can cause rules to be triggered incorrectly. By using exchange rates, however, Tungsten AP Essentials can determine the value of the amounts in your local currency and trigger the correct rule.
- Using the Storage service settings, you can specify the display size of document images that are viewed externally via an image link. This is helpful, for example, if you use image links to display documents in an external system, and you want to control the display size.
- Input from Fakturaportalen, the Swedish invoice portal, has been streamlined, so invoice images are reused, instead of creating new ones. This saves resources and increases efficiency.
- It is now possible to register PO invoices in Dynamics AX 2009 without using a workflow. Currently, the solution is limited in that it only attempts to post the invoices in Dynamics AX. If an error occurs, it is reported in Tungsten AP Essentials where it can be handled manually.

April 2, 2014

- Authentication events and changes in user privileges are now included in the **Audit trail** view. User-specific audit trail information has also been added to the **Users** view (798).
- Document and batch lists throughout Tungsten AP Essentials have been improved, so that if you change the sorting of a list, your preferences are saved in a cookie in your web browser.
- The number of suppliers that can be added to the Supplier exceptions dialog has been increased to 200.
- There is a new Notes setting for user accounts. You can use this setting to make administrative notes about each user. For example, if the user is your main contact at the customer site, you can make a note of this for your reference.
- Now you can choose to balance the Gross amount minus VAT amount when balancing against total amounts.
- When Tungsten AP Essentials encounters a document that cannot be extracted, the document will automatically bypass extraction, so it can be manually verified. This helps keep production moving efficiently, so problem invoices do not get stuck in the system. When a document bypasses extraction, it is logged in the history of the document.
- The Dynamics AX 2009 integration has made several improvements to PO invoice handling.
- The Dynamics AX 2012 integration supports invoice registration.
- The NetSuite integration has improved performance and added the ability to use Netsuite SuiteCloud Plus.
- The Visma Business integration offers support for accrual accounts.
- The E-conomic integration supports multi-row coding and total-amount balancing.

March 5, 2014

- The new accrual report displays information about documents that are currently being processed in a workflow.
- Password requirements have been improved to meet ISAE standards.
- Keyboard shortcuts have been added to the **Verification** view to make it easier to adjust the invoice image without using a mouse.

- Tungsten AP Essentials now integrates with Fakturaportalen, the Swedish invoice-processing system for sending and receiving invoices (FR364).
- The Extraction service supports invoices from Argentina.
- The NetSuite integration supports tax handling for non-PO invoices using expenses for customers in the EU that use NetSuite Standard Edition.
- Payment reference and payment ID fields have been added to the Microsoft Dynamics AX 2009 integration, providing more efficient invoice-processing capabilities for Danish and Norwegian integrations.
- The E-conomic integration supports the posting of zero-amount invoices (FR215).
- The Microsoft Dynamics AX 2012 integration supports PO invoice registration.

February 5, 2014

- Many aspects of the reporting features have been improved, including a new report for processed documents. In addition to a new report for processed documents, you can now download reports in CSV format from control center.
- Document lists have been improved, so you choose which columns are displayed. You can choose which columns appear in the document lists in the MANAGE, APPROVE and **Documents** views. Gross-amount and currency fields have also been added to the lists.
- The storage model, which Tungsten AP Essentials uses to store data on the cloud, has been updated to improve scalability.
- The NetSuite integration has added support for handling taxes for organizations that reside outside of the United States and use NetSuite OneWorld.
- The Microsoft Dynamics AX 2009 integration supports document parking and limited purchase-order handling.
- Support for coding during verification has been added to the E-conomic integration.
- The Visma Administration integration supports Visma Administration 2013.
- New Help System.

January 7, 2014

- If your target system supports multiple account types, you can specify additional account types and determine which coding fields belong to each account type.
- Currencies fields have been improved, so the most commonly used currencies appear in the Currency box during verification and approval. However, if you want to limit the number of choices in the Currency box, or if you need additional currencies that are not available in the default set, you can use master data to specify the currencies you want to appear. If you use master data, only the currencies specified in the master data appear during verification and approval.
- Partners and customers can now be organized into groups that are reflected in the administration tree. This makes administration easier because you can create logical groups to keep accounts organized and you can create administrators that oversee each group.
- Several behind-the-scenes processes have been improved to increase speed and performance. For example, archived documents appear instantly in the **STORAGE** view. Previously, it took several minutes before they appeared.
- Master-data files up to 200 MB in size can now be uploaded. Incremental upload has also been added to Tungsten AP Essentials Connect, which compares the latest master-data file with the previous master-data file that was uploaded, and uploads only the new changes. This saves time and decreases network traffic significantly.

- Tungsten AP Essentials Connect has been improved to make it easier to specify the folders you use to upload documents.
- Document history features have been improved to comply with ISEA3402 security audit requirements. Each time a document is saved during verification, the Document history is updated with a time stamp and the name of the user who saved the document.
- It is now possible to use custom XSL transforms to map fields on the customer level. XSLT files that are uploaded as a resource on the partner level, can be specified in the XSL transformation setting of the target system on the customer level, if the target system supports XSL transformations. This is beneficial to partners who have customers with different field mappings.
- If your target system supports multiple account types, you can specify additional account types, which can be used when performing account coding in Tungsten AP Essentials. This feature is only available for target systems that support multiple account types, such as Microsoft Dynamics AX, Tungsten AP Essentials Connect, SFTP and email.

November 22, 2013

- The **Customers** view is now searchable (751).
- You can specify custom display names for the fields that appear in the **Verification** view and the **Approval** view. You can also choose from a list of pre-defined display names and see various translations of these names as they appear to users with different language settings (583).
- Tungsten AP Essentials can extract and interpret tax amounts from documents that have multiple tax amount fields (790).
- There is support for handling suppliers that have the same name for different payment addresses (remittance addresses) (775).

October 16, 2013

- Tungsten AP Essentials now supports custom domains for email addresses, which make it easier to configure scanners and systems where the email address length is limited (764).
- You can specify whether image links are created or displayed in Tungsten AP Essentials Storage (772).
- The **Audit trail** view has been enhanced with more search options, and the indexing engine has been replaced to improve performance (756).

September 25, 2013

- AP Essentials Connect is no longer required to draw line items on invoices (483).
- There is a new button ( ) in the **Verification** view and the **Approval** view that lets you skip to the next batch. If there are no more batches to skip to, you return to the **Verify** view (or **APPROVE** view) (580).
- There is a new button ( ) in the **EXPLORE** view the lets you send Complete documents to the target system, while leaving incomplete documents behind to continue processing. This is helpful, for example, if you keep batches together and have a large batch of invoices that is ready to be sent to the target system, except for one invoice that is being delayed for some reason. In this case, you can select this button to send all of the Complete documents in the batch to the target system (750).
- Customer administrators can update master data (757).
- There is a new privilege, Deletedocuments, which you can use to determine which users have permission to delete documents Now you can also delete documents from the **MANAGE** view (686).
- Tungsten AP Essentials has been translated to Portuguese (Brazil) (754).
- Amount field validations support decimals up to five places (758).

- New fields are available in the Use additional supplier information during verification setting (765).
- It is now possible to specify document types that do not require header fields or line-item fields to be captured. In fact, you can process documents without capturing any fields at all (665).

August 21, 2013

- The new Separation service provides a way to quickly and easily correct page separation in batches. This feature is a great benefit when invoice pages are separated incorrectly. Instead of reprocessing problem batches, you can manually correct the page separation using a new interface that is efficient and intuitive. Verify users can also mark batches that need manual separation and send them back to the RECEIVED view.

> Currently, the separation service is limited to select customers, but it will be available on a wider scale in the future.

- If you use Storage services and have the Access Storage privilege, you can upload files that are not attached to stored (processed) documents (670).
- Several enhancements have been made to the Dynamics AX integration, such as improved compatibility between 2009 and 2012 versions, retrieving accounts structure, and attaching permanent links to vouchers from storage.
- Many performance enhancements have been made to core systems in Tungsten AP Essentials.

July 1, 2013

- You can change the buyer while approving an invoice (740).
- You can use generic master-data objects to connect fields to master data and use the master data to suggest and validate field values. In previous versions of Tungsten AP Essentials, there was a special master-data type for field values. The old field value master data type is still supported by the API, but the new, preferred method is to use generic master-data objects. There are still pre-defined master data type for suppliers, currencies, supplier banks and general-ledger accounts (739).

June 4, 2013

- Now you can create conditional steps in a workflow (669).
- It is possible to create a workflow step with a manually-selected user (658).

Field suggestions that previously only appeared during verification now also appear during approval for the Danish document type (701).

- You can use the new Attachment priority setting to specify which file types are prioritized when an email contains attachments in multiple file formats. This is beneficial, for example, if an email contains an image file and an XML file for each invoice, you can specify that XML files are higher priority. This way, the image files are ignored and the data is extracted from the XML, which is typically faster and more reliable than image interpretation (685).
- The FortNox integration supports document parking (706).
- Storage services have been improved, so that the document history is updated with the latest status when the document leaves Tungsten AP Essentials (702).
- The **Users** view has been improved so you can easily see which partners have access to a customer (683).
- Support for custom plug-ins has been added.

May 2, 2013

- Tungsten AP Essentials can perform buyer classification. This means that if a customer has multiple buyers, Tungsten AP Essentials can automatically assign invoices to the appropriate buyers based on buyer information, such as the address and telephone number (674).
- Tungsten AP Essentials supports XML input in Finvoice format (311).
- The field format settings have been improved, so you can use regular expressions to create a more precise field validations, which ensure the accuracy of your document data (515).
- The **Audit trail** view has been improved to make it easier to search for the information you need (628).
- Email alerts for Workflow services have been improved to include more information such as the invoice number and customer name. The usability of the Alerts settings has also been improved (681).
- There is a new setting, **Perform registration step**, which determines whether invoices must be registered in the target system before starting the workflow. It can be helpful to skip registration, if your target system does not require registration, because it decreases calls to the target system and prevents documents from entering correction workflows prematurely due to validation errors in the target system (682).
- There is a new privilege, Access Storage - My documents, which grants access to the **STORAGE** view, but only displays documents the user has processed (662).
- There are new Field arrangement settings you can use to arrange the order in which fields appear in OFFICE (619).
- The Process control service has been improved, so you can exclude invoices from specific suppliers from verification, if there are no validation errors. Note that you can only specify Supplier exceptions on the customer level (520).
- The E-conomic and NetSuite integrations have been improved, so more fields are available for export to the target system (291).
- There is a new privilege that you can use to determine who has access to the **APPROVE** view (679).
- Several UI improvements, such as an icon on the **Comments** tab which indicates the invoice has comments (684).

April 2, 2013

- There is a new setting, Validate the field value exists in the field value master data, which you can use to validate fields that Use field-value master data to suggest field values. This provides an extra layer of security when you use field-value master data to suggest field values (668).
- The Danish payment type validation has improved validation routines for the Bank transfer payment type (666).
- The Visma Business integration has been improved, so a supplier created during verification can also be created in Visma Business, if the supplier is not found in Visma Business when the invoice is posted. Also, the Track ID from Tungsten AP Essentials is now sent to Visma Business to make cross-referencing easier. Storage services have also been updated, so invoices in storage are automatically updated when you make coding changes in Visma Business (644, 672, 641).
- A new external id setting, Usage report, is available in the **Profile** view and account views. You can use this setting to identify customers in your usage reports (535).
- The external image viewer has a new drop-down box which you can use to access attachments if any exist. The external image viewer is used to display documents in Tungsten AP Essentials Storage from some target systems (640).

- There are new target system integrations for Sage 50, Microsoft Dynamics AX 2012 and NetSuite (99, 135, 84).
- The SFTP target service has a new setting, Use temporary name, which determines whether a temporary file name is used while files are transferring to the target-system server (230).

February 28, 2013

- Verify users can send requests for information, when help is needed to finalize work on an invoice (650).
- To ensure invoices are processed in a timely manner, you can limit the amount of time invoices are allowed to spend in workflow steps (456).
- The Email input service has been improved, so you set up email forwarding to handle problem email more easily (562).
- When creating rules for workflows, you specify multiple suppliers by selecting Supplier field as the Type and select **In list** as the Condition in the Rule dialog (601).
- Voucher numbers from Visma Business are now displayed in the External ID column in the **STORAGE** view. The Visma Business target system has also been improved, so companies in Visma can be represented on the customer level or buyer level (647).
- Buyer and customer information is now displayed for each invoice in the Verification and **Approval** views (623).
- If you use Workflow services, you can Keep batches together, so invoices are not sent to the target system until all of the invoices in the batch are completely processed through the workflow (603).
- More detailed information is attached to feedback messages (614).

January 31, 2013

- You can add custom coding fields to workflows and specify whether these fields are optional using the Accept empty value setting. See the video
- The net-amount field has been added to the Approval view, so you have easy access to the net amount while coding an invoice.
- Now you can perform account coding in the **Verification** view during verification. You can enable this feature in the Verification settings of the Verification service.
- You can specify which amount field (net or gross) to use to balance amounts when coding an invoice.
- The Total amount validation rule has been improved so you can specify the margin of error (Maximum difference allowed) when comparing the total amount field with the calculated total amount.
- The E-conomic integration can automate currency conversion using a currency conversion service provided by the European Central Bank.
- There is a new validation rule for payment types that you can use with the E-conomic integration.

December 19, 2012

- Changes to coding lines are recorded in the document history.
- Now you can determine if Validation service rules are triggered during verification, in workflows or both, using the settings in the Document type dialog.
- There is a new target-system integration for E-conomic, an online accounting system for businesses, accounting firms and organizations.

- The Visma Administration integration has been improved so partner users can perform operations that were previously restricted to customer administrators. The Visma Administration integration also supports Workflow services.
- There is a new validation rule, Duplicate invoice check, which checks the invoice number to ensure that the invoice has not already been sent to the target system.
- It is no longer necessary to create or use Coding & Approval workflows, if you use the workflow service. Invoices can pass through the workflow service without interaction, unless a correction workflow is triggered. This lets customers take advantage of correction workflows without using workflows for coding and approval.
- There is a new API method which gives new users access to all buyers.
- The API has been refactored to improve client/server separation.

November 22, 2012

- User management has been enhanced with groups, which make it easier to organize users with privileges, customers and buyers.
- The document history is now included in the XML output of each invoice.
- In addition to PDF and image files, you can use AP Essentials Connect to upload XML invoices to Tungsten AP Essentials.
- You can use the Enforce validation setting to determine whether fields must pass validation to complete invoice verification.
- Comments, external document IDs, and the document history are saved with each document that is stored in Tungsten AP Essentials using the Storage service.
- When uploading documents using AP Essentials Connect: If you have more than one document type, but you place files in the parent folder of the document type folders, the files are uploaded and processed using the Default document type specified in the Extraction service settings.
- New keyboard shortcuts have been added to make invoice coding easier.
- Documents can be printed in many views in Tungsten AP Essentials.

October 23, 2012

- The Classification service can automatically route invoices from different customers to the correct customers in Tungsten AP Essentials.
- Support for choosing the base XML that is used when transforming output has been added to the XML locally (AP Essentials Connect) target-system service.
- New passwords must be at least eight characters long.
- You can easily send feedback to the Tungsten AP Essentials Lab in the **Verification** view.
- Some privileges have been improved so they are only available if the parent service is enabled.
- Supplier master data has been improved so it includes new fields (Location and State) and supplier names can be longer.
- Tungsten AP Essentials can automatically update your ERP system with newly created suppliers.
- You can create correction workflows on-the-fly while correcting invoices in Office, if an invoice requires a special handling outside of the normal workflow to correct it.
- In addition to the invoice fields, you can change the supplier when correcting invoices.
- The AP Automation service has changed its name to Workflow service.
- The smart boxes you use when coding an invoice have been improved so filtering is performed on numbers and names.

- Creating an administrator account is now optional when adding a customer.

September 20, 2012

- Accounts payable services are more intelligent than ever with automatic coding suggestions.
- A new licensing system has been created so administrators can manage licenses and easily monitor usage.
- Audit trail registers more details and relevant events.
- An **Information** tab has been added to the **Verification** view. The **Information** tab displays extra information about the invoice that can be useful when handling problem invoices.
- New privileges have been created that let you choose which parts of the interface are visible to Office users.
- AP workflow rules have been expanded, so you can create a Condition based on any invoice field.
- In addition to partner administrators, now partner users can download output data using AP Essentials Connect.
- Many user-interface improvements have been made.

August 23, 2012

- Subsidiaries can be used to administrate partners in the Control Center.
- Support for uploading valid field values using AP Essentials Connect has been added.
- The AP automation service has a new feature which allows balancing against the total amount.
- Custom resource files can be uploaded for transforming output.
- In addition to the supplier name, you can specify extra supplier information to display when selecting a supplier in the **Verification** view during verification.
- Many user interface improvements have been made. Most notable is the new icons in the Control Center which are now vector graphics that can be changed dynamically during runtime using color or animation to provide additional information.

July 4, 2012

- The new AP automation service provides functionality that simplifies and automates accounts-payable tasks and can be integrated with an external financial system.
- Tungsten AP Essentials accepts email invoices in XML format. Currently, E2B and EHF formats are supported, and more formats will be added in the future.
- Master data can be shared by multiple buyers under the same customer account.
- Improvements to increase user experiences in different areas in the application.
- The user interface has been updated to make Tungsten AP Essentials more pleasing and easier to use. Among other things, CHECK & CORRECT has been changed to Verify, and the WORKLIST is now the **EXPLORE** view.
- The list in the **EXPLORE** view (previously known as the **WORKLIST** view) has been extended to show document images.
- The list views contain meta data of the supplier and invoice numbers.
- Regular fields for different document types can be set to optional.
- Auto completion could be enabled on fields for enhanced user input.
- It s possible to add and view user comments to documents.
- The Tungsten AP Essentials API has been improved regarding document upload and download capabilities.

June 14, 2012

- Now you can adjust field validation settings that were previously static. Also, for greater efficiency, all of the validation functions are performed in your web browser.
- Field-value boxes have been enhanced with an auto-complete feature that uses text extracted from the invoice to predict values as you type when verifying invoices.
- Document types can be configured on the buyer level. This is beneficial for organizations that have sub-organizations with specific requirements concerning what information should be captured.
- When you adding a custom field to a document type, you can specify that the field is optional. This is useful, for example, if the field value contains information that is helpful, but not vital to invoice processing.
- Custom XML transformations (XSLT) can be used to transform output data for email output, SFTP and local XML.
- Customized support for field validation via the validation rule framework has been implemented for some customers.
- Support for Australian English has been added to the web interface.
- Many performance improvements have been made to Tungsten AP Essentials and AP Essentials Connect.
- Support for automatic image rotation has been added (currently limited to select partners).

May 10, 2012

- Now you can create Online Office users that have access to multiple customer accounts. The usability of the **Users** view has also been improved.
- The Suppliers dialog has been improved with column filters that make it easier to find the supplier you are looking for. You can also specify which columns you want to appear in the dialog. The auto-complete functionality of the Supplier box has also been improved, so more information about each supplier is displayed.
- Tungsten AP Essentials supports PDF output via SFTP and email.
- Notification services have been improved, so multiple attempts are made to send a notification if it fails.
- Now there are additional Process control settings for determining whether an invoice must be processed in the **Verification** view.
- Data capture for invoices with multiple VAT rates has been enhanced.
- The scalability and performance of Tungsten AP Essentials has been improved.
- The batch tracking number is now visible in the **Verification** view to provide better service and handle support cases more efficiently.

April 16, 2012

- Tungsten AP Essentials is now deployed on the cloud in two new data centers that service North America and Australia. As a result, Tungsten AP Essentials can extend its services far beyond the original cloud server in Europe with the same speed and efficiency that current customers enjoy.
- Output images are now available in searchable PDF format when you use XML output services. This features is an alternative to TIF-image output in Tungsten AP Essentials Connect and some ERP output services. By combining captured invoice data with the invoice image, Tungsten AP Essentials makes the PDF searchable, which has many advantages over TIF images. For example, archiving systems can use the embedded data for indexing purposes.

- A new batch status, preprocessing in progress, has been added. This new status adds another level of transparency to the system, so you can confirm when a batch arrives more quickly.
- There is a new XML schema that is used for the output invoice when you export invoice data via Tungsten AP Essentials Connect, output services or the API.
- The email input service has been improved, so it accepts email in TNEF format.
- Extraction services for Australian invoices have been improved and new Document types have been added.
- API reference documentation is now automatically generated on the fly to ensure the most up-to-date information when integrating with Tungsten AP Essentials.
- The usability of the **Explore** view has been improved.

March 23, 2012

- Validation routines have been improved, so you no longer receive validation errors that are caused by hidden fields. For example, if the subtotal and VAT fields are hidden, you will not get a validation error, if the sum of these fields is not equal to the total amount.
- You can upload supplier master data via Tungsten AP Essentials Connect.

March 13, 2012

This update includes:

- Now you can add your own custom fields to document types. This lets you add document information when verifying invoices.
- For customers who do not use verification services, there is a new API function for providing feedback about the quality of the interpretation results, so Tungsten AP Essentials can learn from mistakes that otherwise would have been detected during verification.
- Supplier data can be imported automatically via the API. There is also a new setting, Allow users to update supplier registry, which determines how users can interact with supplier data.

February 22, 2012

This update includes:

- Greatly improved performance in Verify.
- Automated image enhancement which yields even better interpretation results.
- Administrators can specify which fields are visible when verifying invoices.
- User management features now include privileges which you can use to integrate and authenticate external users with Tungsten AP Essentials.
- New Data extraction settings let you bypass Verify and send extracted invoice data directly to the target system.
- Dynamic properties have been implemented to make it easier to configure target systems.

January 13, 2012

A new version of Tungsten AP Essentials was deployed with expanded features and improvements with line-item verification and email input.

- Support for line-item verification has been added with the ability to draw line-items on the invoice image in cases where Tungsten AP Essentials has difficulties interpreting line-item tables. This greatly increases production efficiency by empowering end-users with new problem-solving tools.

- The email-input service has been improved so you can create custom email addresses for each buyer and specify which document types each buyer accepts. This makes it easier to send invoices via email because you no longer have to worry about the proper syntax of the email subject. This feature also increases interpretation rates because the buyer and document type are known.
- Now you can queue more than one batch at a time when selecting invoices for verification.
- Master data has been improved to include supplier information. Supplier names can also be edited while verifying invoices.
- JPEG and PNG invoices are supported.
- There is a new REST API which can be used to create new organizations and users programmatically.

November 11, 2011

A new version of Tungsten AP Essentials was deployed, only two weeks after the last deployment. In this short time, the development team has added a number of improvements and new features such as:

- Support for VAT tables is now available for some countries.
- Improved partner dashboard.
- The ability to specify the country and buyer for invoices submitted by email.
- New document and batch statuses which help you determine where a document is in the workflow with more accuracy.
- News feeds have been added to help keep you up-to-date with important announcements and news.

October 25, 2011

A new version of Tungsten AP Essentials was deployed today, demonstrating yet again the power and efficiency of cloud computing. Because Tungsten AP Essentials is developed and managed on the cloud, you no longer have to maintain large, expensive server systems and complex software installations in order to process invoices. Likewise, because the programming technologies are focused on one area, the cloud, developers no longer need to support multiple operating systems with infinite combinations of hardware and software configurations. The result is faster development cycles with more robust features and greater security.

This release includes many new features such as:

- More detailed document information is available from the **Explore** view.
- Many improvements have been made to the user interface.
- You can select which country and buyer a batch belongs to when uploading.
- Buyers can be assigned to specific users.
- Performance has been optimized.
- You can reset your password from the login dialog.

Preview features

New features are sometimes released early on a limited basis to preview and test. Preview features are typically enabled only for selected accounts, or for a single AP Essentials customer.

This approach gives customers an opportunity to preview new features and provide valuable feedback to help the AP Essentials team make improvements before the features are released systemwide. Preview features are not always released to all AP Essentials users at once. They are selectively enabled on only a fraction of all accounts, or a preview feature can be restricted to a single customer. Releasing features on a preview basis is helpful to users and AP Essentials development because it gives users a chance to test drive new features and provide vital feedback that can improve the feature before it is finalized and released to all users. Preview features are announced in *What's new*. Announcements are also made in *What's new* when a preview feature is elevated to general availability for all accounts.

All preview features are displayed at the root level in Admin Center. Preview features must be enabled on the partner level by Tungsten Automation personnel before they can be enabled for sub-organizations. Preview features can be public or private.

- **Public**: Public preview features are available and visible to all partners on the **Account** view.
- **Private**: Private preview features are only visible to Tungsten Automation personnel regardless of where they are enabled.

Administrators can see which preview features are available in the Account view of partners and customers. However, preview features are not displayed at the group levels (partner group or customer group). Administrators with the *Manage accounts* privilege can enable and disable preview features on child accounts. Preview features must be enabled on the partner level before they are available to child customer accounts.

Chapter 3

Tungsten AP Essentials overview

Tungsten AP Essentials is an automated document processing system that leverages remote cloud computing. This innovative approach eliminates the need for maintaining large server systems and complex software installations for document processing. Instead, we manage all technical aspects for you. All you need is a web browser to access a state-of-the-art document processing system in the cloud.

Tungsten AP Essentials accepts documents in many formats. It automatically interprets and validates document information, and provides an intuitive interface for checking the correctness of the interpreted data. Tungsten AP Essentials provides all the functionality of an on-premises solution, but the processing is handled securely on a remote server that is managed by the expertise of Tungsten Automation.

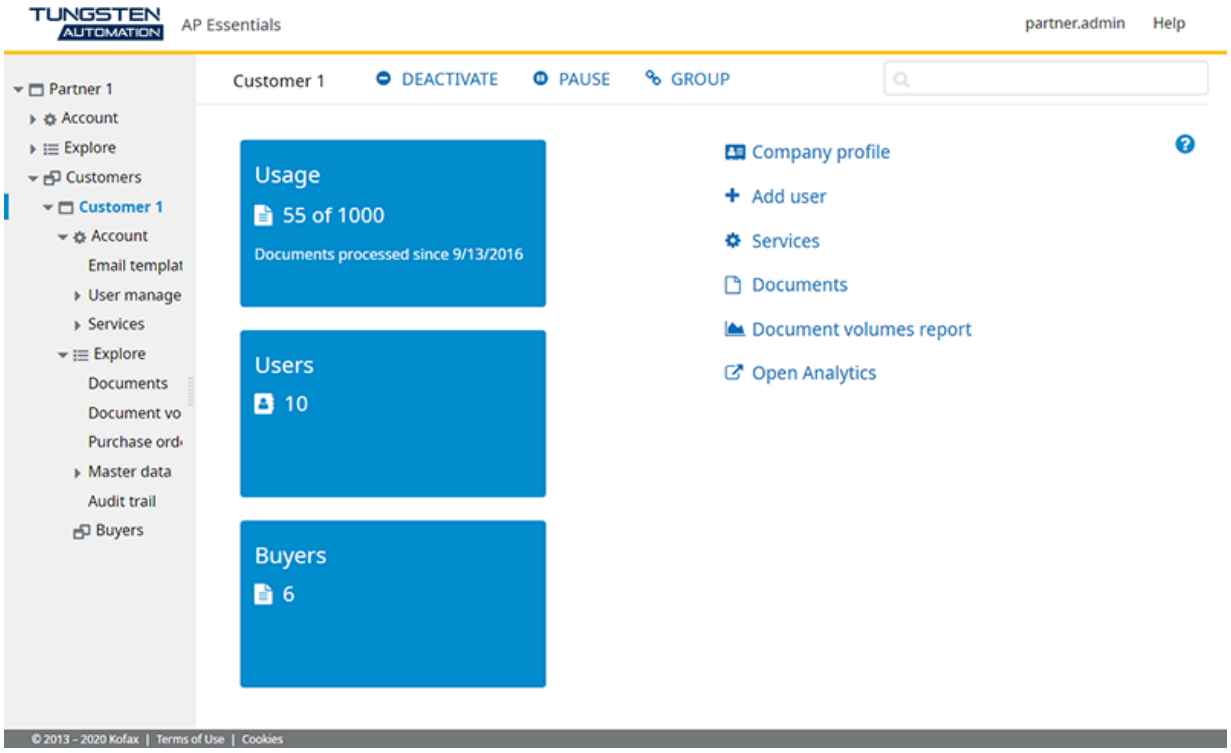
As a customer, document processing could not be easier. All you have to do is log in to our secure server using a web browser to upload documents and check interpreted data for correctness. Likewise, as an administrator, all of your tasks can be easily performed using an intuitive web interface:

1. Upload document images for interpretation and data extraction.
2. Check and correct interpreted data for correctness.
3. Automatically transfer documents and data to the target system.

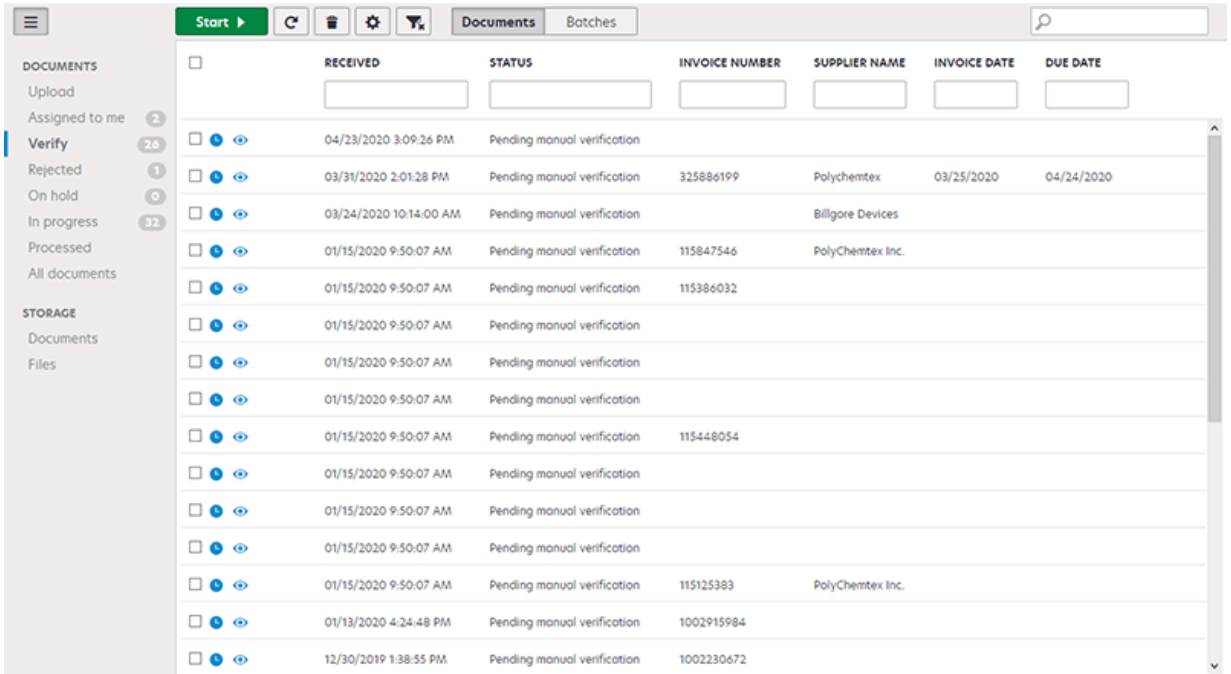
Access

Tungsten AP Essentials has two main portals that you can access using a web browser:

- **Tungsten AP Essentials Admin Center** - for system administration and setup.



- **Tungsten AP Essentials Office** - for uploading, verifying, and approving documents.



When you log in to Tungsten AP Essentials, you are automatically directed to the correct portal according to your role in your organization. Admin accounts use Admin Center, whereas User accounts use Office.

Document processes overview

Tungsten AP Essentials supports two document processes:

- **Accounts payable**: Within the accounts payable operations, Tungsten AP Essentials processes incoming supplier invoices (general expense and purchase order invoices) and credit notes on behalf of the buyer.
- **Accounts receivable**: Within the accounts receivable operations, Tungsten AP Essentials processes incoming purchase orders and remittance advices on behalf of the seller.

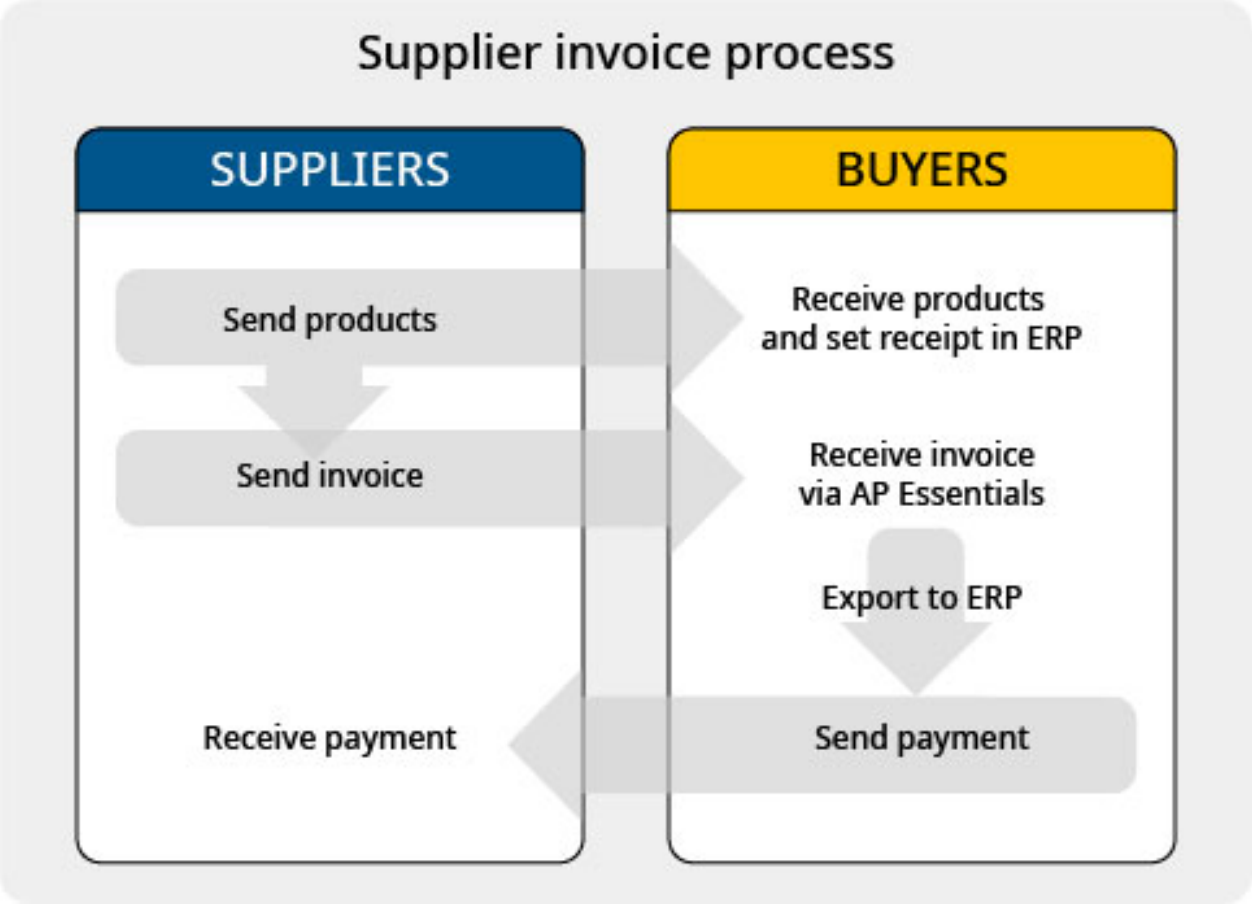
Invoice	Purchase order
A document used to notify a buyer that payment is due.	A document used to order goods or services from a seller.
Issued by the supplier.	Issued by the buyer.
Sent to the buyer.	Sent to the seller.
Issued after the purchase order.	Issued before the invoice.
Confirms the sale occurred.	Defines the terms of the sale.

Note the distinction between purchase order invoices and purchase orders. Although they are related, they belong to separate processes. A purchase order invoice is a document issued by a seller (supplier) to a buyer for purchased goods or services, whereas a purchase order is a document issued by a buyer to a seller that requests goods or services for purchase.

When you create a new AP Essentials customer account, you must choose a document process for the account. After you create an account, you cannot change the document process for the account. If you need to process accounts payable and accounts receivable documents, you must create two accounts, one for each process. In either case, the account you create is a child account of a partner account. For accounts receivable processes, you create an account for the seller, whereas for accounts payable processes, you create an account for the buyer.

Accounts payable

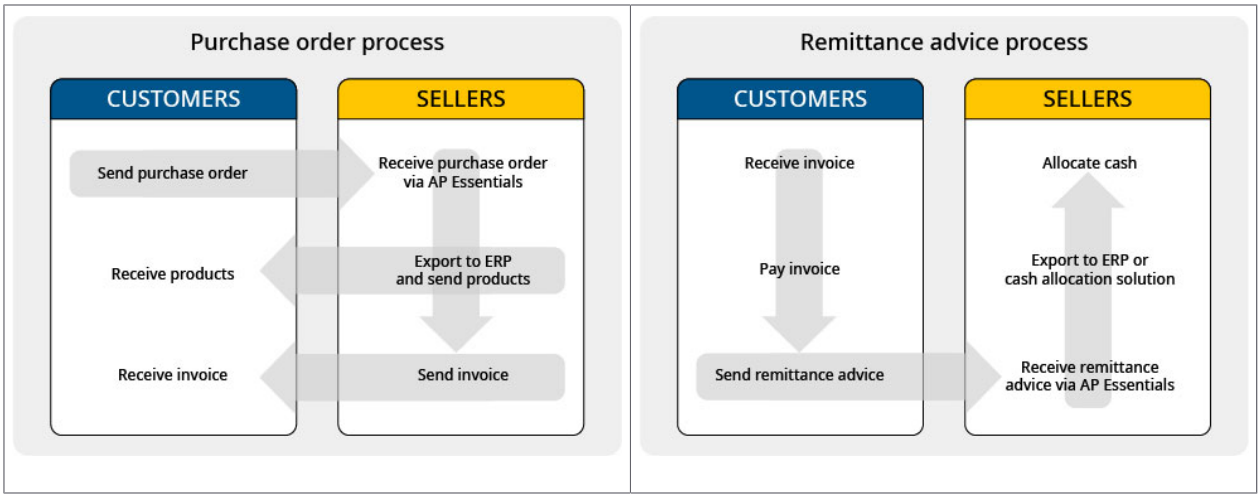
Tungsten AP Essentials automates invoice capture and extraction on behalf of the buyer.



When a supplier sends an invoice or other AP document to the buyer, AP Essentials automatically captures, extracts, and validates the invoice data. If necessary, AP Essentials users can check and correct the extracted data. AP Essentials users can also route documents according to workflows. Depending on your solution, workflows can function on a stand-alone basis or in parallel with a target-system integration. AP Essentials automatically sends the invoice data to the target ERP system, where the remaining accounts payable processes are fulfilled.

Accounts receivable

AP Essentials automates purchase order and remittance advice data capture and extraction on behalf of the seller.



When a buyer sends a purchase order or remittance advice to the seller, AP Essentials automatically captures, extracts, and validates the document data. If necessary, AP Essentials users can check and correct the extracted data. AP Essentials automatically sends the data to the target ERP system, where the remaining accounts receivable processes are fulfilled.

Currently, workflow services are not supported with accounts receivable accounts.

These methods are available for exporting purchase order and remittance advice data to your target system:

- Email output
- Secure FTP (SFTP)
- XML via AP Essentials Connect
- API

Document subtypes

Document types include another component, the document subtype.

The Extraction service uses document types to describe the type of incoming documents that you want to process and the information that you want to extract from the documents. Document subtypes are another preferred component for extracting documents.

A document subtype is a more specific version of a document type. Subtypes include an additional description that provides more information about their purpose. For example, the "British purchase order invoice" subtype tells you that this document subtype is for processing PO invoices. Document subtypes are available for country-specific documents and XML documents.

Three subtypes are available for each document type, including the XML document type:

- Purchase order
- General expense
- Credit note

Each subtype is configured with the appropriate fields that you expect. For example, the purchase order subtype contains purchase order fields, whereas the general expense subtype does not have purchase order number fields.

Document subtypes help administrators simplify document-type settings and apply different validation rules for each subtype. For Tungsten AP Essentials Office users, this means Tungsten AP Essentials can automatically detect the document type when uploading documents. AP Essentials Office users can also change the document subtype during verification.

Automatic document subtype classification

When a new document enters the system, AP Essentials can automatically determine which document subtype to use. To take advantage of automatic document type classification, you must:

- Enable all three subtypes (purchase order invoice, expense invoice, credit note) for each country you want to process. For example, if you process Swedish documents, enable Swedish purchase order invoices, Swedish expense invoices, and Swedish credit notes. You can also enable XML subtypes if you process XML documents. Additionally, you can enable the generic XML document type, but it is not used for automatic classification.
- Specify the Country setting of the customer account and any buyers that exist.

  If you process documents from multiple countries, create buyer organizations to differentiate between each country. In other words, create a buyer for each country and specify the **Country** setting of each buyer. Also, ensure you have enabled the corresponding document subtypes for each country you require.
- Select **Only use country-specific subtypes and the XML document type** in the Extraction service settings.

  This setting validates your setup to ensure country-specific document types aren't combined with generic types, though the generic XML document type is still allowed. The validation also warns you if any buyer organizations do not have a country specified.

  If the buyer country is incorrect or no document subtypes exist for the configured buyer country, AP Essentials assigns the document to the document subtype matching the country of the customer. If the customer country is also invalid, the document receives the "input failed" status.

- If you use Email input to receive documents, the **Document type** setting must be set to **Use email subject**, and the document type cannot be specified in the email subject.
- If you upload documents via AP Essentials Connect, place documents in the root upload folder of the buyer or customer, rather than a document type subfolder.

How it works in AP Essentials Office

When you upload documents to AP Essentials Office, select **Automatic classification** in the **Document type** setting. During extraction, AP Essentials uses several methods to determine the correct document type.

- The country of the customer account or buyer determines the locale of the document type.
- If a document is image-based, a country-specific subtype is used. If a document is XML-based, an XML subtype is used.

- If a credit field is found, or if the gross amount is negative, the credit note document type is chosen.
- If an order number field is found, the purchase order invoice document type is chosen.
- If a credit field, negative gross amount, or order number field is not found, the expense document type is chosen.

If the wrong document type or buyer is determined, AP Essentials Office users can correct this during verification without having to upload the document again. However, you cannot change a country-specific subtype to an XML subtype and vice versa. If you change the subtype or buyer during verification, the fields that are displayed change according to your selection. If any fields use default values (specified in the **Use default value** setting), the default value is also updated according to the default value of the current subtype.

However, if you use the generic XML document type, and a document is interpreted using the XML document type, you cannot change the document type during verification because the XML document type is not a subtype.

Require PO numbers to improve classification

Sometimes you receive an invoice whose PO number is not found or does not match the required format. As a result, AP Essentials can classify the document incorrectly as a general expense, which requires manual correction later. To avoid this issue and improve automatic classification, you can enable the **Invoices require PO** setting, so invoices from specific suppliers require a PO number. Alternatively, you can specify the corresponding XML element in the supplier master data.

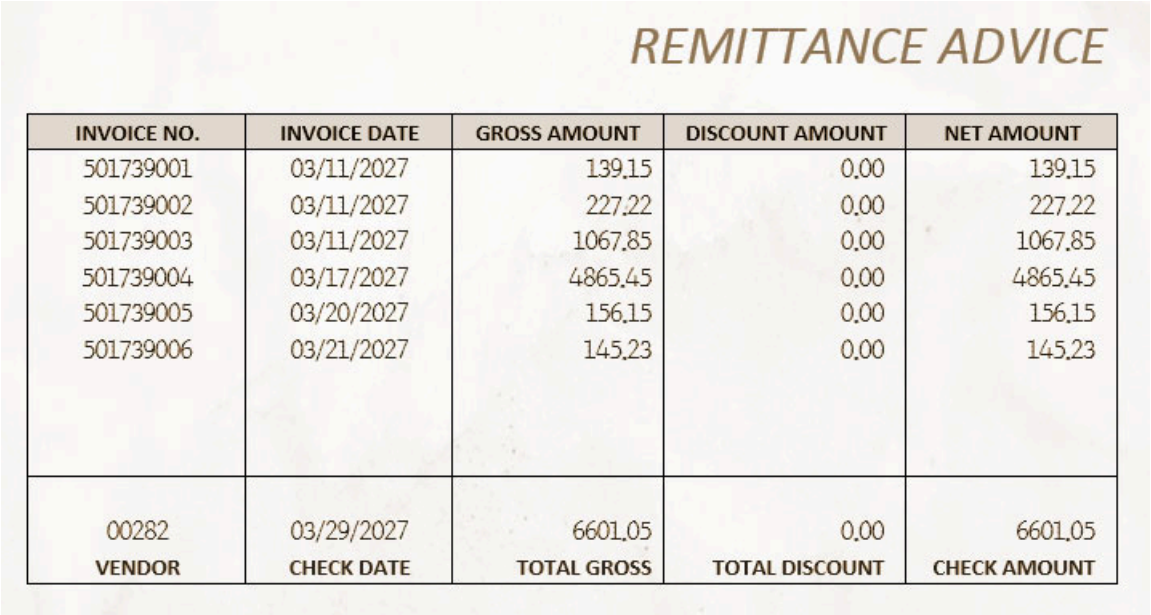
How it works

For example, assume you use automatic document type classification and enable **Invoices require PO** for a supplier. Whenever you receive a document from this supplier, AP Essentials checks if the document is a credit note by looking for credit fields and negative amounts. If the document does not appear to be a credit note, it is automatically classified as a purchase order invoice, even if no PO number is found. If no purchase order number is found, the invoice order number field is marked with a validation error. In contrast, if you do not enable **Invoices require PO** and no PO number is found, the document is classified as an expense invoice.

Remittance advices

Tungsten AP Essentials supports the extraction and interpretation of remittance advices.

A remittance advice is a key to accounts receivable processes. A remittance advice is a document sent by a customer to a supplier to inform the supplier that an invoice has been paid. Remittance advices often list several invoices in a table, where each line-item row depicts a separate invoice. Typically, each row contains a reference, such as an invoice number, the amount due, and the amount paid.

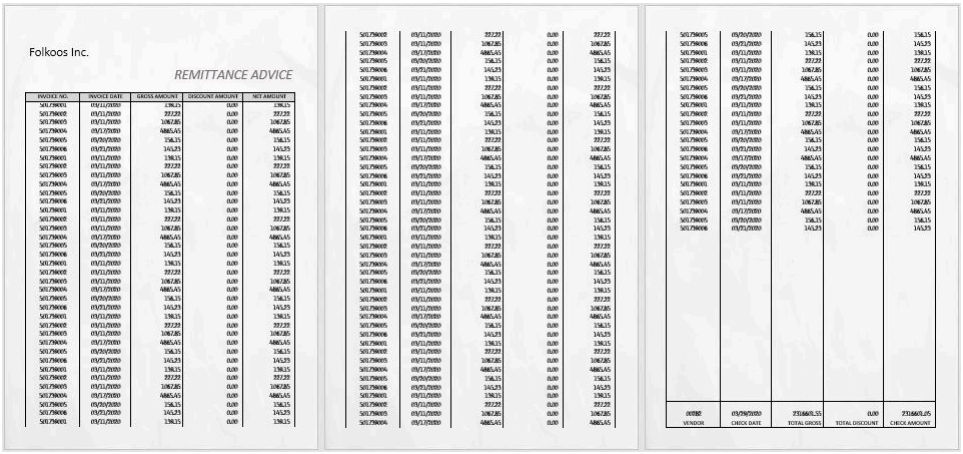


REMITTANCE ADVICE

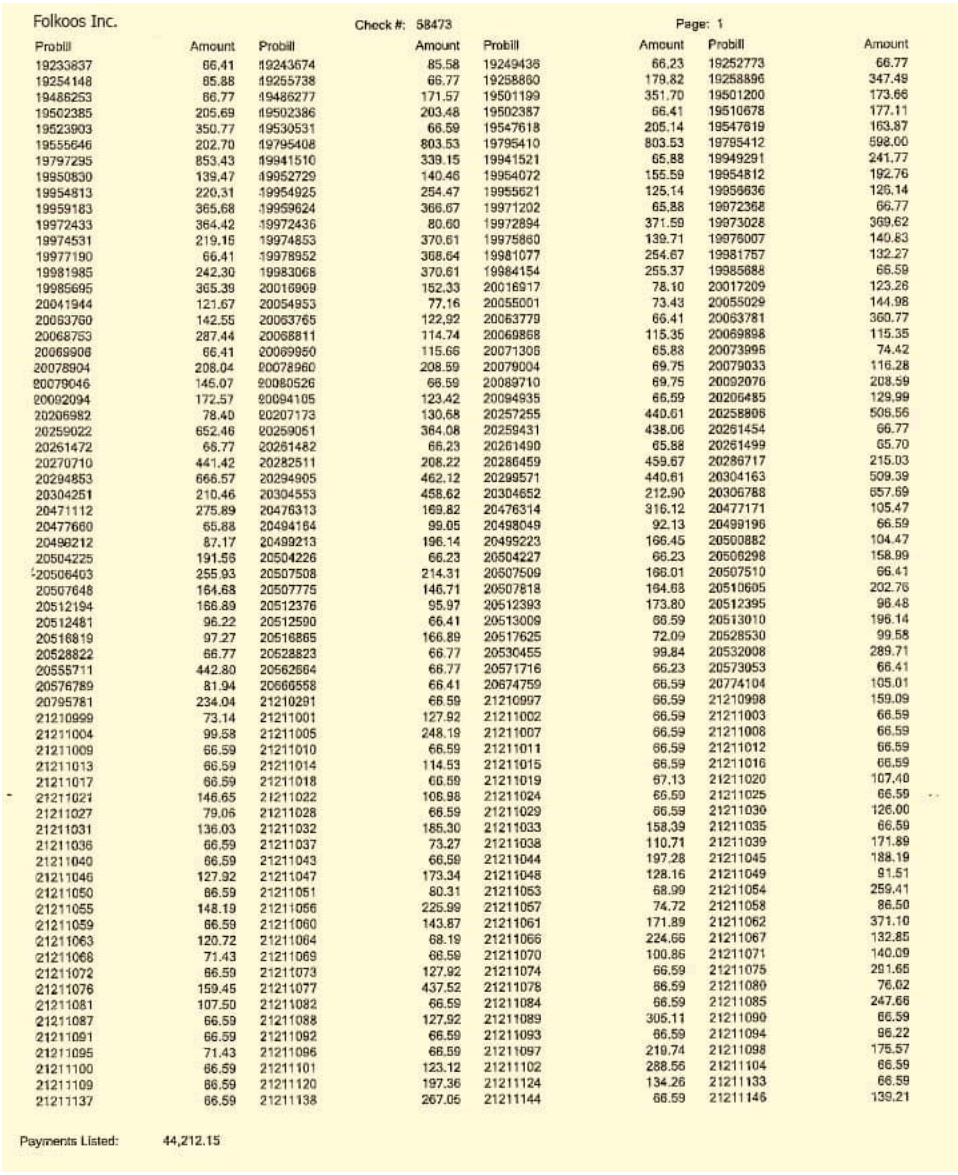
INVOICE NO.	INVOICE DATE	GROSS AMOUNT	DISCOUNT AMOUNT	NET AMOUNT
501739001	03/11/2027	139.15	0.00	139.15
501739002	03/11/2027	227.22	0.00	227.22
501739003	03/11/2027	1067.85	0.00	1067.85
501739004	03/17/2027	4865.45	0.00	4865.45
501739005	03/20/2027	156.15	0.00	156.15
501739006	03/21/2027	145.23	0.00	145.23
00282	03/29/2027	6601.05	0.00	6601.05
VENDOR	CHECK DATE	TOTAL GROSS	TOTAL DISCOUNT	CHECK AMOUNT

Tungsten AP Essentials can extract information from remittance advices in various formats, including:

- Remittance advice tables that extend over multiple pages.



- Side-by-side remittance advice tables.

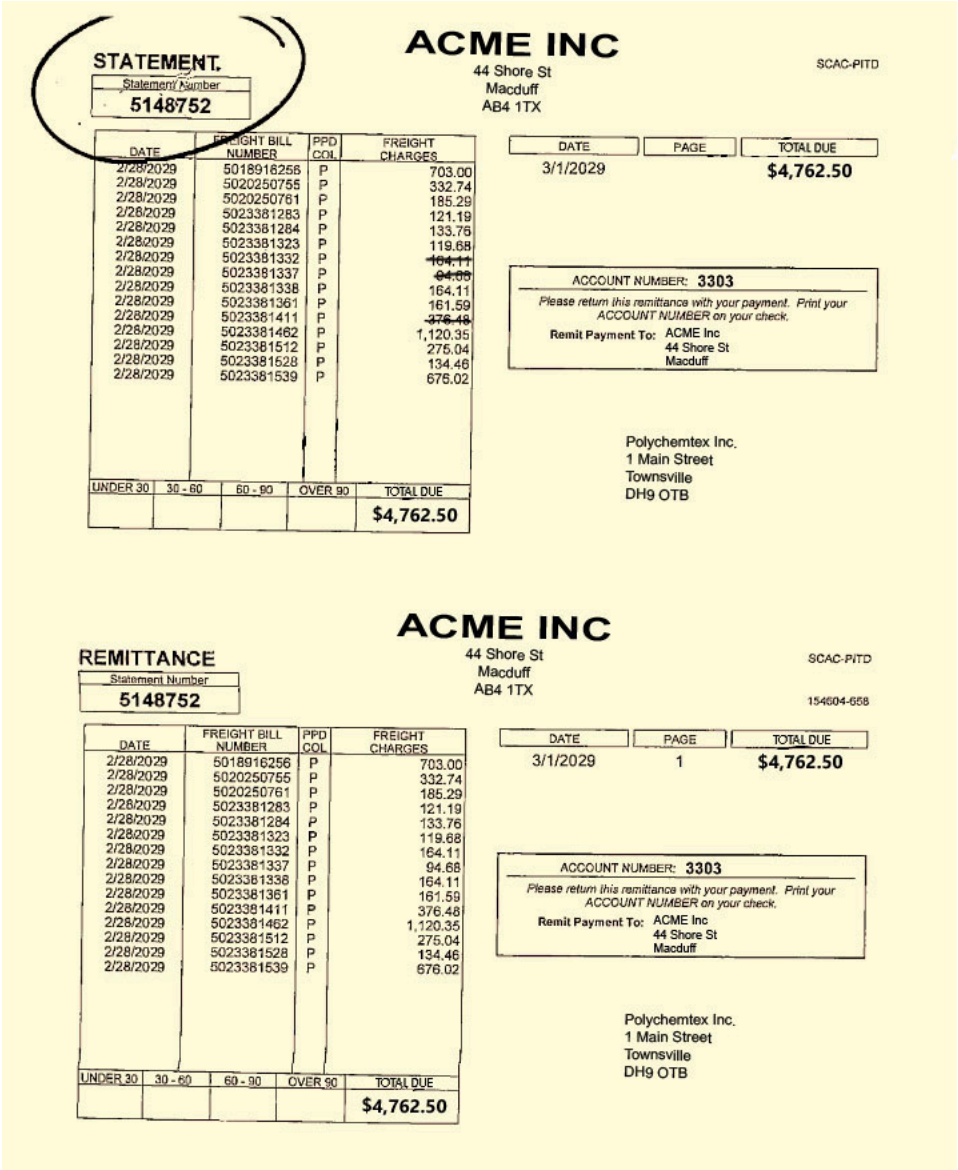


Folkoos Inc. Check #: 58473 Page: 1

Probill	Amount	Probill	Amount	Probill	Amount	Probill	Amount
19233837	66.41	19243674	85.58	19249436	66.23	19252773	66.77
19254148	85.88	19255738	66.77	19258860	179.82	19258896	347.49
19486253	86.77	19486277	171.57	19501199	351.70	19501200	173.66
19502385	205.69	19502386	203.48	19502387	66.41	19510678	177.11
19523903	350.77	19530531	66.59	19547618	205.14	19547619	163.87
19555646	202.70	19795408	803.53	19795410	803.53	19795412	598.00
19797295	853.43	19941510	339.15	19941521	65.88	19949291	241.77
19950830	139.47	19952729	140.46	19954072	155.59	19954812	192.76
19954813	220.31	19954925	254.47	19955621	125.14	19956636	126.14
19959183	365.68	19959624	366.67	19971202	65.88	19972368	66.77
19972433	364.42	19972436	80.60	19972894	371.59	19973028	369.62
19974531	219.16	19974853	370.61	19975860	139.71	19976007	140.83
19977190	66.41	19978952	368.64	19981077	254.67	19981757	132.27
19981985	242.30	19983068	370.61	19984154	255.37	19985688	66.59
19985695	365.39	20016909	152.33	20016917	78.10	20017209	123.26
20041944	121.67	20054953	77.16	20055001	73.43	20055029	144.98
20063760	142.55	20063765	122.92	20063779	66.41	20063781	360.77
20068753	287.44	20068811	114.74	20069868	115.35	20069898	115.35
20069908	66.41	20069950	115.66	20071305	65.88	20073995	74.42
20078904	208.04	20078960	208.59	20079004	69.75	20079033	116.28
20079046	146.07	20080526	66.59	20089710	69.75	20092076	208.59
20092094	172.57	20094105	123.42	20094935	66.59	20206485	129.99
20206982	78.40	20207173	130.68	20257255	440.61	20258808	506.56
20259022	652.46	20259051	364.08	20259431	438.06	20261454	66.77
20261472	66.77	20261482	66.23	20261490	65.88	20261499	65.70
20270710	441.42	20282511	208.22	20286459	459.67	20286717	215.03
20294853	666.57	20294905	462.12	20299571	440.61	20304163	509.39
20304251	210.46	20304553	458.62	20304652	212.90	20306788	657.69
20471112	275.89	20476313	169.82	20476314	316.12	20477171	105.47
20477660	65.88	20494184	99.05	20498049	92.13	20499196	66.59
20499212	87.17	20499213	196.14	20499223	166.45	20500882	104.47
20504225	191.56	20504226	66.23	20504227	66.23	20506298	158.99
20506403	255.93	20507508	214.31	20507509	166.01	20507510	66.41
20507648	164.68	20507775	146.71	20507818	164.68	20510605	202.76
20512194	166.89	20512376	95.97	20512393	173.80	20512395	96.48
20512481	96.22	20512590	66.41	20513009	66.59	20513010	196.14
20516819	97.27	20516865	166.89	20517625	72.09	20528530	99.58
20528822	66.77	20528823	66.77	20530455	99.84	20532008	289.71
20555711	442.80	20562564	66.77	20571716	66.23	20573053	66.41
20576789	81.94	20666558	66.41	20674759	66.59	20774104	105.01
20795781	234.04	21210291	66.59	21210997	66.59	21210998	159.09
21210999	73.14	21211001	127.92	21211002	66.59	21211003	66.59
21211004	99.58	21211005	248.19	21211007	66.59	21211008	66.59
21211009	66.59	21211010	66.59	21211011	66.59	21211012	66.59
21211013	66.59	21211014	114.53	21211015	66.59	21211016	66.59
21211017	66.59	21211018	66.59	21211019	67.13	21211020	107.40
21211021	146.65	21211022	106.98	21211024	66.59	21211025	66.59
21211027	79.06	21211028	66.59	21211029	66.59	21211030	126.00
21211031	136.03	21211032	185.30	21211033	158.39	21211035	66.59
21211036	66.59	21211037	73.27	21211038	110.71	21211039	171.89
21211040	66.59	21211043	66.59	21211044	197.28	21211045	188.19
21211046	127.92	21211047	173.34	21211048	128.16	21211049	91.51
21211050	66.59	21211051	80.31	21211053	68.99	21211054	259.41
21211055	148.19	21211056	225.99	21211057	74.72	21211058	86.50
21211059	66.59	21211060	143.87	21211061	171.89	21211062	371.10
21211063	120.72	21211064	68.19	21211066	224.66	21211067	132.85
21211068	71.43	21211069	66.59	21211070	100.86	21211071	140.09
21211072	66.59	21211073	127.92	21211074	66.59	21211075	291.65
21211076	159.45	21211077	437.52	21211078	66.59	21211080	76.02
21211081	107.50	21211082	66.59	21211084	66.59	21211085	247.66
21211087	66.59	21211088	127.92	21211089	305.11	21211090	66.59
21211091	66.59	21211092	66.59	21211093	66.59	21211094	96.22
21211095	71.43	21211096	66.59	21211097	219.74	21211098	175.57
21211100	66.59	21211101	123.12	21211102	288.56	21211104	66.59
21211109	66.59	21211120	197.36	21211124	134.26	21211133	66.59
21211137	66.59	21211138	267.05	21211144	66.59	21211146	139.21

Payments Listed: 44,212.15

- Multiple remittance advice tables. If Tungsten AP Essentials finds more than one remittance advice table, all the tables are captured.



STATEMENT

Statement Number
5148752

ACME INC
44 Shore St
Macduff
AB4 1TX

SCAC-PITD

DATE	FREIGHT BILL NUMBER	PPD COL	FREIGHT CHARGES
2/28/2029	5018916256	P	703.00
2/28/2029	5020250755	P	332.74
2/28/2029	5020250761	P	185.29
2/28/2029	5023381283	P	121.19
2/28/2029	5023381284	P	133.76
2/28/2029	5023381323	P	119.68
2/28/2029	5023381332	P	~~164.11~~
2/28/2029	5023381337	P	~~94.68~~
2/28/2029	5023381338	P	164.11
2/28/2029	5023381361	P	161.59
2/28/2029	5023381411	P	~~376.48~~
2/28/2029	5023381462	P	1,120.35
2/28/2029	5023381512	P	275.04
2/28/2029	5023381528	P	134.46
2/28/2029	5023381539	P	676.02

DATE	PAGE	TOTAL DUE
3/1/2029		$4,762.50

ACCOUNT NUMBER: 3303
Please return this remittance with your payment. Print your ACCOUNT NUMBER on your check.
Remit Payment To: ACME Inc
44 Shore St
Macduff

Polychemtex Inc.
1 Main Street
Townsville
DH9 OTB

UNDER 30	30 - 60	60 - 90	OVER 90	TOTAL DUE
				$4,762.50

REMITTANCE

Statement Number
5148752

ACME INC
44 Shore St
Macduff
AB4 1TX

SCAC-PITD

154604-658

DATE	FREIGHT BILL NUMBER	PPD COL	FREIGHT CHARGES
2/28/2029	5018916256	P	703.00
2/28/2029	5020250755	P	332.74
2/28/2029	5020250761	P	185.29
2/28/2029	5023381283	P	121.19
2/28/2029	5023381284	P	133.76
2/28/2029	5023381323	P	119.68
2/28/2029	5023381332	P	164.11
2/28/2029	5023381337	P	94.68
2/28/2029	5023381338	P	164.11
2/28/2029	5023381361	P	161.59
2/28/2029	5023381411	P	376.48
2/28/2029	5023381462	P	1,120.35
2/28/2029	5023381512	P	275.04
2/28/2029	5023381528	P	134.46
2/28/2029	5023381539	P	676.02

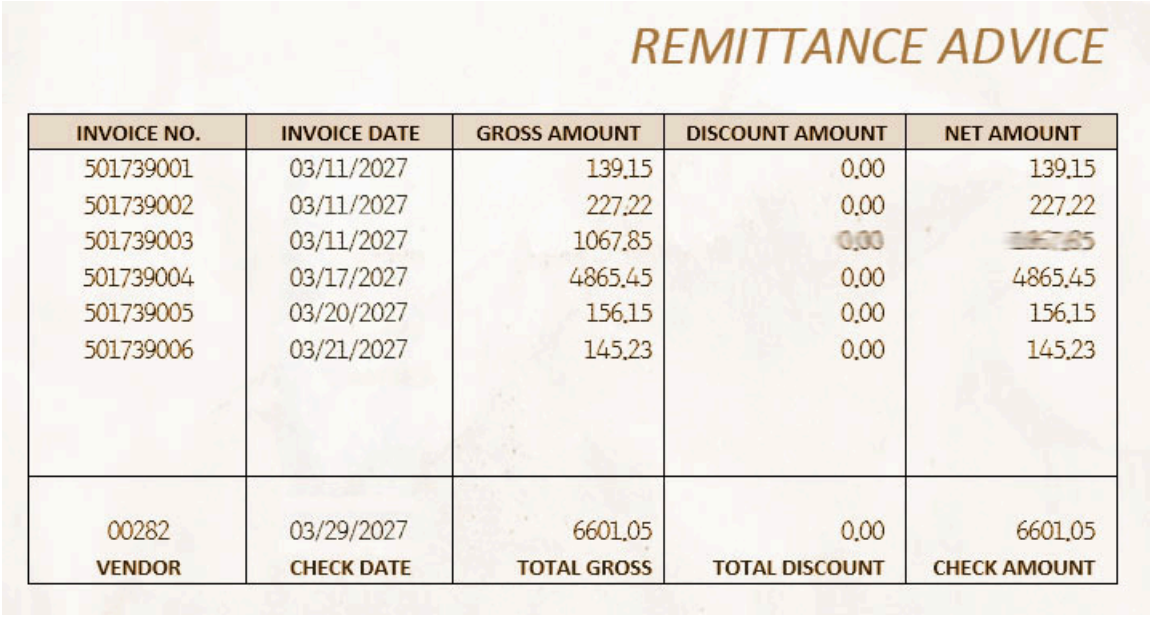
DATE	PAGE	TOTAL DUE
3/1/2029	1	$4,762.50

ACCOUNT NUMBER: 3303
Please return this remittance with your payment. Print your ACCOUNT NUMBER on your check.
Remit Payment To: ACME Inc
44 Shore St
Macduff

Polychemtex Inc.
1 Main Street
Townsville
DH9 OTB

UNDER 30	30 - 60	60 - 90	OVER 90	TOTAL DUE
				$4,762.50

- Duplicate columns. If Tungsten AP Essentials detects duplicate columns, both columns are used to ensure the extracted values are correct. For example, if a value from one column is difficult to read, but the corresponding value in the duplicate column is legible, the legible value is used.



REMITTANCE ADVICE

INVOICE NO.	INVOICE DATE	GROSS AMOUNT	DISCOUNT AMOUNT	NET AMOUNT
501739001	03/11/2027	139.15	0.00	139.15
501739002	03/11/2027	227.22	0.00	227.22
501739003	03/11/2027	1067.85	0.00	1067.85
501739004	03/17/2027	4865.45	0.00	4865.45
501739005	03/20/2027	156.15	0.00	156.15
501739006	03/21/2027	145.23	0.00	145.23
00282 VENDOR	03/29/2027 CHECK DATE	6601.05 TOTAL GROSS	0.00 TOTAL DISCOUNT	6601.05 CHECK AMOUNT

When verifying remittance advices, ensure that the total amount of the remittance advice equals the sum of all the invoices in the table. Tungsten AP Essentials makes this task easier by automatically validating the amounts using the **Line-item total amount** validation.

To process remittance advices and take advantage of the remittance validation, you must enable a remittance advice document type in the Extraction service. Likewise, you must specify a remittance advice document type when sending remittance advices to Tungsten AP Essentials.

To use the remittance validation, incoming remittance advices must have these fields:

Remittance advice field	Field type name in Tungsten AP Essentials
Total amount (header field)	RA_TotalAmountPaid
Amount paid (line-item field)	LIT_RA_AmountPaid

Improving capture performance

If the invoice numbers in the line-item table of the remittance advice have a known format, you can improve capture performance by specifying a regular expression that matches the format of the field (LIT_RA_InvoiceNumber). When Tungsten AP Essentials extracts invoice number fields from the line-item table on the remittance advice, it uses the regular expression to eliminate uncertain matches. To specify the regular expression for the invoice number field in the line-item table:

1. Navigate to the **Extraction** service and select **Edit**.
2. Select the remittance advices document type.
3. In the view that appears, select the **Line-item fields** tab and select **LIT_RA_InvoiceNumber** .
4. In the view that appears, specify a regular expression in the **Field format** setting.

The regular expression should match all possible values that the invoice number field can have. For example, if the invoice number fields contain 7 to 9 digits, type the following in the **Field format** setting:

```
^[0-9]{7,9}$
```

5. After you specify a regular expression, you can test it by typing an example invoice number in the **Test value** box and selecting **Test**.

Purchase order documents

Tungsten AP Essentials supports the extraction and interpretation of purchase order documents on behalf of seller organizations.

A purchase order document is key to accounts receivable processes. A purchase order document is issued by a buyer to a seller and indicates types, quantities, and agreed prices for products or services. Typically, a purchase order is specified using the seller's terms and item numbers. Buyer numbers can be used to identify the buyers of a purchase order. However, buyer numbers may not always be present on a purchase order, since a buyer might not know the number it has been assigned by the seller. Therefore, Tungsten AP Essentials can also identify buyers by information such as the company name and address. Purchase orders should not be confused with sales orders. Purchase orders can be used to facilitate the creation of sales orders, which are created internally by the seller.

ACME

ACME Inc
44 Shore St
Macduff
AB4 1TX

Tel: 01632 960809
Fax: 01632 960971

Purchase Order

Seller:	Deliver to:
Polychemtex Inc. 1 Main Street Townsville DH9 OTB	ACME Inc 44 Shore St Macduff AB4 1TX

Purchase Order : C07808
Seller No : 260497

Order Date : 5.20.2022
Expected delivery : 5.20.2022

Order Ref:

ITEM	PRODUCT CODE DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	ZZDB072661 9 PIECE ERGO GENERAL PURPOSE TOOL KIT 9845	1	EACH	94.50	94.50

TOTAL AMOUNT: 94.50

Typical header fields on a purchase order include:

- Purchase order number
- Purchase order date
- Requested delivery date
- Delivery address
- Delivery details

Typical line-item fields on a purchase order include:

- Delivery details

- Item code
- Quantity
- Description
- Unit of measure
- Delivery date
- Delivery period
- Unit price
- Line total
- Delivery address

To process purchase orders, you must enable a purchase order document type in the Extraction service. Likewise, you must choose a purchase order document type when sending remittance advices to Tungsten AP Essentials.

Online learning

Online learning is a core technology of Tungsten AP Essentials. It is an automatic process by which AP Essentials recognizes documents and understands where to find document information. Online learning is an AI technology that uses user input to increase extraction performance.

When a document enters the system for the first time, it is unknown, and you must specify the correct party (supplier or customer) during verification, so AP Essentials can learn to identify documents from the same party. Once a document is identified, online learning begins. When a user corrects a document during verification, AP Essentials uses the corrected data to improve the online learning information on subsequent documents. As online learning improves, data extraction also improves.

AP Essentials remembers online learning data on a per-supplier basis for accounts payable processes and on a per-customer basis for accounts receivable processes. In other words, changes made to documents of one supplier/customer do not affect the online learning of documents from other suppliers/customers. When you delete a supplier or customer, the associated learning data is also deleted. For suppliers in AP processes, you can enable a setting in the Master data service that automatically restores learning data for suppliers that are reinstated within seven days of deletion.

Lock online learning

You can pause, or "lock" the online learning process for a specific supplier or customer at any time. Locking stops online learning at its current state and prevents verification changes from having a detrimental effect on documents that have high identification and extraction rates. For example, assume you receive many documents from a particular supplier, and the incoming documents from this supplier are always automatically identified, and the field data is automatically extracted with a high level of accuracy. If a user accidentally draws a field incorrectly on a document from this supplier, it can alter the online learning, causing a decrease in extraction performance on subsequent documents. However, if **Lock online learning** is enabled, verification changes are ignored by the online learning process, regardless of whether the changes were accidental or intentional. In this way, you can preserve the current state of online learning data for a particular supplier/customer and maintain high extraction rates, regardless of user input.

AP Essentials Office users with the **Change lock online learning setting** privilege can lock online learning during verification in the **Add/Edit supplier** dialog (accounts payable processes) or **Add/Edit customer** dialog (accounts receivable processes). Administrators with the **Manage accounts** privilege can lock online learning in the **Supplier master data** view. You can resume online learning at any time by clearing the **Lock online learning** setting.

You can also prevent users from affecting learning on an individual user basis by disabling the **Update online learning** privilege. Disabling this privilege prevents the user from having a detrimental effect on any documents, regardless of supplier. Consider disabling the **Update online learning** privilege for new or inexperienced users.

Services overview

Tungsten AP Essentials provides several automated services:

Analytics	Provides reports about document status, document volumes, performance statistics, and more.
Classification	Automatically routes invoices to the correct partner.
Copilot	Enhances Tungsten AP Essentials Office with generative AI assistance.
Email input	Enables users to send invoices by email to the system.
Extraction	Determines how document information is interpreted.
e-Invoice Connect	Simplifies invoice processing by connecting you to hundreds of thousands of companies that are already connected and exchanging e-invoices.
Image upload	Enables users to upload images to the system using a secure connection.
Master data	Determines user interaction with master data when verifying invoices.
Notifications	Notifies users of various events by email. For example, an email notification can be sent when Tungsten AP Essentials receives a batch or when a batch is rejected.
Process control	Automates production elements, such as processing new documents upon arrival.
Purchase order	Enables the sharing of purchase-order information between Tungsten AP Essentials and the target system.
Separation	Provides an interface to separate documents in a batch quickly and easily.
Storage	Provides long-term archiving of document images and data.
Target system	Specifies the target system and how document information is sent to it.

Validation	Provides automated functions that help ensure the correctness of invoice data.
Verification	Enables users to easily verify documents in a web browser.
Workflow	Enables users to perform accounts-payable and workflow activities.

You can choose to perform some services yourself or have them done for you by a Tungsten Automation partner. When services are performed on your behalf by a partner, we call them managed services.

Services can be enabled on multiple levels, and each child node in the administration treeview inherits its services from its parent. For example, if you disable a service for an account, that service will not be available for any of the subaccounts of that account.

Successfully processed documents are deleted from Tungsten AP Essentials after three months. Inactive documents are deleted one year after the last user interaction. Use the Storage service to prevent processed and inactive documents from being deleted.

Analytics reports

AP Essentials provides several reports that contain detailed information about document status, document volumes, performance statistics, and more. The reporting system is called Analytics. Analytics reports are available through Admin Center and offer ways to browse information in an easy-to-use interface.

All reports are expressed using UTC time.

Analytics reports are enabled on all partners by default. To access Analytics from the customer level, however, the Analytics service must be enabled on the customer account.

If you have multiple accounts in Admin Center, make sure you sign out of Analytics reports before signing in with another account.

Administrators with the **Access Analytics** privilege can view the reports by navigating to an organization overview page and selecting **Open Analytics**. The view that appears organizes the reports in the menus described below: **Home**, **Workload**, **Volumes**, and **Performance**. The reports, and their contents, can vary, depending on which services you use. For example, the Workflow queue report is only available if you use Workflow services. Likewise, the availability of accounts payable information and accounts receivable depends on your role. Partner and customer group administrators have access to accounts payable and accounts receivable information if they manage both types of organizations.

Each report is interactive. You can fine-tune the information you need by selecting data points in the reports and "drilling down" into more specific information. Many reports also have filter boxes that you can use to filter the report by organization, date, and other aspects. In some reports, such as the **Total process time** and **Process time by sender** reports, you can see more detailed information by moving the pointer over the data points in the graph.

When you open Analytics, the **Home** menu displays a dashboard that gives you a quick overview of the system by displaying a few of the most popular reports, which are also available in the other menus. You can see the current status of documents in progress, as well as graphs from four reports: **Workload overview**, **Volumes overview**, **Pending user action**, and **Total process time**.

Learn more about these other reports:

- Workload
- Volume
- Performance
- Extraction

Update frequency

Analytics data is updated according to the following schedule.

- Every hour, on the hour (UTC time), data for these reports is updated:
  - **Workload**
  - **Volume** (excluding **Billing**)
  - **Total process time**
  - **Process time by supplier**
  - **Touch rate**
- **Billing** data is updated once per day on each system:
  - Australia: 15:07 UTC
  - Europe: 02:07 UTC
  - North America: 08:07 UTC
- **Total verification time by user**, **Verification time by supplier**, and **Verification velocity** report data is updated once per day on each system:
  - Australia: 16:07 UTC
  - Europe: 03:07 UTC
  - North America: 09:07 UTC
- **Extraction** data is updated once per day on each system:
  - Australia: 17:07 UTC
  - Europe: 04:07 UTC
  - North America: 10:07 UTC

Analytics reports: Workload

The **Workload** menu contains reports about the status of documents that are currently in progress. You can use these reports to help identify issues with documents that are in progress. The **Workload** menu contains the following reports:

Supplier details displayed in these reports, such as supplier name and supplier number, can sometimes be outdated. See Outdated supplier settings in Analytics reports.

- **Overview** - Displays the total number of documents that are currently in progress in the data-capture process or a workflow, if Workflow services are enabled. Note the **Documents** button, which displays detailed document information.

- **Accrual** - Displays information about documents that are currently being processed in a workflow. Documents in this view have already been verified, but have not been sent to the target system for final posting. When partner administrators or customer group administrators choose an organization on this report, only accounts-payable organizations are available for selection.

  Select **Download** to export the accrual report in CSV format. When you download a report, the information contained in the report reflects the current view, including any filters you may have applied. If there is no data in the current view, then the report is also empty.
- **Pending user action** - Displays documents that are currently in progress, grouped by status.
- **On hold** - Displays documents that are currently on hold, grouped by user. The underlying document statuses are also depicted in the report.
- **Workflow queue** - Displays the number of documents in workflow. You can filter the report by workflow type (coding and approval workflow and correction workflow). This report is only available if you use Workflow services.
- **By due date** - Displays documents sorted by the due date field, so you can easily see documents that are past due, due within seven days, due within 30 days, or due later than 30 days. This report is only available for accounts-payable processes.
- **By user** - Displays the number of documents in workflow, grouped by user. This report is only available if you use Workflow services. Select the **Documents** button to see detailed information about each document that this view is based on.
- **Rejected** - Displays the number of rejected documents according to the specified date range, organized into two reports: **By reject code** and **By user**. Note that only documents that are rejected using custom reject codes appear in these two views.

  Documents rejected using "reject reasons" are included on the **Pending user action** view. You can view the reject reason by selecting the **Documents** button and locating the document in the list. The reject reason is displayed in the **Comment** field.
  - **By reject code** - Graphically displays the number of rejected documents, grouped according to whether they were rejected during verification or a workflow. Below the graph is a table which you can use to drill down the information further by user and buyer.
  - **By user** - Graphically displays the number of rejected documents, grouped by user and reject code.
- **Request for information** - Displays the number of requests for information made during verification and approval.
  - **By requested user** - Displays the number of requests for information made by each user, differentiated by whether the requests were made during verification or approval.
  - **By requested recipient** - Displays the number of requests for information received by each recipient, differentiated by whether the requests were made during verification or approval.

Analytics reports: Volume

The **Volume** menu contains reports about historical document volumes. These reports can help you understand historical development and load distribution. The **Volume** menu contains these reports:

- **Overview** - Displays successfully processed documents and deleted documents. You can choose custom date ranges and drill down by organization.
- **By organization** - Displays documents processed per day, grouped by organization down to the buyer/seller level. You can choose custom date ranges.

- **By user** - Displays the number of documents processed per user according to document status (*Document created*, *Document verified*, *Document rejected*, *Document deleted*) in the specified time period. You can choose custom date ranges.
- **By sender** - Displays the number of documents processed grouped by the sender (supplier/customer). Use the **Account type** box to filter accounts by accounts payable and accounts receivable. You can choose custom date ranges. Move the pointer over the graph to see more detailed information.
- **Annual comparison** - Displays year-over-year comparisons of successfully processed documents.
- **Document processing** - Displays the current number of in-progress, rejected, processed and deleted documents. The basis for this report is the number of documents received during the specified time period. Unlike other document volume reports, in this report the **Received** documents equal the sum of the other statuses.

  Example

  In this example, a date is specified. One hundred documents were received during that time, and of those 100 documents, 50 were successfully processed, 10 were rejected, 20 were deleted, and 20 are in progress (100 = 50+10+20+20).

Organization	Received	Successfully processed	Rejected	Deleted	In progress
Buyer 1	100	50	10	20	20

- **Billing** - Displays information that you can use as a basis for billing customers. This view has two reports in CSV format that you can download, a default report, and a detailed report. Select **Download** to obtain the default report and select **Download detailed** to obtain a detailed report.

  The billing view is not visible to customer administrators. Partner administrators can view billing reports for all customers they oversee, even when accessing Analytics at the customer level.

Example: Default billing report contents

Customer account	The customer account that processed the documents.
Suborganization	The buyer/seller that the documents belong to.
Line items	The number of documents that have been processed using a document type that interprets line items.
Verified	The number of documents that have been manually verified.
Deleted	The number of documents that have been deleted (not exported or posted).
Successfully processed	The number of documents that have been successfully processed (export succeeded or post succeeded).
Added to storage	The number of documents that were added to storage during the specified date.

Storage total	The total number of documents in storage at the end of the specified date.

Example: Detailed billing report contents

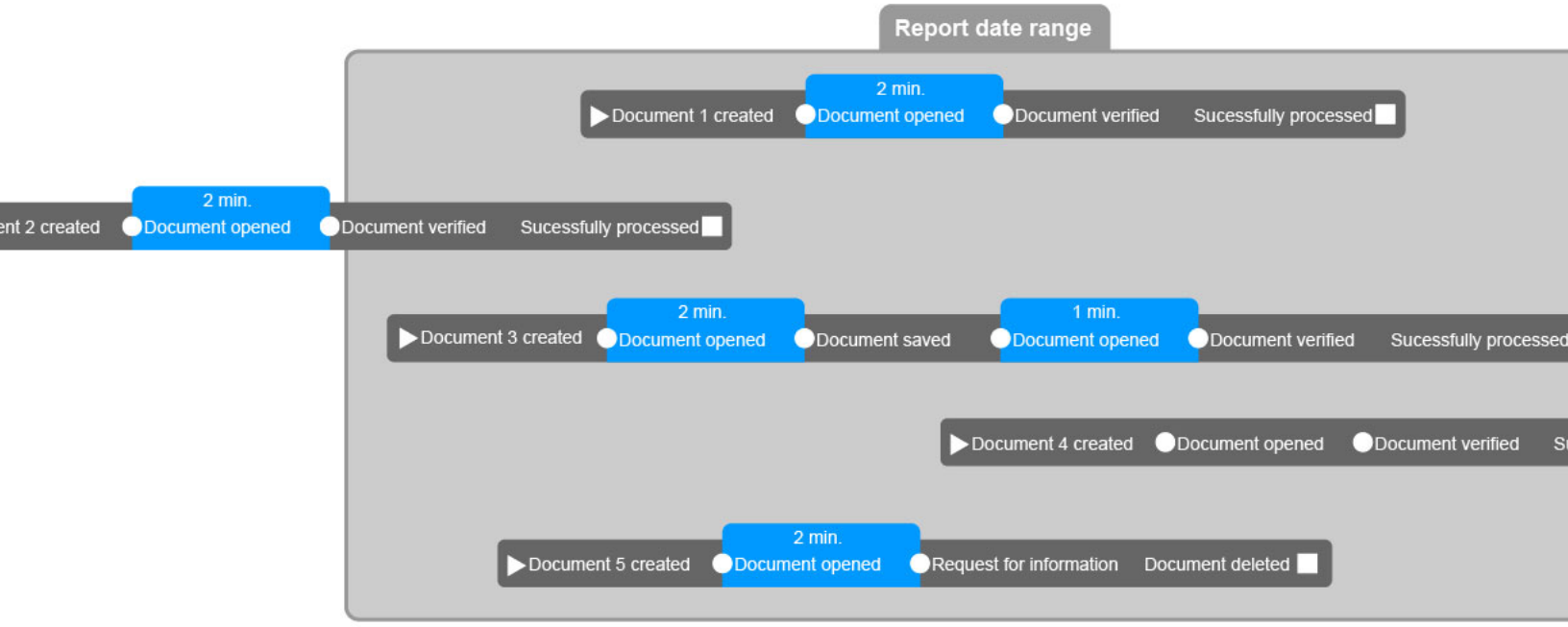
CustomerName	The name of the customer.
CustomerModel	The licensing model of the customer.
CustomerExternalId	The value of the ID setting that is specified in the **External reference** settings.
CustomerOrganizationNumber	The organization number of the customer.
CustomerVatNumber	The VAT number of the customer.
CustomerBillingReportReference	The value of the **Reference** setting that is specified in the **Service plan** settings.
SubOrganization	The name of the buyer/seller (if any).
CreatedDate	The date that the document entered the system.
FinalProcessingDate	The date that document processing completed.
LastDataVerifier	The name of the most recent person who verified the document.
TrackId	The track ID of the document.
Sender	The supplier/buyer of the document.
DocumentNumber	The invoice number or purchase order number of the document.
DocumentsWithLineItems	The number of line-item documents that were processed.
Verified	The number of documents that have been manually verified.
Deleted	The number of documents that have been deleted (not exported or posted).
Successfully processed	The number of documents that have been successfully processed (export succeeded or post succeeded).
Added to storage	The number of documents that were added to storage during this period.

Analytics reports: Performance

The **Performance** menu contains reports that help you determine how well an organization processes documents by analyzing processing times. The **Performance** menu contains these reports:

- **Total process time** - Displays the average processing time for documents for the current month. You can choose custom date ranges. Move the pointer over the data points in the graph to see more detailed information.
- **Process time by sender** - Displays the average processing time for documents grouped by the sender (supplier/customer). Use the **Account type** box to filter accounts by accounts payable and accounts receivable. Move the pointer over the bars in the graph to see more detailed information.
- **Total verification time by user** - Displays the total time (in hours) a user has spent verifying documents. Only the top 50 users who spend the most time verifying documents are displayed. This report helps you see how much time, in total, your users spend verifying documents. You can also compare users to see who spends the most time verifying documents.

  Verification begins when a user opens a document, and ends when the document is saved, rejected, verified, held or a request for information is made. Only documents that are successfully processed or deleted within the specified time period are used in the calculation.



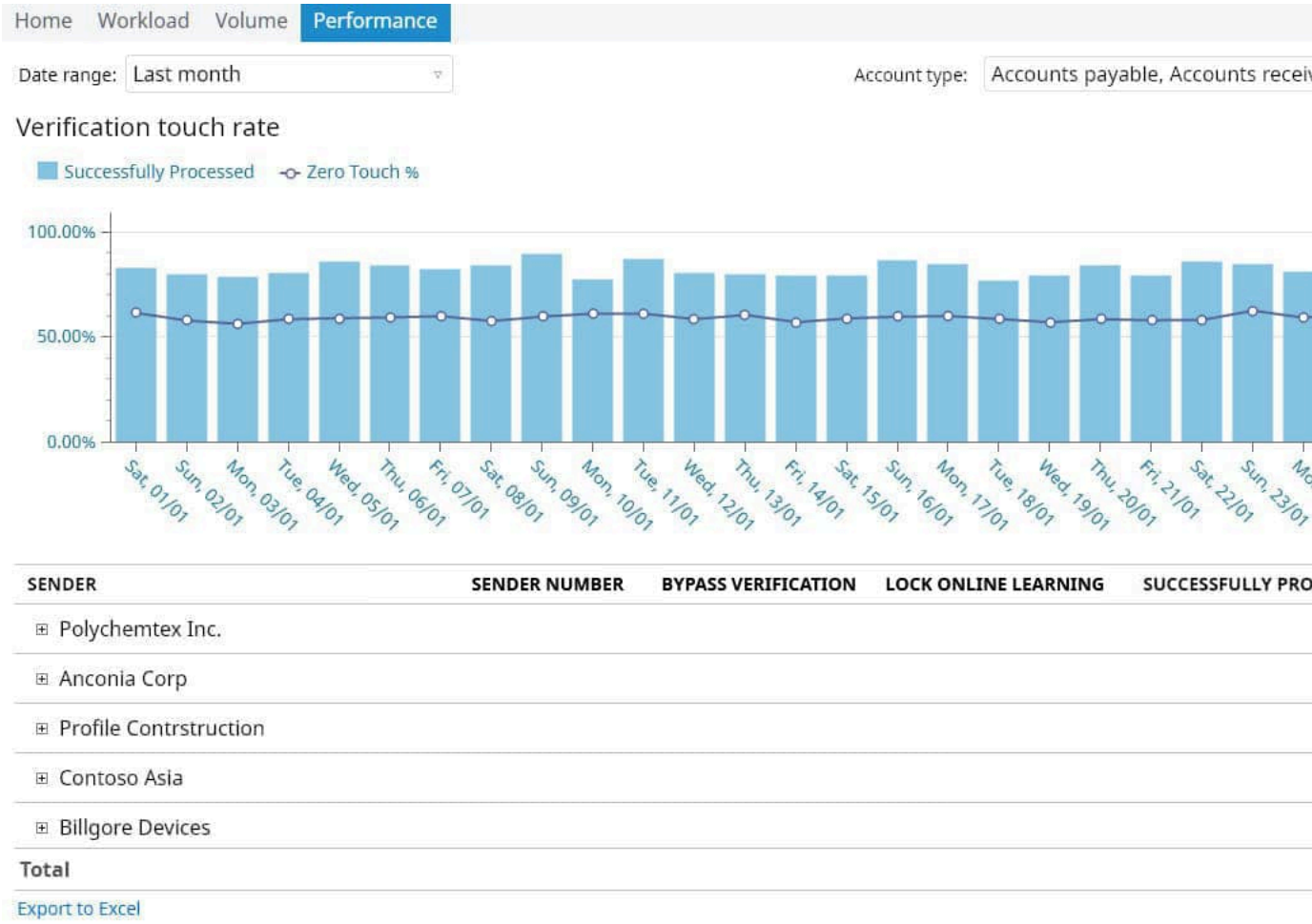
The image above shows how AP Essentials determines if a document is included in the verification time calculation. Document 1 is clearly within the date range. Two minutes passed from the moment the document was opened until the moment the document was verified, so two minutes are added to the total verification time of the user. Although document 2 was created outside of the date range, it was successfully processed within the date range, so its two minutes are also used in the report. Document 3 was handled two times and was successfully

processed within the date range, so 3 minutes are added to the total verification time of the user. Document 4 was successfully processed outside the date range, so it is not used in the time calculation. Document 5 was deleted within the date range, so its time is added to the time calculation. If we assume all of these documents were processed by the same person, the total verification time is nine minutes.

- **Verification time by sender** - Displays the average time spent verifying one document by sender (supplier/customer). In other words, this report tells you which sender's documents take the longest time to verify on average. Only the top 50 senders that take the most time are displayed. Select the bars in the graph to see the verification time by user.
- **Verification velocity** - Displays the average time (in minutes) it takes for a user to verify one document over time on a daily basis. This report is helpful because you can easily see if users are maintaining reasonable verification speeds. Decreasing trends in the line graph indicate users are verifying documents more quickly, whereas increasing trends indicate it is taking more time. A new user, for example, might display a gradually downward trending graph as the user becomes more proficient at verifying documents. In contrast, large volumes of problem documents, or long documents with large numbers of line-items, might decrease user efficiency, causing an upward trend in the graph. You can also use this report to compare verification velocities between users.
- **Extraction** - Displays reports that depict how well AP Essentials automatically finds fields on documents. Learn more about the Extraction report.
- **Verification touch rate** - Displays the percentage of documents that have bypassed manual verification (zero touch) in relation to the total number of documents verified over time.

  Touch rate calculations work the same for suppliers and customers. If a document is "touched," it means it was manually verified. Therefore, "zero touch" refers to documents that were automatically processed without manual verification. In other words, zero-touch documents were never touched manually. A low "zero touch" rate indicates more documents requiring manual adjustment, whereas a high zero-touch rate indicates a high level of automation. By examining the touch rate you can determine, for example, which supplier's documents do not pass through the system easily.

  In the example below, you see 1,783 documents from Polychemtex Inc. were successfully processed. None of those documents were processed manually. In other words, the data was extracted and sent to the target system without manual adjustment by AP Essentials Office users. Since 100% of the documents were processed automatically, without manual intervention, the zero-touch rate is 100%, which is the best possible result. Likewise, Anoconia Corp also has a perfect score. Half of Profile Construction documents required manual adjustment, yielding a zero-touch rate of 50%. The remaining suppliers required manual adjustment of all documents, resulting in a zero-touch rate of 0%, the lowest possible score. Low zero-touch rates can indicate poor performance, which might require investigation, depending on the quantity of documents affected and which workflow settings you use.



Use the **SENDER NUMBER** column to help you locate problematic senders. **LOCK ONLINE LEARNING** can also help your analysis. For example, if documents from a sender have poor performance, and online learning is locked, the touch rate is likely to remain unchanged until you unlock learning for that sender. Conversely, if **BYPASS VERIFICATION** is enabled for a sender, it can cause extraordinarily high performance. Supplier settings displayed in this report can sometimes be outdated. See Outdated supplier settings in Analytics reports.

If you use Workflow services and **Allow account coding during verification** is enabled, touch rates can be skewed adversely because coding an invoice during verification counts as "touching" a document. Currently, there is no way to distinguish between coding during verification and adjustments made due to poor interpretation.

Any adjustments made by line-item pairing also count as touching.

If the **DATA VERIFICATION** setting is set to **Always**, the zero-touch rate will always be 0% because this forces all documents to be manually verified. Conversely, setting **DATA VERIFICATION** to **Never** will always give a 100% zero-touch rate because documents are never verified.

When you investigate low zero-touch rates, consider the following conditions as possible causes:

- As noted above, account coding during verification, line-item pairing and the **DATA VERIFICATION** setting can affect the touch rate.
- Low-resolution documents, which cause poor interpretation.
- Incorrect selection of the buyer/seller or document type during document upload.
- Incorrect document separation.
- Incorrectly drawn line-item fields or header fields.

Analytics reports: Extraction

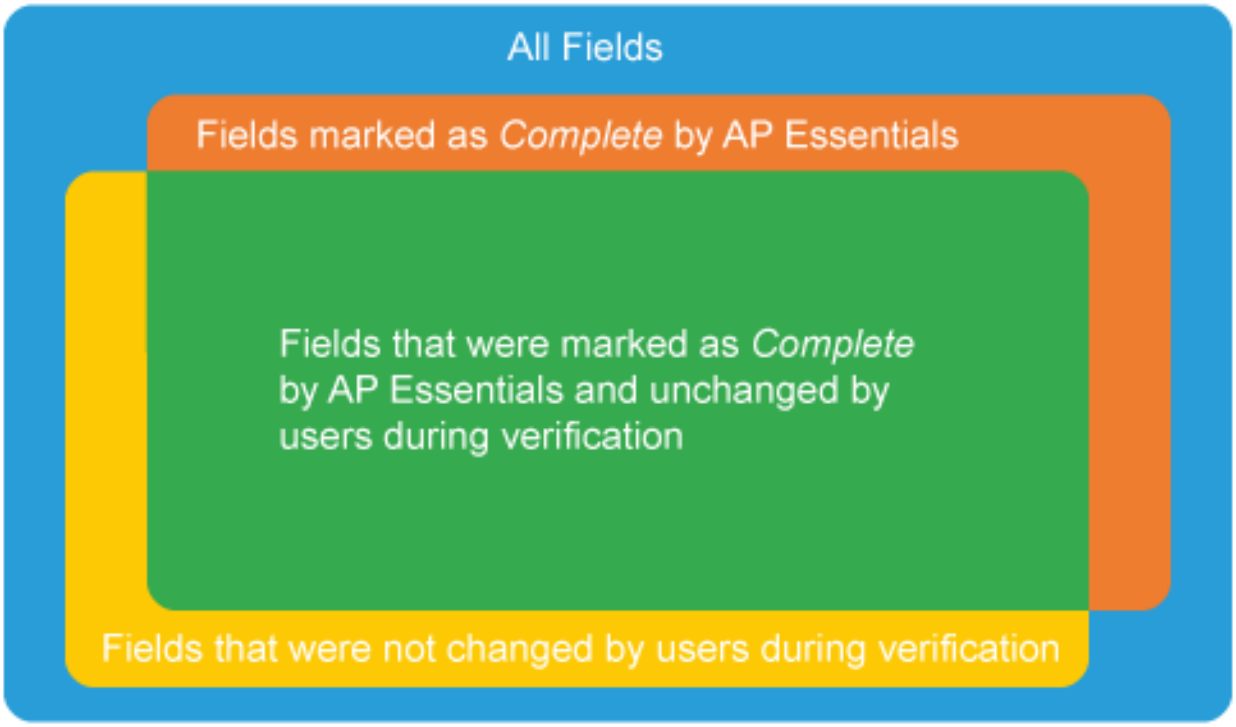
The **Extraction** menu contains reports that show how well AP Essentials automatically finds fields on documents. Use the **Account type** box to filter accounts by accounts payable and accounts receivable. Success rates are determined by analyzing how often users change field values. If extracted field values are not being changed by users during verification, this indicates that AP Essentials is extracting the fields correctly. By examining the ratios between fields that AP Essentials marks as *Complete*, with fields that are changed and unchanged by users, we can determine extraction performance. For example, if a particular field value is never changed, it means AP Essentials correctly found the field 100% of the time. As a result, this field would have a high success rate (100%). However, if a particular field value is changed frequently, it means AP Essentials has difficulty finding the field, and it would have a low success rate.

Extraction data is saved for six months. Although you can select longer periods in the date-picker when filtering extraction data, you cannot retrieve data older than six months from the current date.

Extraction data is calculated using documents that were extracted and manually verified during the time you specify in the **Date range**. The data can include documents that are still being processed in AP Essentials. Invoices that skip manual verification are not included in the extraction statistics. For example, if 100 documents were extracted during the **Date range**, and 80 documents skipped manual verification, only the 20 documents that were manually verified will be included in the extraction statistics.

Solutions that use external extraction may not provide any extraction statistics because the API does not require feedback of external verification data.

Success rates for suppliers and buyers are measured in terms of *identification rates*, *confidence rates*, and *correctness rates*. When calculating rates for fields, we analyze the relationships depicted in the diagram below.



The green area in the middle depicts an overlap of fields that are marked as *Complete* by AP Essentials and fields that were not changed by users during verification.

Success rates for suppliers and buyers are measured in terms of:

- **Identification rate** - Measures how successfully suppliers or buyers are automatically identified. The identification rate is determined by comparing the number of unchanged fields to the total number of fields (changed and unchanged). The rate is calculated by dividing the number of unchanged fields by the total number of fields and multiplying by 100 to get the percentage.

  For example, assume you are looking at the supplier identification rate of 100 documents, where 90 supplier fields were not changed during verification. In other words, there are 100 supplier fields in total, 10 of which were changed during verification. The other 90 were not changed during verification.

  ```
  (90/100) × 100 = 90%
  ```

  The result is an identification rate of 90%, which means 90% of the suppliers were automatically identified correctly.
- **Confidence rate** - Measures how much users can rely on AP Essentials to correctly find supplier or buyer fields. The confidence rate is similar to the identification rate, but the pool of fields is limited to fields that AP Essentials marked as Complete. The confidence rate answers the question: what percentage of fields that AP Essentials marked as Complete were actually correct? The confidence rate is calculated by dividing the number of fields that AP Essentials assigned the *Complete* status to (and the user did not change during verification), by the number of fields that AP Essentials assigned the *Complete* status to.

  For example, assume you are looking at the supplier confidence rate of 100 documents. AP Essentials assigned the *Complete* status to 95 supplier fields. Of those 95 *Complete* fields, only 5

were changed during verification. In other words, AP Essentials and the users agree that 90 of the fields were captured correctly.

```
(90/95) × 100 = 94.7%
```

The result is a confidence rate of 94.7%, which means users can rely on AP Essentials to correctly find supplier fields 94.7% of the time.

- **Correctness rate** - Measures the percentage of fields that are automatically extracted correctly without user interaction. The correctness rate is determined by comparing the number of fields that AP Essentials assigned the *Complete* status, which were also unchanged during verification, to the total number of fields (changed and unchanged). The rate is calculated by dividing the number of *Complete* and unchanged fields by the total number of fields and multiplying by 100 to get the percentage.

  For example, assume you are looking at the supplier correctness rate of 100 documents. AP Essentials assigned the *Complete* status to 95 supplier fields. Of those 95 *Complete* fields, only 5 were changed during verification. In other words, AP Essentials and the users agree that 90 of the fields were captured correctly.

  ```
  (90/100) × 100 = 90%
  ```

  The result is a correctness rate of 90%, which means supplier fields do not require user interaction 90% of the time.

The success rates for other fields are measured in terms of:

- **True positive** - AP Essentials captured the field correctly and assigned the *Complete* status to the field. The user did not change the field value during verification. In this case, AP Essentials and the user agree the field was captured correctly.
- **False positive** - AP Essentials marked the field as *Complete*, indicating it captured the field correctly. However, the user changed the field value during verification. In this case, the user determined that AP Essentials did not capture the field correctly.
- **True negative** - AP Essentials had trouble finding the field and assigned the *Uncertain* status to the field. The user changed the field value during verification. In this case, AP Essentials and the user agree that the field was not captured correctly.
- **False negative** - AP Essentials had trouble finding the field and assigned the *Uncertain* status to the field. However, the user did not change the field value. In other words, the field was captured correctly, even though AP Essentials was not sure about its correctness. In this case, the user determined that AP Essentials did capture the uncertain field correctly.

These reports are available:

- **Supplier identification and field extraction** - Displays supplier identification and field extraction rates. Triangles indicate the percent change over the last 30 days.
- **Supplier identification over time** - Displays supplier identification rates over time, so you can see if rates are improving or worsening. This is helpful, for example, to see if changes made to supplier master data increase your identification rates. Triangles indicate the percent change over the last 30 days.
- **Supplier identification by organization** - Displays supplier identification rates grouped by organization. Triangles indicate the percent change over the last 30 days.
- **Buyer classification** - Displays classification rates over time, grouped by organization. Triangles indicate the percent change over the last 30 days.

Outdated supplier settings in Analytics reports

Analytics reports, such as **Verification touch rate**, can temporarily display outdated supplier settings, including **Bypass verification**, **Lock online learning**, supplier name, and supplier number.

This happens when a user adds a comment to a document that is in **Pending manual verification** status, without making any other changes to the document. Adding a comment is treated as a document update, which causes Analytics to reload the supplier settings that were in effect when the document was originally processed, rather than the current supplier settings. As a result, the report continues to display the older values until the document is updated again.

For example, if a supplier's **Bypass verification** setting changes from **True** to **False**, a comment added to a document that is still pending verification for that supplier does not refresh the setting. The report continues to show **True** until the document is updated in another way.

This is expected behavior, and it is not limited to the **Verification touch rate** report. Other reports that use supplier details, such as workload reports, can be affected in the same way.

To refresh the supplier settings displayed in a report, use one of the following options:

- Open the affected document, change or clear the assigned supplier, and save the document. Then reassign the correct supplier and save the document again.
- Process a new document for the supplier. Processing a new document refreshes the supplier settings used in reports.

Classification services

The classification service sorts invoices and lets you assign invoices to the correct customer and buyer. When classification services are enabled, partner users can specify the customer when uploading invoices and manually assign customers to invoices.

The classification service also controls buyer classification, which sorts invoices according to which buyer they belong to. This means that if a customer has multiple buyers, you can match invoices to the appropriate buyers.

Tungsten Copilot services

Tungsten Copilot services incorporate generative AI capabilities to enhance user interaction with AP Essentials Office. This feature lets users ask natural language questions, such as "How much did we buy from this supplier last month?" or "What is the average total cost on invoices from this supplier?" Tungsten Copilot interprets the queries and returns relevant results, streamlining your verification and approval processes.

Copilot services include a user-friendly query interface in AP Essentials Office and a configuration view in the Admin Center. Users can submit queries while processing documents. Administrators enable and configure Copilot services in Admin Center, where they can manage OpenAI or Azure OpenAI credentials.

- OpenAI is an AI research and deployment company that develops advanced machine learning models, including the GPT series. It offers tools such as language models for tasks including content generation, code assistance, and more.

- Azure OpenAI is a service provided by Microsoft, integrating OpenAI models into the Azure cloud platform. It enables businesses to use OpenAI capabilities, such as GPT models, through Azure infrastructure, with enhanced scalability, security, and enterprise support.

To use this feature, you connect AP Essentials to an external AI service account. AP Essentials does not provide an AI service at this time.

Tungsten AP Essentials does not enforce spending or usage limits on your AI service account. You are solely responsible for setting and adhering to any usage or spending limits.

Copilot in Admin Center

Administrators connect AP Essentials to an AI service account, such as OpenAI or Azure OpenAI, in the **Copilot** view.

Copilot in AP Essentials Office

With Tungsten Copilot services, AP Essentials Office users can streamline their daily tasks by asking natural language questions about the documents they process in the **Copilot** dialog. Copilot interprets the queries, generates responses, and presents the information directly within the interface. This lets users quickly access insights about their work without manually searching through data, making document processing more efficient and informed.

To use Tungsten Copilot, AP Essentials Office users must have the Access Copilot and Access EXPLORE privileges, as well as access to all buyers in the organization.

AP Essentials logs all queries in an internal system. Additionally, the AI service you use is governed by a privacy policy that you should review and consider.

Tungsten Copilot can make mistakes. Always verify important information.

How it works

You can ask Tungsten Copilot questions about documents you find in the **All documents** view in AP Essentials Office. You can ask questions about any document that has not been permanently deleted. Document data is never shared with your AI service. Instead, the AI service translates your natural language questions into a format AP Essentials processes internally, then returns the results.

For the best experience, ask your questions in English, as other languages are not currently supported.

Documents in Storage or Analytics are not available to Tungsten Copilot.

Tungsten Copilot can answer questions related to the following document fields:

- DocumentId
- InvoiceStatus
- ReceiveTime
- TrackId

- BuyerName
- SupplierName
- SupplierNumber
- WorkflowName
- InvoiceAmount
- InvoiceCurrency
- InvoiceDate
- InvoiceDueDate
- InvoiceNumber
- InvoiceOrderNumber

Custom fields, line-item fields, and any other fields not listed above are not available to Tungsten Copilot.

Email input services

In addition to accepting uploaded invoices, Tungsten AP Essentials can also accept invoices as attachments via email in several formats. This service can greatly increase productivity by reducing the manual tasks involved with uploading invoices manually.

There are two methods for sending invoices via email:

- Creating custom email addresses which are connected to specific buyers and document types in Tungsten AP Essentials. This is the preferred method if you plan to give the email address to suppliers that send you invoices because the buyer and document type are specified in the email settings. In this case, it does not matter what is written in the email subject.
- Formatting the email subject to specify the buyer and document type. This method is appropriate for multifunction peripherals (MFPs), where there is no chance for syntax errors after the initial setup.

Creating custom email addresses

You can create additional, custom email addresses, so you can set up separate email accounts for each buyer and document type to make it easier for suppliers to send invoices. These settings must be adjusted by an administrator in the Email input service settings.

Example

For example, you have two buyer organizations: Buyer 1 and Buyer 2. Ideally, you create a separate email address for each buyer. Use the **Email address** view to specify "buyer1" and "buyer2" in the Email address to help you remember which buyer the email corresponds to. Likewise, specify the appropriate buyer in the **Buyer** box so the invoices are actually routed to the correct buyer. We recommend that you also specify the Document type. This makes it easier for you and your suppliers to send invoices via email because you do not have to bother with typing the buyer and document type in the subject line.

After you specify the email settings, you can distribute the email addresses to personnel or suppliers who send invoices to Tungsten AP Essentials via email. Using the example above, you

would give the Buyer 1 email address to suppliers that send invoices to Buyer 1, and you would give the Buyer 2 email address to suppliers that send invoices to Buyer 2.

You are free to create custom email addresses in any way that helps improve your efficiency. For example, you can create multiple email addresses for each buyer, if each buyer processes multiple document types.

Formatting the email subject

If you select **Use email subject** in the **Email address** view, ensure the subject of incoming emails specifies the buyer and the document type in the following format:

```
ExternalBuyerID | DocumentType
```

Where `ExternalBuyerID` is the **External ID** of the buyer and `DocumentType` is the **System name** of the document type.

It is possible to use the email subject for the buyer and not the document type and vice versa. For example, if you select **Use email subject** in the **Buyer** setting, and you select **Swiss invoices** in the **Document type** setting, a correctly formatted email subject would look like this:

```
ExternalBuyerID |
```

In the example above, the external ID of the buyer is specified before the pipe character, and nothing is specified after the pipe character because the document type is specified in the settings on the **Email address** view.

Conversely, if you select a buyer in the **Buyer** setting, and you select **Use email subject** in the **Document type** setting, a correctly formatted email subject would look like this:

```
| DocumentType
```

If you use automatic classification of document subtypes, you must leave the document type empty in the email subject as described in the note above.

Formatting the subject correctly ensures invoices are interpreted with the correct settings and saves you time if manual adjustment is required after interpretation.

Custom domains

By default, all email addresses use the readsoftonline.com domain; however, partners can use their own domains instead.

Extraction services

Using country-specific logic, Tungsten AP Essentials can extract data from documents using a variety of document types in multiple languages.

Data extraction is one of the most powerful services offered by AP Essentials. Using patented, core technologies, AP Essentials can automatically interpret and extract data from your documents, reducing manual work and minimizing human error. Using country-specific logic, AP Essentials

extracts data from documents using a variety of document types in multiple languages. After extraction, output services can send the documents and the interpreted data to a target system.

Document types

AP Essentials uses document types and document subtypes to describe the type of incoming documents you want to process and the information you want to extract from the documents. Document types, also known as generic document types, are a legacy format. When available, a document subtype is preferable to a generic document type. Document types and subtypes contain settings that specify:

- The document fields you want to capture.
- The format of the captured fields.
- Validation rules that ensure the captured data is correct.
- The order in which the fields appear during verification.

When you set up AP Essentials, an administrator specifies a document subtype in the **Extraction** settings. When choosing a document subtype, the name of a document type indicates its purpose, which is usually expressed as a combination of a locale and a subtype. For example, if you process documents in Sweden, you might choose the document type named "Swedish PO (subdocument)" or, if you want to capture credit notes, "Swedish credit (subdocument)". Available subtypes include:

- Expense invoice.
- Purchase order invoice.
- Credit note.
- Remittance advice.

Document types are available in many locales. Accounts payable document types support purchase order invoices, expense invoices, and credit notes. Accounts receivable document types support purchase order documents and remittance advices.

— The document type is supported.

— The document type is available on a preview basis.

Document type (locale)	Supported invoice languages	Accounts payable			Accounts receivable	
		PO invoice	Expense invoice	Credit note	Purchase order	Remittance advice
Australia	English					
Austria	German, English					
Argentina	Spanish, English					
Belgium	Belgian Dutch, French, German, English					
Brazil	Brazilian Portuguese, English					
Britain	English					
Bulgaria	Bulgarian, English					
Canada	English, French					

Document type (locale)	Supported invoice languages	Accounts payable			Accounts receivable	
		PO invoice	Expense invoice	Credit note	Purchase order	Remittance advice
Colombia	Spanish, English					
Chile	Spanish, English					
Czech Republic	Czech, English					
China	Simplified Chinese, English					
Denmark	Danish, English					
Estonia	Estonian, English. Latvian and Lithuanian months are also interpreted.					
Finland	Finnish, Swedish, English					
France	French, English					
Germany	German, English					
Greece	Greek, English					
Hong Kong	Traditional Chinese, English					
Hungary	Hungarian, English					
Iceland	Icelandic, English					
India	English					
Indonesia	Bahasa Indonesia, English					
Ireland	Irish, English					
Israel	Hebraic, English					
Italy	Italian, English					
Japan	Japanese, English					
Korea	Korean, English					
Latvia	Latvian, English. Estonian and Lithuanian months are also interpreted.					
Lithuania	Lithuanian, English. Estonian and Latvian months are also interpreted.					
Malaysia	English, Malay					
Mexico	Spanish, English					
Netherlands	Dutch, English					
New Zealand	English					

Document type (locale)	Supported invoice languages	Accounts payable			Accounts receivable	
		PO invoice	Expense invoice	Credit note	Purchase order	Remittance advice
Norway	Norwegian, English					
Philippines	English, Filipino (limited support)					
Poland	Polish, English					
Portugal	Standard Portuguese, English					
Romania	Romanian, English					
Russia	Russian, English					
Singapore	English					
Slovakia	Slovak, English					
South Africa	Zulu, Xhosa, English, Afrikaans					
Spain	Spanish, English. Catalan months are also interpreted.					
Sweden	Swedish, English					
Switzerland	German, French, Italian, English					
Taiwan	Traditional Chinese, English					
Thailand	Thai, English					
Turkey	Turkish, English					
United States	English					
Vietnamese	Vietnamese, English					
XML (subdocument)	Supports most European languages.					
Other types						
XML (generic document type)	Supports most European languages. This is a generic document type that you can use to extract data from XML invoices from Europe. The XML document type includes many more fields than the other document types. We recommend using this document type if you use Tungsten e-Invoice Connect.					

Extraction methods

The Extraction service supports two different technologies for interpreting your document data. Both methods offer high interpretation accuracy, but differ slightly in their strengths. Choose the method that aligns with your needs.

Classic engine	Advanced engine
Supports over 120 languages, but some complex scripts have lower accuracy.	Supports over 300 languages.

Classic engine	Advanced engine
Limited handwriting recognition, primarily optimized for printed text.	Supports handwriting recognition with AI-based improvements.
Requires clearer images for best accuracy.	Works well with noisy, low-resolution, or distorted images.
Can create searchable PDF output.	Can create searchable PDF output.

First-time extraction

First-time extraction, or first-pass extraction, is when a document from a new supplier is extracted for the first time. Because the system has never seen documents from this supplier before, there is no history of user interaction to confirm uncertain field values. This can make initial interpretation less reliable and increase the chance that fields require manual verification.

To address these challenges, the Advanced extraction engine includes an option to use an AI-powered, pre-trained document library to support first-time extraction. This library has been trained on a wide variety of invoice formats and layouts, enabling it to recognize common header and line-item fields even when no prior learning exists for the supplier. By combining this general knowledge with the extraction capabilities of AP Essentials, first-time documents are interpreted more accurately, reducing the need for manual corrections and improving processing efficiency.

The pre-trained document library is not trained using customer documents from AP Essentials , and no customer documents are stored in it.

You enable the Advanced extraction engine and the **Use pre-trained document library for first pass extraction** setting in the Extraction settings. The first time you enable this feature, it can help improve the first-time extraction of header fields, with potentially greater improvements for line-item fields.

The pre-trained document library is designed to extract the following AP Essentials fields. If your document type includes fields not listed in the following table, their field values remain empty and their status is set to *Complete*, unless a field setting or validation rule applies.

• InvoiceOrderNumber • InvoiceNumber • InvoiceDate • InvoiceDueDate • DeliveryAddressName • InvoiceCurrency • InvoiceTotalVatExcludedAmount • InvoiceDiscountAmount • InvoiceTotalVATAmount • InvoiceTotalVatIncludedAmount • InvoicingPeriodStart	• InvoicingPeriodEnd • SupplierVatRegistrationNumber • BuyerVatRegistrationNumber • PaymentTerms • PaymentReferenceNumber • SupplierIBANX • SupplierSWIFTX • SupplierAccountNumberX • SupplierTaxNumber1 • InvoiceTaxAmountX	• InvoiceTaxRateX • LIT_VatExcludedAmount • LIT_DeliveryDate1 • LIT_ArticleName • LIT_DeliveredQuantity • LIT_ArticleIdentifier • LIT_VatAmount • LIT_VatRate • LIT_DeliveredQuantityUnitCode • LIT_UnitPriceAmount

The pre-trained document library is available only for accounts payable processes. It does not apply to remittance advices or XML documents.

Barcodes

In most cases, fields on invoices are plain text. However, Tungsten AP Essentials can also interpret barcodes. You handle barcodes like any other field. In AP Essentials Office, you can draw boxes around barcodes, and the interpreted value is displayed as human-readable text.

Barcodes can also be used for page separation.

Tungsten AP Essentials can interpret these types of barcodes:

- Code 128
- EAN-8
- EAN-13
- Indian QR codes*
- Swiss QR codes*

* Unlike other barcodes, Tungsten AP Essentials interprets several fields within Swiss QR codes and Indian QR codes.

Indian QR codes

Tungsten AP Essentials can interpret QR codes on Indian QR documents. A QR code is a two-dimensional barcode containing information. For the purposes of this topic, we refer to the QR code found on an Indian document as an "Indian QR code". An Indian QR code contains document and payment information.

When AP Essentials finds an Indian QR code on a document, the system automatically extracts it for all document types. AP Essentials extracts information from the QR code and populates document fields with the data according to this table:

QR field	Field type name in AP Essentials
SellerGstin	`SupplierVATRegistrationNumber`
BuyerGstin	`BuyerVATRegistrationNumber`
DocNo	`InvoiceNumber`
DocTyp	`InvoiceCredit` The system classifies the document as a credit note if the value is "CRN". The system considers all other values (INV, DBN) as invoices.
DocDt	`InvoiceDate`
TotInvVal	`InvoiceTotalVatIncludedAmount`
ItemCnt	Not mapped.
MainHsnCode	`MainHSNCode`
Irn (Invoice Reference Number)	`InvoiceReferenceNumber`
IrnDt	Not mapped.
iss	Not mapped. However, the value must be "NIC". If it is not, Swiss QR code extraction is performed instead.

When the system extracts an Indian QR code, the extracted information must adhere to the Indian QR code specification. If a field does not validate according to the specification, the system marks the field as uncertain ( ). If a field passes validation, its value takes precedence over the extracted text value on the document, and the system sets its status to complete ( ). If a value extracted from an Indian QR code adheres to the QR-bill specification, but fails another validation, the system still uses the Indian QR code value but marks it as uncertain ( ).

Malaysian QR codes

Tungsten AP Essentials can interpret QR codes on Malaysian invoices. A QR code is a two-dimensional barcode that contains information. For the purposes of this topic, we refer to the QR code found on a Malaysian document as a Malaysian QR code. A Malaysian QR code contains a URL that points to online information about the invoice. AP Essentials extracts the URL from the QR code, then extracts the universal unique ID from the URL. Both values are mapped to fields according to the following table.

Value from Malaysian QR code	Field type name in AP Essentials
URL	`InvoiceQRUrl`
Universally unique ID parameter in the URL	`UniversalUniqueIdentifier`

When a Malaysian QR code is extracted, the extracted information must adhere to the QR code specification. If a field passes validation, its status is set to complete (). If a field does not validate according to the specification, the fields are left empty. No validations are performed on the fields after extraction in AP Essentials Office. If you change the field values in AP Essentials Office, no warning appears if they are invalid.

Swiss QR-bills

Tungsten AP Essentials can interpret QR codes on Swiss QR-bills. A QR code is a two-dimensional barcode containing information. For the purposes of this topic, we refer to the QR code found on a Swiss QR-bill as a "Swiss QR code". A Swiss QR code contains invoice and payment information.

A typical QR code on a QR-bill

Swiss QR code extraction is enabled on all Swiss document types. Tungsten AP Essentials extracts information from the QR code and populates invoice fields with the data according to this table:

QR field	Field type name in Tungsten AP Essentials
IBAN	`SupplierIBAN1`
Currency	`InvoiceCurrency`
Amount	`InvoiceTotalVatIncludedAmount`
Reference	The reference can be a Creditor reference or a QR reference, depending on the IBAN type. Creditor references are associated with standard IBAN numbers, whereas QR references are associated with QR-IBAN numbers. • `PaymentReferenceNumber` - Creditor references from standard IBAN numbers are copied to the `PaymentReferenceNumber` field. • `QrReference` - QR references from QR-IBAN numbers are copied to the `QrReference` field. QR-IBAN numbers always contain a reference. For standard IBAN numbers, the reference is optional. To pass the **Swiss QR reference** validation, the reference must be exactly 27 characters.

QR codes that do not match QR-bill headers are ignored. When a Swiss QR code is extracted, the extracted information must adhere to the QR-bill specification. If a field does not validate according to the specification, the field is marked as uncertain (). If a field passes validation, its value takes precedence over the extracted text value on the invoice, and its status is set to complete (). If a value extracted from a Swiss QR code adheres to the QR-bill specification, but fails another validation, the Swiss QR code value is still used but marked as uncertain ().

You can use validations in conjunction with the QR codes:

- **IBAN** - Checks the validity of IBAN numbers extracted from QR codes.
- **Swiss QR reference** - Checks the validity of QR references found in QR-IBAN numbers.

First, the validation checks positions 4 through 9 of the IBAN, using a zero-based index. If the value of positions 4 through 9 is within the range, 30000 - 31900, and the QR reference is exactly 27 characters long, the validation verifies the checksum of the reference field.

Try it out

Download this ZIP file that contains a sample Swiss QR-bill and other invoices and master data for testing and demonstration.

Image upload services

Image upload services provide an interface for uploading documents to Tungsten AP Essentials through Tungsten AP Essentials Office and AP Essentials Connect. Image upload services transfer invoice images securely using the latest encryption technologies.

Tungsten e-Invoice Connect

e-Invoice Connect is a single connection point to send and receive electronic invoices. It automatically converts invoices to the format required by buyers, transfers them to the correct receiver in the correct way, and eliminates manual work and errors. e-Invoice Connect simplifies invoice processing by connecting you to hundreds of thousands of companies that are already connected and exchanging e-Invoices.

Contact support to enable this integration.

Tungsten AP Essentials accepts invoices from e-Invoice Connect via Email input services. e-Invoice Connect can be a beneficial input method because it accepts more XML invoice formats than AP Essentials. By default, communication between AP Essentials and e-Invoice Connect is one way: e-Invoice Connect sends invoices to AP Essentials, and AP Essentials processes them without communicating the results back to e-Invoice Connect. However, you can enable notifications in the e-Invoice Connect service in AP Essentials to send invoice status information back to e-Invoice Connect. This is helpful because it provides feedback to suppliers that have submitted invoices to e-Invoice Connect. Two-way communication between AP Essentials and e-Invoice Connect is not required and not enabled by default.

This integration is enabled via the e-Invoice Connect service. Administrators need these privileges to configure and use the e-Invoice Connect service:

- **Manage e-Invoice Connect settings** - Grants permission to edit e-Invoice Connect service settings.
- **Access e-Invoice Connect** - Allows admin users on the customer level to open e-Invoice Connect from a link that appears on the landing page in Admin Center.

Create a connection to e-Invoice Connect

To create a connection to e-Invoice Connect:

1. Navigate to the **e-Invoice Connect** view and select **Edit**.
2. Select **CONNECTION**.
3. Use the dialog that appears to specify a connection to e-Invoice Connect.

Consider whether you want to process all documents with the same e-Invoice Connect member (**Connect on customer account level**) or if you want different members for each buyer (**Connect on buyer level**).

4. Select **OK** to save your settings and test the connection.
   After the connection succeeds, you return to the previous view, which displays the connection settings. A link to e-Invoice Connect is now available for customer administrators in the Customer account view.
   If the connection fails, check your settings and try again.
   To change existing connections, select **CONNECTION** and provide the new connection settings in the manner described above.

Enable notifications for e-Invoice Connect

You must create a connection to e-Invoice Connect before you enable notifications.

To enable notifications for e-Invoice Connect:

1. Navigate to the **e-Invoice Connect** view and select **Edit**.
2. Select the **Notifications** tab.
3. Select the document statuses that you want to publish to e-Invoice Connect and potentially to the supplier. If you do not select any statuses, notifications are not sent to e-Invoice Connect.
   If you have connections on the buyer level, these settings are default for each buyer. To override the default settings for an individual buyer, select a buyer in the **Buyer-specific settings** list, and use the view that appears to specify the settings.
4. Select **Save**.
   e-Invoice Connect will receive notifications according to your settings.

Enable supplier synchronization

e-Invoice Connect users can select a button in e-Invoice Connect to upload supplier master data from AP Essentials. Before you select the button, however, you must enable supplier synchronization in AP Essentials. Currently, e-Invoice Connect accepts up to 20,000 suppliers.

To enable supplier synchronization:

1. Navigate to the **e-Invoice Connect** view and select **Edit**.
2. Select the **Master data** tab.
3. Select **Allow supplier upload** to let e-Invoice Connect copy supplier master data from AP Essentials to e-Invoice Connect. Additionally, you can select **Allow organization identifiers** and/or **Allow organization bank accounts** to let e-Invoice Connect copy tax registration and organization numbers and/or bank account information. You can also choose to let e-Invoice Connect copy suppliers that are blocked in AP Essentials by selecting the **Allow blocked suppliers** setting.
   If you have connections on the buyer level, these settings are default for each buyer. To override the default settings for an individual buyer, select a buyer in the **Buyer-specific settings** list, and use the view that appears to specify the settings.
   When you select **Allow supplier upload**, these fields are mapped:

Value from AP Essentials	e-Invoice Connect field
Supplier number	membersIdForParty
Supplier name *	address.name
Street	address.streetAddress
Postal code	address.zipCode
City	address.city
A two-letter country code, determined by the country name	address.countryId
Phone number	contact.phone
Description	comment

* Supplier name is the only required field. All other fields are optional.

When you select **Allow organization identifiers** , these fields are mapped:

Value from AP Essentials	e-Invoice Connect field
"OrganizationNo"	identifiers[].type
Organization number	identifiers[].Identifier
"VAT"	identifiers[].type
A two-letter country code, determined by the country name	identifiers[].countryId
Tax registration number	identifiers[].Identifier

⚠ Organization and tax registration numbers cannot be sent to e-Invoice Connect if the country cannot be determined.

When you select **Allow organization bank accounts** , these fields are mapped:

Value from AP Essentials	e-Invoice Connect field
If **Bank number type** is set to "None" in AP Essentials, paymentMeans[].type is set to "Bank" in e-Invoice Connect.	paymentMeans[].type
Bank name	paymentMeans[].bankName
BIC number	paymentMeans[].swiftCode
Clearing number	paymentMeans[].clearingNo
Account number	paymentMeans[].account

If multiple accounts of the same type are specified in AP Essentials, only the first account is mapped.

4. Select **Save**.

   When new suppliers are created in AP Essentials, the new supplier information will be sent to e-Invoice Connect according to your settings.

France e-invoicing compliance

France's 2026 e-invoicing mandate requires lifecycle status reporting between suppliers, buyers, and the tax authority. To comply with the mandate, AP Essentials supports sending document reject statuses to Tungsten e-Invoice Connect.

To ensure France e-invoicing compliance, enable the **Document rejected** setting in the e-Invoice Connect view (**Notifications** tab):

Additionally, create custom reject codes for each AP Essentials custom reject code in the following table that your solution requires. When Office users reject invoices, they must select a reject code that corresponds to the appropriate French lifecycle code to remain compliant.

You do not need to create all of the custom rejection codes listed below. Create only the codes required by your solution, but copy each code exactly as shown. We recommend adding the descriptions provided below to the custom rejection codes for clarity. The descriptions are optional and do not need to match the examples verbatim; you can enter any text that is meaningful for your solution.

When you reject a document, the French lifecycle code and description are sent to e-Invoice Connect along with the **Additional information** text that you type in the **Reject document** dialog. The information can be shared outside your organization, for example with the French tax authority, so keep this in mind when writing the text for these fields.

AP Essentials custom reject code	Description	French lifecycle code sent to e-Invoice Connect
FRLCR01	Incorrect VAT rate	TX_TVA_ERR
FRLCR02	Incorrect total amount	MONTANTTOTAL_ERR
FRLCR03	Invoice calculation error	CALCUL_ERR
FRLCR04	Missing legal information	NON_CONFORME
FRLCR05	Duplicate invoice (already issued/ received)	DOUBLON
FRLCR06	Incorrect recipient	DEST_ERR
FRLCR07	Unknown transaction	TRANSAC_INC
FRLCR08	Unknown issuer	EMMET_INC
FRLCR09	Contract terminated	CONTRAT_TERM
FRLCR10	Duplicate invoice	DOUBLE_FACT
FRLCR11	Incorrect or missing order number	CMD_ERR
FRLCR12	Incorrect email billing address	ADR_ERR
FRLCR13	Contract reference needed to process the missing invoice	REF_CT_ABSENT

Master data services

Master data services provide methods for incorporating master data with Tungsten AP Essentials. Alternatively, you can import master data from Microsoft Excel. Master data is typically used to validate business information in the system. For example, when you verify an invoice, the Supplier list can be populated with suppliers from master data.

You use Tungsten AP Essentials Connect to upload master data to Tungsten AP Essentials.

Master data includes two types: predefined and generic. You use the predefined master data type for suppliers, customers, buyers, currencies, supplier banks, and general-ledger accounts. You use generic master-data objects to define custom master data not covered by the predefined types.

Master-data types

The master-data files that you upload using Tungsten AP Essentials Connect must be in XML format and they must conform to a schema.

Example XML	Schema	Maximum count allowed	Maximum file size
Accounts (general ledger)	Accounts (general ledger)	100,000	200 MB
Currencies	Currencies	500	200 MB
Supplier banks	Supplier banks	300,000	200 MB
Suppliers	Suppliers	150,000	200 MB
Generic master-data objects	Generic master-data objects	500,000 You can have up to 40 different generic master-data types, each with up to 500,000 objects.	200 MB
Purchase orders *	Purchase orders	200,000 Up to 200,000 purchase orders are allowed for each buyer or customer account. After the initial upload, you cannot add, update, or delete more than 5,000 purchase orders per upload. Each purchase order can have a maximum of 5,000 order lines.	200 MB

Example XML	Schema	Maximum count allowed	Maximum file size
Customers	Customers	1,000,000 When uploading customer master data on the seller level, the total count from all sellers of the parent account cannot exceed 1,000,000. After the initial upload, you cannot add or update more than 2,000 customers per upload. An initial upload is performed when you upload customers: • via the **Upload master data** button in AP Essentials Connect. • via the API method, CompleteMasterDataCustomerUpload. Subsequent uploads, via the **Synchronize** button in AP Essentials Connect or the AddOrUpdateMasterDataCustomers API method, are limited to 2,000 customers per upload.	200 MB

API request payloads are also limited to 200 MB.

* Although purchase orders are not technically master data, the information is listed here for convenience.

Schemas for cost centers and field values have been deprecated. Please use generic master-data objects instead.

When you upload generic master data, the **Master data type** setting in Tungsten AP Essentials Connect must be the same as the Type name of the field that uses the master data.

Maximum length of master data field values

The values of the master-data fields later in this topic cannot exceed the maximum length specified in this table:

Field	Maximum length
Generic master-data objects	
Type name	50

Field	Maximum length
Value	150
Name	150
Description	200
Currencies	
Code	40
Name	100
Accounts (general ledger)	
Code	100
Name	220
Group	100
Description	500
Suppliers	
Supplier number	200
Name	400
Description	2000
Organization number	100
Tax registration number	200
Tax code	200
Payment term	300
Payment method	200
Currency code	50
Location	300
Street	500
Postal code	100
City	200
State	100
Country name	100
Telephone number	250
Fax number	250
Supplier banks	
Bank name	200
Bank number type	20
Bank number	50
Account number type	20

Field	Maximum length
Account number	250
Purchase orders	
Order number	50
Supplier number	200
Supplier name	400
Currency code	40
Contact name	200
Description	1500
Status text	100
RequisitionedBy	254
CreatedBy	254
Purchase orders lines	
Order line number	40
Article number	1500
Article description	5000
Supplier article number	300
Category number	80
Category description	1500
Unit	50
Status text	100
DeliveryNoteNumber	50
DeliveryDate1	8
DeliveryDate2	8
UniqueArticleNumber	20
Purchase order search query	
Sort field	500
Customers	
Customer number	100
Name	100
TaxRegistrationNumber	30
OrganizationNumber	30
Street	100
PostalCode	20
Country	100

Field	Maximum length
City	100
State	50
TelephoneNumber	30
FaxNumber	30

Connecting fields to master data

An administrator can connect fields to master data, which is used to suggest and validate field values during verification and coding. This approach makes it easier to work with invoices because you can select values from an autocomplete box rather than remembering and typing entire values.

Suggesting field values (autocomplete)

When you type a field value in a field that is connected to master data, an autocomplete box appears below the field with suggested values to choose from. The suggested values come from the master data and are filtered as you type. During verification, for example, the **Supplier** box can be populated with suppliers from master data. If you type the letter S, only suppliers that contain the letter S appear, making it easier to find the supplier you are looking for. We call this feature *field suggestions* or *autocomplete*.

Autocomplete displays the most relevant results first: exact-phrase matches, followed by matches that begin with the search phrase, and finally fuzzy matches. For example, if you type "food supply" in a supplier field, the first result would be a supplier named "food supply". After that, suppliers beginning with "food supply" would appear in the autocomplete list, for example "food supply depot" and "food supply central". Finally, suppliers containing only the word "food" or "foods" or "supply" may appear, for example "Foods Mart" or "Part Supply".

You can also use master data to specify which values appear for selection in coding field boxes.

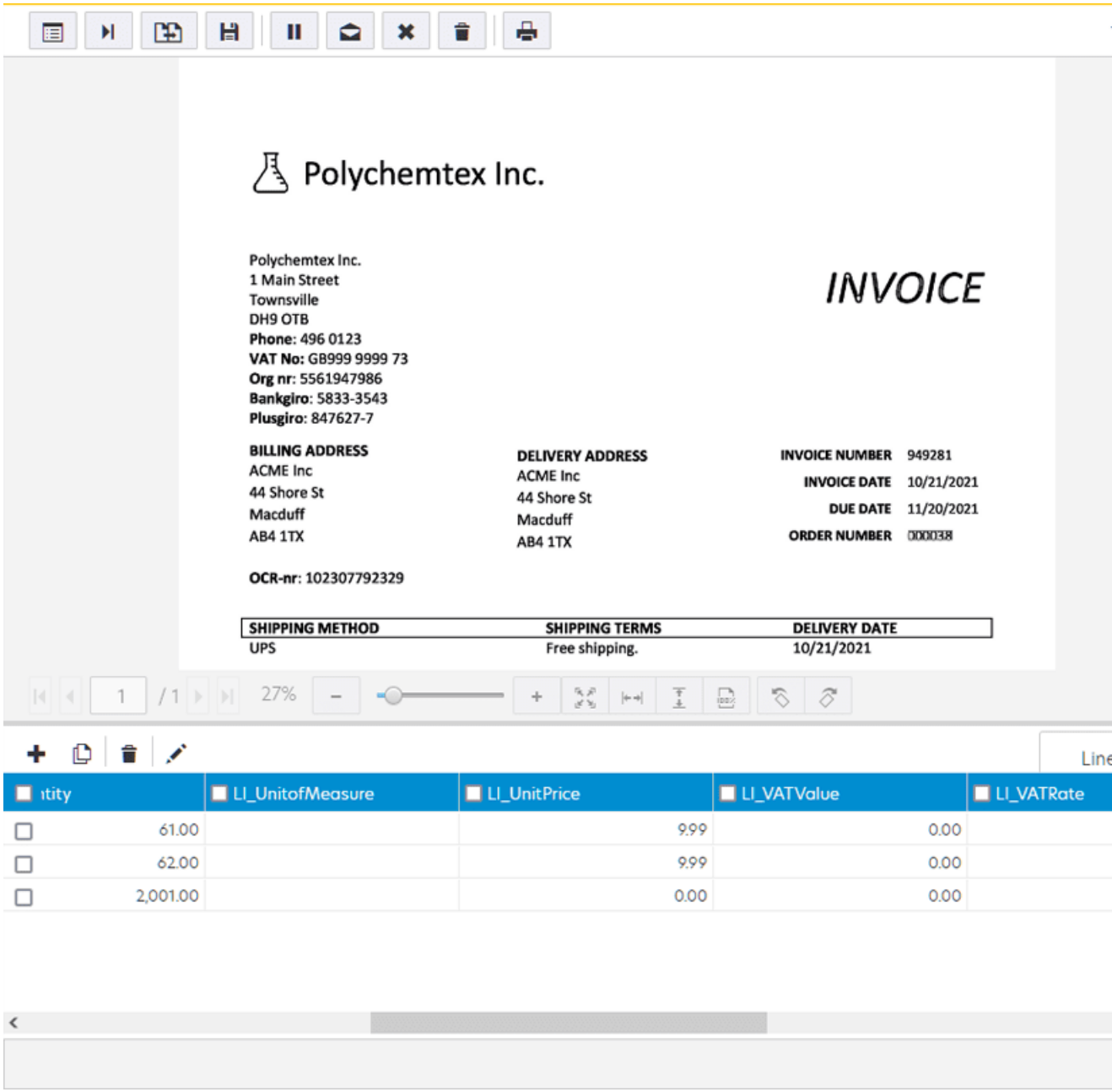
Validating field values

When configuring fields to use autocomplete, you can optionally specify that the values provided in the master data are the only acceptable values for a field. In other words, if a fields does not match any master data exactly, it is marked with a validation error ( ).

Connecting fields to master data

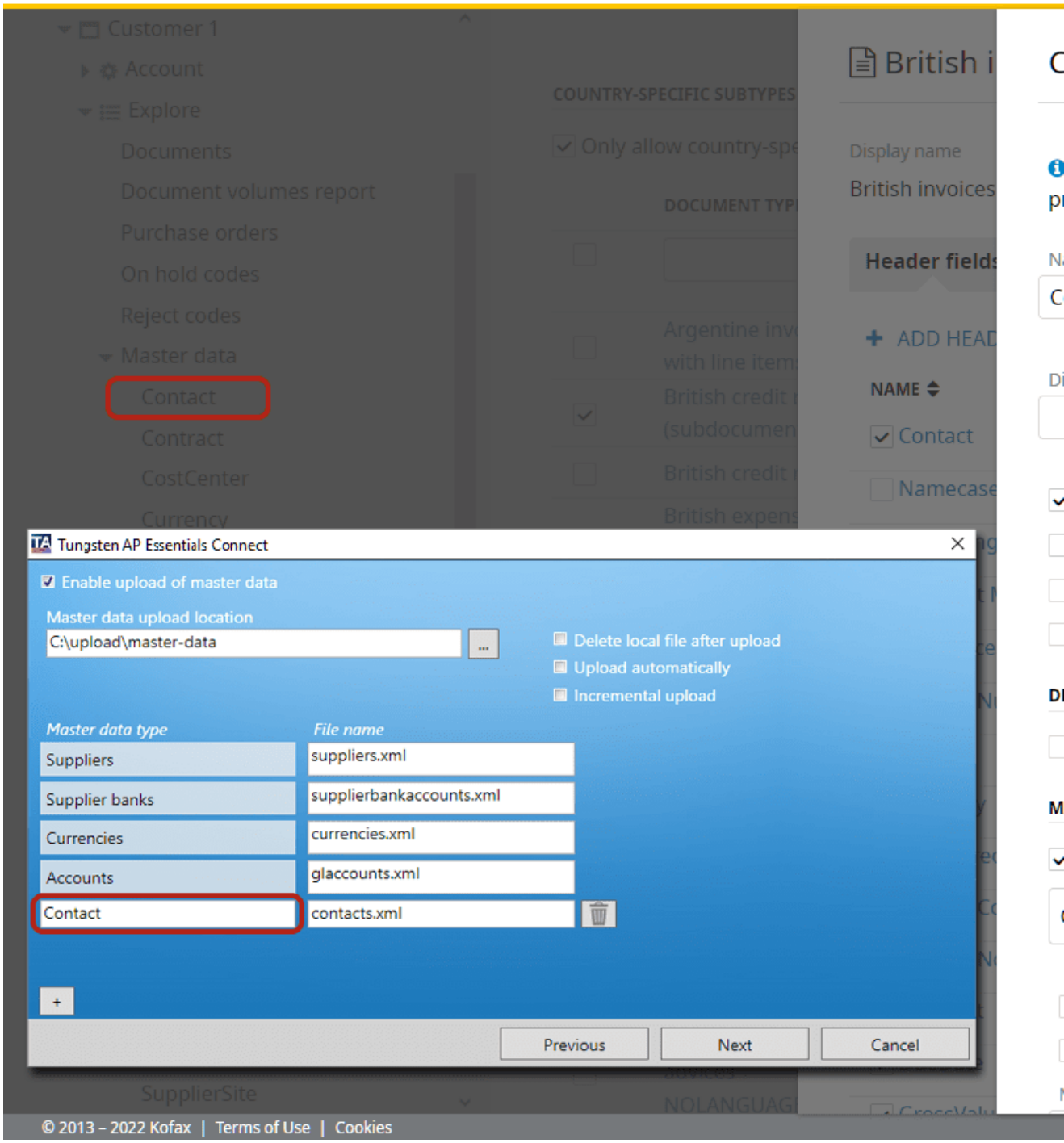
To connect master data to a field for field suggestions and validation, complete the following steps:

1. Create an XML file that defines the master data. You can use predefined master data types for general-ledger accounts or generic master-data objects for other fields.
2. Locate the field you want to connect to the master data in the **Field** view, and select . In the dialog box that appears, specify your settings.
   - **Use master data to suggest field values** - Determines whether the system uses master data to suggest field values for this field.



The master data appears in the drop-down list.

- **Use master data to validate the field value** - Determines whether the system uses master data to validate the field value.
- When using generic master-data objects, note the **Type name** of the field. In the next step, you must specify the **Type name** as the **Master data type**. The Type name tells Tungsten AP Essentials which fields and master data correspond to each other.



The Type name connects the field to the master data.

3. Use AP Essentials Connect to upload the master data to Tungsten AP Essentials.

Troubleshooting

Master data items must have unique values; otherwise, extraction issues can occur.

Master data: Buyers

To use automatic buyer classification, you must provide Tungsten AP Essentials with identifying information about your buyer organizations, such as addresses and telephone numbers, so Tungsten AP Essentials can find buyer information on incoming invoices. You can add buyer information:

- Use AP Essentials Connect to upload buyer master data in XML format. This is the preferred method. The more master data you provide about each buyer, the better the result.
- Manually when you create buyer organizations in the Admin Center.
- Through the API.

For automatic buyer classification to work properly, the buyer information you supply must appear on the invoices you receive. When importing buyer master data, Tungsten AP Essentials uses the external ID to identify existing buyers. To update an existing buyer, the external ID of a buyer you import must match the external ID of an existing buyer. Therefore, we recommend specifying a unique external ID for each of your buyer organizations.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

The `AddressCountry` element accepts any string value. However, only values that match a value in the **Country** list are displayed in Admin Center. If you specify countries using master data, the values you specify must match the values in the **Country** list for automatic classification to work optimally.

Buyer XML Schema

The buyer schema is listed below for your convenience. For the most up-to-date and complete schema, refer to the API documentation.

```
<xs:complexType name="Buyer">
    <xs:annotation>
      <xs:appinfo>
        <typeinformation>
          <originaltype>Buyer</originaltype>
          <schematype>Buyer</schematype>
          <serializationname></serializationname>
        </typeinformation>
      </xs:appinfo>
    </xs:annotation>
    <xs:sequence>
      <xs:element minOccurs="0" name="Id" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="ExternalId" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="VatNumber" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="AddressCountry" nillable="true"
 type="xs:string" />
```

```
      <xs:element minOccurs="0" name="AddressStreetAddress" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="AddressPostcode" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="AddressCity" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PhoneNumber" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Fax" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="AlternativeName1" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="AlternativeName2" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="AlternativeName3" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="OrganizationNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="AddressState" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Notes" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
```

Example

Use the XML below as an example to create your own master data.

```
<Buyers xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
 <Buyer>
  <Name>Buyer 1</Name>
  <ExternalId>5031151003777</ExternalId>
  <VatNumber />
  <AddressCountry>United Kingdom</AddressCountry>
  <AddressStreetAddress>44 Shore St</AddressStreetAddress>
  <AddressPostcode>AB4 1TX</AddressPostcode>
  <AddressCity>Macduff</AddressCity>
  <PhoneNumber>01207 555-5512</PhoneNumber>
  <Fax />
  <AlternativeName1>ACME</AlternativeName1>
  <AlternativeName2>ACME Inc</AlternativeName2>
  <AlternativeName3></AlternativeName3>
  <OrganizationNumber i:nil="true" />
 </Buyer>
 <Buyer>
  <Name>Buyer 2</Name>
  <ExternalId>5031151003789</ExternalId>
  <VatNumber />
  <AddressCountry>United Kingdom</AddressCountry>
  <AddressStreetAddress>14 Westfield Rd</AddressStreetAddress>
  <AddressPostcode>NE33 1DP</AddressPostcode>
  <AddressCity>Newjack</AddressCity>
  <PhoneNumber />
  <Fax />
  <AlternativeName1></AlternativeName1>
  <AlternativeName2></AlternativeName2>
  <AlternativeName3 i:nil="true" />
  <OrganizationNumber i:nil="true" />
 </Buyer>
 <Buyer>
  <Name>Buyer 3</Name>
  <ExternalId>5031151003798</ExternalId>
  <VatNumber />
  <AddressCountry>United Kingdom</AddressCountry>
  <AddressStreetAddress>1 Whitley Bay St</AddressStreetAddress>
  <AddressPostcode>NE26 2SS</AddressPostcode>
  <AddressCity>North Bay</AddressCity>
```

```
  <PhoneNumber />
  <Fax />
  <AlternativeName1></AlternativeName1>
  <AlternativeName2></AlternativeName2>
  <AlternativeName3></AlternativeName3>
  <OrganizationNumber i:nil="true" />
 </Buyer>
</Buyers>
```

To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

Master data: Customers

Use customer master data to populate the **Customer** box with field suggestions (autocomplete). When you verify a purchase order, you must specify a customer for each purchase order. To simplify this process and ensure that accurate customer information is specified, customer master data can populate the **Customer** box. Customer master data can also increase customer identification rates.

Use AP Essentials Connect to import master data in XML format. When you upload customer master data to AP Essentials, the data is immediately available for field suggestions (autocomplete) in AP Essentials Office. However, it can take up to an hour before the data is available for automatic customer identification.

To use this feature:

- The customer number for each customer must be unique.
- Boolean XML elements cannot be empty. You must specify true or false. If the element is optional, you can omit the element from the XML, but you cannot have an empty boolean element.

Customer XML Schema

Customer schema appears below. For the most up-to-date and complete schema, refer to the API documentation.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

```
<xs:complexType name="MasterDataCustomer">
    <xs:sequence>
      <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="CustomerNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="Description" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="TaxRegistrationNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="OrganizationNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="CountryName" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PostalCode" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="State" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="City" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Street" nillable="true" type="xs:string" />
```

```
     <xs:element minOccurs="0" name="TelephoneNumber" nillable="true"
type="xs:string" />
     <xs:element minOccurs="0" name="FaxNumber" nillable="true" type="xs:string" />
     <xs:element minOccurs="0" name="Blocked" type="xs:boolean" />
     <xs:element minOccurs="0" name="BypassVerification" nillable="true"
type="BoolValue" />
     <xs:element minOccurs="0" name="ExcludeFromIdentification" nillable="true"
type="BoolValue" />
     <xs:element minOccurs="0" name="LockOnlineLearning" nillable="true"
type="BoolValue" />
   </xs:sequence>
 </xs:complexType>
```

Example

Use the following XML as an example to create your own customer data.

```
<MasterDataCustomers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <MasterDataCustomer>
    <Name>Zrona Group</Name>
    <CustomerNumber>000001</CustomerNumber>
    <TaxRegistrationNumber>K9Y6VTJK8G</TaxRegistrationNumber>
    <OrganizationNumber>K28TF62YM3</OrganizationNumber>
    <CountryName>Anguilla</CountryName>
    <PostalCode>85357</PostalCode>
    <State>Nevada</State>
    <City>West Yolandaburgh</City>
    <Street>434 Jamal Expressway</Street>
    <TelephoneNumber>670.300.2195</TelephoneNumber>
    <FaxNumber>1-560-474-2335</FaxNumber>
    <Blocked>false</Blocked>
    <BypassVerification><Value>false</Value></BypassVerification>
    <ExcludeFromIdentification><Value>false</Value></ExcludeFromIdentification>
    <LockOnlineLearning><Value>false</Value></LockOnlineLearning>
  </MasterDataCustomer>
  <MasterDataCustomer>
    <Name>Blocked Customer</Name>
    <CustomerNumber>000002</CustomerNumber>
    <TaxRegistrationNumber>5RIAE2KBQP</TaxRegistrationNumber>
    <OrganizationNumber>94U7P6GP7S</OrganizationNumber>
    <CountryName>El Salvador</CountryName>
    <PostalCode>16192</PostalCode>
    <State>Ohio</State>
    <City>Augustaburgh</City>
    <Street>7829 Auer Run</Street>
    <TelephoneNumber>(716)194-1937</TelephoneNumber>
    <FaxNumber>(999)920-3661 x670</FaxNumber>
    <Blocked>true</Blocked>
    <BypassVerification><Value>false</Value></BypassVerification>
    <ExcludeFromIdentification><Value>false</Value></ExcludeFromIdentification>
    <LockOnlineLearning><Value>false</Value></LockOnlineLearning>
  </MasterDataCustomer>
  <MasterDataCustomer>
    <Name>Reilly, Schinner and Hilll</Name>
    <CustomerNumber>000003</CustomerNumber>
    <TaxRegistrationNumber>8V34193UEE</TaxRegistrationNumber>
    <OrganizationNumber>FU51T30X13</OrganizationNumber>
    <CountryName>Korea</CountryName>
    <PostalCode>45461-7100</PostalCode>
    <State>Tennessee</State>
    <City>Ursulaburgh</City>
    <Street>982 Streich Pines</Street>
    <TelephoneNumber>711-666-3267</TelephoneNumber>
```

```
    <FaxNumber>(167)607-5696</FaxNumber>
    <Blocked>false</Blocked>
    <BypassVerification><Value>false</Value></BypassVerification>
    <ExcludeFromIdentification><Value>false</Value></ExcludeFromIdentification>
    <LockOnlineLearning><Value>false</Value></LockOnlineLearning>
  </MasterDataCustomer>
  <MasterDataCustomer>
    <Name>Pfannerstill Fay</Name>
    <CustomerNumber>000004</CustomerNumber>
    <TaxRegistrationNumber>JH3SGQIBDJ</TaxRegistrationNumber>
    <OrganizationNumber>ZM135JXOJF</OrganizationNumber>
    <CountryName>Malta</CountryName>
    <PostalCode>14520</PostalCode>
    <State>Nevada</State>
    <City>New Viviannebury</City>
    <Street>06054 Laverna Estates</Street>
    <TelephoneNumber>(083)047-4334</TelephoneNumber>
    <FaxNumber>1-545-286-6165 x1045</FaxNumber>
    <Blocked>false</Blocked>
    <BypassVerification><Value>false</Value></BypassVerification>
    <ExcludeFromIdentification><Value>false</Value></ExcludeFromIdentification>
    <LockOnlineLearning><Value>false</Value></LockOnlineLearning>
  </MasterDataCustomer>
  <MasterDataCustomer>
    <Name>Kris Group</Name>
    <CustomerNumber>000005</CustomerNumber>
    <TaxRegistrationNumber>8Z7MKP82NW</TaxRegistrationNumber>
    <OrganizationNumber>FTXDJ01KXL</OrganizationNumber>
    <CountryName>San Marino</CountryName>
    <PostalCode>26797</PostalCode>
    <State>Washington</State>
    <City>Lake Maryjane</City>
    <Street>7135 Johnston Isle</Street>
    <TelephoneNumber>368-850-5515 x1983</TelephoneNumber>
    <FaxNumber>1-269-953-9020 x109</FaxNumber>
    <Blocked>false</Blocked>
    <BypassVerification><Value>false</Value></BypassVerification>
    <ExcludeFromIdentification><Value>false</Value></ExcludeFromIdentification>
    <LockOnlineLearning><Value>false</Value></LockOnlineLearning>
  </MasterDataCustomer>
</MasterDataCustomers>
```

To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

Master data: Currencies

Invoice currencies are displayed in the **Currency** box during verification and approval. To change currencies during approval, you must have the privilege, Edit approval documents. You can override the default values that appear in the **Currency** box with currencies of your own by uploading master data to the Admin Center. This is helpful, for example, if you want to limit the number of choices in the **Currency** box, or if you need additional currencies that are not available in the default set.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

You use AP Essentials Connect to import master data in XML format.

Example: See the complete list of default currencies

- AED
- AFN
- ALL
- AMD
- ANG
- AOA
- ARS
- AUD
- AWG
- AZN
- BAM
- BBD
- BDT
- BGN
- BHD
- BIF
- BMD
- BND
- BOB
- BRL
- BSD
- BTN
- BWP
- BYN
- BZD
- CAD
- CDF
- CHF
- CLP
- CNY
- COP
- CRC
- CUC
- CUP
- CVE
- CZK
- DJF
- DKK
- DOP
- DZD
- EGP
- ERN
- ETB
- EUR
- GYD
- HKD
- HNL
- HRK
- HTG
- HUF
- IDR
- ILS
- IMP
- INR
- IQD
- IRR
- ISK
- JEP
- JMD
- JOD
- JPY
- KES
- KGS
- KHR
- KMF
- KPW
- KRW
- KWD
- KYD
- KZT
- LAK
- LBP
- LKR
- LRD
- LSL
- LYD
- MAD
- MDL
- MGA
- MKD
- MMK
- MNT
- MOP
- MRU
- MUR
- MVR
- MWK
- MXN
- PEN
- PGK
- PHP
- PKR
- PLN
- PYG
- QAR
- RON
- RSD
- RUB
- RWF
- SAR
- SBD
- SCR
- SDG
- SEK
- SGD
- SHP
- SLL
- SOS
- SPL
- SRD
- STD
- SYP
- SZL
- THB
- TJS
- TMT
- TND
- TOP
- TRY
- TTD
- TVD
- TWD
- TZS
- UAH
- UGX
- USD
- UYU
- UZS
- VEF
- VND
- VUV
- WST

Exchange rates

Exchange rate values are optional. Exchange rates are useful if you use approval hierarchies or workflow rules that are triggered by invoice amounts and you process invoices with different currencies. For example, assume you have rules that trigger workflows based on invoice amounts. Without exchange rates, Tungsten AP Essentials treats all currencies as your local currency, which can cause rules to be triggered incorrectly. By using exchange rates, however, Tungsten AP Essentials can determine the value of the amounts in your local currency and trigger the correct rule. When calculating invoice amounts in foreign currencies, Tungsten AP Essentials divides the foreign currency value by the exchange rate.

Set the exchange rate of your local currency to "1".

Calculating a foreign currency

Assume your local currency is Euros, and you receive an invoice in Swedish crowns with a total amount of 900 SEK. In this example, Swedish crowns have a conversion rate of 1 EUR = 9.0688 SEK. To convert Swedish crowns to Euros, this formula is used:

```
SEK total amount / SEK Exchange rate = EUR total amount
900 SEK / 9.0688 = 99.24 EUR
```

Therefore, 99.24 is used to evaluate approval hierarchies and workflow rules.

Currencies XML Schema

The currencies schema is listed below for your convenience. For the most up-to-date and complete schema, refer to the API documentation.

```
<xs:complexType name="Currencies">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="Currency" nillable="true"
 type="Currency" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="Currencies" nillable="true" type="Currencies" />
  <xs:complexType name="Currency">
    <xs:sequence>
      <xs:element minOccurs="0" name="Code" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Active" type="xs:boolean" />
      <xs:element minOccurs="0" name="ExchangeRate" type="xs:decimal" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="Currency" nillable="true" type="Currency" />
```

All currencies are imported, regardless of whether the **Active** element is set to true or false.

Example

You can use the XML below as an example to create your own master data.

```
<?xml version="1.0"?>
<Currencies xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<Currency>
```

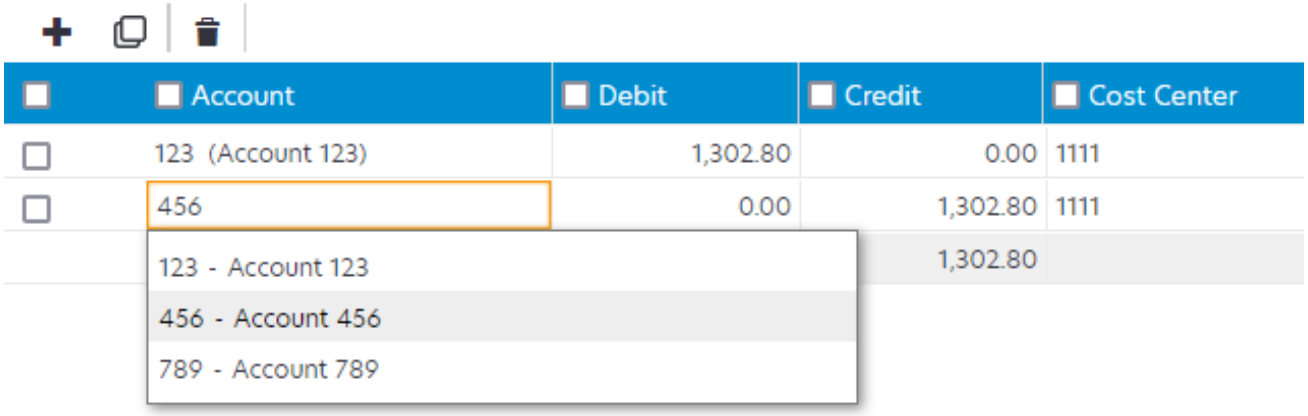
```
<Code>EUR</Code>
<Name>Euro</Name>
<Active>true</Active>
<ExchangeRate>1</ExchangeRate>
</Currency>
<Currency>
<Code>USD</Code>
<Name>US Dollar</Name>
<Active>true</Active>
<ExchangeRate>1.3827</ExchangeRate>
</Currency>
<Currency>
<Code>SEK</Code>
<Name>Swedish Crown</Name>
<Active>true</Active>
<ExchangeRate>9.0688</ExchangeRate>
</Currency>
<Currency>
<Code>GBP</Code>
<Name>Great Britain Pound</Name>
<Active>true</Active>
<ExchangeRate>0.8246</ExchangeRate>
</Currency>
<Currency>
<Code>AUD</Code>
<Name>Australian Dollar</Name>
<Active>true</Active>
<ExchangeRate>1.49965</ExchangeRate>
</Currency>
</Currencies>
```

To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

Master data: General ledger accounts

Use general-ledger master data to populate the account list with choices.

When you code an invoice, you must specify an account for each coding line. To simplify this process, use general-ledger master data to populate the account list with choices. This way, you do not have to remember all of the account codes.



You use AP Essentials Connect to import master data in XML format. To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

General ledger accounts XML Schema

The general ledger accounts schema is listed below for your convenience. For the most up-to-date and complete schema, refer to the API documentation.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

```
<xs:complexType name="GeneralLedgerAccounts">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="GeneralLedgerAccount"
 nillable="true" type="GeneralLedgerAccount" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="GeneralLedgerAccounts" nillable="true"
 type="GeneralLedgerAccounts" />
  <xs:complexType name="GeneralLedgerAccount">
    <xs:sequence>
      <xs:element minOccurs="0" name="Code" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Group" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Description" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Active" type="xs:boolean" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="GeneralLedgerAccount" nillable="true" type="GeneralLedgerAccount" /
>
```

The **Active** element determines whether its parent object appears as a field suggestion (autocomplete) during verification. If the **Active** element is set to false, the object does not appear in the autocomplete list. If the **Active** element is missing or set to true, the object is displayed in the autocomplete list.

Example

Use the following XML as an example to create your own master data.

```
<?xml version="1.0"?>
<GeneralLedgerAccounts xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<GeneralLedgerAccount>
<Code>123</Code>
<Name>Account 123</Name>
<Group>Group 1</Group>
<Description>Purchases for account 123</Description>
<Active>true</Active>
</GeneralLedgerAccount>
<GeneralLedgerAccount>
<Code>456</Code>
<Name>Account 456</Name>
<Group>Group 2</Group>
<Description>Purchases for account 456</Description>
```

```
<Active>true</Active>
</GeneralLedgerAccount>
<GeneralLedgerAccount>
<Code>789</Code>
<Name>Account 789</Name>
<Group>Group 3</Group>
<Description>Purchases for account 789</Description>
<Active>true</Active>
</GeneralLedgerAccount>
</GeneralLedgerAccounts>
```

Using general ledger master data without the Workflow service

Although account coding requires the Workflow service, use general-ledger master data without the Workflow service to suggest field values for header and line-item fields. However, without the Workflow service, you cannot upload general-ledger master data using AP Essentials Connect. To upload general-ledger master data without the Workflow service, you must use one of these:

- The data import app for Microsoft Excel.
- An integration that supports general-ledger master data without Workflow services, such as NetSuite.

To use this feature:

1. For each field type (header and/or line item) you want to connect to the general ledger master data, add a custom field or connect the master data to an existing field.
   - For the header field, the **Type name** must be **GeneralLedgerAccount** with the **Type** set to **String**.
   - For the line-item field, the **Type name** must be **LIT_GeneralLedgerAccount** with the **Type** set to **String**.
2. When adding the custom field(s), select **Use master data to suggest fields**, and in the box below that setting, select the general ledger master data that you want to use.
   After you upload the general ledger master data, it appears in the **Master data** view in Admin Center.

Master data: Generic objects

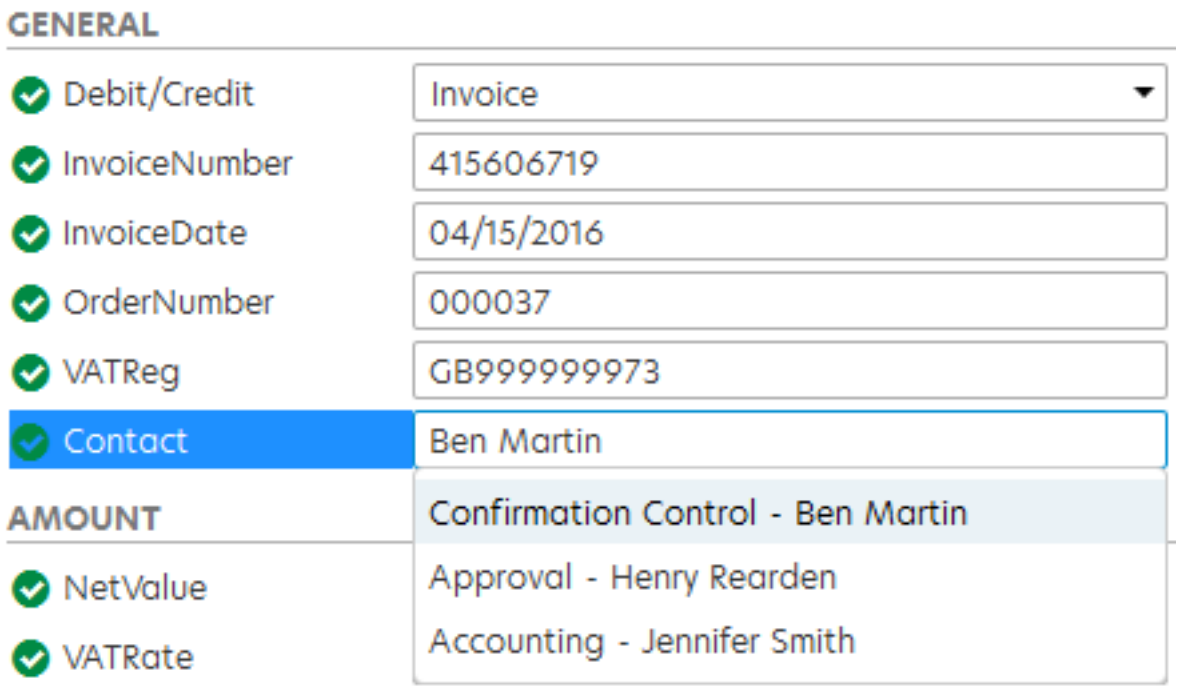
If you need to define a master data type that is not covered by a predefined master-data type, you can use generic master-data objects. For example, you can use generic master data to populate field boxes with suggestions during verification. Similarly, you can use generic master-data objects to specify which values appear for selection in coding field boxes. You can create up to 40 different master data types.

You use AP Essentials Connect to import master data in XML format.

To use this feature:

- Master data items must have unique values. Extraction issues can occur if multiple master data items have the same value.
- When you upload generic master data, the **Master data type** setting in Tungsten AP Essentials Connect must be the same as the **Type name** of the field that uses the master data.
- Boolean XML elements cannot be empty. You must specify true or false. If the element is optional, you can omit the element from the XML, but you cannot have an empty boolean element.

Using the following example XML, you can specify what values and names are available for selection in a **Contact** box, as illustrated in the following figure.



After you connect it to a field and upload it to Tungsten AP Essentials, the **Value** and **Name** elements appear in the **Contact** box. The **Value** is the value that is used for the field, whereas the **Name** is a helpful description.

Generic objects XML Schema

The generic-objects schema is as follows. For the most up-to-date and complete schema, refer to the API documentation.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

```
<xs:complexType name="MasterDataObjects">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="MasterDataObject"
 nillable="true" type="MasterDataObject" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="MasterDataObjects" nillable="true" type="MasterDataObjects" />
  <xs:complexType name="MasterDataObject">
    <xs:sequence>
      <xs:element minOccurs="0" name="Value" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Description" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Active" type="xs:boolean" />
```

```
    </xs:sequence>
  </xs:complexType>
```

The **Active** element determines whether its parent object appears as a field suggestion (autocomplete) during verification. If the **Active** element is set to false, the object does not appear in the autocomplete list. If the **Active** element is missing or set to true, the object is displayed in the autocomplete list.

Example

You can use the following XML as an example to create your own generic-objects data.

```
<?xml version="1.0"?>
<MasterDataObjects xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<MasterDataObject>
<Value>Ben Martin</Value>
<Name>Confirmation Control</Name>
<Description>Invoices are confirmed by Ben Martin upon arrival.</Description>
<Active>true</Active>
</MasterDataObject>
<MasterDataObject>
<Value>Jennifer Smith</Value>
<Name>Accounting</Name>
<Description>Accounting is performed by Jennifer Smith.</Description>
<Active>true</Active>
</MasterDataObject>
<MasterDataObject>
<Value>Henry Rearden</Value>
<Name>Approval</Name>
<Description>Henry Rearden performs approval.</Description>
<Active>true</Active>
</MasterDataObject>
</MasterDataObjects>
```

To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

Master data: Supplier banks

You can use supplier-bank master data to supplement supplier master data with bank account information. Unlike other types of master data, supplier banks are not displayed in their own node under the **Master data** node in the administration tree view. Instead, the information is displayed in the Edit supplier dialog.

You use AP Essentials Connect to import master data in XML format.

To use this feature:

- The supplier number in the SupplierNumber elements must match supplier numbers that already exist in the supplier master data. If there is no matching supplier number for a particular bank account, it is skipped.

To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

Supplier bank XML Schema

The supplier-bank schema is listed below for your convenience. For the most up-to-date and complete schema, refer to the API documentation.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

```
<xs:complexType name="SupplierBankAccount">
    <xs:sequence>
      <xs:element minOccurs="0" name="BankName" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="SupplierNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="BankNumberType" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="BankNumber" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="AccountNumberType" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="AccountNumber" nillable="true" type="xs:string" /
>
    </xs:sequence>
  </xs:complexType>
```

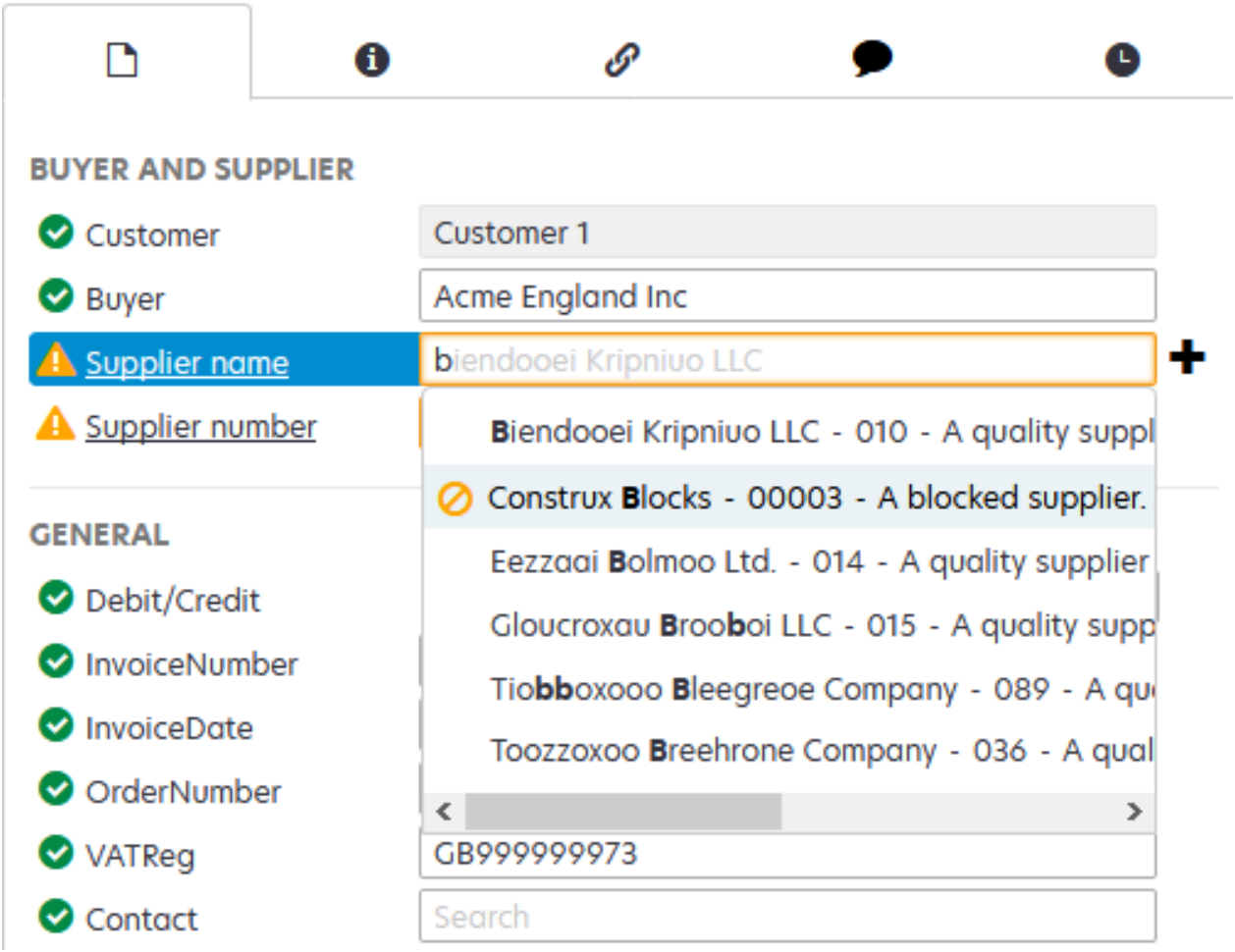
Example

Use the following XML as an example to create your own supplier-bank data.

```
<?xml version="1.0"?>
<SupplierBankAccounts xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<SupplierBankAccount>
<BankName>Example Bank</BankName>
<SupplierNumber>00001</SupplierNumber>
<BankNumberType>bic</BankNumberType>
<BankNumber>1234567</BankNumber>
<AccountNumberType>plusgiro</AccountNumberType>
<AccountNumber>123456</AccountNumber>
</SupplierBankAccount>
<SupplierBankAccount>
<BankName>Another Example Bank</BankName>
<SupplierNumber>02</SupplierNumber>
<BankNumberType>bic</BankNumberType>
<BankNumber>7654321</BankNumber>
<AccountNumberType>bankgiro</AccountNumberType>
<AccountNumber>654321</AccountNumber>
</SupplierBankAccount>
</SupplierBankAccounts>
```

Master data: Suppliers

You can use supplier master data to populate the **Supplier** box with suggestions. When you verify an invoice, you must specify a supplier for each invoice. To simplify this process and ensure that accurate supplier information is specified, you can use supplier master data to populate the **Supplier** box. Supplier master data can also increase supplier identification rates.



You use AP Essentials Connect to import master data in XML format.

To use this feature:

- The supplier number for each supplier must be unique.
- Boolean XML elements cannot be empty. You must specify true or false. If the element is optional, you can omit the element from the XML, but you cannot have an empty boolean element.

Supplier XML schema

The supplier schema is listed below for your convenience. For the most up-to-date and complete schema, refer to the API documentation.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

```
<xs:complexType name="Supplier">
```

```
    <xs:sequence>
      <xs:element minOccurs="0" name="SupplierNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Description" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="TaxRegistrationNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="OrganizationNunmber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="Street" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PostalCode" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="City" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="CountryName" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PaymentTerm" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PaymentMethod" nillable="true" type="xs:string" /
>
      <xs:element minOccurs="0" name="CurrencyCode" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Id" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Location" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="State" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="BankAccounts" nillable="true"
 type="SupplierBankAccounts" />
      <xs:element minOccurs="0" name="Blocked" type="xs:boolean" />
      <xs:element minOccurs="0" name="TelephoneNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="FaxNumber" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="TaxCode" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="BypassVerification" nillable="true"
 type="BoolValue" />
      <xs:element minOccurs="0" name="ExcludeFromIdentification" nillable="true"
 type="BoolValue" />
      <xs:element minOccurs="0" name="LockOnlineLearning" nillable="true"
 type="BoolValue" />
      <xs:element minOccurs="0" name="RequirePoForInvoices" nillable="true"
 type="BoolValue" />
      <xs:element minOccurs="0" name="RequirePoForCreditNotes" nillable="true"
 type="BoolValue" />
    </xs:sequence>
  </xs:complexType>
```

⚠ There is a misspelling in the supplier XML schema: `OrganizationNunmber`. This will remain for compatibility reasons, so please use this spelling when referencing the field.

Example

You can use the following XML as an example to create your own supplier data.

```
<?xml version="1.0"?>
<Suppliers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<Supplier>
<SupplierNumber>00001</SupplierNumber>
<Name>Polychemtex Inc.</Name>
<Description>Supplier of quality goods and services at low prices.</Description>
<TaxRegistrationNumber>GB999999973</TaxRegistrationNumber>
<OrganizationNunmber>5561947986</OrganizationNunmber>
<Street>1 Main Street</Street>
<PostalCode>DH9OTB</PostalCode>
<City>Townsville</City>
<CountryName>UK</CountryName>
<PaymentTerm>30 Days</PaymentTerm>
<PaymentMethod>Direct Deposit</PaymentMethod>
```

```
<CurrencyCode>GBP</CurrencyCode>
<Blocked>0</Blocked>
<TelephoneNumber>4960123</TelephoneNumber>
<FaxNumber>4960122</FaxNumber>
<TaxCode>012345</TaxCode>
</Supplier>
<Supplier>
<SupplierNumber>02</SupplierNumber>
<Name>ACME Inc.</Name>
<Description>A quality supplier of servos.</Description>
<TaxRegistrationNumber>GB666624271</TaxRegistrationNumber>
<OrganizationNunmber>4633658052</OrganizationNunmber>
<Street>68 Some Street</Street>
<PostalCode>DH2448</PostalCode>
<City>North Havenbrook</City>
<CountryName>UK</CountryName>
<PaymentTerm>30 Days</PaymentTerm>
<PaymentMethod>Direct Deposit</PaymentMethod>
<CurrencyCode>GBP</CurrencyCode>
<Blocked>0</Blocked>
<TelephoneNumber>555-1111</TelephoneNumber>
<FaxNumber>555-2222</FaxNumber>
<ExcludeFromIdentification><Value>true</Value></ExcludeFromIdentification>
<LockOnlineLearning><Value>1</Value></LockOnlineLearning>
<RequirePoForInvoices><Value>1</Value></RequirePoForInvoices>
<RequirePoForCreditNotes><Value>1</Value></RequirePoForCreditNotes>
</Supplier>
<Supplier>
<SupplierNumber>03</SupplierNumber>
<Name>Example Furniture Supplier Ltd.</Name>
<Description>A quality supplier of office furniture.</Description>
<TaxRegistrationNumber>GB758063947</TaxRegistrationNumber>
<OrganizationNunmber>904608661</OrganizationNunmber>
<Street>12 Some Street</Street>
<PostalCode>DH2446</PostalCode>
<City>Shelbyville</City>
<CountryName>UK</CountryName>
<PaymentTerm>30 Days</PaymentTerm>
<PaymentMethod>Direct Deposit</PaymentMethod>
<CurrencyCode>GBP</CurrencyCode>
<Blocked>1</Blocked>
<TelephoneNumber>555-3333</TelephoneNumber>
<FaxNumber>555-4444</FaxNumber>
<BypassVerification><Value>true</Value></BypassVerification>
</Supplier>
</Suppliers>
```

To ensure master data is synchronized on a regular basis, export master data from your ERP system and use automatic uploading, or update the master data using the API.

As demonstrated in the previous supplier, you can optionally use master data to specify suppliers that bypass verification. If you set the `BypassVerification` value to true, the value remains true until you explicitly set the value to false. Even if the `BypassVerification` element is missing from subsequent master data updates, the value will not change until you specify a new value.

You must have the **Change bypass verification setting** privilege to upload master data that contains the `BypassVerification` element. If you do not have this privilege, the master data will still upload, but `BypassVerification` elements are ignored.

Notification services

Notification services keep you up to date and in touch with vital processes taking place in the system. When you enable notification services, you can subscribe to various system events and receive automated notices when they occur. You can choose to receive notifications via email (SMTP), or they can be posted to a web page on your own server (HTTP).

When HTTP notification fails

Sometimes an HTTP notification cannot reach its destination, for example, if the receiving server is down. When this happens, or when an HTTP notification fails for any reason, Tungsten AP Essentials resends the notification at the following intervals:

- 15 seconds
- 5 minutes
- 1 hour
- 2 hours
- 4 hours
- Every fourth hour for 7 days

In other words, a notification is sent 15 seconds after the event is triggered. If the first attempt fails, the service tries again in 5 minutes, and so on. If there is no response after 4 hours, Tungsten AP Essentials continues to try to send the HTTP notification every four hours for 7 days.

When email (SMTP) notification fails

If an email notification does not reach its destination, the mail server resends the email every hour with a maximum of 40 attempts.

Process control services

The Process control service defines when documents require manual verification during processing in Tungsten AP Essentials. The service controls whether documents are always verified, verified only if errors are detected, or never verified at all (straight-through processing). These settings help balance automation with accuracy, depending on your business requirements.

You edit the settings for these services in the **Process control** view.

Improve processing efficiency

Learn about improving processing efficiency, touch rates, and straight-through processing.

Purchase order services

Purchase order services enable the sharing of purchase-order information between Tungsten AP Essentials and your financial system. When Purchase order services are enabled, you can:

- Validate purchase order numbers in the invoice header. Invoices must have a purchase order number (in the invoice header) that matches an order number for the supplier to pass validation.
- Match line items with purchase-order data from your financial system when verifying line items.
- Enable 2-way and 3-way matching field validations.

The Microsoft Dynamics AX 2012 integration and the NetSuite integration automatically synchronize purchase-order information between the target system and Tungsten AP Essentials. For other financial systems, you must export the purchase-order data from your financial system to an XML file, which you upload to Tungsten AP Essentials using AP Essentials Connect.

Purchase-order information from your financial system is visible in the **Purchase orders** view, the **Copy purchase order lines** dialog, and the **Search purchase orders** dialog.

Line-item pairing

Line-item pairing is the process of matching invoiced line items to line items in your financial system. Tungsten AP Essentials has features to automate line-item pairing and make manual pairing easier.

Sometimes a purchase order contains many items, but the supplier sends an invoice for only some of the items. When this happens in traditional financial systems, line pairing can be problematic, especially if the PO contains many items. Often, the line numbers on the invoice are missing, or if they do exist, they are merely row counters that do not match the line numbers in the purchase order. This makes line pairing even more difficult because the line number is vital to identifying PO lines in a financial system. To solve this problem, Tungsten AP Essentials offers automatic and manual line pairing.

Depending on the settings you choose, you can use Tungsten AP Essentials to match PO information manually, automatically, or both.

How automatic line-item pairing works

If Automatic line-pairing is enabled, Tungsten AP Essentials tries to automatically match line items on the invoice with PO lines, so the correct line number and other field values are sent to your financial system. For each line item on an invoice, Tungsten AP Essentials tries to match a unique purchase order line from your financial system using these fields:

- Supplier number (Header field)
- Order number (Header or line-item field)
- Article number
- Supplier article number
- Unit price
- Quantity

After Tungsten AP Essentials successfully matches a line item, the values for the line-item fields below are automatically updated with the values from your financial system:

- Order line number (LIT_RowIdentifier)

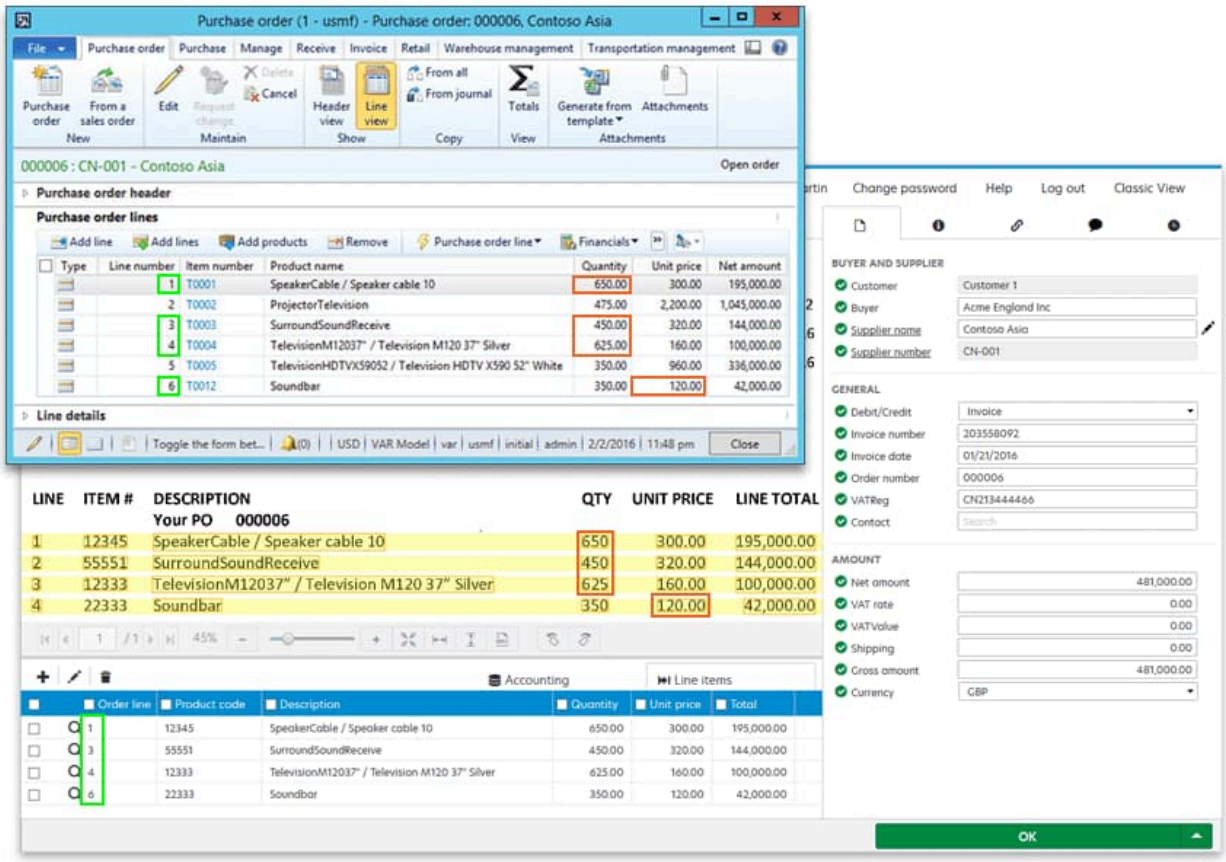
  The line-number field is not captured on the invoice. The value of the line-number field is the result of the line-pairing feature.

- Order number (LIT_OrderNumber)
- Article number (LIT_ArticleIdentifier)
- Description (LIT_ArticleName)

Line item rows must be unique for automatic line-item pairing to work properly. For example, if multiple line-item rows have the same quantity and unit price, a match cannot be made. However, in this example, if the article numbers on the invoice are unique to each row and they also match the article numbers in your financial system, a match can be made.

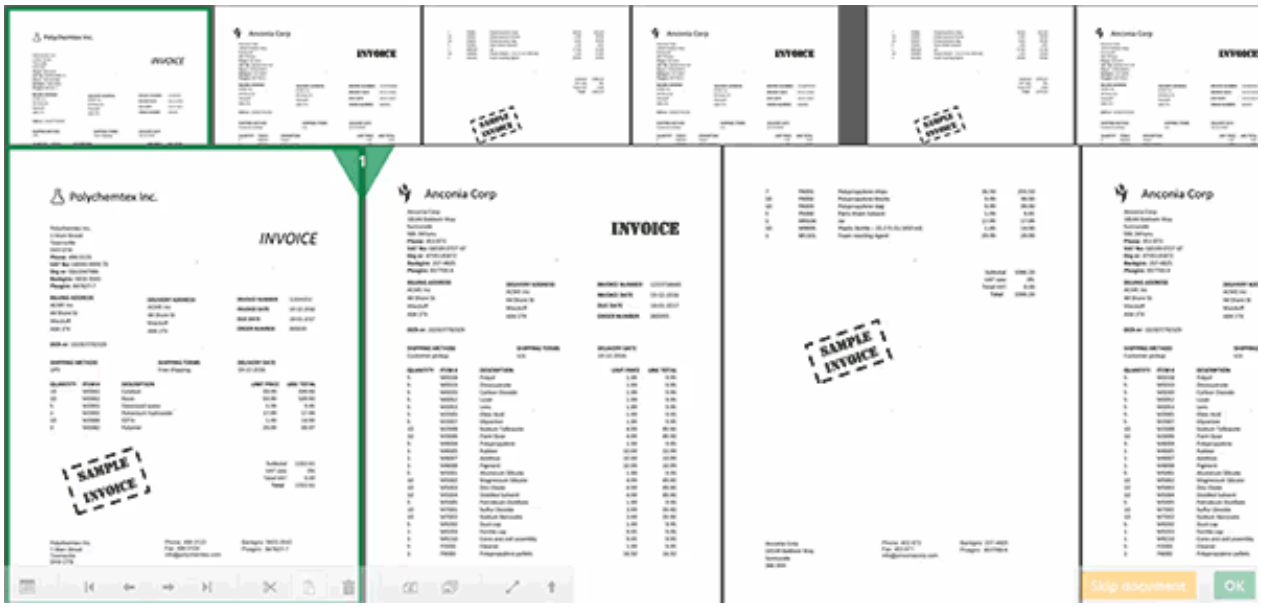
Example

The image below depicts a typical scenario where you can benefit from automatic line pairing. In this example, you can see a purchase order in Dynamics AX and an invoice in Tungsten AP Essentials. The PO contains six items, but the invoice only contains four. The invoice also uses different line numbers and article numbers than the financial system, Dynamics AX. Tungsten AP Essentials identifies rows 1, 3, and 4 because their quantities are unique. Rows 5 and 6 on the PO have the same quantity, so Tungsten AP Essentials looks at the unit price to determine the correct line. The result of the comparisons appears in the line-item table in Tungsten AP Essentials, where you can see the correct line numbers and other field values are displayed.


Purchase order (1 - usmf) - Purchase order: 000006, Contoso Asia
000006 : CN-001 - Contoso Asia
Open order
Purchase order header
Purchase order lines
Line details
Change password
Help
Log out
Classic View
BUYER AND SUPPLIER
GENERAL
AMOUNT
LINE ITEM # DESCRIPTION QTY UNIT PRICE LINE TOTAL
Your PO 000006
1 12345 SpeakerCable / Speaker cable 10 650 300.00 195,000.00
2 55551 SurroundSoundReceive 450 320.00 144,000.00
3 12333 TelevisionM12037" / Television M120 37" Silver 625 160.00 100,000.00
4 22333 Soundbar 350 120.00 42,000.00
OK

Separation services

Separation services provide an interface to separate invoices in a batch quickly and easily.



When a batch of invoices enters the system, Tungsten AP Essentials automatically recognizes where one invoice ends and the next one begins. However, detecting page separation can be difficult if, for example, irregular attachments or other documents interfere with the process. When this happens, you can manually specify where invoices need to be joined or separated.

To perform document separation, the Separation service must be enabled and the user must have the Manual document separation (Split) privilege enabled in the **Users** view (**Roles & privileges** tab). You can force manual separation on all batches by selecting **Force manual document separation on all batches** (see Process control service settings). If you do not force manual separation on all batches, you can only separate batches by selecting **Split** in the document view.

You can use separation services with or without blank-page separation.

Storage services

Storage services provide long-term archiving of document images and data that have been processed in Tungsten AP Essentials and sent to the target system. This is useful, for example, if your target system does not support the long-term storage of document images and data.

When Storage services are enabled, whenever a document is sent to the target system, it is also copied to storage. If the Workflow service is enabled, and document registration is enabled, a copy of the document is sent to storage during registration in the target system and again when it is exported (posted) to the target system. Documents in storage are read-only and cannot be processed.

Successfully processed documents that are not in storage are automatically deleted from AP Essentials after three months. Documents that are not in storage and are still in the system, but have not been fully processed, are automatically deleted one year after the last user interaction. Copies of documents in storage are not deleted unless you manually delete them or discontinue the Storage service.

Documents in storage are easy to access and contain:

- The original input file (image file, email including attachments, etc.)
- The final document image that was sent to the target system
- Interpreted field values
- Accounting data (if any exists)
- Attachments (if any exist)
- Comments (if any exist)
- The document history
- External IDs

With some target-system integrations, the document ID from the target system is also saved. This is called the External ID in AP Essentials.

Administrators enable Storage services in the **Services** view. AP Essentials Office users can view stored documents in the **Storage** view.

Original emails containing documents are saved by Storage services and can be viewed on the **Attachments** tab by Office users that have the **Access Storage** privilege.

If you choose to cancel this service, contact Professional Services (at pseudataenquiries@tungstenautomation.com) for further details on services engagements related to exporting data.

Target system services

One of the primary benefits of Tungsten AP Essentials is sending output (invoices, captured invoice data, and other financial data) to the target system. When you select **Target system** from the **Services** view, the target systems that are available appear.

Tungsten AP Essentials can send output to:

- Various financial systems and accounting programs
- Email
- XML files
- Secure FTP (SFTP)

The target systems that appear can vary depending on other services. For example, if the Workflow service is enabled, only target systems that support Workflow services are displayed. Likewise, if you process accounts receivable documents, only these methods are available for exporting data to your target system:

- Email output
- Secure FTP (SFTP)

- XML via AP Essentials Connect
- API

Output data is usually a combination of XML-formatted invoice data and invoice image files. The image files can be in TIF format or searchable PDF (PDF version 1.6), depending on which output service you use.

You can use custom XML transformations (XSLT) to transform output data for email output, SFTP, and local XML. Only partner administrators and Tungsten Automation can upload custom XSLT files to the system.

Validation services

Validation services are automated functions that help ensure the correctness of the invoice data. For example, the **Total amount** validation rule makes sure that captured field values add up correctly to the total amount on the invoice. If the values do not add up correctly, the fields are marked with a warning icon in the document view, so you know the fields need to be corrected. Validation services provide an extra layer of security and assurance that the invoice data is correct.

Validation rules are enabled in the **Validation** view. Individual validation settings can be adjusted for each document type in the **Extraction** services in the **Document type** view. When you adjust the validation rules in the **Document type** view, you can specify whether the rules are performed during verification, in an approval workflow or both. You can override validations during verification, but you cannot override validations during approval in a workflow.

Validation rules during verification

When you verify an invoice, validation rules are triggered:

- directly after extraction.
- whenever you change a field value in the document view.
- when you draw a field or a line-item table on the invoice image.
- when you select **OK** to complete verification.

Validation rules in a workflow

When you approve an invoice in a workflow, validation rules are triggered:

- when the invoice is registered.
- whenever you change a field value in the document view.
- when the invoice is posted.

> Some internal validations are always performed during invoice interpretation, even if all of the validations are disabled. So it is possible to receive validation warnings during verification, even if there are no enabled validations.

You cannot override validation rules during a workflow step. If you receive a validation error while processing a document in a workflow, correct the error to proceed.

Available field validation rules

The validation rules in your system can vary depending on your setup. Administrators can change these settings in the Admin Center. There are separate validations for accounts payable and accounts receivable document processes.

Accounts payable validations

Bankgiro	Performs a checksum validation of Swedish bankgiro account numbers. The validation is performed on the `SupplierAccountNumber2` field. The validation rule is available for Swedish document types.
Creditor reference	Performs length, identifier and checksum validations on the `PaymentReferenceNumber` field to ensure the validity of creditor reference numbers. This validation is currently only available for Swiss document types and requires the `PaymentReferenceNumber` field.
Due date	Validates the due date field (`InvoiceDueDate`). This validation makes sure that the date: • occurs on or after today's date. • does not occur too far in the future. • is a valid date. Note that English date formats are valid on all document types, including non-English document types. **Due-date limit (days)** - Due dates are only valid if they do not exceed the current date plus the number of days you specify here. **Calculate due date from payment-terms master data** - Uses payment terms master data to validate and optionally supply the due date. Payment-terms master data is only used during extraction and when a document is opened during verification.

Duplicate invoice check	Warns if invoices with the same supplier number, invoice number, invoice date or invoice amount exist during verification or workflow processes. This can prevent duplicate invoices caused by: • the supplier resending the same invoice by mistake or on purpose. • the same invoice being scanned more than once. • scanning software errors. • an error in AP Essentials. • original invoice attachments that are not recognized as an attachments and treated as separate invoices. AP Essentials checks for duplicates: • After document extraction. • During verification. • During approval. • During document registration and post. • During export. ℹ The supplier number must be specified in order for this validation to work. If a duplicate invoice is detected during verification or approval, the validation error is set on all relevant fields. For example, if **Include invoice date** and **Include invoice amount** are selected, and a duplicate invoice is detected, then the validation error is set on the invoice number, invoice date and invoice amount fields. All relevant fields necessary for the duplicate invoice check are required. For example, if **Include invoice date** and **Include invoice amount** are selected, then invoice number, invoice date and invoice amount are all required in the document type. If any field is missing, the duplicate check will not execute. The supplier number and invoice number are always checked when performing this validation, however, **Include invoice date** and **Include invoice amount** checks are optional and can be toggled in the **Duplicate invoice check** setting. If **Include invoice date** and **Include invoice amount** are selected, the invoice number, invoice date and invoice amount must all be the same as a previously processed invoice in order to be considered a duplicate. If you select **Include invoice amount**, the total amount field is used. However, if the total amount field is missing from the document type, the net amount field is used. If a user overrides this validation, it is noted in the document history. This validation relies on data collection that is only gathered when this validation is enabled. Therefore, duplicate invoices are not validated against invoices that were processed prior to enabling this validation. The duplicate invoice check is performed per buyer, so it is possible to have invoices with the same invoice number, for example, if they are for different buyers.

Goods received quantity	Ensures that invoiced quantities match the quantities of goods received (3-way matching) by performing two checks:
	• The quantity on the invoice must be equal to or less than the delivered quantity of the goods received on the purchase order:
	`invoice quantity ≤ PO goods received quantity`
	• The quantity on the invoice must be equal to or less than the delivered quantity of the goods received on the purchase order minus the invoiced quantity on purchase order:
	`invoice quantity ≤ (PO goods received quantity - PO invoiced quantity)`
	Invoices that fail this validation are automatically put on hold.
	Automatic retry (days) - specifies the number of days AP Essentials will continue to automatically check the goods received quantity before sending the invoice to the next step. Automatic retry is only triggered if you override this validation during verification or approval and approve the invoice. Checks will be made automatically and continuously until the document passes validation or until the number of days you specify here passes, whichever comes first. If you change this setting, the new value is applied to invoices that are already on hold.
	ⓘ In order to use this validation, you must enable the Purchase order service.
	ⓘ In order to use this validation, your purchase-order data must include the `DeliveredQuantity` field in `PurchaseOrderLine`.

IBAN	Performs a checksum validation (ISO 7064) to ensure IBAN numbers are valid. The validation is performed on the `SupplierIBAN1`, `SupplierIBAN2`, `SupplierIBAN3` and `SupplierIBAN4` fields. If the document type contains multiple IBAN fields, all of the IBAN fields are validated.

Invoice date	Validates the invoice date field (`InvoiceDate`). This validation makes sure that the date: • occurs before or equal to today's date. • does not occur too far in the past. • is a valid date. **Invoice-date limit (days)** - Invoice dates are only valid if they are not older than the current date, minus the number of days you specify here. **Process limit (days)** - Invoices are stopped if the invoice date is older than the current date minus the number of days you specify here. Unlike **Invoice-date limit**, you cannot override this validation error by pressing Enter during verification. The value you specify here must be greater than **Invoice-date limit** unless you specify 0 to disable this setting (default value: 0).
Line items cannot be empty	Makes sure line items are specified on documents. If no line items are found during extraction, or if all line items are missing or removed during verification or approval, the validation fails and a warning message is displayed. The validation error is set on the total amount field, and you cannot override this validation error. In other words, you cannot process the document further without line items.

Line-item row	Validates each line-item row to ensure that the amounts add up to the row total. If no line-item rows are found on the document, the validation is not performed. This validation handles amounts up to 5 decimal places.
	The validation checks if the calculated row total and the captured row total match within an acceptable margin of error. The validation calculates the row total by multiplying the delivered quantity by the unit price and applying any discounts. Then the calculated row total and the captured row total are compared using a margin of error. If the amounts exceed the margin of error, the validation fails.
	Discounts
	When performing the calculations, the validation considers discounts (percentage discounts and amount discounts) on the row total and the unit price in this order:
	1. The discount is applied to the total amount.
	`LIT_VatExcludedAmount = (LIT_DeliveredQuantity * LIT_UnitPriceAmount) * (1 - LIT_DiscountPercent) – | LIT_DiscountAmount|`
	2. The discount is applied to the unit price.
	`LIT_VatExcludedAmount = LIT_DeliveredQuantity * (LIT_UnitPriceAmount * (1 - LIT_DiscountPercent) – | LIT_DiscountAmount|)`
	Note that the absolute value of the discount amount is used. Fields in bold must be selected (enabled) in the **Document type** view in order for the validation to work properly. The discount fields are optional.
	Margin of error
	The validation uses two different margins of error when comparing the calculated value with the row total. An absolute tolerance of 1 and a relative tolerance (the row total times 0.01) is used.

Line-item total amount	Ensures that the total amount of the invoice matches the total sum of all line-item rows when verifying line items. The validation compares the sum of the amount fields and the total sum of all line-item rows with the total amount. `InvoiceTotalVATIncludedAmount = SumOfTotalNetAmountFromLineItems + InvoiceTotalVATAmount + DeliveryCost + DeliveryCostPackaging + DeliveryCostInsurance + DeliveryCostToll + DeliveryCostPostage - InvoiceDiscountAmount` This validation allows a margin of error of 0.5. In other words, if the amount is off by +/- 0.5, a validation error is not triggered. **Example**: If a line-item total amount on the invoice is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50. For remittance advices, see the **Line-item total amount** validation in the *Accounts receivable validations* section below.
Maximum total amount	This validation can help prevent documents with high amounts from passing through the system unnoticed. • **Maximum total amount limit** - Makes sure the absolute value of the total amount field (`InvoiceTotalVATIncludedAmount`) does not exceed the value you specify here. If you do not use the total amount field, the net amount field (`InvoiceTotalVATExcludedAmount`) is checked instead. If the absolute value total amount is greater than the value you specify here, the field is marked with a warning icon, but you can override the validation. • **Process limit (amount)** - This validation works the same as the **Maximum total amount limit**, however, you cannot override the **Process limit**. Therefore, if you receive an invoice that exceeds the process limit, you must increase the value of this setting to continue, or delete the document.
OCR number	Performs a checksum validation for OCR numbers on Swedish invoices. The validation is performed on the `PaymentReferenceNumber` field. You can only enable this validation for Swedish document types.

Organization number	Performs a checksum validation for organization numbers on Swedish invoices. The validation is performed on the `SupplierTaxNumber1` field. You can only enable this validation for Swedish document types.
Payment type	Validates various payment fields, depending on the payment type. You can only use this validation for Danish, Norwegian and Swedish document types. **Default cash-account number** - The default cash account to use when you specify **Entry only** as the payment type. See also: • Processing Danish invoices with E-conomic. • Processing Norwegian invoices with E-conomic • Processing Swedish invoices with E-conomic If you use this validation, you must select **Verify** and **Workflow**.
Plusgiro	Validates Swedish plusgiro account numbers. The validation is performed on the `SupplierAccountNumber1` field. You can only enable this validation for Swedish document types.
PO number (deprecated)	This setting has been replaced by the settings in the purchase order service.
Prevent total amount of zero	Makes sure that the total amount field (`InvoiceTotalVATIncludedAmount`) is not zero or empty. If you do not use the total amount field, the net amount field (`InvoiceTotalVATExcludedAmount`) is checked instead. If neither field is enabled in the document type, the validation is not performed.

Purchase order quantity	Ensures that the invoiced quantities match the quantities on the purchase order (2-way matching) by performing two checks:
	• Quantities on the invoice must be equal to or less than the quantities on the purchase order.
	`invoice quantity ≤ PO quantity`
	• The quantity on the invoice must be equal to or less than the purchase order quantity minus the invoiced quantity on purchase order.
	`invoice quantity ≤ (PO quantity - PO invoiced quantity)`
	Purchase order over-quantity tolerance (percent) - Determines how much the quantity on the invoice can exceed the purchase order quantity.
	For example, assume you type 10 in this setting to allow a tolerance of 10%. You have a purchase order with a line-item quantity of 20 items. The matching invoice line, however, has a quantity of 22. Because 20 plus 10% is 22, the quantity is within the tolerance and passes validation. If the matching invoice line had a quantity of 23, it would exceed the 10% tolerance and fail validation.
	In order to use this validation, you must enable the Purchase order service.

Purchase order unit price	Ensures that the invoiced unit prices match the unit prices on the purchase order (2-way matching). The unit prices on the invoice must be equal to or less than the unit prices on the purchase order to pass this validation. `invoice unit price ≤ PO unit price` **Purchase order over-price tolerance (percent)** - Determines how much the price on the invoice can exceed the purchase order price. For example, assume you type 10 in this setting to allow a tolerance of 10%. You have a purchase order with a line-item price of $20. The matching invoice line, however, has a price of $22. Because 20 plus 10% is 22, the price is within the tolerance and passes validation. If the matching invoice line had a price of $23, it would exceed the 10% tolerance and fail validation. In order to use this validation, you must enable the Purchase order service.

Remittance advice line-item total amount	Ensures that the total amount matches the total sum of all line-item rows when verifying line items on remittance advices. In other words, `InvoiceTotalVATIncludedAmount` must equal the sum of all `LI_InvoiceTotal` fields. **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing sum of the line-item amounts with the total amount of the remittance advice. **Example**: If you specify 0.5 here and the total amount on the remittance advice is 23.00, the validation will pass if the sum of the line-item total amount fields is anywhere between 22.50 and 23.50.
Supplier tax code	Applies default tax codes to header and line-item fields. The validation is performed on the `TaxCode` and `LIT_TaxCode` fields.
Swiss bank account	Makes sure the fields are formatted according to document type field format and that required field values are specified. The validation requires that all of the fields from at least one of these field groups are specified: • IBAN (`SupplierIBAN1`) • ESR Ref (`EsrReference`), ESR No (`EsrNumber`) and ESR Amount (`EsrAmount`) • PC Account (`SupplierPcAccountNumber`), BLZ (`SupplierBankCodeNumber1`), BICSwift (`SupplierBicSwiftNumber`) and Bank account (`SupplierAccountNumber1`) This validation is only available for Swiss document types, and all of the fields above must have **Accept empty value** and **Enforce validation** selected in the field view.
Swiss QR reference	Checks the validity of QR references found in QR-IBAN numbers. First, the validation checks positions 4 through 9 of the IBAN, using a zero-based index. If the value of positions 4 through 9 is within the range, 30000 - 31900, and the QR reference is exactly 27 characters long, the validation verifies the checksum of the reference field. This validation is only available for Swiss document types and requires the `QrReference` field.

Total amount	Ensures that the amount fields add up to the total amount field on the invoice. See how . **`Net amount sum`** = `InvoiceTotalVATExcludedAmount + DeliveryCost + DeliveryCostPackaging + DeliveryCostInsurance + DeliveryCostToll + DeliveryCostPostage - InvoiceDiscountAmount` **`Total amount sum`** = **`Net amount sum`** + `InvoiceTotalVATAmount - WithholdingTaxAmount - WithholdingTaxAmount2` This validation handles amounts up to 5 decimal places and supports a margin of error that you specify in the **Maximum difference allowed** setting. To pass the validation, the absolute value of `Total amount sum` minus `InvoiceTotalVATIncludedAmount` cannot be greater than **Maximum difference allowed**. `ABS(`**`Total amount sum`** `- InvoiceTotalVATIncludedAmount) > MaximumDifferenceAllowed` **Maximum difference allowed** Specifies the margin of error (plus or minus) that is permitted when comparing the total amount field with the calculated total amount. **Example**: If you specify 0.5 here and the total amount on the invoice is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50.

Total tax amount	This validation ensures that the sum of all sub-tax fields equals the value of the total tax field. `InvoiceTotalVatAmount = InvoiceTaxAmount1 + InvoiceTaxAmount2 + InvoiceTaxAmount3 + InvoiceTaxAmount4` At least one of these fields must be selected (enabled) in the Document type dialog in order for the validation to work properly: • `InvoiceTaxAmount1` • `InvoiceTaxAmount2` • `InvoiceTaxAmount3` • `InvoiceTaxAmount4` **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing the total tax field with the sum of the other tax fields. **Example**: If you specify 0.5 here and the total tax on the invoice is 23.00, the validation will pass if the sum of the other tax fields is anywhere between 22.50 and 23.50. If you change any of the tax amounts, the total tax amount is automatically updated with the new sum.

VAT rate	Ensures that the VAT rate is one of the rates specified in the Allowed VAT rates box. Use semicolons (;) to separate valid VAT rates. You can write the VAT rates using any standard method of writing a percentage. For example, if you want to allow rates of 0%, 12.5% and 25%, you can type the following values in the Allowed VAT rates box: 0.0;12.5;25.0 ℹ During verification, you cannot add rates that do not exist in the document type, but you can remove rates that you do not want validated. This validation handles amounts up to 5 decimal places. The margin of error between the captured rate and the calculated rate cannot exceed 0.005. This validation uses these fields: • `InvoiceNetAmount1`, `InvoiceTaxAmount1`, `InvoiceTaxRate1` • `InvoiceNetAmount2`, `InvoiceTaxAmount2`, `InvoiceTaxRate2` • `InvoiceNetAmount3`, `InvoiceTaxAmount3`, `InvoiceTaxRate3` • `InvoiceNetAmount4`, `InvoiceTaxAmount4`, `InvoiceTaxRate4` ...and so on, for each VAT rate. In addition to the validations listed above, this rule also makes sure `InvoiceTotalVatRatePercent` matches one of the specified rates. When you select the VAT rate field during verification, it is not highlighted on the invoice image if the value is calculated from other fields.

Accounts receivable validations

Delivery date	Validates delivery date fields of a purchase order. This validation makes sure that the date: • occurs on or after today's date. • does not occur too far in the future. • is a valid date. Also, if `PO_DeliveryDate2` is enabled, the validation makes sure `PO_DeliveryDate2` occurs after `PO_DeliveryDate1`. **Delivery-date limit (days)** - Delivery dates are only valid if they are not older than the current date plus the number of days you specify here. These fields are validated by this rule if enabled: • `PO_DeliveryDate1` • `PO_DeliveryDate2` • `LIT_PO_DeliveryDate` If the delivery date is not always known, consider enabling **Accept empty value** on the fields above to avoid validation errors.

Duplicate purchase order check	Warns if purchase orders with the same customer number, purchase order number, purchase order date or purchase order amount exist during verification. This can prevent duplicate purchase orders caused by: • the customer resending the same purchase order by mistake or on purpose. • the same purchase order being scanned more than once. • scanning software errors. • an error in AP Essentials. • original purchase order attachments that are not recognized as an attachments and treated as separate purchase orders. AP Essentials checks for duplicates: • After document extraction. • During verification. • During export. The customer number must be specified in order for this validation to work. If a duplicate purchase order is detected during verification, the validation error is set on all relevant fields. For example, if **Include purchase order date** and **Include purchase order amount** are selected, and a duplicate purchase order is detected, then the validation error is set on the purchase order number, purchase order date and purchase order amount fields. All relevant fields necessary for the duplicate purchase order check are required. For example, if **Include purchase order date** and **Include purchase order amount** are selected, then purchase order number, purchase order date and purchase order amount are all required in the document type. If any field is missing, the duplicate check will not execute. The customer number and purchase order number are always checked when performing this validation, however, **Include purchase order date** and **Include purchase order amount** checks are optional and can be toggled in the **Duplicate purchase order check** setting. If **Include purchase order date** and **Include purchase order amount** are selected, the purchase order number, purchase order date and purchase order amount must all be the same as a previously processed purchase order in order to be considered a duplicate. If you select **Include purchase order amount**, the total amount field (`PO_TotalTaxIncludedAmount`) is used. However, if the total amount field is empty or missing from the document type, the net amount field (`PO_TotalTaxExcludedAmountvalue`) is used. If a user overrides this validation, it is noted in the document history. This validation relies on data collection that is only gathered when this validation is enabled. Therefore, duplicate purchase orders are not validated against

Line items cannot be empty	Makes sure line items are specified on documents. If no line items are found during extraction, or if all line items are missing or removed during verification, the validation fails and a warning message is displayed. The validation error is set on the total amount field, and you cannot override this validation error. In other words, you cannot process the document further without line items.
Line-item row	Validates each line-item row to ensure that the amounts add up to the row total. If no line-item rows are found on the document, the validation is not performed. This validation handles amounts up to 5 decimal places. The validation checks if the calculated row total and the captured row total match within an acceptable margin of error. The validation calculates the row total by multiplying the quantity by the unit price. Then the calculated row total and the captured row total are compared using a margin of error. If the amounts exceed the margin of error, the validation fails. **Margin of error** The validation uses two different margins of error when comparing the calculated value with the row total. An absolute tolerance of 1 and a relative tolerance (the row total times 0.01) is used. This validation requires these fields: • `LIT_PO_OrderedQuantity` • `LIT_PO_UnitPriceAmount` • `LIT_PO_TaxExcludedAmount`
Line-item total amount (for remittance advices)	Ensures that the sum of the line-item amounts adds up to the total amount of the remittance advice. The validation compares the sum of the line-item amount fields (`LIT_RA_AmountPaid`) with the total amount field (`RA_TotalAmountPaid`). **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing sum of the line-item amounts with the total amount of the remittance advice. **Example**: If you specify 0.5 here and the total amount on the remittance advice is 23.00, the validation will pass if the sum of the line-item total amount fields is anywhere between 22.50 and 23.50. For purchase orders, see the **Line-item total amount** validation below. For invoices, see the **Line-item total amount** validation in the *Accounts payable validations* section above.

Line-item total amount (for purchase orders)	Ensures that the sum of the line-item amounts adds up to the total amount of the purchase order. The validation compares the sum of the line-item amount fields (`LIT_PO_TaxExcludedAmount`) and tax amount field (`PO_TotalTaxAmount`) with the total amount field (`PO_TotalTaxIncludedAmount`). If `PO_TotalTaxIncludedAmount` is not enabled, `PO_TotalTaxExcludedAmount` is used instead. Note: Charge and discount fields are excluded from the calculation. This validation allows a margin of error of 0.5. In other words, if the total amount of a purchase order is off by +/- 0.5, a validation error is not triggered. **Example**: If the total amount on the purchase order is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50. For remittance advices, see the **Line-item total amount** validation above. For invoices, see the **Line-item total amount** validation in the *Accounts payable validations* section above.
Maximum total amount	This validation can help prevent documents with high amounts from passing through the system unnoticed. • **Maximum total amount limit** - Makes sure that the total amount field (`PO_TotalTaxIncludedAmount`) does not exceed the value you specify here. If you do not use the total amount field, the net amount field (`PO_TotalTaxExcludedAmount`) is checked instead. If the total amount is greater than the value you specify here, the field is marked with a warning icon, but you can override the validation. • **Process limit (amount)** - This validation works like the **Maximum total amount limit**, however, you cannot override the validation. Therefore, if you receive an invoice that exceeds the process limit, you must increase the value of this setting to continue, or delete the document.

Order date	Validates the order date field (`OrderDate`) of a purchase order. This validation makes sure that the date: • occurs before or equal to today's date. • does not occur too far in the past. • is a valid date. **Order-date limit (days)** - Order dates are only valid if they are not older than the current date minus the number of days you specify here. **Process limit (days)** - The validation fails and cannot be overridden if the order date is older than the current date minus the number of days you specify here. Unlike **Order-date limit**, you cannot override this validation error by pressing Enter during verification. The value you specify here must be greater than **Order-date limit** unless you specify 0 to disable this setting (default value: 0).
Prevent total amount of zero (for purchase orders)	Makes sure that the total amount field (`PO_TotalTaxIncludedAmount`) is not zero or empty. If you do not use the total amount field, the net amount field (`PO_TotalTaxExcludedAmount`) is checked instead. If neither field is enabled in the document type, the validation is not performed.
Prevent total amount of zero (for remittance advices)	Makes sure that the total amount paid field (`RA_TotalAmountPaid`) is not zero or empty. If the field is not enabled in the document type, the validation is not performed.

Total amount	Ensures that the total amount field equals the sum of the net value and tax amount fields of a purchase order.
	`PO_TotalTaxIncludedAmount = PO_TotalTaxExcludedAmount + PO_TotalTaxAmount`
	If any of the fields above are disabled or missing from the document type, the validation is not performed.
	Note: Charge and discount fields are excluded from the calculation.
	This validation handles amounts up to 5 decimal places and supports a margin of error that you specify in the **Maximum difference allowed** setting.
	To pass the validation, the absolute value of the total amount minus the sum of the net value and tax amount fields cannot be greater than **Maximum difference allowed**
	`ABS(PO_TotalTaxIncludedAmount - (PO_TotalTaxExcludedAmount + PO_TotalTaxAmount)) <= MaximumDifferenceAllowed`
	Maximum difference allowed - Specifies the margin of error (plus or minus) that is permitted when comparing the total amount field with the calculated total amount.
	Example: If you specify 0.5 here and the total amount on the purchase order is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50.

Custom rules

Custom rules are only available if an administrator creates them.

Due date validation

Tungsten AP Essentials provides functionality for validating and calculating invoice due dates. The **Due date** validation can be performed with or without master data. Both validation methods provide adequate protection against invalid dates. Using master data, however, provides more control, the ability to calculate expected due dates, and the ability to fill in the due date value if it is missing.

The default due-date validation (without master data) works by making sure the extracted due date follows basic, universal rules for due dates. The enhanced due-date validation (with master data) provides additional functionality and first matches payment terms to invoices, using supplier master data, and then calculates the due date according to the settings of the payment term. You can specify several payment terms, each with its own settings.

When you use the enhanced due-date validation (with master data), the default validation is always performed first.

Payment terms master data is only used during extraction and when a document is opened during verification. The enhanced validation is not performed in any other processes after you select **OK** during verification. The default validation, however, is performed during verification and approval.

Validating due dates without using master data (default)

When due dates are validated without using master data, Tungsten AP Essentials ensures the captured due date:

- Occurs on or after today's date.
- Does not occur too far in the future.
- Is a valid date.
- Does not exceed the due-date limit.

Setting up the default due-date validation

To set up the due-date validation in Admin Center:

1. While editing a document type in the Extraction service settings, navigate to the **Rules** tab.
2. Locate the **Due date** rule.
   Select the checkbox in the **Verify** column to perform the validation during verification. Select the checkbox in the **Workflow** column to perform the validation during approval. You can select one or both.
3. Specify the **Due-date limit**. Due dates are only valid if they do not exceed the current date plus the number of days you specify here.
   Optionally, select **Calculate due date from payment-terms master data** if you intend to use payment-term master data as described later.
4. Select **OK** to save your settings and activate the due date validation.

Validating due dates using master data (enhanced)

You can use payment-term information from supplier master data to enhance the due date validation. Using payment terms master data, you can specify settings that determine:

- Whether to empty the due-date field or fill it with a calculated value.
- How to calculate the due date.
- When to use the calculated due date.

You create payment-term master data by importing it from supplier master data. During verification, Tungsten AP Essentials looks at the supplier of the current invoice and matches the payment term code found in the supplier master data with the payment-term code specified in the payment terms master data. Then the due-date validation uses the payment terms settings to perform the validation. Ideally, your supplier master data should contain payment-term master data to use this feature to its fullest. However, if your supplier master data does not contain payment terms, you can create one payment term manually and use it as the default payment term.

If Tungsten AP Essentials cannot find a matching payment term, and there is no default payment term, the default validation (without master data) is used. Similarly, if the enhanced validation fails for any reason, it falls back to the default validation.

Setting up the due-date validation using payment terms master data

To set up the due-date validation in Admin Center using payment terms master data:

1. Navigate to the **Payment terms** view.
2. Select **IMPORT FROM SUPPLIERS** to import the payment terms from your supplier master data.

   The import is not case sensitive. If your payment terms include duplicate codes with different cases, for example, "N30" and "n30", only one code is imported. The imported payment term code will match the suppliers with code N30 or n30.

   If you do not have supplier master data containing payment-term information, you can manually define one default payment term by selecting **Add** and using the view that appears to define the payment term.
3. Select the code of one of the payment terms in the list and use the view that appears to adjust its settings.

   Repeat this step for each payment term in the list.
4. Specify a default payment term by selecting the checkbox at the beginning of the row and selecting **TOGGLE DEFAULT**. The default payment term is used if no match is found during extraction.
5. Follow the procedure earlier, "Setting up the default due-date validation", and make sure you select **Calculate due date from payment-terms master data**.

Verification services

Verification services provide a state-of-the-art invoice verification interface that you can use to quickly and easily check and correct documents in a web browser.

Workflow services

Workflow services provide functionality that simplifies and automates tasks within an accounts-payable process. Workflow services include functionality for:

- Invoice approval.
- Creating approval routes (workflow configurations) that determine which users must approve an invoice, and the order in which it is approved, before sending it to the financial system.
- Email notifications, which inform users of pending invoices that need approval.
- Automation rules, which can be used to trigger workflows to start automatically.

After you enable the **Workflow** service:

- The **Assigned to me** menu appears in the document list view. The **Roles and Privileges** settings determine whether users can see these views.

- If the **Workflow** service is disabled, you cannot select target systems that require the **Workflow** service.

  If you enable Workflow services with invoices already in the system, only invoices that have not yet been verified will be caught by **Workflow** services. Also, the **Approval admin** role is required to grant approval privileges to users.

After you enable the workflow service, you can add and edit workflow services.

There are three types of workflows: *Coding and approval*, *Correction*, and *Rejection*.

Adding a workflow

A workflow configuration determines how an invoice is routed through different users for approval before it is finally posted in the target system.

Adding a workflow in Admin Center

To add a workflow using Admin Center:

1. Navigate to the **Workflow** view, select **Edit**, then select one of the following:
   - **Add CODING & APPROVAL Workflow**
   - **Add CORRECTION Workflow**
   - **Add REJECTION Workflow**
2. In the dialog that appears, enter the workflow the **Name** and **Description**.
3. Select **Add** to create a step in the workflow.
   Alternative: To create a workflow for approving invoices automatically without user interaction, do not create any steps here and skip to step 11. For example, to approve invoices with amounts less than $20 automatically, create a workflow without steps and create a trigger to direct invoices with amounts less than $20 to that workflow.
4. In the dialog that appears, enter the **Name** of the step.
5. Select the user or group who will perform this step in the **Assigned to user** box.
6. Optionally, select the **Coding** checkbox if you want users to be able to perform account coding in this step.

   Users with the **Edit approval documents** privilege can perform coding regardless of the **Coding** setting.

   Currently, user groups on the partner group and customer group levels do not support approval hierarchies. Do not select **Use approval hierarchy** on a workflow step that is assigned to a user group on the partner group or customer group level.

7. Optionally, select **Use approval hierarchy** if you want to use linear approval or other hierarchical approval methods, which can reduce the number of workflows you have to create.
   If you process credit notes or other documents that have negative amounts, consider selecting **Check monetary limits using absolute values** to ensure that documents with negative amounts are still validated against configured limits.

8. Optionally, create conditions for the step.
9. Select **OK** to add this step to the workflow and return to the previous view.
10. Repeat steps 3 through 9 until you have created all the steps your workflow requires. You can create up to 50 steps in a workflow.
11. Select the **Exception handler**.
12. Select **OK** to return to the **Workflow** view, then select **Save** to save the workflow.

Limiting the duration of workflow steps

To ensure invoices are processed in a timely manner, you can limit the amount of time invoices are allowed to spend in each workflow step. If a step exceeds the time you specify, an email notification is automatically sent to the exception handler. Email notifications are sent once per day and contain a summary of all invoices that exceed the **Maximum duration** setting. The email notifications are sent at 04:00 UTC for Europe, 11:00 UTC for the US, and 13:00 UTC for Australia.

Limit the duration using Admin Center

To limit the duration of workflow steps using Admin Center:

1. Navigate to the **Workflow** view and select the **Notifications** tab.
2. Select **Edit**.
3. Select **Notify the exception handler if a workflow step exceeds the maximum duration** .
4. Use the **Maximum duration (days)** setting to specify the number of days an invoice is allowed to spend in each step. These settings apply to all steps in all workflows of the current customer account.
5. Select **Save**.

Specify an alert for a workflow

Various events in a workflow trigger email alerts. For example, whenever an invoice advances to a new step in a workflow, the system sends an email notification to the person responsible for that step. You can choose to send alerts instantly when the event happens, or once per day at a time you specify. If you choose to send alerts once per day, the email messages contain a summary of all the alerts that occurred for the recipient.

Specify a workflow alert in Admin Center

To specify an alert using Admin Center:

1. Navigate to the **Workflow** view and select **Edit**.
2. Select the **Notifications** tab and adjust the **ALERTS** settings to suit your needs.
3. Select **Save** to save your settings.

Edit a workflow

A workflow configuration determines how an invoice is routed through different users for approval before it is finally posted in the target system.

When you edit an existing workflow, the changes do not apply to invoices that are already in a workflow. In other words, the changes only apply to invoices that enter the system after you save

your changes. If you delete a user from the system, and the user is still specified in a workflow, affected invoices are automatically sent to the exception handler. If no exception handler is defined, an error occurs.

Edit a workflow in Admin Center

To edit a workflow:

1. Navigate to the **Workflow** view and select **Edit**.
2. Select the name of the workflow that you want to edit.
3. Use the dialog that appears to adjust the settings to your liking.
4. Select **OK** to return to the **Workflow** view, and select **Save** to save the workflow.

Create triggers

You can use triggers to automatically assign documents to workflows according to field values. For example, you can make a trigger based on the document amount, so documents with high amounts are handled by a workflow with users that are authorized to approve high amounts. Triggers are activated after a document is verified.

You can create three types of triggers:

- **Correction triggers** - Start *Correction workflows*. Correction triggers are run in the order they appear (from top to bottom) on the **Triggers** tab. Correction triggers are run before sending a document to the target system. Correction triggers are also run before document registration if **Perform registration step** is enabled in the **Process control** settings.
- **Coding & approval triggers** - Start *Coding & approval workflows*. After a document passes the correction triggers, coding & approval triggers, if any exist, are run in the order they appear. Documents without validation errors that do not satisfy any of the conditions of any triggers are sent to the **Default coding & approval workflow**. Coding & approval workflows are initiated based on the **Process control** settings.
  - If **Perform registration step** is enabled, approval workflows start after correction.
  - If the **Perform registration step** is not enabled, approval workflows start after verification.
- **Rejection triggers** - Start *Rejection workflows*. If your solution uses custom rejection codes, rejection triggers are run after a document is rejected by an AP Essentials Office user.

To create a trigger using Admin Center:

1. Navigate to the **Workflow** view and select **Edit**.
2. Select the **Triggers** tab and specify the **Default coding & approval workflow** that you want to use if no trigger is activated, or select **Manual start** if you want to assign workflows manually when a document is opened for approval. Select **Manual start** if you do not use triggers.
3. Select one of the following:
   - **Add CODING & APPROVAL TRIGGER**
   - **Add CORRECTION TRIGGER**
   - **Add REJECTION TRIGGER**
4. In the dialog box, type a descriptive name in the **Name** box.
5. Select the workflow that you want to trigger in the **Start workflow** list.
6. Select **Add** to create a condition.

7. Specify the conditions of the trigger using the available settings.
   This step varies depending on whether you create a Correction trigger, Coding & approval trigger, or Rejection trigger. However, the concept is the same.
   - Correction trigger: Select a field or validation rule in the **Name** setting. The **Name** determines what appears in the **Parameter** list.
   - Coding & approval trigger: Select a field type in the **Fieldtype** setting. The **Fieldtype** determines what fields appear in the **Field** list.
   - Rejection trigger: The **Fieldtype** and **Field** settings are set to **Reject code** and cannot be changed.

   Use the **Operation** setting and the adjacent box to determine how the value of the field is evaluated. When the condition is true, the document is assigned to the workflow you select in the **Start workflow** list.

   If you select **In list** or **Not in list** in the **Operation** setting, a link appears that you can select to specify a list of values that you want to evaluate.

   You can create up to 10 conditions.
8. Select **OK** to return to the previous view.
   The newly created trigger appears in the list.
9. If you have more than one trigger, select the row of the newly created trigger and use the up and down buttons to arrange the order in which the triggers are run.
10. Select **Save** to save your changes.

Special considerations for correction triggers

Correction only runs when all of the following conditions are met.

- A validation rule is enabled for **Workflow** in the Extraction service.
- The corresponding correction trigger condition evaluates to true.
- A validation error exists on the invoice after verification or after an approval workflow.

When you create a correction trigger, consider the following:

- **Is Perform registration step enabled?**

  Correction triggers can run before document registration and before sending a document to the target system. However, if **Perform registration step** is not enabled, correction triggers run only before the document is sent to the target system.
- **Is the validation rule enabled for Workflow?**

  If the correction trigger condition uses a validation rule, that validation rule must be enabled for **Workflow** in the Extraction service. Enabling the rule only for **Verify** does not activate a correction trigger.

Example: Validation rule enabled only for Verify

Assume you create a correction trigger that uses a validation rule, but the validation rule is only enabled for **Verify**.

The trigger is not run because the validation rule is not evaluated during workflow operations. Consequently, the trigger condition is never met and the trigger does not start its workflow.

To run the correction trigger during workflow operations, enable the validation rule for **Workflow**.

Example: Perform registration step is not enabled

Assume you create a correction trigger that uses a validation rule that is enabled for **Workflow**, but **Perform registration step** is not enabled.

The trigger runs before sending a document to the target system. However, it does not run before document registration because the registration step is not performed.

If you enable **Perform registration step**, the correction trigger runs both before document registration and before the document is sent to the target system. Which options you choose depends on your system requirements.

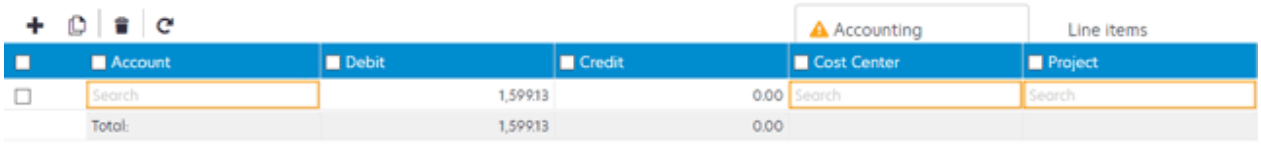
Automatic coding suggestions

When you code invoices, AP Essentials can make your job easier by suggesting accounting codes, coding dimensions, and amounts. Each time you code an invoice, AP Essentials remembers the accounts and coding dimensions you select and the percentages of the amounts on each accounting line. Then, the next time you code an invoice from the same supplier, AP Essentials automatically suggests the account codes, coding dimensions, and amounts based on the choices you made previously.

Automatic coding suggestions are available only for accounting lines with a general ledger account type.

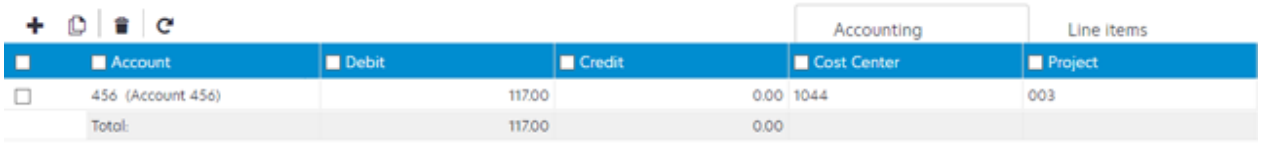
Example

Assume you enabled automatic coding suggestions and code an invoice on account "456" with 100% of the amount in the debit column and zero in the credit column. You also specify "1044" as the cost center and "003" as the project.



Then you select **OK** to complete the approval process and send the invoice to the target system.

The next time you code an invoice from the same supplier, the coding row is automatically filled in for you. In this example, 100% of the invoice amount is in the debit column. Likewise, the account, cost center, and project are the same as the previous coding.

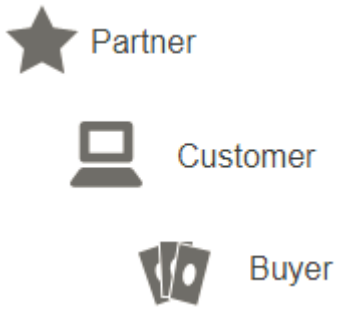


Enable automatic coding suggestions

You enable the **Automatic coding suggestion** setting on the **Coding** tab in Admin Center. Then make sure **Include in coding suggestion** is selected for each coding field that should use coding suggestions.

To populate the account list in the **Accounting** view with general-ledger account master data, the internal name of the account type must be `GeneralLedger`.

How it works



AP Essentials creates an accounts-payable coding history for each supplier. For every invoice that has been completely processed, a coding template is created based on the invoice coding data. The ten most recent templates are stored and used to suggest account codes and amounts during coding.

To determine the suggestion, the system uses a weighted approach. The system assigns 10 times more weight to templates that include coding dimensions. The template with the highest combined weight is used as the suggestion. In the event of a tie, the most recent template with the highest combined weight is used. If all ten templates are unique and occur only once, the most recent one is used.

Only one template is required to receive a coding suggestion.

Each coding template is characterized by:

- The number of lines it contains. Each template can contain up to 100 coding lines.
- Which accounts are specified.
- The order the lines occur, using the account as an index.
- The coding dimension values.

- The amounts as a calculated percentage of the total amount.

If any of these characteristics differ between templates, they are considered unique.

Example

Consider the table below, which represents a chronological coding history from one supplier. The coding history stores at most ten templates, with the most recent at the top and the oldest at the bottom. When a document is completely processed, its coding template is added to the top of the list. If the list already has ten entries, the oldest template is removed. This ensures the history always reflects the ten most recent templates.

In this example, each template is labeled with a letter for clarity. Templates that include coding dimensions are assigned a higher weight. The template with the highest total weight is used as the suggestion for the next invoice from the same supplier. If multiple templates share the highest weight, the most recent template is selected.

Processing Sequence	Template	Account	Percentage	Coding dimensions	Weight
10	C	Debit 1234 Credit 5678	100 100	Special 20	10
9	C	Debit 1234 Credit 5678	100 100	Special 20	10
8	B	Debit 1234 Credit 5678	100 100	Special 15	10
7	B	Debit 1234 Credit 5678	100 100	Special 15	10
6	C	Debit 1234 Credit 5678	100 100	Special 20	10
5	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1
4	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1
3	B	Debit 1234 Credit 5678	100 100	Special 15	10
2	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1
1	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1

In this scenario:

- Templates B and C each occur three times.
- Template A appears four times but has a lower combined weight.
- Both B and C have a total weight of 30 (3 occurrences × 10), while A totals 4 (4 × 1).

Since templates B and C are tied in weight, and template C is the most recent of the two, it is selected as the coding suggestion for the next invoice from the supplier.

Submitting invoices without coding lines also updates the template history. In other words, "no coding lines" can become a valid coding suggestion if the majority of invoices in the coding history were submitted without coding lines.

The coding history can be shared on different levels: partner, customer, and buyer. The level determines how coding suggestions are shared. For example:

- If you share the coding history on the partner level, all customers of the partner account contribute to and use the same coding suggestions. This can be useful if the customers use the same account codes and have many invoices from the same suppliers.

  If you share the coding history on the partner level, all customers must have the same selection in the **Balancing amount** setting.
  Balancing against the gross amount is the default behavior when **Allow balancing against total amount** is not selected. Read more about amount balancing.

- If you share coding history on the customer level, the coding suggestions stay within the customer and are only shared amongst the buyers of the customer (if the customer has multiple buyers).
- If you share coding history on the buyer level, the coding suggestions stay within the buyer.

  The coding history is only shared behind the scenes. There is no way for one customer to see the coding data of another customer.

Automatic coding suggestions are available only for accounting lines with a general ledger account type.

To provide coding suggestions for other fields, such as coding dimensions, the field must be connected to master data.

For automatic coding suggestions to work, at least one of these fields must be specified in the supplier master-data (ordered below from highest to lowest priority):

- Organization number.
- Tax registration number.
- Supplier number.

Changing any of the fields above (Organization number, Tax registration number, Supplier number) may cause automatic coding suggestions to stop working.

In order to share coding data between partners, customers and buyers, the suppliers must have a value for:

- the supplier number field.
- the VAT registration field or the organization number field.

These special characters are not allowed in the organization number, VAT registration number, and supplier number fields:

- Forward slash (/).
- Backslash (\).
- Number sign (#).
- Question mark (?).
- Control characters from U+007F to U+009F.
- Control characters from U+0000 to U+001F, including:
  - Tab (\t).
  - Linefeed (\n).
  - Carriage return (\r).

When are coding suggestions applied?

The application of coding suggestions is dependent on two settings and whether the settings are enabled () or disabled ():

- **Perform registration step**
- **Allow account coding during verification**

Perform registration step	Allow account coding during verification	Result
		No coding rows are added automatically; however, you can select **Refresh** () during approval to get coding suggestions.

Perform registration step	Allow account coding during verification	Result
		Coding suggestions are applied during registration and displayed during approval.
		Coding suggestions are applied during extraction and displayed during verification.
		Coding suggestions are applied during extraction and displayed during verification.

Refresh coding suggestions

Sometimes you make changes which require you to refresh () coding suggestions. AP Essentials prompts you to refresh your coding suggestions when the:

- Buyer is changed.
- Supplier is changed.
- Invoice/Credit field is changed.
- Net/Gross amount is changed.

In addition to the points above, if you use line items as your coding-suggestion source, AP Essentials also prompts you to refresh your coding suggestions when:

- Line items are added or removed.
- The line-item table is redrawn.
- A line-item amount is changed.

Share coding data across multiple levels

It is possible to share the coding history across multiple levels. When you select multiple levels in the Coding settings, the coding history is shared upwards through the hierarchy. For example, assume you select all three levels. This has several implications:

- When you code an invoice on the buyer level, AP Essentials checks if there is a suitable coding suggestion on the buyer level. If no suggestion is found there, AP Essentials checks the customer level, and if no suggestion is found there, AP Essentials checks the partner level.
- When you code an invoice on the buyer level, the coding history is updated on the parent customer and partner.
- When you code an invoice on the customer level, the coding history is updated in its own customer level and in the parent partner level.

In order to share coding data between partners, customers and buyers, the suppliers must have a value for:

- the supplier number field.
- the VAT registration field or the organization number field.

Choose a source

Automatic coding suggestions can come from one of three sources, which you specify in the Coding configuration settings:

- **Online coding** - Uses historical data from AP Essentials to determine the default coding suggestions.
- **Line items** - Inserts each line item as a coding row and uses historical data from AP Essentials to determine the default coding suggestions.

  When your default account type is general ledger, coding suggestions are made for account fields if you used the same account for all rows when coding previous invoices from the same supplier.

  Coding amounts for invoices are placed in the debit column, whereas coding amounts for credit notes are placed in the credit column.

  If the current document type does not have any line items, Online coding is used. If the current document type does have line item fields, but no line items are captured, no coding suggestions are created.
- **External system** - Uses coding suggestions provided by an external system.

Add coding fields to a workflow

If you require additional coding fields, such as cost-center or project coding fields, you can add them in the **Coding** settings.

By default, Account, Debit and Credit coding fields are available when you code invoices. If you require additional coding fields, such as cost-center or project coding fields, you can add them in the **Coding** settings.

Add coding fields in Admin Center

To add coding fields using Admin Center:

1. Navigate to the **Workflow** view and select **Edit**.
2. Select the **Coding** tab and select **Add** in the **CODING FIELDS** settings.
3. Use the dialog that appears to specify your custom coding field.

   Optionally, select **Use coding-field master data** if you use master data and plan to enable automatic suggestions.
4. Repeat steps 2 and 3 for each field you want to add.
5. Save your changes.

Add an account type

If your target system supports multiple account types, you can specify additional account types and determine which coding fields belong to each account type.

By default, Account, Debit and Credit coding fields are available when you code invoices. If your target system supports multiple account types, you can specify additional account types and determine which coding fields belong to each account type. After you set up multiple account types, users who code invoices can select which account type they want to use for each accounting line, and the appropriate coding fields are automatically displayed.

Add an account type in Admin Center

To add an account type using Admin Center:

1. Navigate to the **Workflow** view and select the **Coding** tab.
2. Select **Edit**.
3. Select **Add** in the **ACCOUNT TYPES** settings.
4. Use the view that appears to specify an account type.
   Repeat this step for each account type you want to add.
5. In the **CODING FIELDS** settings, select a coding field that you want to associate with the new account type, and select the account type in the **Available for account types** setting.
   Repeat this step for each coding field you want to associate with the new account type.
6. Select **OK** to return to the previous view and select **Save**.

Create conditional steps in a workflow

Similar to the way you create rules to trigger a workflow, you can also create conditions on individual steps in a workflow, which determine whether a step is used in a workflow.

- If the condition is met, the step is used in the workflow.
- If the condition is not met, the step is skipped. When you approve an invoice, skipped steps appear in the workflow pane of the document view but are crossed out.
- If a step does not have a condition, the step is always required.
- If each step in the workflow has a condition, but none of the conditions are met, all the steps are skipped. This means that the workflow ends, and the document is posted to the target system without handling.

Add a conditional step in Admin Center

To create a conditional step using Admin Center:

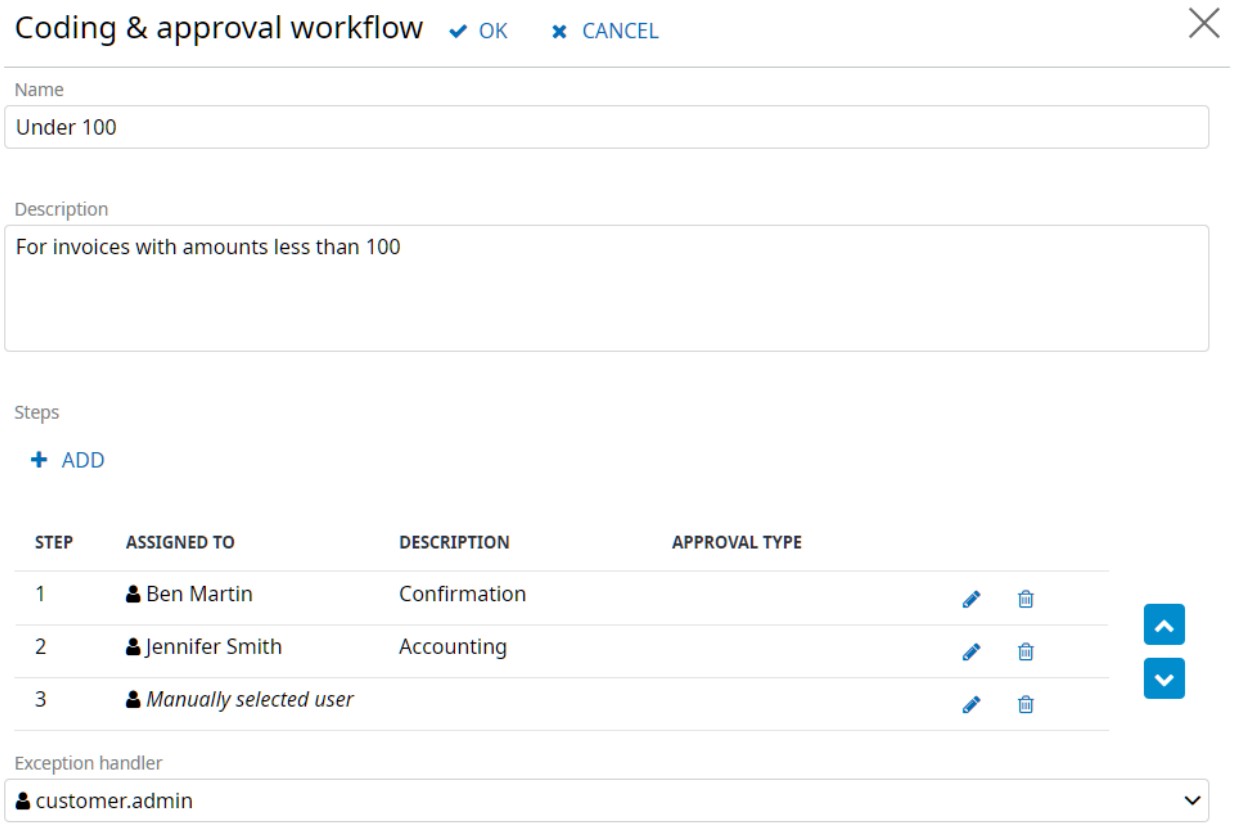
1. Select **Add** in the **Workflow step** view.
2. Use the settings that appear to create a condition.
   Create more than one condition if necessary.
3. Save your settings.

Create a workflow step with a manually selected user

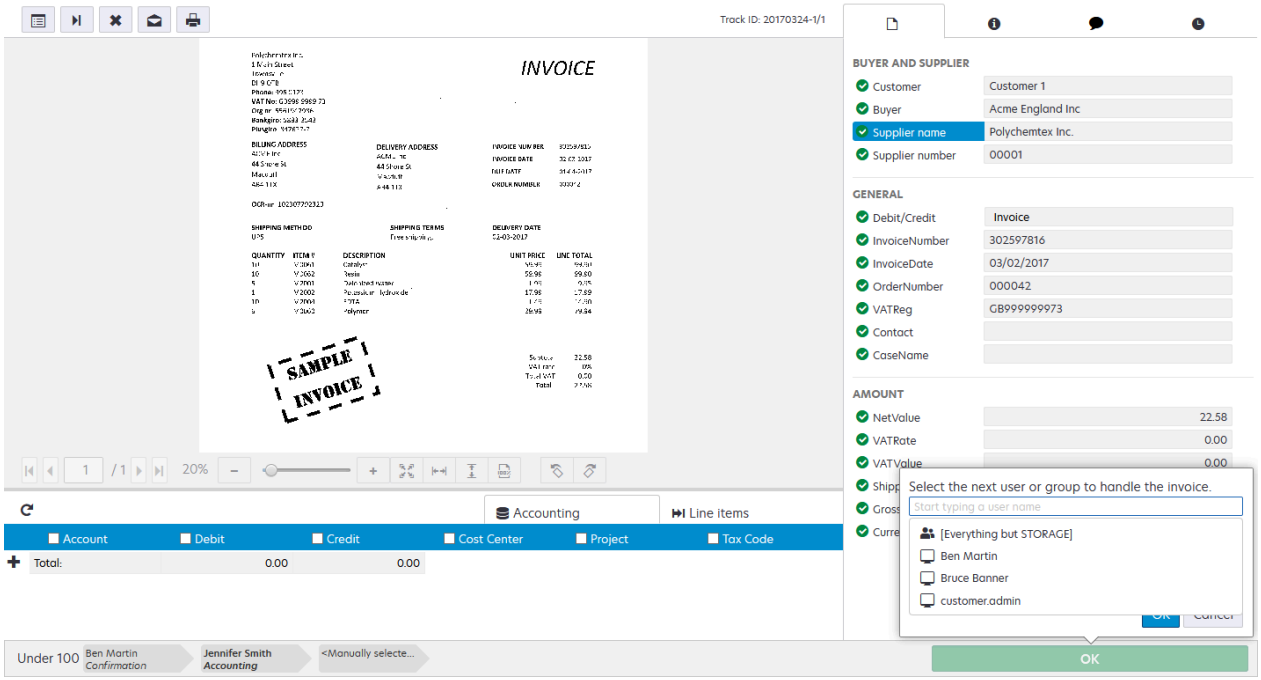
When you create a workflow, you can specify steps with manually selected users. This means that when a user approves or corrects an invoice in a workflow step that precedes a step with a manually selected user, the user is prompted to select which user handles the invoice next.

Example

Assume you use the settings below.



After Jennifer Smith approves an invoice, she is prompted to select the next user to handle the invoice.



Users that are to be selected manually also appear in the **Start workflow** dialog. You can specify the user when you start the workflow, or you can let the preceding user in the workflow choose the user during approval.

In this example, Ben Martin will be prompted to select the next user in the workflow after he approves the invoice.

Route documents to a PO creator or requisitioner

AP Essentials can use purchase order information to automatically route problem documents to purchase order creators and requisitioners for correction. This helps you quickly and easily route documents to the correct people, without having to create extensive workflows or perform unnecessary manual actions on the documents.

This feature requires:

- Workflow services
- Purchase order master data that specifies PO creators (`CreatedBy` field) or requisitioners (`RequisitionedBy` field).
- User names in AP Essentials that match (case sensitive) the creator and requisitioner fields in the purchase order master data. Customer users, customer group users, and partner users are supported.

How it works

Documents can be routed to correction workflows for many reasons. For this feature, we focus on documents with validation errors for purchase orders, so we can automatically route the documents to purchase order creators or requisitioners for correction.

For example, you use this feature to send purchase order documents to the PO creator when the **Goods received quantity** validation is triggered. After verification, AP Essentials performs the **Goods received quantity** validation. If the rule is triggered, it is sent to a correction workflow. Then AP Essentials uses the purchase order number found on the document to look up the corresponding creator or requisitioner in the purchase order master data. If the value of the creator/requisitioner matches a user name in AP Essentials, the document is automatically assigned to that user.

Setup

To automatically route problem documents to purchase order creators or requisitioners for correction:

1. In a purchase order document type, enable a workflow validation rule that is related to purchase orders. For example, choose **Goods received quantity** , **Purchase order quantity** , or **Purchase order unit price**.

   Make sure you only enable the rule in the **Workflow** column. If you enable the validation in the **Verify** column, issues relating to the validation will be triggered during verification, and the correction workflow will never be triggered.
2. Add a correction workflow and assign a step to **Purchase order creator** or **Purchase order requisitioner**, depending on your requirements and how your purchase order master data is set up.
3. Create a correction trigger and specify the workflow you created in step 2 in the **Start workflow** setting.

   In the **Conditions** settings, specify the validation rule from step 1.

Login methods

Users can sign in to AP Essentials using several authentication methods, depending on how your organization is configured. Authentication is the process of verifying a user's identity before granting access to the system.

The available login methods include basic username and password authentication and more advanced options, such as two-factor authentication (2FA) and single sign-on (SSO). Each method offers a different balance of security, convenience, and administrative control.

For security reasons, you are automatically logged out of AP Essentials after 15 minutes of inactivity. In addition, the maximum session length is 12 hours. After 12 hours, you must authenticate again, even if you have remained active. This applies to AP Essentials Office, Admin Center, Mobile Approval, and API integrations. AP Essentials Connect is not affected because it automatically reauthenticates at regular intervals.

Passwords

Passwords are the most common login method and rely on something the user knows. While simple to use, password-only authentication is considered relatively weak on its own and is often supplemented with additional security measures.

Accounts that use only passwords and remain inactive for three months are automatically paused to improve security.

See Passwords for more information about password requirements and inactivity rules.

Two-factor authentication (2FA)

Two-factor authentication adds an extra layer of security by requiring users to provide two different types of verification, such as a password and a one-time code or biometric factor. This significantly reduces the risk of unauthorized access, even if a password is compromised.

Single sign-on (SSO)

Single sign-on allows users to log in once and gain access to multiple systems without needing to re-enter credentials. This improves user convenience and centralizes authentication management, while still enabling strong security controls.

Single sign-on

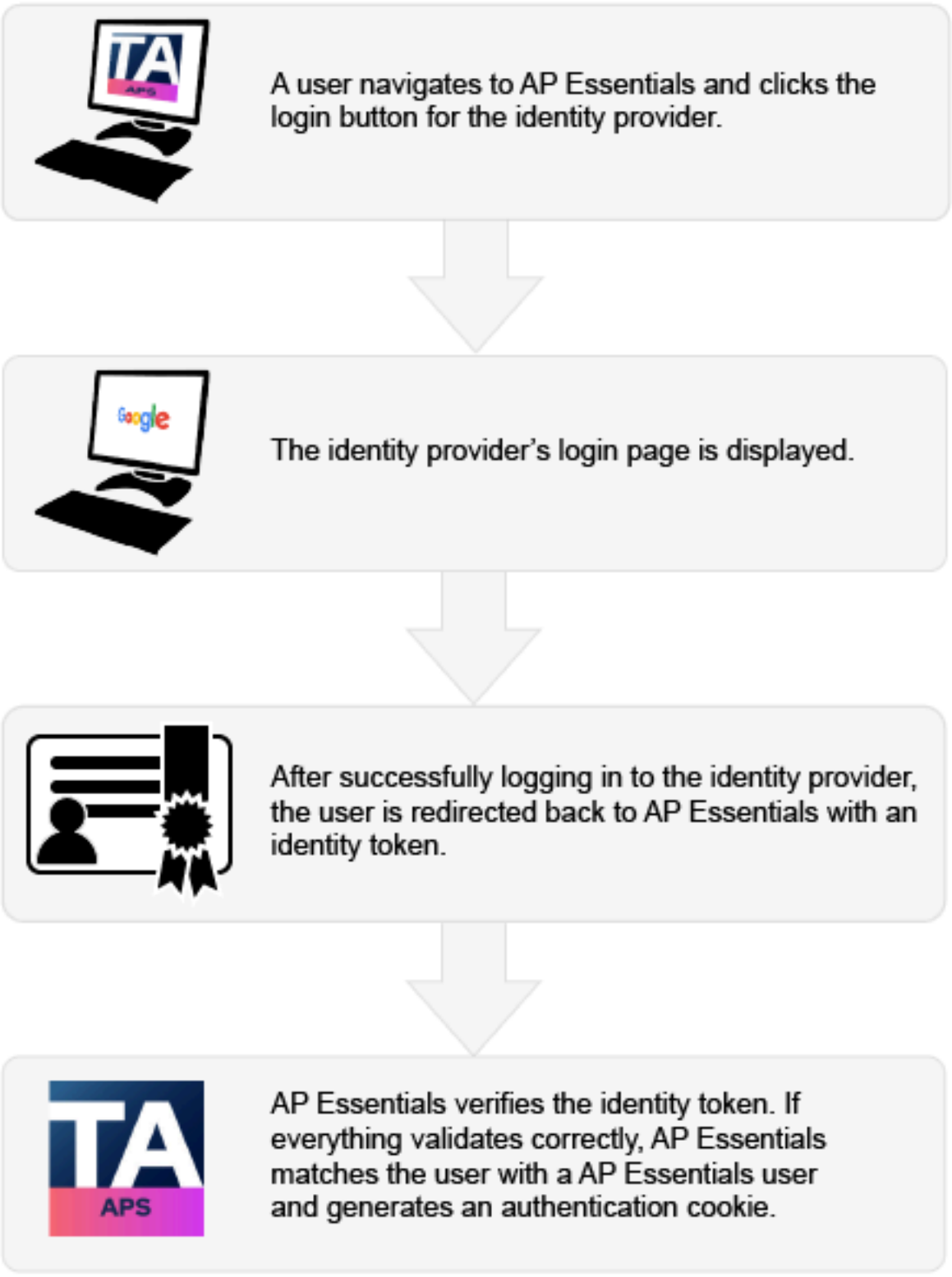
The single sign-on (SSO) feature can be used to bridge user authentication between a partner website and AP Essentials, so users can access AP Essentials using credentials other than their AP Essentials credentials. This is beneficial because it lets you access multiple applications using a single login.

AP Essentials supports SSO using OpenID Connect and SAML. Of the two options, OpenID Connect is more modern and easier to configure.

OpenID Connect

OpenID Connect is an authentication protocol based on OAuth 2.0. It uses REST/JSON messages to authenticate users across websites and apps without having to own and manage password files. This means you can log in to AP Essentials using Google account credentials, for example, or other identity providers that use OpenID Connect.

How it works


A user navigates to AP Essentials and clicks the login button for the identity provider.
The identity provider's login page is displayed.
After successfully logging in to the identity provider, the user is redirected back to AP Essentials with an identity token.
AP Essentials verifies the identity token. If everything validates correctly, AP Essentials matches the user with a AP Essentials user and generates an authentication cookie.

When you set up an identity provider in AP Essentials, the OpenID Connect metadata service must be publicly available. Currently, AP Essentials does not support internal OpenID Connect metadata endpoints. For added security, AP Essentials uses Hybrid Flow (response type: "code id_token"). AP Essentials also requires the OpenID Connect scopes, "openid" and "email".

OpenID Connect authorities (identity providers) must be whitelisted before use. Contact support to request whitelisting.

When configuring the identity provider, you must specify an authorized redirect URI from AP Essentials. This is the address that users are redirected to after they have authenticated with the identity provider. When specifying the URI, use this format: `https://host-name/sso/openidconnect`

...where `host-name` is the **Host name** setting specified in the **Company profile** view.

If you set up an identity provider with Google, you only need to set up one OAuth 2.0 client ID for all your customer accounts.

AP Essentials maps the **User name** to the email address of the identity provider credentials. In other words, your AP Essentials user name must match the email that you use to log in to the identity provider. When logging in via the identity provider, you must complete the login within 30 minutes from the time the login page is displayed.

After you configure your identity provider, you can enable single sign-on with OpenID Connect in AP Essentials.

Some identity providers allow deactivated account names to be recycled. This means, if you have an account at a third-party identity provider, and you delete it, someone else could register a new account with the same name and potentially use it to access AP Essentials. Therefore, it is important to always keep AP Essentials user accounts up to date, and never leave unused user accounts in the system.

Tenancy

A tenant is a group of users. For example, in AP Essentials, a tenant is a group of users that belong to the same customer account. With that in mind, consider the following in the context of single sign-on:

In AP Essentials, multiple customer accounts share the same login address. In other words, multiple organizations log in to AP Essentials using the same web page. If you use single-tenant authentication, each tenant requires its own authentication portal. Since each tenant shares the same login page, however, this could result in multiple login buttons—one for each customer organization—on the same login screen. If you use multi-tenant authentication, each tenant still shares the same login page, however, Microsoft Azure Active Directory (Azure AD) can route multiple tenants through the same portal. Therefore, with multi-tenant authentication, only one login button is needed, and only one identity provider needs to be specified on the partner level.

AP Essentials supports single-tenant authentication and multi-tenant authentication via OpenID Connect.

- **Single tenant** - When choosing an identity provider for single-tenant authentication, you can choose any provider that supports OpenID Connect. You must specify an identity provider for each customer account that uses single sign-on.
- **Multi tenant** - When choosing an identity provider for multi-tenant authentication, only Microsoft Azure Active Directory (Azure AD) is supported at this time. Multi-tenant authentication is beneficial because it allows customers to log in using their own Azure AD tenants with only one identity provider configuration on the partner level.

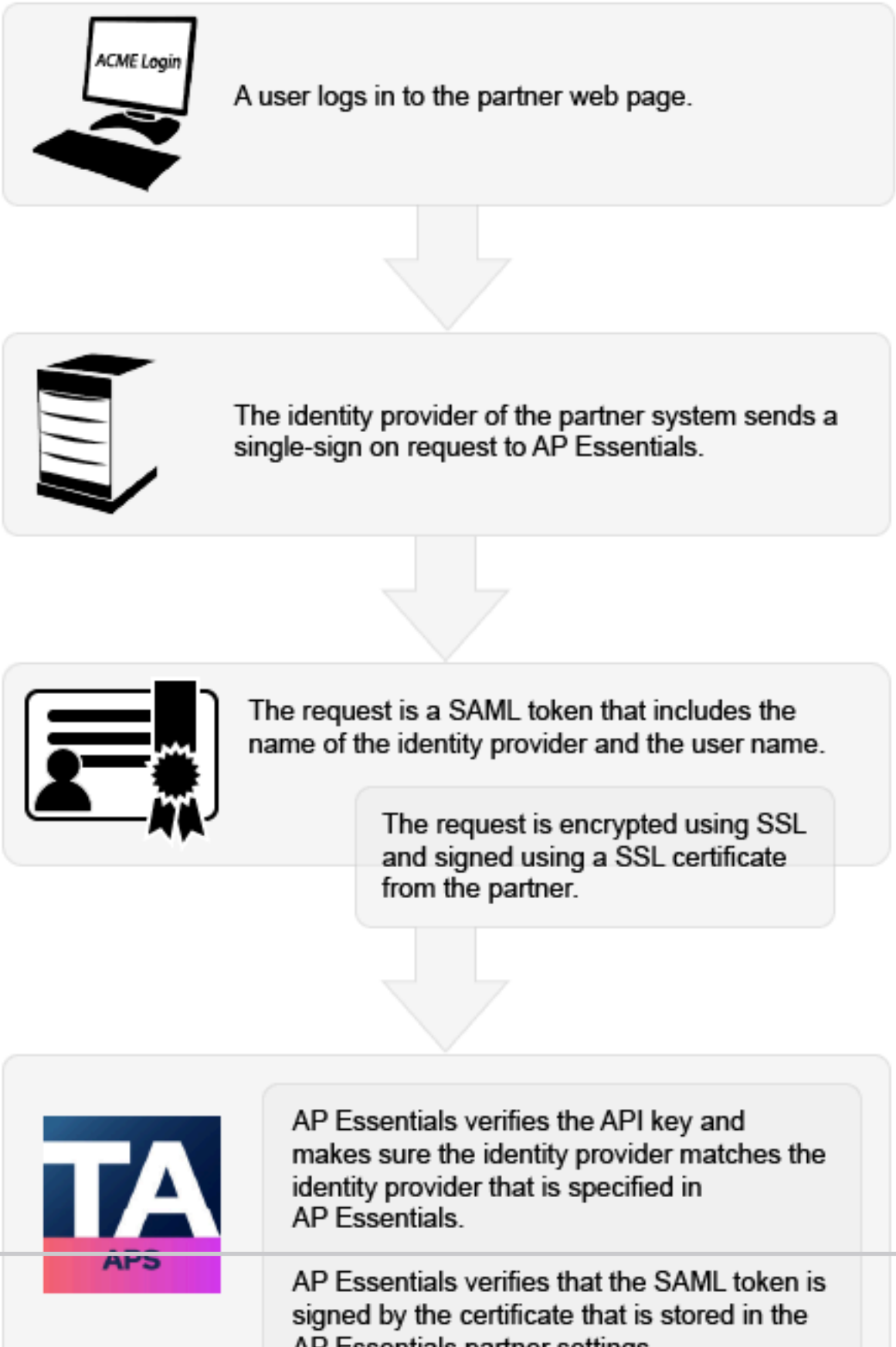
SAML

To implement single sign-on authentication with SAML, you must configure an identity provider on the partner system. After that, you can enable single sign-on in AP Essentials.

The partner system requires:

- an identity provider that can make encrypted SAML 2.0 requests.
- an SSL certificate on the partner system that verifies the identity of the partner system.
- an SSL certificate that contains a public key from the partner system.
- the AP Essentials API key of the partner.

How it works


ACME Login
A user logs in to the partner web page.
The identity provider of the partner system sends a single-sign on request to AP Essentials.
The request is a SAML token that includes the name of the identity provider and the user name.
The request is encrypted using SSL and signed using a SSL certificate from the partner.
AP Essentials verifies the API key and makes sure the identity provider matches the identity provider that is specified in AP Essentials.
AP Essentials verifies that the SAML token is signed by the certificate that is stored in the

Send a SAML SSO request to AP Essentials

AP Essentials uses SAML 2.0 to implement single sign-on using POST binding. AP Essentials acts as the consumer of claims and the authentication is identity-provider initiated; it is not service-provider initiated.

To send an SSO request to AP Essentials, the identity provider must post a SAML token (example) to the AP Essentials Assertion Consumer Service URL using this format:

```
https://services.readsoftonline.com/SSO/SAML2/Consume?x-rs-
key=XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

Note that x-rs-key specifies the AP Essentials API key of the partner, and you must use the URL that corresponds to your region:

- Europe: https://services.readsoftonline.com/
- Australia: https://services-au.readsoftonline.com/
- US: https://services-us.readsoftonline.com/

All SAML responses from the identity provider must be signed. However, signed SAML assertions are optional. AP Essentials accepts encrypted and unencrypted signed SAML assertions. If you choose to encrypt signed SAML assertions, you must use the public key in this ZIP file: https://production.readsoftonline.com/install/readsoftonline-saml.zip

Note: AP Essentials does not support SAML Metadata.

After you configure your identity provider, you can enable single sign-on with SAML in AP Essentials.

Troubleshooting

If you have problems logging in after you set up SSO for OpenID Connect or SAML, sometimes a track ID is displayed in your web browser. For your security, no other information is displayed about the issue. If you log in as a partner administrator, however, you can search for the track ID in the **Message** column of the **Audit trail** view to see why the login failed.

When authenticating with OpenID Connect, AP Essentials gets a request from an identity provider and extracts the following claims from the identity token.

- Email
- Subject
- Issuer
- Tenant

AP Essentials only supports unique claims. If there are duplicate claims for any of the fields above, authentication fails. For example, there cannot be multiple email claims in the identity token. Multiple email claims can occur, for example, if the user has multiple email addresses or aliases specified in the identity provider.

Passwords

You need a password to log in to Tungsten AP Essentials.

For security reasons, you are automatically logged out of AP Essentials after 15 minutes of inactivity. In addition, the maximum session length is 12 hours. After 12 hours, you must authenticate again, even if you have remained active. This applies to AP Essentials Office, Admin Center, Mobile Approval, and API integrations. AP Essentials Connect is not affected because it automatically reauthenticates at regular intervals.

Minimum password requirements

- At least 15 characters long. Non-Latin Unicode characters are allowed. Leading and trailing spaces are not allowed.
- A combination of at least one uppercase and at least one lowercase letter.
- At least one character that is not a letter.
- Commonly used passwords are not allowed. For example, you cannot use "Password1" or "Qwerty123". If you try to change your password to a commonly used password, a dialog box appears to prevent you from doing so.

Recommended password requirements

- At least 20 characters long but no more than 1,000 characters. Non-Latin Unicode characters are allowed. Leading and trailing spaces are not allowed.
- At least two uppercase letters and at least two lowercase letters.
- At least two characters that are not a letter or a number.

You can change your password at any time by logging in to Tungsten AP Essentials, selecting your user name in the top menu, and selecting **Change password**. When you change your password in Tungsten AP Essentials Office or Admin Center, you are automatically logged out of other sessions that are present in web browsers other than the current browser.

If you lose your password, select **Forgot password** on the sign-in page and type your user name in the dialog box that appears. An email is automatically sent to the email address associated with your account. The email contains a link to a page where you can reset your password. The link is valid for only 3 days. If you do not use the link before it expires, you can select **Forgot password** to obtain a new link. The password is not reset until you use the link and manually reset it yourself. If you remember your password after you receive the email, you can still use your password to log in.

You have five chances to enter the correct password when logging in. If you enter the wrong password more than five times, your account is locked and your password must be reset by an administrator.

If you need to reset the password for a user who uses Tungsten AP Essentials Connect, we recommend that you stop the Windows service named "Tungsten AP Essentials Connect" before changing the password. Tungsten AP Essentials Connect runs silently via this service and logs in every 30 minutes. Therefore, if you change the password without stopping the service, the user is eventually locked out for using the wrong password.

Automatic pausing of inactive accounts

To reduce security risks from unused accounts, the system automatically pauses users who have not signed in for an extended period.

By default, the system pauses accounts after 90 days of inactivity. This feature applies to users who sign in with passwords. The system excludes users who authenticate using single sign-on (SSO) or have two-factor authentication (2FA) enabled.

How it works

- **Inactivity evaluation**

  The system regularly checks for users who have not signed in for 90 days.
- **Advance warning**

  Two weeks before the system pauses the account, the user receives an email with the scheduled pause date. This gives the user time to sign in.
- **Account pause**

  If the user does not sign in before the deadline, the system automatically pauses the account.
- **Sign-in attempt after pause**

  If a paused user attempts to sign in, the system denies access and sends the user an email explaining that the account is paused and must be resumed by an administrator.

Restore access

Customer and partner administrators with the Manage accounts or Manage user accounts privilege can resume paused users in Admin Center.

- Automatically paused accounts are managed separately from accounts that administrators disable manually.
- Existing disabled accounts are not affected by the inactivity process.
- A paused account must always be resumed by an administrator; access is not restored automatically.
- Password reset is not allowed on paused or disabled user accounts.

Automatic disabling of inactive accounts

To further reduce security risks from unused accounts, the system automatically disables users who have not signed in for six months. Unlike paused accounts, which a customer or partner administrator can resume, only Tungsten Automation personnel can enable disabled accounts.

This feature applies to users who sign in with passwords. Users who authenticate using single sign-on (SSO) or who have two-factor authentication (2FA) enabled are excluded from this process.

How it works

- **Inactivity evaluation**

  The system regularly checks for paused users who have not signed in for six months.

- **Advance warning**

  Two weeks before the account is disabled, the user receives an email with the scheduled disable date. This gives you time to contact an administrator.
- **Account disable**

  If the user does not sign in before the deadline, the account is automatically disabled.
- **Sign-in attempt after disable**

  If you attempt to sign in after the account is disabled, access is denied and you receive an email explaining that the account is disabled and who can help restore access.

Restore access

Only Tungsten Automation system administrators can enable disabled accounts in Admin Center. Contact support to enable a disabled account. When an account is enabled, any pause status is also removed.

- A disabled account must always be enabled by a Tungsten Automation system administrator; access cannot be restored by customer or partner administrators.
- Password reset is not allowed on paused or disabled user accounts.

Two-factor authentication

Two-factor authentication (2FA), often referred to as two-step verification or multi-factor authentication, is a security process in which users provide two forms of authentication to verify their identity and log in to an account. In contrast, single-factor authentication is a security process in which the user provides only one form of identification, such as a password. Two-factor authentication provides an additional layer of security that makes it harder for attackers to gain access to your account because knowing the password alone is not enough to pass the authentication check.

For your security, Tungsten AP Essentials supports two-factor authentication by utilizing mobile devices to provide an additional layer of authentication. You must set up your Tungsten AP Essentials account to use 2FA with a third-party app on your mobile device. You can use 2FA apps such as:

- Authy (Android or iOS)
- Duo Mobile (Android or iOS)
- Google Authenticator (Android or iOS)
- LastPass Authenticator (Android or iOS)
- Microsoft Authenticator (Windows Phone, Android, iOS)

After you set up 2FA on your Tungsten AP Essentials account, you must provide your password and an authentication code from the 2FA app on your mobile device to log in to Tungsten AP Essentials.

Tungsten AP Essentials Connect and third-party apps do not support two-factor authentication.

You cannot use two-factor authentication with single sign-on.

Administration

Administrators can enforce 2FA for all users by selecting **Enforce two-factor authentication** in Admin Center (**User management** view). Administrators can exclude users from 2FA on an individual basis in Admin Center by selecting **Let this user log in without using two-factor authentication** in the **User** view.

Chapter 4

Set up a new customer account

This procedure describes the minimum requirements needed to set up a new customer account.

Create a new customer account for each customer that needs to process documents using Tungsten AP Essentials. When you create a customer account, specify settings that determine which:

- Document process the customer account uses.
- Services the customer account uses.
- Users that have access to Tungsten AP Essentials and the roles they perform.
- Buyers the customer has.

To set up a new customer account:

1. Add a new customer account. When you add a new customer account, you also create an administrator user at the same time.
2. Enable the services that the customer account requires. Every customer account must have Extraction and Target system services to activate the account. Other services are optional.
3. Optionally, add buyers or sellers. If the account does not have multiple buyer/seller organizations, you do not need to add buyers/sellers.
4. Optionally, add custom email addresses if the Email input service is enabled. One email address is already created for you if the Email input service is enabled.
5. Add users that will be responsible for processing documents.
6. When you are satisfied with all the settings, activate the customer account. An email is automatically sent to each user with login information, and the customer account is ready to accept documents for processing.

Accounts overview

Administrators access accounts from Admin Center. Accounts are organized in a hierarchy that consists of three different levels: subsidiary, partner, and customer. Access to each level is inherited downward through the hierarchy. For example, partner administrators have access to all of the customers and settings under their partner account, but they do not have access upwards to the subsidiary account. Similarly, subsidiary administrators have access to all of the partners and customers under their subsidiary accounts. When creating new accounts, many service settings and other settings are inherited from the parent account. If you disable a setting in an account, the setting is also disabled, or even invisible, in the child accounts.

⚠ Account activation is inherited downward through the hierarchy. For example, if you deactivate a partner account, all of its customer accounts are also deactivated. Also, if a service is disabled in the parent account, it is not available to its customers.

Subsidiary accounts

Subsidiary accounts are administrative accounts that Tungsten Automation subsidiaries use to manage their own partner accounts.

Partner accounts

Typically, a service bureau uses a partner account to manage documents for many different customer accounts. Partner administrators handle tasks such as:

- Administrative activities, such as adding new users and customers.
- Receiving and separating documents to ensure the image quality is acceptable.
- Verifying documents.

Customer accounts

A customer account is the final end user whose documents are processed using Tungsten AP Essentials. Customer tasks can vary depending on the services they have ordered, but they can include:

- Uploading documents.
- Verifying documents.
- Approving documents.

If necessary, customer accounts can contain multiple buyers (for accounts payable organizations) and sellers (for accounts receivable organizations).

Account groups

You can organize partner accounts and customer accounts into groups.

Large bureaus that manage many partners can organize partner accounts into groups, which are reflected in the hierarchy of the administration tree view. You can also group customers in the same way. This makes administration easier because you can create logical groups to keep accounts organized, and you can create administrators that oversee each group.

Customer groups have the additional benefit of being able to define a service plan at the group level. When you create a service plan for a customer group, the usage data (displayed in the **Account** view) reflects the combined usage of all the member accounts of the group. This makes it easier to identify groups that are approaching or exceeding usage expectations. You can see usage information about each individual account in the **Usage summary** view.

See how to group accounts.

Partner-group administrators cannot create new partner accounts, but customer-group administrators can create new customer accounts.

Add a partner

This procedure shows how to add new partners using Admin Center.

Adding new partner accounts is a common task for administrators.

1. Navigate to the **Partners** view and select **Add**.
2. Use the view that appears to specify the **Profile**, **Services**, **Service plan**, and **Branding** settings. You must specify a name for the partner (**Profile** settings) and select a licensing model (**Service plan** settings).

   The services you enable will be available to customer accounts.

   We recommend adding contact information to the company profile (**Profile** > **Contacts**). Contact information ensures seamless communication and quick assistance whenever needed.
3. Select **Save & close**.

   The new partner account appears in the **Partners** view.

   You must activate the account before users can log in and use the system.

Add a customer account

This procedure shows how to add new customer accounts using Admin Center.

Adding new customer accounts is a common task for administrators. If this is the first customer account you are adding, follow the procedure below for adding a new account. If you frequently add new customer accounts with similar settings, you can add a new account by copying an existing customer account. Copying existing customer accounts saves time and reduces the risk of making mistakes.

Add a new customer account

To add a customer account:

1. Navigate to the **Customers** view and select **Add**.
2. Use the view that appears to specify the **Profile**, **Services**, and **Service plan** settings. You must specify a name for the customer (**Profile** settings) and select a target system (**Services** settings).

   The services that are available are inherited from the partner account. Some services are automatically enabled, while other services, such as Storage and Workflow, are not. Look over all the settings to ensure the services you need are enabled. If any services are missing, make sure they are enabled on the parent partner account.

If you do not have the **Manage service plans** privilege, the **Service plan** settings are hidden, and you cannot add a service plan. However, an administrator with the **Manage service plans** privilege can specify the **Service plan** settings later.

We recommend adding contact information to the company profile (**Profile** > **Contacts**). Contact information ensures seamless communication and quick assistance whenever needed.

3. Select **Save & close**.

> You must add users and activate the customer before users can log in and use the system.

Copy an existing customer account

When you copy an existing customer account, you choose which services you want to copy to the new account. Some services, and their settings, are copied directly from the customer account, whereas others are added from the partner level, in the same way they are added when adding a new customer account.

> Users are not copied. Therefore, settings that involve users, such as workflows and triggers, are not copied. User groups are copied but contain no users.

To add a customer account by copying an existing customer account:

1. Navigate to the **Customers** view.
2. Select in the **Actions** column of the customer that you want to copy.
3. Use the view that appears to specify which settings you want to copy and the details of the new customer account.
4. Select **Copy** to create the new customer account.

   The new customer account is created, and the **Customer** view is displayed so you can easily add users and adjust other settings.

> You must add users and activate the customer account before users can log in and use the system.

Enable and disable services

To enable or disable a service:

1. Navigate to the account or customer to change in the administration tree view.
2. Select **Services**.
3. Select the service to enable or disable.

   If the service you want is not listed, it may be disabled higher up in the tree view.

   If you enable a service that has settings, adjust the settings before you enable it.
4. Select **Enable/Disable**.

Services can be enabled on multiple levels, and each child node in the administration tree view inherits services from its parent.

Buyer/Seller classification

Tungsten AP Essentials can sort documents according to which buyer or seller organization they belong. This means, for example, if a customer has multiple buyer organizations, you can match documents to the appropriate buyer organizations. You can specify the buyer/seller organization that a document belongs to manually, or you can let Tungsten AP Essentials determine the organization automatically. You enable buyer/seller classification in the Classification service settings.

Whether you use buyer or seller classification depends on which document process you use. For accounts payable processes, you deal with buyers, whereas accounts receivable processes deal with sellers. For the purposes of this help topic, the terms buyer and seller can be used interchangeably.

Manual classification

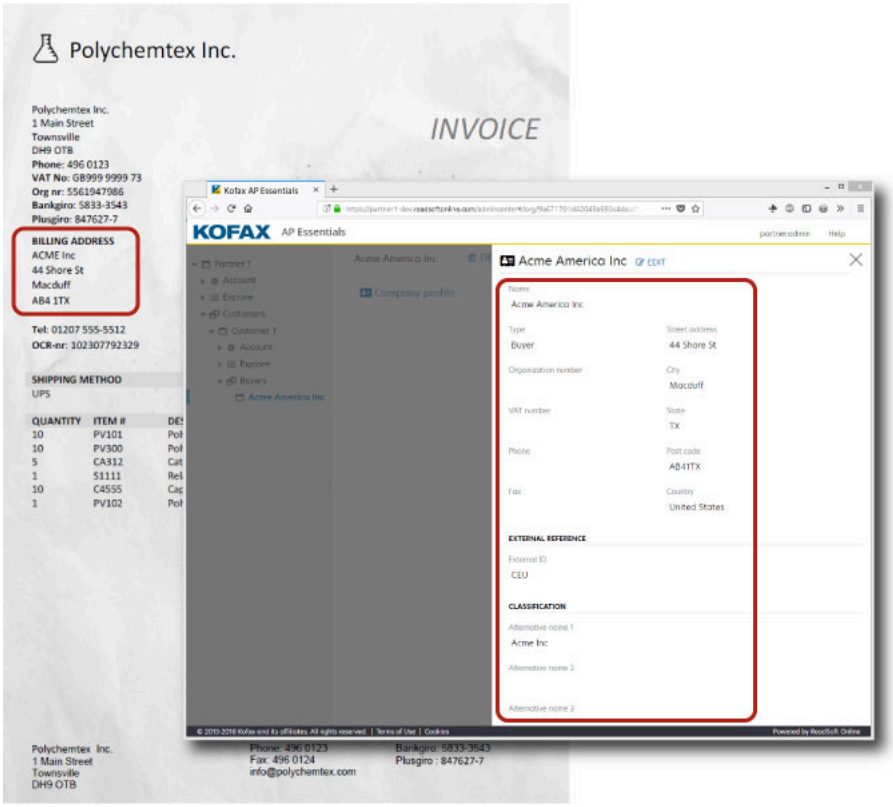
You can perform manual classification in the **Upload** view by selecting the appropriate buyer/seller in the box when uploading documents. You can also change the buyer/seller during verification.

Automatic classification

If you provide Tungsten AP Essentials with identifying information about your buyers/sellers, such as names and tax registration numbers, Tungsten AP Essentials can perform classification automatically by finding buyer/seller information on incoming documents. In other words, to enable automatic classification to work properly, the buyer/seller information you provide must appear on the documents you receive. Tungsten AP Essentials automatically classifies documents by buyer/seller if you:

- Select **Automatic classification** in the **Buyer/Seller** box when uploading documents.
- Upload documents to the customer level using AP Essentials Connect. Note that if you upload documents to the root customer folder, without using buyer/seller subfolders, a Default document type must be specified.
- Email documents to the customer level.

If you use automatic classification, read about handling unclassified documents in the section below.



Tungsten AP Essentials uses the buyer/seller settings below to match documents to buyers/sellers. The more fields you specify for each buyer/seller, the better the result. Name, Vat number, Alternative name 1, Alternative name 2, and Alternative name 3 are weighted more heavily than the other fields.

- **Name** (Name)
- **Organization number** (OrganizationNumber)
- **VAT number** (VatNumber)
- **Phone** (PhoneNumber)
- **Fax** (Fax)
- **Street address** (AddressStreetAddress)
- **Post code** (AddressPostcode)
- **City** (AddressCity)
- **State** (AddressState)
- **Country** (AddressCountry)
- **Alternative name 1** (AlternativeName1)
- **Alternative name 2** (AlternativeName2)
- **Alternative name 3** (AlternativeName3)

When you specify the buyer/seller fields above, we recommend that you specify the same fields for all buyers/sellers, so AP Essentials can make balanced decisions during the classification

process. Otherwise, there is a risk that AP Essentials chooses a buyer/seller who has the most fields specified, rather than the correct buyer/seller. You can add buyer/seller information:

- Using AP Essentials Connect to upload master data.
- Manually when you create buyers/sellers in the Admin Center.
- Via the API.

How it works

When AP Essentials receives a new document, it looks for all of the fields in the list above. The more fields that AP Essentials finds, the greater the confidence. If the confidence is high, the buyer/seller field status is *Complete* (). If the confidence is low, AP Essentials suggests a field value, but the status is highlighted for manual verification ().

Alternative names

You use alternative name settings to specify alternative names or spellings of a buyer/seller that appear on a document. Alternative names settings can help you when:

- You receive documents with different spellings of an organization name. For example, some documents are addressed to "ACME Corp" whereas others are addressed to "ACME Corporation" or "ACME Co". In this case, you could specify the actual name of the organization in the **Name** setting and use **Alternative name 1**, **Alternative name 2**, and **Alternative name 3** to specify any alternative names that you expect.
- You have multiple organizations with the same name at different locations. For example, assume you have two buyers named ACME Inc, but they are located in different countries (UK and US). In this case, you can use the **Name** setting to make it easy to differentiate the buyers in AP Essentials Office, and use the alternative name settings to specify the actual names used for identification. In other words, for the UK buyer, specify "ACME Inc UK" in the **Name** setting and "ACME Inc" in the **Alternative name 1** setting. Likewise, for the US buyer, you could specify "ACME Inc US" in the **Name** setting and "ACME Inc" in the **Alternative name 1** setting. If you use this method, it is important to specify other identifying fields, such as the address and VAT number, so AP Essentials can correctly classify the buyer/seller.

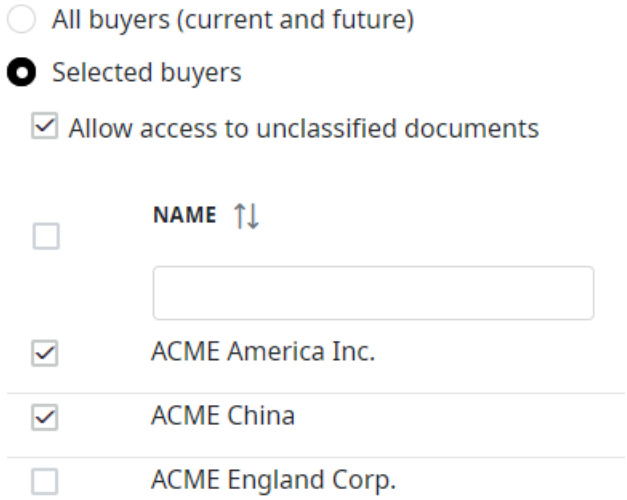
Sometimes you can have multiple buyer/seller organizations on the same document, for example, when processing internal invoices. This can cause unnecessary manual verification if the wrong organization is routinely identified. To help solve this problem, you can give certain buyers/sellers a lower priority by typing "careof" in one of the alternative name settings. When AP Essentials compares buyers/sellers, any buyer/seller that has the careof specification is automatically prioritized lower than one without the careof specification.

Handle unclassified documents

When AP Essentials cannot classify a document correctly, the document is assigned to the customer account rather than a buyer or seller. If the customer country is incorrect, the document status is set to input failed. If no users have access to the customer account, unclassified documents will not appear in the document list view and may go unnoticed. Use one or both of the following methods to ensure unclassified documents do not get lost in this manner:

- When assigning buyers to users, select **Access all buyers (current and future)** for at least one user. With this setting enabled, users can see unclassified documents that are assigned to the customer account.

- When assigning buyers to users, select **Allow access to unclassified documents** for at least one user. With this setting enabled, users can see unclassified documents that are assigned to the customer account. However, when using this method, users can only assign unclassified documents to buyers/sellers they have access to. For example, using the settings below, the user has access to unclassified documents, but can only change the buyer of an unclassified document to ACME America Inc. or ACME China. ACME England Corp. is not available because the user does not have access to it.



Add buyers and sellers

This procedure shows how to add buyers and sellers to customer accounts using Admin Center. Alternatively, you can upload master data or use the API to add buyers and sellers.

Depending on whether the document process of an account is accounts payable or accounts receivable, you can add buyers or sellers to the account.

Add a buyer

You can add, edit, and delete buyers in the **Buyers** view. If you do not specify any buyers, the customer organization is considered the buyer. If you add buyers to a customer organization, you must assign buyers to each customer user. This determines which buyer organization a user has access to when performing Office tasks.

To add a new buyer:

1. Navigate to the **Buyers** view.
2. Select **Add**.
3. In the dialog that appears, specify the buyer settings.

Deleting a buyer also deletes all in-progress documents attached to the buyer. Supplier master data on the buyer level and email addresses (for email input) are also deleted.

Add a seller

You can add, edit, and delete sellers in the **Sellers** view. If you do not specify any sellers, the customer organization is considered the seller. If you add sellers to a customer organization, you must assign sellers to each customer user. This determines which seller organization a user has access to when performing Office tasks.

To add a new seller:

1. Navigate to the **Sellers** view.
2. Select **Add**.
3. In the dialog that appears, specify the seller settings.

Deleting a seller also deletes all in-progress documents attached to the seller. Customer master data on the seller level and email addresses (for email input) are also deleted.

Add an email address for email input

This topic shows how to add a custom email address for email input.

Complete these steps to add a custom email address for email input.

1. Navigate to the **Services** node of the customer you want to edit, and select **Email input**.
2. Select **Edit**, then select **Add**.
3. In the the dialog that appears, define a new input email address.

   If your organization uses buyers and buyer classification, you can select **Settings** to choose which buyers are used when buyer classification is performed on invoices that are received with the current email address.

4. Select **OK** to close the dialog, then select **Save** in the **Email input** view to save the new settings.

Add users

Before you begin processing documents with Tungsten AP Essentials, you must add at least one user with the **User** role, which gives the user access to AP Essentials Office.

Add a user

If you need to create many user accounts, you can import users.

Before you begin, consider enabling two-factor authentication for additional security or single sign-on for seamless integration with your organization. Users that do not use two-factor authentication or single sign-on are automatically disabled after three months.

To add a single new user:

1. Select **Add user** from a partner or customer landing page, or select **Add** on the **Users** view.
2. Use the view that appears to specify the user settings on each tab (such as **Profile** and **Privileges**).

   User names cannot include any of the following file extensions

• .asax • .ascx • .master • .skin • .browser • .sitemap • .config • .cs • .csproj • .vb • .vbproj • .webinfo • .licx • .resx • .resources	• .mdb • .vjsproj • .java • .jsl • .ldb • .dsdgm • .ssdgm • .lsad • .ssmap • .cd • .dsprototype • .lsaprototype • .sdm • .sdmDocument • .mdf	• .ldf • .ad • .dd • .ldd • .sd • .adprototype • .lddprototype • .exclude • .refresh • .compiled • .msgx • .vsdisco • .rules

3. Select **Save & close**.

If the parent partner or customer account is active, the new user receives an email notification with login information. If you are setting up a new account, all users receive login information when the parent account is activated.

When a customer administrator logs in for the first time after creating a customer, the terms of service appear. A customer administrator can agree to the terms on behalf of all users in the organization. The terms of service must be accepted to use Tungsten AP Essentials.

Import and export users

This procedure describes how to import and export users using CSV files.

Tungsten AP Essentials takes the monotony out of creating and updating users by offering ways to create and edit multiple users easily and quickly. You can import up to 500 users using a CSV file that contains user information and settings according to the format described later in this topic. If you need to import more than 500 users, consider using the API.

When working with CSV files, we recommend using Microsoft Excel 2016 or later.

Import users

To import users in Admin Center using a CSV file:

1. Navigate to the **Users** view on a partner, partner group, customer, or customer group level.
2. Select **Import**. The **Import users** view appears.
3. Select optional settings such as:
   - **Send welcome emails to created users** - Sends login information to newly created users.
   - **Grant default privileges to newly created users with the User role**

     When this setting is enabled, newly created users with the **User** role are granted these privileges upon creation:
     - Access Explore
     - Access Received
     - Access Upload (if the Image upload service is enabled)
     - Access Verify (if the Verification service is enabled)
     - Access Approve (if the Workflow service is enabled)
     - Update online learning

     Note: Privileges do not change for existing users or users with the **Admin** role.

     If this setting is not enabled, newly created users with the **User** role are not granted any privileges.
4. Select **Upload a CSV file** and select a CSV file that contains the user information according to the format described later in this topic.

   The users that are specified in the CSV file appear in a list. You can expand each user to inspect the settings for correctness.
5. If you are satisfied with the settings, select **Save**. The status of each user is updated as it is processed. New users are added, and existing users (matched by the user name) are updated according to the new settings specified in the CSV file. Any errors that occur appear under the user name. You can correct errors by creating or editing the affected users manually or by uploading a corrected CSV file.

CSV file format

A CSV file is a text file that contains information separated by commas, or in our case, semicolons. The first row of the CSV file defines the names of the fields (settings) you want to import. Only the first four fields are required (**username**, **fullname**, **email**, and **role**). The remaining fields are optional. After the first row, the CSV must consist of one row for each user. Each row provides values for the fields listed in the table below.

Select **Download example file** in the **Import users** view to see what the CSV file can look like. It does not matter what order you specify the fields, as long as the values correspond correctly. The CSV file format must be UTF-8, or for non-ASCII characters, UTF-8-BOM. Note that some information in the CSV file only appears when exported and cannot be imported.

Field name in CSV file	Corresponding user setting in Tungsten AP Essentials
Username	**User name**. Required when importing.
Fullname	**Full name**. Required when importing.
Email	**Email**. Required when importing.
PhoneNumber	**Phone**
Notes	**Notes**
Role	**Role**. Required when importing. Valid values: • Admin • User (default) The role is automatically set to User if it is missing.
UseIdentityProvider	**Use identity provider**. Valid values: • true • false (default) This setting is only imported if the parent account has single sign-on enabled.
Groups	Optional groups that the user belongs to. Each group is separated with a forward slash. Group names are not case sensitive. Example: group1/group2/group3
ManagerUsername	The user name of the user's **Manager**. Required if **monetaryLimit** is specified. This setting requires workflow services and *Enhanced approval workflows*.
MonetaryLimit	The **Amount** of the **Monetary limit** setting. This setting requires workflow services and *Enhanced approval workflows*.
MonetaryLimitCurrency	The **Currency** of the **Monetary limit** setting. Required if **manager** is specified. This setting requires workflow services and *Enhanced approval workflows*.
SubstituteUserName	The user name of the user's **Substitute**. If you specify a user name that does not exist, the user is not created. This setting requires workflow services and *Enhanced approval workflows*.
AllowAccessUnclassifiedDocuments	The **Allow access to unclassified documents** setting. Determines whether the user has access to unclassified documents. • true • false (default) This setting requires Classification services and buyer classification must be enabled.

Field name in CSV file	Corresponding user setting in Tungsten AP Essentials
LastLoginDate	Shows the last date and time the user logged in. ⓘ This column is only available for export. This column is ignored on import.
TwoFactorAuthEnabled	Displays whether two-factor authentication is enabled for the user. ⓘ This column is only available for export. This column is ignored on import.
PrivilegesAtUserLevel	Shows the privileges of the user, separated by forward-slashes (/) ⓘ This column is only available for export. This column is ignored on import.
PrivilegesAtGroupLevel	Shows the privileges the user has inherited via group membership, separated by forward-slashes (/) This field is only available for users at the partner and customer level. It is not available for partner groups or customer groups. ⓘ This column is only available for export. This column is ignored on import.
SubOrganizationAccessAtUserLevel	Shows which suborganizations the user has access to, separated by forward-slashes (/). For partner administrators, this information reflects the **Customer access** settings. ⓘ This column is only available for export. This column is ignored on import.
SubOrganizationAccessAtGroupLevel	Shows which suborganizations the user has access to via group membership, separated by forward-slashes (/). ⓘ This column is only available for export. This column is ignored on import.

User names cannot include any of the following text:

• .asax • .ascx • .master • .skin • .browser • .sitemap • .config • .cs • .csproj • .vb • .vbproj • .webinfo • .licx • .resx • .resources	• .mdb • .vjsproj • .java • .jsl • .ldb • .dsdgm • .ssdgm • .lsad • .ssmap • .cd • .dsprototype • .lsaprototype • .sdm • .sdmDocument • .mdf	• .ldf • .ad • .dd • .ldd • .sd • .adprototype • .lddprototype • .exclude • .refresh • .compiled • .msgx • .vsdisco • .rules

Export users

For your convenience, you can export users in the same format that you import users. This can be helpful for large organizations that maintain and update large numbers of users.

To export users to a CSV file:

1. Navigate to the **Users** view on a partner, partner group, customer, or customer group level.
2. Select **Export**.
   Your web browser prompts you to download a CSV file.
3. Save the file.
   You can edit the file, adding, removing, or updating users according to the format described above. After you edit the file to your liking, you can import the file, as described above, to update users in Tungsten AP Essentials.

Activate customers

Use this procedure to activate customers after adding them to the system.

After you add a new customer, you must activate the customer, so users can log in and use the system.

1. Navigate to the customer you want to activate.
2. Select the customer and select **Activate**.
   An email notification is sent to each customer user.

Additional tasks

Create user groups

This procedure describes how to create user groups.

If you manage an organization with many users, assigning users to groups makes it easier to manage privileges, customer access, and buyer access.

To create a new group in Admin Center:

1. Navigate to the **User groups** view and select **Add**.
2. Use the view that appears to specify a name and description.
3. Select the **Privileges** tab and select the privileges that you want each member of the group to have.
   For your convenience, you can select a role from the **Presets** list and select **Apply** to add the privileges to the current group. Presets are an easy way to apply commonly used privileges to a group, based on the role of the group.
4. Select the **Users** tab and select the users that you want to belong to the group. Each user that you select here will have all of the privileges that you selected in the previous step.
5. Depending on your setup, and where you are in the administration tree, either a **Customer access** tab or **Buyer access** tab is available. Use the available tab to specify customer/buyer access to the group.

Group accounts together

This topic describes how to group partner or customer accounts in Admin Center.

You can create groups to organize partner and/or customer accounts. Groups can act as an intermediate level between parent and child organizations.

After you create a group, you can assign accounts to the group. You can also move accounts between groups and remove accounts from groups.

Create a new group

To create a new group:

1. Navigate to a **Partners** or **Customers** view, depending on which type of group you want to create.
2. Select **Add group**.
3. Specify the account information in the view that appears (**Add new partner group** view or **Add new customer group** view).

Customer groups have the additional benefit of being able to define a service plan at the group level. When you create a service plan for a customer group, the usage data (displayed in the **Account** view) reflects the combined usage of all the member accounts of the group. This makes it easier to identify groups that are approaching or exceeding usage expectations. You can see usage information about each individual account in the **Usage summary** view.

After you select **Save & close**, the new group appears in the list.

You must activate the account before users can log in and use the system.

Assign accounts to a group

To assign accounts to a group:

1. Navigate to a **Partners** or **Customers** view.
2. For each account that you want to assign to a group, select , select **Group** and use the dialog that appears to assign the customer to a group.
   After you select **OK**, the account is assigned to the group.

Move an account to another group

To move an account from one group to another group:

1. Navigate to the **Partners** or **Customers** view that contains the customer account that you want to move. Note that accounts which are already in a group reside under the parent group in the administration tree view.
2. On the row of the account that you want to move, select , select **Move** and use the dialog that appears to assign the account to a group.
   After you select **OK**, the account is assigned to the group.

Remove an account from a group

To remove an account from a group:

1. Navigate to the **Partners** or **Customers** view that contains the account that you want to ungroup. Note that accounts which are already in a group reside under the parent group in the administration tree view.
2. On the row of the account that you want to ungroup, select and select **Ungroup**.
3. Select **Yes** in the dialog that appears to confirm that you want to move the account from current group to the partner level.

Automatic email notifications

Email notifications keep users informed about important system events and account changes. The system automatically sends notifications for standard scenarios such as user account management and password resets. You can also create custom notifications for specific business events to ensure timely communication with users and external partners.

System notifications

Tungsten AP Essentials sends automated email notifications in several scenarios, such as:

- When a new user is added, login information is sent to the user.
- When a user account is activated, login information is sent to the user.
- If a customer is deactivated, none of its users can log in. Therefore, an email is sent to each user stating that the account is temporarily disabled. This also applies if an individual user is deactivated. If an account is deactivated, all users for all its customers are also deactivated.
- When an account is reactivated, a notification email is sent. The account password cannot be sent in this case because the password is unknown if the user has changed it.
- When the password is forgotten or reset.

For each scenario, there is an email template that you can edit as needed. Each account level (subsidiary, partner, customer) has its own email templates. When you create a new account, the email templates are copied from the parent account to the new account. If you change the templates of a parent account, however, existing child templates are not affected.

Custom event notifications

In addition to the scenarios above, you can create your own event notifications via the Notifications service, that can send email (SMTP) and HTTP notices. Notifications can be sent for events such as:

- When a new batch is received by Tungsten AP Essentials.
- When a batch is rejected.
- When a document has been assigned to a user by an automated process or manually by another user.
- When batch input fails. This event is especially useful because you can use it to notify your suppliers that their invoices could not be processed.
- When batch export fails.

Refer to the **New notification** view for a complete list of available events and their descriptions.

Set up email forwarding

When invoices are sent to Tungsten AP Essentials via email, you can forward copies of the emails to an alternate email address, depending on whether they are accepted or discarded. Sometimes customers accidentally send email that cannot be processed by AP Essentials. This can happen, for example, if an email is sent without an attached invoice, or the invoice format is invalid or unrecognized. To make sure that invoices are not lost accidentally, you can set up email forwarding to catch invoices that do not pass email attachment validation. You can also use email forwarding to send copies of emails that AP Essentials accepts without problems.

1. Navigate to the **Services** view of the customer you want to edit.
2. Select the **Email input** service and select **Edit**.
3. In the **Email forwarding** settings, select **Add** and use the dialog that appears to define your email forwarding settings.
4. Select **OK** to close the dialog, and select **Save** in the **Email input** view to save the new settings.

You can also use this feature to copy all accepted email to the forwarding email address by selecting **Accepted** in the **Email forwarding** view. This can be useful, for example, to archive all incoming email input that is accepted by Tungsten AP Essentials.

Every input email that triggers email forwarding is logged in the **Audit trail** view.

Email is forwarded as an attachment in EML format. Most modern email applications support the EML format. If your email application does not support the EML format, there are free email applications you can download and install, such as Mozilla Thunderbird.

Edit extraction settings

Among other things, the Extraction service settings determine how invoice information is interpreted, what fields are captured, and how fields are validated. In most cases, the default settings suffice for processing invoices; however, you can adjust the settings to meet your needs.

You can edit extraction settings on the partner, customer, and buyer level. When you edit extraction settings on a parent level, the settings do not apply downstream to the child accounts. For example, if you change the extraction settings on a partner, the changes do not apply to the customers of the partner. However, if you create a new customer, the current extraction settings of the partner are used as a template to create the customer settings.

Buyer organizations inherit their initial extraction settings from the parent customer. You can optionally edit the extraction settings of a buyer to differ from its parent customer. If a buyer has extraction settings that differ from the parent account, a notification appears in the **Extraction** view on the buyer level. There is a button in the buyer extraction settings to reset the buyer extraction settings to the same settings as its parent customer.

1. Navigate to the **Extraction** view of the organization whose settings you want to edit and select **Edit**.
2. Select the **Document types** tab and select a document type that you want to edit. You can use the dialog that appears to:
   - Add custom fields to be captured.
   - Enable or disable fields.
   - Edit existing fields.
   - Specify validation rules.
3. Select the **General** tab and select an **Extraction engine**.
4. After you complete your changes, select **OK** to return to the previous view, and select **Save** to save your changes.
   After you save the settings, the changes are immediately available during verification.

Edit extraction fields

Each document type is equipped with the most popular extraction fields predefined. You can edit existing fields, disable fields you do not need, and add custom fields.

Edit extraction fields

To edit an extraction field:

1. Navigate to the **Extraction** service that corresponds to the account level you want to adjust.
2. Select **Edit** and select the document type that you want to edit. The document type view appears.
3. Select **Header fields** or **Line-item fields**, depending on the type of field you want to edit.
4. Select the **Name** of the field you want to edit and use the view that appears to edit its settings.
5. Select **OK** to return to the previous view, and select **Save** to save your changes.
   After you save the settings, the changes are immediately available during verification.

Enable or disable extraction fields

To enable or disable fields in a document type:

1. Navigate to the **Extraction** service that corresponds to the account level you want to adjust.
2. Select **Edit** and select the document type that you want to edit. The document type view appears.
3. Select **Header fields** or **Line-item fields**, depending on the type of field you want to enable or disable.
4. Select the checkbox next to the names of the fields you want to extract, and clear the checkbox next to the names of the fields that you do not want to use. Selected fields are enabled, and cleared fields are disabled.
5. Select **OK** to return to the previous view, and select **Save** to save your changes.
   After you save the settings, the changes are immediately available during verification.

Add custom fields to a document type

In most cases, document types contain all of the fields required to interpret an invoice from a particular country. However, sometimes you need to add extra information to the invoices during the verification process. For example, you can use a custom extraction field to add a reference to an external ERP system. If you need to attach extra information to invoices, custom fields are an easy way to accomplish this.

To add a custom field to a document type in Admin Center:

1. Navigate to the **Extraction** service that corresponds to the account level you want to adjust.
2. Select **Edit** and select the document type that you want to edit. The document type view appears.
3. Select **Header fields** or **Line-item fields**, depending on the type of field you want to add.
4. Select **Add header field** or **Add line-item field** and use the view that appears to define your custom field.
   If you plan to use a custom field in a custom validation rule, do not use any of the following characters in the field type name: / - ( ) = , + *.
   After you save the settings, the custom field is immediately available in the **Verification** view.

Note the following:

- Custom field data is extracted like predefined fields. However, you must show Tungsten AP Essentials the position of the custom field on at least one invoice image from each supplier. To show Tungsten AP Essentials the position of a custom field, simply draw the field on the invoice image during verification.
- You do not need to stop production or deactivate accounts when you add a custom field. As soon as you add the field, it is available in the **Verification** view.
- If you use buyers, and you have altered the document type settings on the buyer level, you must also add the custom field on the buyer level. The custom field does not appear if you add it to the customer account level in this case.
- To specify a line-item field, precede the **Type name** with "LIT_".

  By default, a custom line-item field captures values up to 100 characters in length (alphanumeric characters and special characters), unless you specify another format in the **Format** settings.
- Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

Field format

You can specify the field format of custom fields, and some buyer fields, using regular expressions or a "compact format" that is specific to Tungsten AP Essentials. When you specify the field format in the Field view, you determine how many characters of a certain type are allowed. When you specify a field format, the field must match the format you specify to pass validation.

The compact field format is used during extraction to help find the correct field, whereas the regular expressions are only used for validation with the exception of the `InvoiceOrderNumber` field, which can also use regular expressions for extraction.

When specifying the field format, try to be as strict as possible. For example, if the field contains only numbers, exclude letters from the format specification. Likewise, if the field is always a specific length, specify the length as well.

You can also specify the field format for these predefined fields:

- BuyerContactPersonName
- BuyerContactReference
- InvoiceOrderNumber
- LIT_OrderNumber

Regular expression

Specifying the field format using regular expressions requires prior knowledge of regular expressions that is not described in this help. You can use sites such as Regular Expressions 101 to test your regular expressions. The Field view also has a button for testing.

Examples

<table>
<tr><th>Regular expression</th><th>Meaning</th></tr>
<tr><td>^\d{7}$</td><td>A numeric field exactly seven digits long.<table><tr><th>Regex</th><th>Meaning</th></tr><tr><td>^</td><td>Anchors the match to the start of the string.</td></tr><tr><td>\d</td><td>Matches any digit (0-9).</td></tr><tr><td>{7}</td><td>Specifies that exactly 7 digits should appear.</td></tr><tr><td>$</td><td>Anchors the match to the end of the string.</td></tr></table></td></tr>
<tr><td>^\d{5,7}$</td><td>A numeric field, five to seven digits long.<table><tr><th>Regex</th><th>Meaning</th></tr><tr><td>^</td><td>Anchors the match to the start of the string.</td></tr><tr><td>\d</td><td>Matches any digit (0-9).</td></tr><tr><td>{5,7}</td><td>Specifies a quantifier that matches the previous \d digit pattern between 5 and 7 times.</td></tr><tr><td>$</td><td>Anchors the match to the end of the string.</td></tr></table></td></tr>
<tr><td>^[A-Za-z]{2}\d{3,5}$</td><td>A field that is five to seven characters long, where the first two characters are letters, and the remaining characters are numerical.<table><tr><th>Regex</th><th>Meaning</th></tr><tr><td>^</td><td>Anchors the match to the start of the string.</td></tr><tr><td>[A-Za-z]</td><td>Matches any uppercase or lowercase letter.</td></tr><tr><td>{2}</td><td>Specifies that exactly 2 letters should appear.</td></tr><tr><td>\d</td><td>Matches any digit (0-9).</td></tr><tr><td>{3,5}</td><td>Specifies a quantifier that matches the previous \d digit pattern between 3 and 5 times.</td></tr><tr><td>$</td><td>Anchors the match to the end of the string.</td></tr></table></td></tr>
</table>

Named groups

You can use named groups to validate and manipulate purchase order numbers (header and line item) and any line-item field whose type is set to text. This is helpful, for example, if you want to exclude certain characters from fields. To accomplish this, you specify the field type name as a named group in your regular expression. The named group corresponds to the extracted field value. For example, specify `InvoiceOrderNumber` as the named group for PO numbers in your regular expression. For line item PO numbers, specify `LIT_OrderNumber`.

You can specify more than one named group in a regular expression. Named groups that do not match a field type name are ignored. If no named groups match a field type name, an error message appears. In other words, at least one named group must match a field type name.

Examples

<table>
<tr><th>Regular expression</th><th>Meaning</th></tr>
<tr><td>^(?:.*\/)?(?<InvoiceOrderNumber>\d+)$</td><td>Extract the digits that follow the last instance of a forward slash.
<table>
<tr><th>Regex</th><th>Meaning</th></tr>
<tr><td>^</td><td>Anchors the match to the start of the string.</td></tr>
<tr><td>?</td><td>Matches everything in the group enclosed by parenthesis.
The second question mark means that the preceding group is optional.</td></tr>
<tr><td>:</td><td>Specifies a non-capturing group.</td></tr>
<tr><td>.</td><td>Matches any character (except for line terminators).</td></tr>
<tr><td>*</td><td>Matches the previous token any number of times.</td></tr>
<tr><td>(?<InvoiceOrderNumber>\d+)</td><td>Captures one or more digits and assigns them to the named group, InvoiceOrderNumber, which is also the field type name for the order number header field.</td></tr>
<tr><td>$</td><td>Anchors the match to the end of the string.</td></tr>
</table>
This table shows example inputs and the values returned by the regular expression.
<table>
<tr><th>Captured field value</th><th>Returned by the regular expression</th></tr>
<tr><td>ABC/123/1234567</td><td>1234567</td></tr>
<tr><td>AAA/123456789</td><td>123456789</td></tr>
<tr><td>AA/0000/123/123456789</td><td>123456789</td></tr>
<tr><td>123456</td><td>No match.</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Regular expression</th><th>Meaning</th></tr>
<tr><td>^(\d-)?(?<InvoiceOrderNumber>(\d{4}))$</td><td>Exclude the initial digit and dash from a field value matching the pattern X-XXXX.

<table>
<tr><th>Regex</th><th>Meaning</th></tr>
<tr><td>^</td><td>Anchors the match to the start of the string.</td></tr>
<tr><td>\d</td><td>Matches any digit (0-9).</td></tr>
<tr><td>-</td><td>Matches a dash.</td></tr>
<tr><td>?</td><td>The preceding group is optional.
The second question mark means that it matches everything enclosed in the group.</td></tr>
<tr><td>(?<InvoiceOrderNumber>(\d{4}))</td><td>Captures four digits and assigns them to the named group, InvoiceOrderNumber, which is also the field type name for the order number header field.</td></tr>
<tr><td>$</td><td>Anchors the match to the end of the string.</td></tr>
</table>

This table shows example inputs and the values returned by the regular expression.

<table>
<tr><th>Captured field value</th><th>Returned by the regular expression</th></tr>
<tr><td>1-2345</td><td>2345</td></tr>
<tr><td>9-0001</td><td>0001</td></tr>
<tr><td>1-23456</td><td>No match.</td></tr>
<tr><td>2345</td><td>No match.</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Regular expression</th><th>Meaning</th></tr>
<tr><td>^(.[\/-]){0,1}(?<LIT_OrderNumber>(\d{6}))(-\d){0,1}$</td><td>Exclude the first character followed by a dash or forward slash if any exist, and exclude the last dash and digit at the end, if any exist, and return the remaining six digits.
<table>
<tr><th>Regex</th><th>Meaning</th></tr>
<tr><td>^</td><td>Anchors the match to the start of the string.</td></tr>
<tr><td>.</td><td>Matches any character (except for line terminators).</td></tr>
<tr><td>[\/-]</td><td>Matches a forward-slash character or a dash.</td></tr>
<tr><td>{0,1}</td><td>Matches the previous token zero to one times. In this example, the previous token is <code>(.[\/-])</code>, so any character and a forward slash or dash matches.</td></tr>
<tr><td>(?<LIT_OrderNumber>(\d{6}))</td><td>Captures six digits and assigns them to the named group, LIT_OrderNumber, which is also the field type name for the order number line-item field.</td></tr>
<tr><td>(-\d){0,1}</td><td>Matches a dash and a digit zero to one times.</td></tr>
<tr><td>$</td><td>Anchors the match to the end of the string.</td></tr>
</table>
This table shows example inputs and the values returned by the regular expression.
<table>
<tr><th>Captured field value</th><th>Returned by the regular expression</th></tr>
<tr><td>A-123456-7</td><td>123456</td></tr>
<tr><td>A/123456-7</td><td>123456</td></tr>
<tr><td>123456-7</td><td>123456</td></tr>
<tr><td>123456</td><td>123456</td></tr>
<tr><td>A-123456</td><td>123456</td></tr>
<tr><td>X123456-7</td><td>No match.</td></tr>
<tr><td>1234567</td><td>No match.</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Regular expression</th><th>Meaning</th></tr>
<tr><td>^(?:.*\/)?(?<LI_CustomText>[a-zA-Z0-9,:-_-\s]{2,10})$</td><td>
Exclude any number of characters followed by a forward slash if any exist, and return between 2 and 10 characters, including colons, commas, underscores, hyphens, or whitespace.
<table>
<tr><th>Regex</th><th>Meaning</th></tr>
<tr><td>^</td><td>Anchors the match to the start of the string.</td></tr>
<tr><td>(?:.*\/)?</td><td>Optionally start with any number of characters followed by a slash.</td></tr>
<tr><td>(?<LI_CustomText>[a-zA-Z0-9,:-_-\s]{2,100})</td><td>Captures a sequence of alphanumeric characters, colons, commas, underscores, hyphens, or whitespace, with a length between 2 and 10 characters, and assigns them to the named group, LI_CustomText, which is also the field type name for a custom line-item field.</td></tr>
<tr><td>$</td><td>Anchors the match to the end of the string.</td></tr>
</table>
This table shows example inputs and the values returned by the regular expression.
<table>
<tr><th>Captured field value</th><th>Returned by the regular expression</th></tr>
<tr><td>123456</td><td>123456</td></tr>
<tr><td>ABCD/123456</td><td>123456</td></tr>
<tr><td>ABC.D/123456</td><td>123456</td></tr>
<tr><td>ABC.D/1234567AB</td><td>1234567AB</td></tr>
<tr><td>ABCD/1234567:AB</td><td>1234567:AB</td></tr>
<tr><td>ABC.D/123456.78</td><td>No match. Periods are not allowed in LI_CustomText.</td></tr>
<tr><td>ABCD/12345678910</td><td>No match. LI_CustomText is more than 10 characters.</td></tr>
</table>
</td></tr>
</table>

Compact format

You can specify the compact field format, for example, using the format C(f-t), where C stands for the type of character, f stands for "length from", and t stands for "length to". Spaces are not allowed in the format specification.

When you specify a compact format in the Field view, the field value you specify cannot exceed 511 characters. For example, you cannot specify N(1-512).

Symbol	Meaning	Example
N	Numeric characters	Example: N(7) Meaning: A seven-digit numeric field. Field: 1234567
A	Alphabetic characters	Example: A(2-5) Meaning: An alphabetic field containing two to five characters. Field: Abc
X	Alphanumeric characters and special characters such as "#", ">", etc.	Example: X(5) Meaning: A field containing five characters, each of which can be a letter, number, or a special character. Field: Abc3D
W	White space	Example: N(3)WN(2) Meaning: A field containing three digits, a space, and two more digits. Field: 123 45
^	Disallowed character	Example: N[^0] Meaning: Any single digit except 0. Field: 2
( )	Required	Example: A(5) Meaning: The field must contain five alphabetic characters. Field: Abcde
[ ]	Specified character (case sensitive)	Example: N[139] Meaning: A single digit that can be 1, 3, or 9. Field: 3
{ }	Multiple formats	Example: {N(5)|N(10)} Meaning: Either a five-digit field or a ten-digit field. Field: 12345

Symbol	Meaning	Example
|	The "or" operator used to separate multiple formats when more than one is allowed	Example: {N(5)|N(10)} Meaning: Either a five-digit field or a ten-digit field. Field: 1234567890

By using brackets, you can limit the valid characters in a format specification.

Examples

Compact format	Meaning
N[1357]	One digit: 1, 3, 5, or 7.
N[1357](3)	Three digits, each of which can be 1, 3, 5, or 7.
X[#]N[4]	A "#" character and then 4.
X[AaBb]	One character: A, a, B, or b.

An exclusion symbol, "^", is available to disallow invalid characters. To disallow characters, the "^" symbol must be in the first position of the string. All characters following the "^" are disallowed.

If the "^" is not at the beginning of the string, then "^" is a valid character.

Examples

Compact format	Meaning
A[^QVZ]	Any letter of the alphabet except Q, V, or Z.
X[^#](2-4)	Two to four characters; not a hash.
X[#<^]	One of three possible characters: "#", "<", or "^".
X[#<^135]	One of six possible characters: "#", "<", "^", 1, 3, or 5.
X[#<^^]	An invalid specification.

Specify validation rules

Use validation rules to ensure data accuracy and compliance during document processing.

1. Navigate to the **Extraction** service that corresponds to the account level you want to adjust. You cannot adjust validation rules at the buyer level.
2. Select **Edit** and select the document type that you want to edit. The document type view appears.
3. On the **Rules** tab, enable the validation rules that you want to use by selecting the checkboxes in the **Verify** and/or **Workflow** columns. These columns determine whether rules are performed during verification, an approval workflow, or both.

   You cannot override validation rules during a workflow step. If you receive a validation error while processing a document in a workflow, correct the error to proceed.

4. Adjust the settings of each enabled rule according to the descriptions in the following sections.

5. Select **OK** to return to the previous view, and select **Save** to save your changes.
   The system immediately applies your changes during verification and approval.

Tax amount fields

Tungsten AP Essentials can extract and interpret tax amounts from documents that have one or more tax rates. In addition to standard tax amount fields, you can use optional tax amount fields for documents that have multiple tax rates.

Standard tax amount fields

Type name	Description
InvoiceTotalVATAmount	The total VAT amount for the invoice.
InvoiceTotalVatRatePercent	The VAT rate (percentage) for the invoice.
InvoiceTotalVatExcludedAmount	The invoice total excluding VAT.
InvoiceTotalVatIncludedAmount	The invoice total including VAT.

Optional tax amount fields for documents that have multiple tax rates

If you process invoices with more than one tax rate, there are additional fields you can enable in the **Field** view to handle multiple tax rates.

Type name	Description
InvoiceTaxAmountX	The individual tax amounts. The sum of these fields must be equal to the InvoiceTotalVATAmount value.
InvoiceTaxRateX	The tax rates that correspond to the InvoiceTaxAmountX fields.
InvoiceNetAmountX	The net amounts that correspond to the InvoiceTaxAmountX fields. The sum of these fields must be equal to the InvoiceTotalVatExcludedAmount field.

Example

Assume your invoices have two additional tax rates that you want to capture. In this case, you must select the following fields in the **Field** view:

- `InvoiceTaxAmount1`
- `InvoiceTaxRate1`
- `InvoiceNetAmount1`
- `InvoiceTaxAmount2`
- `InvoiceTaxRate2`
- `InvoiceNetAmount2`

Edit email templates

Tungsten AP Essentials uses email templates when sending automatic notifications. You can customize the contents of the notification emails.

Edit email templates in Admin Center

Edit an email template in Admin Center as follows:

1. Navigate to the **Email templates** view.
   Different templates appear, depending on your current account level (subsidiary, partner, or customer). Templates without "template" in the name are used when a notification is triggered at the current account level. Templates that contain "template" in the name are the templates that are copied to the corresponding subaccount when you create a new subaccount.
   As a security precaution to help protect account-related communications and ensure the integrity of important notifications, you cannot customize the following account-management email templates:
   - Account activated
   - Account deactivated
   - Account reactivated
   - Add new user
   - Forgot password
   - Reset password
2. Select the template that you want to edit and select **Edit**.
3. Edit the **Subject** and **Body** of the email as needed. Note the variables that are available for use in the email body and subject. Different variables are available depending on the template you select. Variables relating to passwords cannot be used in the email subject.
   Optionally, you can select **Enable HTML** to use HTML-formatted text in the body.
4. Select **Save & close** after you finish making changes.
   When saving templates for subaccounts, you are prompted to choose whether you want to:
   - **Save changes to this template only** – Existing templates are not changed; however, new subaccounts created after this point will use the updated template.
   - **Save changes to this template and all existing [Template name] templates for all partners/customers** – Existing templates of immediate subaccounts are updated with the new template. For example, suppose you edit the "Batch received template" on a subsidiary account. In this case, the template is updated for all partners of the current subsidiary. However, only partner templates are affected; the changes *do not* propagate recursively to the customer accounts.

HTML templates

You can use these templates as a basis for editing your own templates:

- Assigned correction workflow
- Batch received
- Batch rejected

- Export failed
- Forward accepted emails
- Forward discarded emails
- Information received
- Input failed
- Max duration in step reached *
- New supplier request
- Notification
- Organization activated
- Organization deactivated
- Pending manual verification
- Post failed
- Registration failed
- Usage notification
- Usage notification trial
- Validation failed
- Workflow summary: Documents assigned *
- Workflow summary: Documents rejected *
- Workflow summary: Request information *
- Workflow: Document assigned
- Workflow: Document rejected
- Workflow: Request information

* See "Special templates" later in this topic.

Special templates

Most templates use variables in a straightforward manner when generating email notifications. In most cases, each variable represents one piece of information. For example, the "Workflow: Document assigned" template has a variable, `%InvoiceNumber%`, which represents the invoice number of the document specified by the email notification. However, some templates, such as the "Workflow summary" templates, can contain information from multiple documents. The context of `%InvoiceNumber%` is determined by a loop, described later in this topic, because document-related variables in these templates can represent more than one document.

To properly display the information from each document and provide context to the template variables, these templates use loops. A loop is a programming concept that can execute a block of code a number of times without writing it repeatedly. For email notifications, the system outputs variable values in their proper context by using a loop to provide context and iterate through each document specified by the notification. Be careful not to break the loop structure when editing these templates:

- Max duration in step reached
- Workflow summary: Documents assigned
- Workflow summary: Documents rejected
- Workflow summary: Request information

In the special templates, these variables can only be used in a loop:

- %CustomerName%
- %TrackId%
- %SupplierName%
- %DueDate%
- %GrossAmount%
- %Currency%
- %InvoiceNumber%

Example

Tungsten AP Essentials uses a special variable (%foreachDocument%) to designate a loop. Consider the following example from an email notification template:

```
<table>
 <thead>
   <tr>
    <th>Organization</th>
    <th>Track ID</th>
    <th>Supplier name</th>
    <th>Due date</th>
    <th>Amount</th>
    <th>Invoice number</th>
   </tr>
  </thead>
  <tbody>
   <tr %foreachDocument%>
    <td>%CustomerName%</td>
    <td>%TrackId%</td>
    <td>%SupplierName%</td>
    <td>%DueDate%</td>
    <td>%GrossAmount% %Currency%</td>
    <td>%InvoiceNumber%</td>
   </tr>
  </tbody>
</table>
```

The HTML code above displays a table. The first row contains column labels. The second row displays the values from each document specified by the notification. The %foreachDocument% variable on the TR element indicates the boundary of the loop, so a new row is added for each document specified by the notification, and the context of the variables changes to another document with each iteration through the loop. New rows are added until there are no more documents referenced by the notification.

%DocumentId% and %TrackId% variables in email templates

The %DocumentId% and %TrackId% variables are used to reference documents in email templates. Due to earlier implementation differences, these variables are not used consistently in all email templates:

- In some templates, %DocumentId% returns the track ID instead of the document ID.
- In other templates, %TrackId% is not available, even though track ID is used internally.

This behavior will be corrected in an upcoming update. To ensure consistent usage across all document-related email templates:

- `%DocumentId%` will return the document ID.
- `%TrackId%` will return the track ID.

The following table shows the current behavior of the variables in all email templates.

Email template	%DocumentId% behavior	%TrackId% behavior
Assigned correction workflow	Works as expected.	Works as expected.
Information received	Works as expected.	Works as expected.
Max duration in step reached	Incorrectly returns the track ID.	Not supported.
New supplier request	Incorrectly returns the track ID.	Not supported.
Post failed	Incorrectly returns the track ID.	Not supported.
Registration failed	Incorrectly returns the track ID.	Not supported.
Validation failed	Incorrectly returns the track ID.	Not supported.
Workflow summary: Documents assigned	Works as expected.	Works as expected.
Workflow summary: Documents rejected	Works as expected.	Works as expected.
Workflow summary: Request information	Works as expected.	Works as expected.
Workflow: Document assigned	Works as expected.	Works as expected.
Workflow: Document rejected	Works as expected.	Works as expected.
Workflow: Request information	Works as expected.	Works as expected.

Impact on existing templates

No action is required.

All existing email templates will be updated automatically as part of the change. Any incorrect usage of `%DocumentId%` will be corrected so that templates continue to work as expected. You can continue using existing variables as they are. If you are creating new templates, be aware that the behavior will be standardized in a future release.

Specify target system settings

Configure target system settings to customize how the system behaves for your environment.

1. In the administration tree view, select a **Services** node at the partner level or customer level, then select **Target system**.
2. Select **Configuration** for the target system you want to configure.
3. In the dialog that appears, configure the settings.

Specify field display order

You can specify the order in which fields are displayed in AP Essentials Office during invoice verification.

When you adjust the settings at the partner level, it acts as a template for newly created customers.

Specify field display order in Admin Center

To specify the order in which fields are displayed during invoice verification:

1. Navigate to the **Extraction** view in the administration tree view.
   Alternatively, if you want to adjust these settings on the buyer level, navigate to a buyer under the **Buyers** node and select the **Extraction** node.
2. Select **Edit** and select the document type that you want to adjust. The document type view appears.
   Fields that are selected on the **Header fields** tab and the **Line-item fields** tab are the fields that appear during verification in AP Essentials Office. These are also the fields that are exported to your target system.
3. Select the **Display order** tab and use the settings to specify the order you want fields to appear.

Transform output to CSV format using a custom XSLT file

You can use custom XML transformations (XSLT files) to transform output data to your liking. This is useful if you need to change the format of the output data, or if you need to add additional information to the output. For example, you could use XML transforms to create output in comma-separated value (CSV) format. This example demonstrates how to create output in comma-separated value (CSV) format (hash-separated in this example), using the following XML:

```
<?xml version="1.0" encoding="utf-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
<xsl:output method="text" encoding="utf-8"/>
 <xsl:template match="/">
 <xsl:value-of select="Batches/Batch/Documents/Document/Parties/Party[Type='supplier']/
ExternalId"/>
 <xsl:text>#</xsl:text>
 <xsl:value-of select="Batches/Batch/Documents/Document/HeaderFields/
HeaderField[Type='invoicenumber']/Text"/>
 <xsl:text>#</xsl:text>
 <xsl:value-of select="Batches/Batch/Documents/Document/HeaderFields/
HeaderField[Type='invoicedate']/Text"/>
 <xsl:text>#</xsl:text>
 <xsl:value-of select="Batches/Batch/Documents/Document/HeaderFields/
HeaderField[Type='invoicecurrency']/Text"/>
 <xsl:text>#</xsl:text>
 <xsl:value-of select="Batches/Batch/Documents/Document/HeaderFields/
HeaderField[Type='invoicetotalvatincludedamount']/Text"/>
 <xsl:text>#</xsl:text>
 </xsl:template>
</xsl:stylesheet>
```

The XSLT above exports five fields from each invoice to a text file and separates each value with a hash character (#). Line 3 specifies that the output is saved in a text file.

Tungsten AP Essentials supports XSLT version 1.0. Other versions are not supported.

You can use XPath and the latest XML schema for Tungsten AP Essentials to specify the fields you want to include in your output.

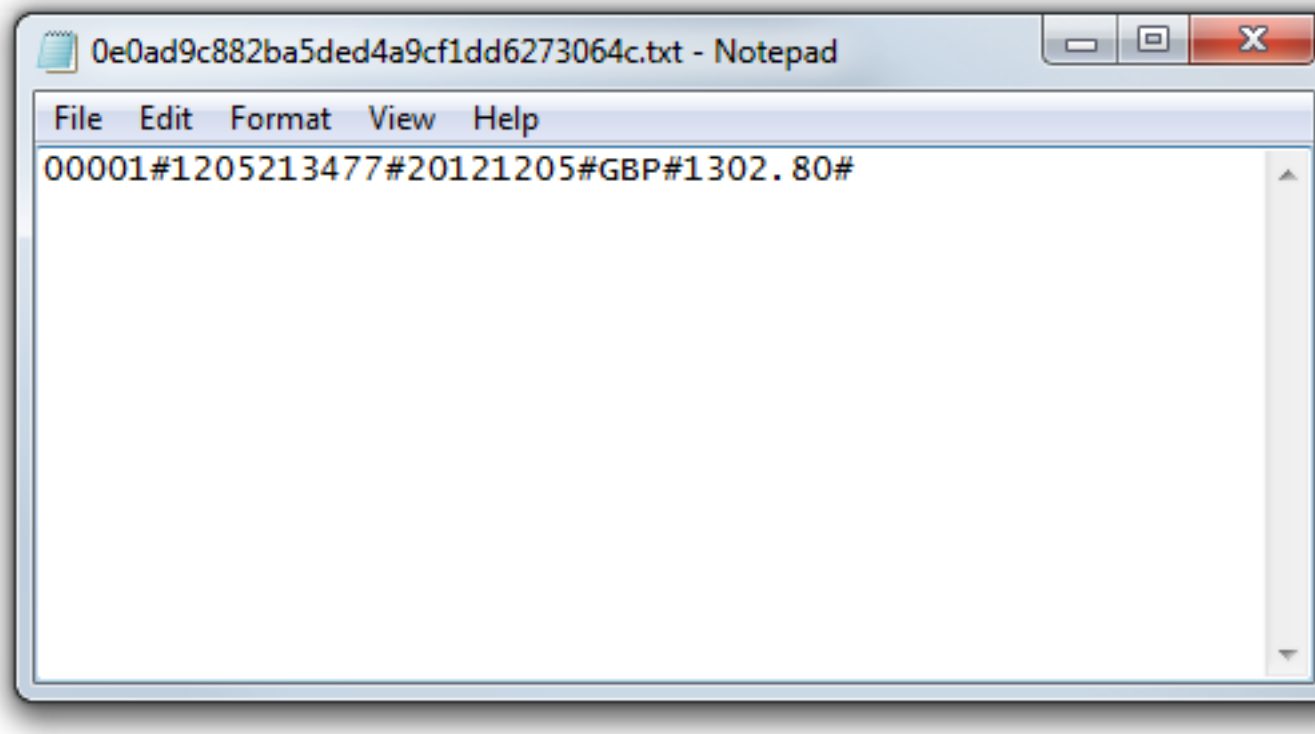
1. Copy and paste the following code into a text editor, such as Notepad, and save the file with the extension .xslt.

   If you use SFTP as the target system, the encoding of the XSLT file must match the encoding used by the target system. You must also specify this in the **Encoding** setting.

   In this example, you can see the encoding is specified in two places; both must match the **Encoding** setting, which also matches the target system.
2. Navigate to the **Resources** view and select **Add**.
3. Use the dialog box that appears to select the file you created. The file appears in the **Resources** view after it uploads.

   Resources that contain executable code must be approved by Tungsten Automation personnel before they can be used.
4. Select a target system service that supports XSL transformations and select **Configuration**. The following target system services support XSL transformations:
   - Email (Custom XSLT).
   - SFTP (Custom XSLT).
   - XML locally (AP Essentials Connect).
5. Use the view that appears to specify the XSLT file you created in step 1 in the **XSL transformation** box.
6. Process an invoice through Tungsten AP Essentials.
7. Use Tungsten AP Essentials Connect to download the output data. For each invoice you process, an image file and a text file containing the hash-separated output is created.

   Example output



Transform output with line items

Download this XSLT file to see an example similar to the one above, but with line items.

Master data: Field values

For older versions of Tungsten AP Essentials, field-value master data was a pre-defined master data type. This functionality is still supported, but the new method to connect master data to fields is to use generic master data.

Also see:

- Add custom fields to a document type
- Master data services
- Upload master data

Add filter fields to the document list view

The columns in document list view represent the most popular fields needed to filter the list and find documents you need. The columns/fields that are available depend on which document process you use.

Accounts payable	Accounts receivable
Buyer	Base type
Currency	Customer name
Current approver	Customer number
Due date	Delivery date
External ID	External ID
File name	File name
Gross amount	Held by
Held by	Held date
Held date	Hold reason
Hold reason	Order date
Invoice date	Order number
Invoice number	Received
PO number	Reject reason
Received	Seller
Status	Status
Supplier name	Total amount
Supplier number	Track ID
Track ID	
Workflow	

Tungsten AP Essentials Office users can select in the document list view to specify which columns are visible. If the field you need is not available by default, administrators can specify up to four additional fields (header fields, supplier master data fields, customer master data fields) to be made available for indexing and filtering.

To add more filter fields to the document list view:

1. Log in to Admin Center and navigate to the **Extraction** view.
2. Select **Edit** and select the **General** settings.
3. Select **Add** in the **Extra searchable fields** settings.
   A new row appears.
4. Select the **Field** you want to add and specify the **Display name**. The display name determines the name of the column in the document list view.
   The default fields listed at the beginning of this topic are not available for selection because they are already available in the document list view. Line-item fields and custom fields created on the buyer level are also not available for selection.
5. Repeat steps 3 and 4 for each field you want to add. You can add up to four fields.
6. Select **Save**.
   The new columns appear to Tungsten AP Essentials Office users in the document list views. However, only new documents entering the system from this point forward are indexed.

Documents that are in the system already are not indexed unless they are changed or saved by a user.

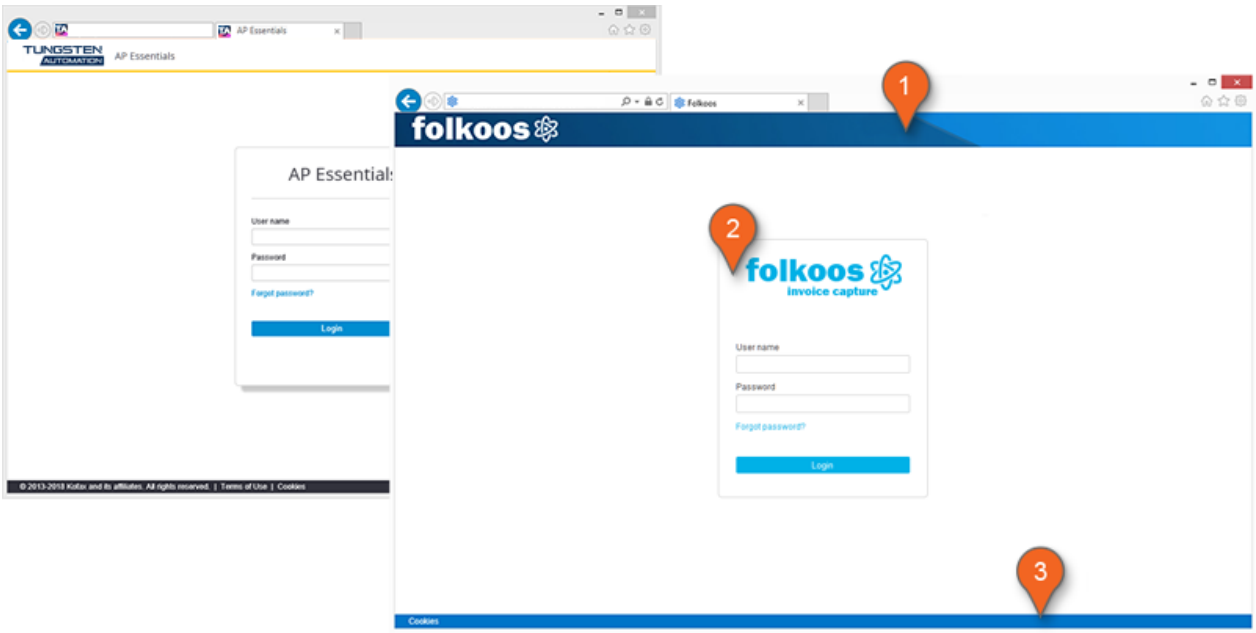
Limitations

- You can add up to four additional filter fields.
- Line-item fields are not supported.
- The additional filter field columns are only visible to customer-level users. They are not displayed for partner and customer group users.
- The additional filter field columns do not appear in the document list view in Admin Center.
- The maximum number of characters that are shown in a column, and are available for search, is 200. Characters exceeding the limit are truncated.

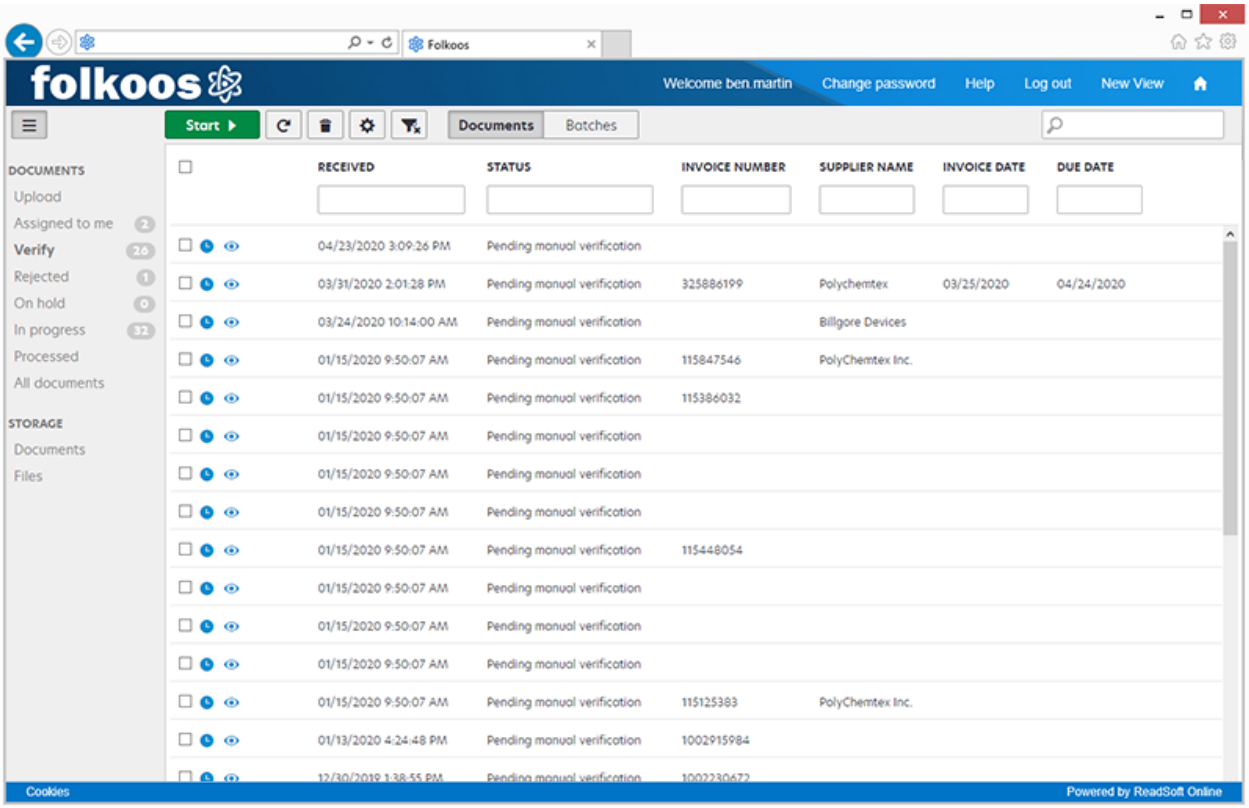
Custom branding

Partner accounts can be branded, or skinned, so customers see custom logos, headers, and footers instead of the default Tungsten Automation design. This enhances the user experience by providing familiarity and recognition to customers. Branding is applied at the partner level and affects the partner account itself and all sub-accounts.

In the following image, compare the default Tungsten AP Essentials theme (background) to a branded theme (foreground):



You can customize the header logo, header background, and favicon (1). You can also customize the logo, button color, and text color of the login dialog (2) and the footer text color and background color (3). The appearance of the menu that appears in the header after you sign in can also be customized. The goal of the branding is to copy the general look and feel of the original site as much as possible. Header and footer dimensions are often constrained, however, to maximize the size of the workspace for Tungsten AP Essentials Office users.



Branding is an extra service that is performed by the Tungsten AP Essentials team. Branding is usually accomplished by copying the image files and CSS styles from your website. You do not need knowledge of CSS to complete a branding. Simply provide a link to the website that the branding should mimic, and we will copy the design for you. Contact your local Tungsten AP Essentials account manager if you are interested in branding your solution.

Branding only affects the contents of the header, footer, and login dialog. The user interface between the header and footer is not changed. Branding is not applied to documentation or help.

If you do not have a website to mimic, or if you want your branding to differ from your website, you can still brand your solution by providing design requirements. In this case, please provide:

- A logo for the login dialog.
- A logo for the header.

- The URL that you want the header logo to link to. This is typically your company's web address.
- The text you want to appear in the web browser tab. This is typically your company name.
- A favicon.
- The colors you want to use for the login dialog button and text.
- A color or background image for the header.
- A color or background image for the footer.

The login logo image and the header logo image should be the original source file in an Adobe Illustrator or Photoshop format (preferably Illustrator - AI or EPS). If the original source files are unavailable, please provide high-quality images (JPG, TIF, PNG). PNG files are a good alternative because they support transparent backgrounds and alpha channels, which are required when the images are displayed over a background image or color.

The final width of the login logo cannot exceed 250 pixels. You can submit a larger image, but it will be resized so the width does not exceed 250 pixels.

The header logo and background images should be around 75 pixels tall or less. If the header is too tall, there is not enough workspace for Tungsten AP Essentials Office users.

Create custom reject codes

Administrators can create custom reject codes and corresponding descriptions that replace the default choices that appear in the **Reject document** dialog when rejecting a document. This feature is helpful for integrations that require specific codes, triggering workflows, and meeting compliance requirements.

To create custom reject codes:

1. Expand the **Explore** node on a customer account and select **Reject codes**.
2. Select **Add**.
3. Use the **Reject codes** view to create up to 100 custom reject codes.

Use a custom domain for Email input services

This feature requires special customization. Contact your Tungsten Automation representative if you are interested.

When you use Email input services to send invoices via email, all email addresses use the readsoftonline.com domain by default. However, partners can use their own domains instead. For example, your customers can send invoices to invoices-example@example.com instead of invoices-example@readsoftonline.com.

These steps assume that you already have a registered domain.

1. In the DNS settings on your domain server, add two MX records according to the following table. Specify the host names and priorities that correspond to the Tungsten AP Essentials system you use. This enables the routing of incoming email to AP Essentials.

Tungsten AP Essentials system	Host name	Priority
Europe	eu-mail-01.readsoftonline.com	0
Europe	eu-mail-02.readsoftonline.com	10
North America	na-mail-01.readsoftonline.com	0
North America	na-mail-02.readsoftonline.com	10
Asia and Australia	as-mail-01.readsoftonline.com	0
Asia and Australia	as-mail-02.readsoftonline.com	10

The domain/sub-domain you use for email input services cannot have CNAME records defined. All emails sent to this domain/sub-domain are routed to AP Essentials.

The domain/sub-domain you use for email input services cannot have CNAME records defined. All emails sent to this domain/sub-domain are routed to AP Essentials.

2. Contact your Tungsten Automation representative and provide the custom domain name you want to use. After Tungsten Automation adjusts your settings, you can specify new email addresses that use your custom domain.

Keep batches together

When Keep batch together is selected, invoices are not sent to the target system until all the invoices in the batch are completely verified or approved.

- When registering invoices, this means that the invoices are not sent to the target system until all the invoices in the batch are verified.
- When posting invoices, this means that the invoices are not sent to the target system until all the invoices in the batch are approved.
- In both cases, after the batch is ready to be sent to the target system, the invoices are sent to the target system individually. This way, the target system can return errors on individual invoices without delaying the entire batch. Invoices are sent to the target system in the same order as they appear in the batch in Tungsten AP Essentials.

This can be beneficial, depending on the target system and the routines of the organization. For example, if many operations in your organization are performed on batches, it is more efficient to keep documents together in batches in Tungsten AP Essentials as well.

Supplier and customer identification

When a document enters the system for the first time, it is unknown, and you must specify the correct supplier, or customer, during verification, so Tungsten AP Essentials can learn to recognize

documents from the same supplier or customer. Tungsten AP Essentials uses all the information on the document during the identification process. As you process more documents from different suppliers or customers, Tungsten AP Essentials identifies the unique characteristics of each document, so the supplier or customer can be identified with greater confidence. Typically, a document from a new supplier or customer only needs to be verified once in order for subsequent documents from the same supplier or customer to be identified correctly. Identification is a key component of online learning.

Improved identification with master data

If you use supplier master data, or customer master data, Tungsten AP Essentials uses the master data to increase the probability of identifying the supplier or customer automatically.

Automatic identification requires the name field and at least one additional field on the document. The more fields you provide, the better the result. The fields must be enabled in the document type in order to improve identification with master data. XML documents and image-based documents, such as PDF, TIF, PNG, and JPG documents, use different master data for identification.

Image-based documents

For image-based documents, identification using master data uses these fields:

Supplier identification	Customer identification
Name	Name
Tax registration number	Tax registration number
Organization number	Organization number
Telephone number	Telephone number
Street	Street
Postal code	Postal code
City	City
Bank account number (multiple)	
Bank number (multiple)	

The supplier or customer number is not used.

XML documents

For XML documents, identification using master data uses these fields:

- Name
- Tax registration number
- Postal code
- Bank account number (IBAN)

When comparing field values with master data, special characters and spaces are ignored. Extra field information is also used, including data from disabled fields.

Configure two-factor authentication

To configure two-factor authentication (2FA):

1. Install a third-party 2FA app on your mobile device. You can use any of these, such as:
   - Authy (Android or iOS)
   - Duo Mobile (Android or iOS)
   - Google Authenticator (Android or iOS)
   - LastPass Authenticator (Android or iOS)
   - Microsoft Authenticator (Windows Phone, Android, iOS)
2. Log in to Tungsten AP Essentials and select your user name in the top menu.
3. In the context menu that appears, select **Configure two-factor authentication**.
4. In the dialog that appears, scan the QR code using the 2FA authentication app on your mobile device.
5. Enter the authentication token provided by the 2FA authentication app on your mobile device and select **OK**.

   ℹ You cannot set up 2FA if the time on your mobile device is off by more than one minute.

   Setup is now complete. The next time you log in to Tungsten AP Essentials, you must provide your normal password and an authentication code (token) from the 2FA app on your mobile device.

Enable single sign-on with OpenID Connect

You can enable single sign-on (SSO) with OpenID Connect using settings in Admin Center. Before you can enable single sign-on, you must set up an OpenID Connect identity provider.

Enable single sign-on (single tenant)

To enable single sign-on with OpenID Connect in Admin Center:

1. Log in to Admin Center as a partner administrator.
2. Navigate to **Account** > **User management** > **Identity providers** and select **Add**.
3. Specify the settings in the view that appears.
   Ensure that you select **OpenID Connect** as the **Protocol** and specify the **Authority** and **Client ID** from your identity provider.

   ℹ OpenID Connect authorities (identity providers) must be whitelisted before use. Contact support to request whitelisting.

4. Select **Display on login page** to display a login button for this identity provider on the Tungsten AP Essentials login page.
5. Select **Save & close** to save your settings.
6. Navigate to the **User management** view and select **Edit**.

7. Select **Enable** in the **Single sign-on** settings and choose the **Identity provider** that you created in the previous steps.
8. Select **Save & close**.
   The configuration is complete, and users can now log in using credentials from the OpenID Connect identity provider.

   To log in, the Tungsten AP Essentials **User name** must match the email address of the identity provider credentials.

Enable single sign-on with SAML

You can enable single sign-on (SSO) using settings in Tungsten AP Essentials. Before you can enable single sign-on, an identity provider must be set up on the partner system.

Enable single sign-on in Admin Center

Enable single sign-on in Admin Center:

1. Upload a valid certificate to the **Resources** view on a partner account.
   The certificate must contain a public key from the customer system, and it cannot contain a private key. The certificate must be formatted and encrypted according to the X.509 standard, and it must have the file extension CER. However, if the certificate has the file extension CRT, and it is properly formatted and encrypted according to the X.509 standard, you can simply change the file extension to CER.
2. Navigate to **Account** > **User management** > **Identity providers** and select **Add**.
3. Specify the settings in the view that appears.
   Select **SAML 2.0** as the **Protocol** and use the **Response signature certificate** setting to specify the certificate that you uploaded.
   Optionally, you can use the **Assertion signature certificate** setting to send signed SAML assertions.

   All SAML responses from the identity provider must be signed. However, signed SAML assertions are optional. AP Essentials accepts encrypted and unencrypted signed SAML assertions. If you choose to encrypt signed SAML assertions, you must use the public key in this ZIP file: https://production.readsoftonline.com/install/readsoftonline-saml.zip
4. Select **Save & close** to save your settings.
5. Navigate to the **User management** view and select **Edit**.
6. Select **Enable** in the **Single sign-on** settings and choose the **Identity provider** that you created in the previous steps.
7. Select **Save & close**.
   The configuration is complete, and users can now log in from the system that issues single sign-on requests.

Define default tax codes

You can define default tax codes for your suppliers using master data, so default tax codes are applied to header and line-item fields during verification.

To make use of this feature:

This topic describes how to define the default tax code associated with each supplier. To define the tax codes themselves, use generic master data.

1. Ensure that these fields are defined in your document type. You can add the fields if they are not already defined.
   - **TaxCode**
   - **LIT_TaxCode**
2. Include the **TaxCode** element in your supplier master data and populate this element with the default tax codes that you want to use. You can also edit default tax code values in the **Edit supplier** dialog.
3. Enable **Supplier tax code** in the Validation service at the partner level.
4. Enable the Supplier tax code in the Rules settings of the document type in the Extraction service.

   After you complete these steps and the master data is updated, default tax codes are applied to the header and line-item fields of new documents that enter the system.

Chapter 5

AP Essentials Admin Center

AP Essentials Admin Center is a web-based control panel that administrators can use to set up and manage Tungsten AP Essentials. Admin Center offers performance enhancements and new ways of working that increase efficiency.

For daily production and processing of invoices, use Tungsten AP Essentials Office.

After you log in to Admin Center, the landing page displays overview information, common tasks, and links to reporting views. The information displayed varies depending on your role and which target system you use.

There are two types of administrators in Tungsten AP Essentials, each with different capabilities and responsibilities:

- **Partner admin** - responsible for setting up the system and configuring settings on the partner and customer level. Partner administrators can also run reports, assist with problem invoices and perform other activities. As a partner, you are the acting administrator for your customers. It is your responsibility to set up and maintain accounts for customers.
  Partner admin tasks include:
  - Adding customers and activating their accounts.
  - Creating user accounts so customers can access the system to process invoices.
  - Managing services.
  - Optionally add buyers if a customer has more than one organization (buyer).
  - Uploading master data.
  - Processing reports to bill customers.
- **Customer admin** - restricted to a reduced set of tasks and settings on the customer level. As a customer administrator, it is your responsibility to maintain settings for your users.
  Customer admin tasks include:
  - Creating user accounts so customers can access the system to process invoices.
  - Managing some services.
  - Optionally add buyers if a customer has more than one organization (buyer).
  - Uploading master data.
  - Processing reports to bill customers.

Some customer administrators see a welcome guide on the right side of the page. Depending on your setup, the guide may contain important setup information that you must complete to start using Tungsten AP Essentials.

The interface language is determined by your web browser language settings.

Administration

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  - Uploading master data.
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  Customer admin tasks include:

  - Creating user accounts so customers can access the system to process invoices.
  - Managing some services.
  - Optionally add buyers if a customer has more than one organization (buyer).
  - Uploading master data.
  - Processing reports to bill customers.

Improve processing efficiency

AP Essentials measures automation in invoice processing using the verification touch rate, which you can see in Analytics. The "zero touch" rate indicates how often documents require manual verification. A zero-touch rate of 100% indicates the document was processed without manual verification.

Straight-through processing

Straight-through processing (STP) is a configuration choice designed to reduce manual intervention by skipping the verification step. If you set the **Data verification** setting to **Never**, all documents skip verification, regardless of their quality. This setting ensures a zero-touch rate of 100% but removes the opportunity to review and correct errors. Some administrators choose straight-through processing for systems where the incoming documents are XML and there is little risk of interpretation error.

Straight-through processing only applies to bypassing manual data verification. It does not include invoice approval, which takes place after verification.

There are two main settings that control bypassing manual verification:

- **Data verification**
- **Allow complete documents to bypass verification**

Data verification settings

Data verification settings apply to all documents for all buyers and sellers and determine when documents require manual verification.

- **Never** - Enables straight-through processing. Documents always skip verification. Since documents are not verified manually, the zero-touch rate is always 100%.
- **On field error** - Documents only go to verification when interpretation values are in doubt. With the right configuration and good-quality input, you can achieve a 100% zero-touch rate while still retaining error checks.
- **Always** - All documents require manual verification. The zero-touch rate is fixed at 0%.

Allow complete documents to bypass verification

The **Allow complete documents to bypass verification** setting applies to specific suppliers and customers and determines whether documents without validation errors are sent directly to the target system without verification. The setting applies to each supplier (accounts payable) or customer (accounts receivable) individually, and you can change it via AP Essentials Office, Admin Center, and master data.

User privileges

Use caution when implementing straight-through processing, as it removes the opportunity to review and correct errors. Use privileges to restrict who can override standard verification steps:

- **Change bypass verification setting** – Lets AP Essentials Office users change the bypass verification setting for suppliers when document capture is accurate.
- **Change lock online learning setting** – Lets AP Essentials Office users change the Lock online learning setting for suppliers or customers. This privilege is especially valuable when suppliers submit documents that use multiple layouts. By locking the learning process to the most common layout, the system avoids unnecessary relearning and maintains consistency in document processing.
- **Update online learning** – Determines whether user interactions during verification affect online learning. Disable this privilege to prevent new or inexperienced users from having a detrimental effect on documents that have high identification and extraction rates. This privilege does not override the **Lock online learning** setting.

Further considerations to improve straight-through processing

Improving straight-through processing rates requires a strategic blend of buyer classification, master data management, supplier validation field optimization, and smart field configuration. The most critical factors are unique identifiers, optimal field selection, and automation of field population and validation.

Document quality

The Advanced extraction engine can handle handwriting and low-quality images, but higher-quality, clear images improve the likelihood of documents passing straight through.

Buyer classification

AP Essentials can automatically or manually assign documents to the correct buyer or seller organization. Enable buyer and seller classification in the Classification service settings.

Tips for accurate classification:

- Add unique identifiers to each buyer in the company profile.
- Use separate email addresses for inter-company invoicing to prevent misclassification.
- A subset of buyers can share one input email address to reduce risks of incorrect routing.

Supplier validation

Supplier master data is used to match an incoming document to a supplier. Six supplier fields in the master data are used to validate the identified supplier and set the matched supplier field as complete. The fields are checked one by one, in the order listed below. If a match is found, subsequent fields are not used. Ensure that at least one of these master data fields matches the content in the document:

- Supplier name
- Street
- Telephone number
- Organization number
- Tax registration number
- Bank account(s)

Master data management

Use the Master data upload setting to determine whether you upload master data at the customer or buyer level.

Setting	Use case	Benefits
Master data on customer account level	When buyers under a customer receive similar documents and need shared learning	Efficiency, unified view, reduced duplication, shared learning
Master data on buyer level	When buyers require different fields or formats, or have unique business rules	Customization, granular control, tailored extraction and validation

Changing this setting deletes all existing learning.

Page separation

Incorrect page separation settings can lead to manual intervention.

Payment terms

If a due date is missing, payment terms can calculate it based on predefined rules. Payment terms can be created manually or imported from supplier master data.

Payment terms can:

- Calculate the due date if none is extracted, or override extracted values.
- Use a specified number of days from the invoice date or end of the month.

Validation rules

Default validation rules, such as duplicate checks, maximum allowed amount, prevent total amount of zero, and allowed tax rates, are enabled by default.

Recommendations:

- Enable only the rules necessary for your workflow to minimize warnings.
- Custom validation rules can be created.
- Rules can be applied at the partner or customer level and selected per document type.

Verification settings

For manual verification, consider the settings below to streamline the process:

- Allow account coding during verification - Enabling this setting will require manual intervention on every invoice. Consider performing the account coding in the approval step instead, where several options exist to automate the coding selections. This setting is only available when the Workflow service is enabled.
- **Display validation errors in a pop-up dialog that requires user interaction** - Forces user interaction for overrides, reducing accidental errors.
- **Use autocomplete when typing field values** - Speeds up data entry and reduces learning time.

Field configuration

Each document type can be configured with specific fields and settings. Field settings allow for tailored extraction, validation, and auto-population to maximize STP rates.

Conditional visibility

There are two ways to hide fields that are optional or only needed for specific senders:

- Use the **Accept empty value** for optional fields to prevent a warning if the field is empty.
- Hide fields not needed for every document. You can hide fields in two ways:
  - Select **Accept empty value** and **Empty and hidden by default**. The field will be hidden for all senders by default and can be made visible during manual verification.
  - Change the field visibility in AP Essentials Office.

Field format

You can apply a regular expression (regex) to improve extraction confidence and reduce errors.

Custom fields

Custom fields offer more configuration options than standard fields:

- If a code or keyword is required, use the **Use default value** setting to specify the value.
- If different codes or keywords are used for different suppliers, select **Save default value per supplier**. The default value is used initially, and when the value is replaced during manual verification, the sender-specific value is saved and used for future documents.

XSLT auto-population

Use XSLT to auto-fill fields, set default values, and apply conditional logic. This is especially useful for fields with low presence rates or static values.

Other ways to improve touch rates

If you do not use straight-through processing, you can improve automation and reduce manual work by addressing common factors that lower the zero-touch rate:

- **Extraction** - Select the Advanced engine as your **Extraction method** in the Extraction service settings. The Advanced extraction engine offers higher interpretation accuracy, which leads to less manual verification.
- **Document quality** - Low resolution documents can cause interpretation issues which require manual intervention.
- **Document selection** - When uploading documents, incorrect buyer and seller or document type selection reduces automation.
- **Field settings** - Poorly defined fields with incorrect or ambiguous formats can result in low interpretation rates.
- **Document separation** - Incorrect document separation can increase manual verification, resulting in lower zero-touch rates.
- **Online learning** - If online learning is locked, interpretation quality will not improve for that supplier. Unlock learning on suppliers with poor performance to improve results over time. Conversely, you can lock online learning for suppliers that already have good performance.
- **Bypass verification per sender** - If enabled, documents from that sender skip verification, which can boost zero-touch rates. Consider bypassing verification on senders with 100% zero-touch rates.

Other considerations

In some cases, achieving high zero-touch rates is impossible. For example, if you use Workflow services, and **Allow account coding during verification** is enabled, coding an invoice during verification counts as a touch. Likewise, manual line-item pairing adjustments count as touches.

Add an account

This procedure shows how to add a new account to Tungsten AP Essentials.

To add an account to Tungsten AP Essentials:

1. Navigate to the **Partners** or **Customers** view, depending on the type of account you want to create.
2. Select **Add**.
3. Use the dialog that appears (**Add new partner** view or **Add new customer** view) to specify the account information.

   We recommend adding contact information to the company profile (**Profile** > **Contacts**). Contact information ensures seamless communication and quick assistance whenever needed.

Before users can log in, activate the account.

Add or delete services

This procedure shows how to add or delete a service using Admin Center.

Add or remove a service in Admin Center:

1. Navigate to the account you want to change in the tree view.
2. Expand the **Account** node, select **Services**, and use the view that appears to add or delete services.
   - Select **Add** to display a dialog for adding new services.
     If the service you want is not listed, it is might be missing in the parent account.
   - Select **Delete** to remove a service you no longer want to use.

You can add services on multiple levels. Each child node in the tree view inherits its services from its parent.

Edit a service plan

Edit an existing customer service plan in Admin Center.

To edit a service plan, you must have administrator privileges.

1. Navigate to the **Account** view for the customer.
2. Select **Edit** in the **Service plan** settings.
3. Use the view that appears to change the service plan settings. You cannot revert a Live account to a Demo or Trial account.

   Usage settings help you manage accounts but do not enforce the limits you specify, even if notifications are enabled. For example, if an account processes more invoices than the maximum number specified in the **Volume** setting, the account is not disabled. The account administrator must negotiate a new agreement and adjust the settings accordingly.

4. Select **Save**.

Work with users

This topic describes how to work with users in Admin Center.

Add a user

If you need to create many user accounts, you can import users.

Before you begin, consider enabling two-factor authentication for additional security or single sign-on for seamless integration with your organization. Users that do not use two-factor authentication or single sign-on are automatically disabled after three months.

To add a single new user:

1. Select **Add user** from a partner or customer landing page, or select **Add** on the **Users** view.
2. Use the view that appears to specify the user settings on each tab (such as **Profile** and **Privileges**).

   User names cannot include any of the following file extensions

• .asax • .ascx • .master • .skin • .browser • .sitemap • .config • .cs • .csproj • .vb • .vbproj • .webinfo • .licx • .resx • .resources	• .mdb • .vjsproj • .java • .jsl • .ldb • .dsdgm • .ssdgm • .lsad • .ssmap • .cd • .dsprototype • .lsaprototype • .sdm • .sdmDocument • .mdf	• .ldf • .ad • .dd • .ldd • .sd • .adprototype • .lddprototype • .exclude • .refresh • .compiled • .msgx • .vsdisco • .rules

3. Select **Save & close**.

If the parent partner or customer account is active, the new user receives an email notification with login information. If you are setting up a new account, all users receive login information when the parent account is activated.

When a customer administrator logs in for the first time after creating a customer, the terms of service appear. A customer administrator can agree to the terms on behalf of all users in the organization. The terms of service must be accepted to use Tungsten AP Essentials.

Edit a user

To edit an existing user, complete the following steps

1. Select a user name in the **Users** view.
2. Use the view that appears to edit the user settings as needed on each tab (such as **Profile** and **Privileges**).
3. Select **Save & close**.

Delete a user

To delete an existing user, complete the following steps

1. Ensure the user you want to delete does not belong to a workflow.
2. Navigate to the **Users** view, and select **Delete** on the row of the user you want to delete.
   A confirmation dialog appears.
3. Select **Yes**
   The user is deleted.

Resume a user

To resume a paused user, complete the following steps

1. Select a user name in the **Users** view.
   The **User** view appears.
2. Click **Resume** and confirm your decision in the dialog that follows.

Activate accounts

Activate partner and customer accounts in Admin Center.

Before users can log in, activate their accounts in Admin Center:

1. Navigate to the **Subsidiaries**, **Partners**, or **Customers** view, depending on which account type you want to activate.
2. Select for the account that you want to activate, and select **Activate**.
   Account activation can take up to one minute.

> When you reactivate a deactivated account, users who have never changed their passwords receive a new password.

Pause an account

When an account is paused, users can continue working normally. However no output is sent to the target system. This is helpful, for example, if you need to suspend a customer for lack of payment. Unlike deactivation, pausing an account does not disable user accounts, does not send deactivation emails to users, and still accepts incoming documents.

You can pause and resume accounts manually and automatically according to the settings you specify in the Service plan view.

Manually pause and resume accounts

You can manually pause and resume customer accounts and customer groups.

Pause a customer account manually

1. Navigate to the customer view of the customer account that you want to pause.
2. Select **Pause**.
   The system immediately pauses the account. Information about the paused status is displayed in a dialog to Office users when they log in to Tungsten AP Essentials. Batches and documents of paused accounts have the status: *Pending resume output* and *Document pending resume output*. You can select **Resume** to resume normal operations at any time.

Pause a customer group manually

When you pause a customer group, the system automatically pauses all customer accounts within the group. After you resume a group that was paused, you must resume each individual customer account manually. In other words, the system does not automatically resume all customer accounts within the group when you resume a group.

1. Navigate to the group view of the customer group that you want to pause.
2. Select **Pause**.
   The system immediately pauses all customer accounts within the group. Information about the paused status is displayed in a dialog to Office users when they log in to Tungsten AP Essentials. Batches and documents of paused accounts have the status: *Pending resume output* and *Document pending resume output*. You can select **Resume** to allow resuming of all customer accounts within the group. However, you must resume each individual customer account manually.

Resume an account manually

You can select **Resume** to resume normal operations of a paused account at any time.

1. Navigate to the customer view of the customer account that you want to resume.
2. Select **Resume**.
   The system immediately resumes the account.

   If you resume a customer group, you must resume each customer account within the group manually.

Automatically pause and resume accounts

You can automatically pause customer accounts and customer group accounts when the service plan volume or subscription period reaches its limit. For example, if the service plan volume is set to 100, the account pauses automatically after the 100th document is processed. Likewise, if the subscription period ends 2026-01-31, then the account pauses automatically 2026-01-31 at 23:59 UTC time.

When a customer group is paused, the system also pauses all customer accounts that belong to the group. If the service plan is renewed, the customer group resumes automatically. Active customer

accounts within the group are also resumed automatically, unless they exceed the limits specified in their own service plans. Note that deactivated accounts are not resumed automatically.

1. Navigate to the **Account** view of the customer account or customer group account that you want to automatically pause.
2. Select **Edit** in the **Service plan** group.
   The **Service plan** view appears.
3. Select **Enforce subscription period** to automatically pause the account when the subscription period ends. Select **Enforce volume limit** to automatically pause the account when the document volume reaches its limit.
   You can select one or both options according to your needs.
4. Save your settings.
   The system checks the service plan every hour. If the service plan volume or subscription period reaches its limit, the account pauses automatically.
   If an administrator renews a service plan, the account resumes automatically when the administrator saves the service plan settings.
   If a subscription period is set to a future date, the account resumes automatically on the specified date.

Add an email address for email input

This topic shows how to add a custom email address for email input.

Complete these steps to add a custom email address for email input.

1. Navigate to the **Services** node of the customer you want to edit, and select **Email input**.
2. Select **Edit**, then select **Add**.
3. In the the dialog that appears, define a new input email address.

   If your organization uses buyers and buyer classification, you can select **Settings** to choose which buyers are used when buyer classification is performed on invoices that are received with the current email address.

4. Select **OK** to close the dialog, then select **Save** in the **Email input** view to save the new settings.

User management overview

The **User management** view organizes users and their respective roles and privileges. User settings determine what users can do within Tungsten AP Essentials. For example, an Admin can change system settings, whereas a User can only process documents. User settings, roles, and privileges can also be accessed from the API to create robust user authentication integrations with external systems.

Users

A user is a person who logs in to Tungsten AP Essentials to use its services. Administrators can add new users to the system and view and edit existing users on the **Users** view.

When you add a user to an account, the user has access to the customers and documents of that account. For example, a service-bureau employee who handles documents for several accounts should be associated with all the accounts he handles. Customers, however, should only be associated with their own companies, so they can only validate their own documents.

When a customer administrator logs in to Tungsten AP Essentials for the first time after creating a customer, the terms of service are displayed. A customer administrator can agree to the terms on behalf of all users in the organization. The terms of service must be accepted to use Tungsten AP Essentials.

User groups

A user group is a collection of users who all have the same privileges and access to the same buyers or sellers (if any). User groups make it easier to organize and maintain users and privileges. For example, if you create a group for Office users that contains several privileges, the next time you create a new Office user, you simply add the user to the group, instead of assigning all the individual privileges. You can also assign user groups to workflow steps, if you use the Workflow service.

Currently, user groups on the partner group and customer group levels do not support approval hierarchies. Do not select **Use approval hierarchy** on a workflow step that is assigned to a user group on the partner group or customer group level.

Administrators can create user groups on partner accounts, customer accounts, and customer groups.

Roles

Users can have one or more roles, which determine what tasks they can perform in the system. Each role can contain one or more privileges. You can use roles to organize privileges into logical groups, which make it easier to assign them to users. The Admin and User roles are internal roles that cannot be removed or changed.

- **Admin** - Administrators who manage accounts, users, and settings in Admin Center. The Admin user must have the Manage accounts privilege to change settings. Without this privilege, administrators can access the Admin Center, but they cannot edit settings.
- **User** - Users who process documents and only have access to Tungsten AP Essentials Office.

If you create a user with the **User** role on the partner account level, the user can log into Tungsten AP Essentials Office with access to multiple customers. This is beneficial if you want to give users the ability to process documents for multiple customers, but you do not want them to have administrative privileges. Typically, service bureaus, which process documents on behalf of many customers, create this type of user on the partner account level, so personnel can easily check and correct documents for multiple customers. You can also specify which customers the user has access to on the **Customer account access** tab in the **Users** view.

Privileges

Privileges determine what actions users can perform and what areas they have access to. For example, the **Access Upload** privilege grants access to the upload view, **Access verify** grants access to the document view, and so on.

Some privileges are associated with a specific service. For example, the **Access Storage** privilege is only available when the Storage service is enabled. If you disable a service that has a privilege associated with it, the privilege is removed from all users who have that privilege. A warning is displayed before any privileges are removed.

Administrators cannot grant or remove privileges that they do not have themselves. For example, if an administrator wants to grant the **Manage accounts** privilege to another user, the administrator must also have the **Manage accounts** privilege. Likewise, if an administrator wants to remove the **Manage accounts** privilege from another user, the administrator must have the **Manage accounts** privilege.

View bank account numbers

Tungsten AP Essentials uses privileges to determine who can view and edit bank account numbers. Administrators with the **View supplier bank account numbers** privilege can view supplier bank account numbers in Admin Center and Office. Without this privilege, account numbers are masked to **Admin** users. Extracted account numbers are visible inside Analytics regardless of privileges.

Office users (with the **User** role) can always view bank account numbers because it is a necessary function of processing documents.

Assign organizations to users

You can limit which buyers a user can access when processing documents in Tungsten AP Essentials Office.

Assign buyer organizations to a user

Specify which buyer organizations a user has access to:

1. Navigate to the **Users** view and select a user you want to adjust. The user must have the User role. You cannot associate an Admin user with a buyer organization.
2. Use the **Buyer access** tab to specify which buyers you want to assign to the selected user.
3. Select **Save**.

Resources: Overview

You can use external resources, such as XSLT files or ZIP files containing plug-ins, to provide custom functionality to Tungsten AP Essentials services.

You can provide custom functionality to Tungsten AP Essentials services using external resources such as:

- **Certificates**: For enabling single sign-on.
- **ZIP files containing plug-ins**: For custom API integrations with AP Essentials Connect.
- **Public keys**: For enabling PGP for the SFTP target system.
- **XSLT files**: For transforming output data as needed.

Tungsten AP Essentials supports XSLT version 1.0. Other versions are not supported.

You make resources available to Tungsten AP Essentials by uploading them to the **Resources** view.

In addition to adding functionality to Tungsten AP Essentials, you can also use functionality from plug-ins in Tungsten AP Essentials Connect. When you use a custom plug-in with AP Essentials Connect, Tungsten AP Essentials automatically provides the plug-in functionality to your AP Essentials Connect users.

Create custom validation rules

This procedure shows how to create custom validation rules.

AP Essentials offers many predefined validation rules that cover most needs. However, if you have specialized requirements that are not covered by the standard rules, you can create custom rules to ensure accuracy and correctness of your document data. By implementing custom validation rules, organizations can minimize errors, prevent data discrepancies, and streamline financial processes, ultimately enhancing the reliability of their financial reporting and reducing the risk of costly mistakes.

Custom validation rules are currently available only for amount fields, whether predefined or custom. The user interface provides a visual builder to make it easy to specify available fields and common operations. You can create up to 30 custom rules per organization.

To create a custom validation rule:

1. Navigate to the **Validation** service on the partner or customer level and select **Edit**.
2. Select **Add** on the **Custom rules** tab. The **Custom Validation rule** view appears.
3. Specify a **Name** for your custom rule.
   Choose a name that is logical and self-explanatory, as this is the name that appears in the **Rules** tab of the document type in the Extraction service.
   Optionally, specify a **Description**. The description appears in the tooltip of the rule in the Extraction service settings.
4. Specify the base document type this rule applies to in the **Base type** setting. For example, if you select **Supplier invoice**, this rule will be available for all document types whose base type is supplier invoice.
5. In the **Field to validate** setting, select the field that should be marked with a validation error if the rule fails.
6. Specify your rule logic in the **Expression** box. Use the **Fields**, **Operators**, and **Functions** boxes to insert elements of your expression by selecting a value and selecting the **+** button. In addition to the available fields, operators, and functions, you can use parentheses for grouping.
   In addition to fields, the **Fields** setting can contain system values, such as the line item row count (LineItem.RowCount). System values represent numeric values and behave just like fields in your custom expression.

Validations can be as easy or complex as your solution requires. See examples later in this topic.

You cannot create custom rules with field type names that include any of the following characters: / - ( ) = , + *.

7. Type a **Validation error message** that is displayed if the validation fails. This message is displayed in AP Essentials Office on the field you specified in the **Field to validate** setting.
8. Select **OK** to return to the **Validation** view.
9. Select your new rule in the list and select **Save**.
   If you do not select the rule, it will not appear in the Extraction service settings of the customer accounts.
10. Navigate to the customer account that has a document type where you want to enable the custom rule and enable it.
    Your custom rule is immediately used during extraction, verification, and approval.

Custom rule examples

The following examples demonstrate what is possible with custom rules and are meant for illustrative purposes only. Some examples might depict unrealistic or existing validation rules. The example formulas show what you enter in the **Expression** box.

The expression you specify must evaluate to a Boolean value, true or false. When an expression evaluates to false, its validation rule fails.

Expression	Meaning
`InvoiceTotalVatIncludedAmount < 1000000`	Ensures the total amount is less than 1,000,000. If the total amount is 1,000,000 or more, the validation fails, and the field you specify in the **Field to validate** setting is marked with a validation error. In this example, you would specify InvoiceTotalVatIncludedAmount as the **Field to validate**. • **InvoiceTotalVatIncludedAmount** — The total price of an invoice, including VAT. • **<** — Means "is less than." The rule checks if InvoiceTotalVatIncludedAmount is smaller than the number 1,000,000. • **1000000** — The upper limit for the total amount. The rule is saying, "Invoices must be below 1,000,000."

Expression	Meaning
`InvoiceTotalVatRatePercent == (InvoiceTotalVATAmount / InvoiceTotalVatExcludedAmount) * 100`	Ensures the total VAT rate percentage (InvoiceTotalVatRatePercent) is calculated correctly. The percentage is calculated by dividing the total VAT amount by the VAT-excluded amount and multiplying by 100. In this example, you would specify InvoiceTotalVatRatePercent as the **Field to validate**. • **InvoiceTotalVatRatePercent** — Represents the VAT rate in percentage, such as 25%. • **==** — Means "is equal to." The rule checks if the value on the left (InvoiceTotalVatRatePercent) matches the calculation on the right. • **(InvoiceTotalVATAmount / InvoiceTotalVatExcludedAmount)** — Calculates the VAT rate as a decimal. When you divide these, you get a decimal, such as 0.25 for 25%. • *** 100** — Converts the decimal into a percentage. For example, 0.25 becomes 25. Note: This example is for demonstration only. In practice, we recommend using tolerances to avoid validation errors from small differences.
`abs(LIT_VatExcludedAmount - LIT_UnitPriceAmount * LIT_DeliveredQuantity) < 0.5`	Ensures the line-item net amount (LIT_VatExcludedAmount) equals the unit price (LIT_UnitPriceAmount) times the quantity (LIT_DeliveredQuantity) and is within an acceptable limit. In this example, you would specify LIT_VatExcludedAmount as the **Field to validate**. • **abs(...)** — Calculates the absolute value of a number, ignoring whether it is positive or negative. • **LIT_VatExcludedAmount** — The total amount for the line item, excluding VAT. • **LIT_UnitPriceAmount** — The price of a single unit for the line item. • **LIT_DeliveredQuantity** — The quantity delivered for this line item. • **< 0.5** — Ensures the difference is less than 0.5, allowing for small rounding errors.

Expression	Meaning
`LineItem.RowCount == 0 or abs(LIT_VatAmount - InvoiceVATAmount) < 0.5`	Ensures the VAT amount is within an acceptable limit. The rule evaluates to true if there are no line items or if the absolute difference between the sum of all LIT_VatAmount fields and InvoiceVATAmount is less than 0.5. In this example, you would specify InvoiceVATAmount as the **Field to validate**. Note the use of a header field (InvoiceVATAmount) and a line-item field (LIT_VatAmount) in the calculation. Since **Field to validate** is set to InvoiceVATAmount, which is a header field, LIT_VatAmount represents the sum of all LIT_VatAmount fields. • **LineItem.RowCount** — The number of line-item rows. • **== 0** — Checks if the value is zero. • **or** — Allows either condition to pass for the rule to be valid. • **abs(...)** — Calculates the absolute difference, ignoring whether it's positive or negative. • **LIT_VatAmount - InvoiceVATAmount** — Checks the difference between the sum of the line item VAT amounts and the expected invoice VAT. • **< 0.5** — Permits a small rounding error of less than 0.5.

Custom rule syntax

These functions and operators are available when creating a custom validation rule.

Function/Operator	Description	Example
abs	Returns the absolute value of a number, which is the distance from zero. In other words, the absolute value is the value without regard to whether the number is positive or negative.	abs(-5) returns 5.
max	Returns the largest of the numbers given as input parameters.	max(2, 5, 3) returns 5.
min	Returns the smallest of the numbers given as input parameters.	min(2, 5, 3) returns 2.
round	Returns the value of a number rounded to the nearest integer.	round(3.14) returns 3.
+	Adds two values.	3 + 5 returns 8.

Function/Operator	Description	Example
-	Subtracts one value from another.	5 - 3 returns 2.
*	Multiplies two values.	3 * 5 returns 15.
/	Divides the value on the left by the value on the right.	10 / 2 returns 5.
==	Checks if two values are equal. Returns True if they are, False if not.	5 == 5 returns True.
!=	Checks if two values are not equal. Returns True if they are different, False if they are equal.	5 != 3 returns True.
<	Checks if the value on the left is less than the value on the right.	3 < 5 returns True.
>	Checks if the value on the left is greater than the value on the right.	5 > 3 returns True.
<=	Checks if the value on the left is less than or equal to the value on the right.	3 <= 5 returns True.
>=	Checks if the value on the left is greater than or equal to the value on the right.	5 >= 3 returns True.
()	Controls the precedence of evaluation in expressions. Expressions inside the parentheses are evaluated first. It also acts as a container for arbitrary expressions where ambiguity or syntax errors would otherwise occur.	((1 + 2) * 3) returns 9.
and	Returns True if both conditions are True.	(3 < 5) and (5 > 3) returns True.
or	Returns True if at least one of the conditions is True.	(3 < 5) or (5 < 3) returns True.
not	Reverses the truth value of a condition.	not(3 < 5) returns False.

AP Essentials validates custom rules whenever you save a rule or select **Test**. This table shows the errors you can encounter if a custom rule has incorrect syntax.

Error	Description	Example
Unexpected token	A character appears at an unexpected position.	a +- b < c
Missing token	The expression ends unexpectedly.	a + b <
Invalid function name	A function call references an unknown function.	foo(a) < b

Error	Description	Example
Missing parameter	One or more parameters of a function are not specified. For example, the function uses two parameters, but only one is specified.	min(a,) < b
Invalid number of parameters	A function is called with an invalid number of parameters. For example, the function uses one parameter, but two are specified.	abs(a, b) < c
Bracket mismatch	The number of opening and closing brackets do not match.	(abs(a) < b
Return type error	The outcome of the expression is not true or false.	a + b
Too complex	The expression is too complex or uses nested structures that are too deep.	a == round(round(round(round(round(round(rour

Change your password in Admin Center

To change your password in Admin Center:

1. Log in to Tungsten AP Essentials Admin Center.
2. In the main menu, select your user name, and then select **Change password**.
3. Use the dialog that appears to change your password. Your password must adhere to the security requirements.
   The password change takes effect immediately without having to log out and log in again.

Add a notification

Add a new notification to a customer using Admin Center.

Complete the following steps:

1. Navigate to the **Services** view and select **Notifications**.
2. Select **Edit**, then select **Add**.
3. Use the dialog that appears to specify the notification settings.
4. Select **OK** to save your changes.
   The notification is immediately active.

Add a usage warning notification for multiple users and groups

Send usage warning notifications to multiple users and groups when document volume or account time reaches 80%, 90%, or 100% of the maximum limit. The usage warning notification is available from the Notifications service at the subsidiary, partner, customer, and customer group levels.

1. Navigate to the **Services** view and select **Notifications**.
2. Select **Edit**, then select **Add**.
3. In the dialog that appears, select **Usage warning** in the **Event** box.

4. Select **Send email** in the **Action** box.
5. Select **Users and groups** in the **Recipient type** box. The **Add recipients** button appears.
6. Select **Add recipients** and use the view that appears to select the recipients of the usage warning notifications. The **Users** tab displays users, and the **Groups** tab displays groups. You can select any number and combination of users and groups.
7. When creating a usage warning at the subsidiary or partner level, use the **Level** setting to determine which level the notification applies to.
   For example, if you create a notification for a usage warning on the subsidiary level, and you select **Partner account** here, usage warning notifications are only triggered by events on the partner level.
8. Use the **Trigger** setting to determine whether the notification is triggered by remaining document volumes, remaining time on the service plan, or both.
9. Select **OK** to save the recipients, then select **OK** again to save the notification.
   The notification is immediately active.

Upload master data

If the Master data service is enabled, you can use AP Essentials Connect to upload master data to Tungsten AP Essentials in XML format. Alternatively, you can import master data from Microsoft Excel. There are predefined master-data types for the most popular forms of master data, such as suppliers and currencies. There is also a generic master data type that you can use to import master data structures that are not covered by the predefined types.

Typically, master data is routinely generated by a target system and saved to a folder location that is accessible by Tungsten AP Essentials Connect. To keep master data synchronized, Tungsten AP Essentials Connect routinely checks the folder for new XML files to upload. When a new XML file is detected, Tungsten AP Essentials Connect uploads it to Tungsten AP Essentials.

Refer to the Tungsten AP Essentials Connect guide for procedural information about uploading master data.

You can also upload master data using the API.

Master-data types

The master-data files that you upload using Tungsten AP Essentials Connect must be in XML format and they must conform to a schema.

Example XML	Schema	Maximum count allowed	Maximum file size
Accounts (general ledger)	Accounts (general ledger)	100,000	200 MB
Currencies	Currencies	500	200 MB
Supplier banks	Supplier banks	300,000	200 MB
Suppliers	Suppliers	150,000	200 MB

Example XML	Schema	Maximum count allowed	Maximum file size
Generic master-data objects	Generic master-data objects	500,000 You can have up to 40 different generic master-data types, each with up to 500,000 objects.	200 MB
Purchase orders *	Purchase orders	200,000 Up to 200,000 purchase orders are allowed for each buyer or customer account. After the initial upload, you cannot add, update, or delete more than 5,000 purchase orders per upload. Each purchase order can have a maximum of 5,000 order lines.	200 MB
Customers	Customers	1,000,000 When uploading customer master data on the seller level, the total count from all sellers of the parent account cannot exceed 1,000,000. After the initial upload, you cannot add or update more than 2,000 customers per upload. An initial upload is performed when you upload customers: • via the **Upload master data** button in AP Essentials Connect. • via the API method, CompleteMasterDataCustomerUpload. Subsequent uploads, via the **Synchronize** button in AP Essentials Connect or the AddOrUpdateMasterDataCustomers API method, are limited to 2,000 customers per upload.	200 MB

API request payloads are also limited to 200 MB.

* Although purchase orders are not technically master data, the information is listed here for convenience.

Schemas for cost centers and field values have been deprecated. Please use generic master-data objects instead.

When you upload generic master data, the **Master data type** setting in Tungsten AP Essentials Connect must be the same as the Type name of the field that uses the master data.

Maximum length of master data field values

The values of the master-data fields later in this topic cannot exceed the maximum length specified in this table:

Field	Maximum length
Generic master-data objects	
Type name	50
Value	150
Name	150
Description	200
Currencies	
Code	40
Name	100
Accounts (general ledger)	
Code	100
Name	220
Group	100
Description	500
Suppliers	
Supplier number	200
Name	400
Description	2000
Organization number	100
Tax registration number	200
Tax code	200
Payment term	300
Payment method	200
Currency code	50
Location	300

Field	Maximum length
Street	500
Postal code	100
City	200
State	100
Country name	100
Telephone number	250
Fax number	250
Supplier banks	
Bank name	200
Bank number type	20
Bank number	50
Account number type	20
Account number	250
Purchase orders	
Order number	50
Supplier number	200
Supplier name	400
Currency code	40
Contact name	200
Description	1500
Status text	100
RequisitionedBy	254
CreatedBy	254
Purchase orders lines	
Order line number	40
Article number	1500
Article description	5000
Supplier article number	300
Category number	80
Category description	1500
Unit	50
Status text	100
DeliveryNoteNumber	50
DeliveryDate1	8

Field	Maximum length
DeliveryDate2	8
UniqueArticleNumber	20
Purchase order search query	
Sort field	500
Customers	
Customer number	100
Name	100
TaxRegistrationNumber	30
OrganizationNumber	30
Street	100
PostalCode	20
Country	100
City	100
State	50
TelephoneNumber	30
FaxNumber	30

Purchase-order data

Purchase-order data can include more than just purchase order numbers. It can also include supplier numbers, currency codes, line-item details such as article numbers, quantities, pricing information, and much more.

Upload purchase-order data

If you use the Purchase order service, you can upload purchase-order data from your financial system to Tungsten AP Essentials. The Dynamics AX and NetSuite integrations upload purchase order data automatically. For other target systems, you use AP Essentials Connect to upload purchase order data in XML format.

You can upload up to 200,000 purchase orders. Read more about other limits of master data.

Creating master data in XML format requires knowledge of XML. Master data must adhere to an XML schema, which describes the structure of the XML document you upload. Only the fields specified in the schema are allowed. You can omit some elements, but the order must remain the same. See the schema and example XML below for reference.

Purchase-order XML schema

The purchase-order schema is listed below for your convenience. For the most up-to-date and complete schema, refer to the API documentation.

```
<xs:complexType name="PurchaseOrders">
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="PurchaseOrder"
 nillable="true" type="PurchaseOrder" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="PurchaseOrders" nillable="true" type="PurchaseOrders" />
  <xs:complexType name="PurchaseOrder">
    <xs:annotation>
      <xs:appinfo>
        <typeinformation>
          <originaltype>PurchaseOrder</originaltype>
          <schematype>PurchaseOrder</schematype>
          <serializationname></serializationname>
        </typeinformation>
      </xs:appinfo>
    </xs:annotation>
    <xs:sequence>
      <xs:element minOccurs="0" name="OrderNumber" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="SupplierNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="CurrencyCode" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="DateCreated" type="xs:dateTime" />
      <xs:element minOccurs="0" name="ContactName" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Description" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="StatusText" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="Lines" nillable="true"
 type="PurchaseOrderLines" />
      <xs:element minOccurs="0" name="SupplierName" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="RequisitionedBy" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="CreatedBy" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="PurchaseOrder" nillable="true" type="PurchaseOrder" />
  <xs:complexType name="PurchaseOrderLines">
    <xs:annotation>
      <xs:appinfo>
        <typeinformation>
          <originaltype>PurchaseOrderLineCollection</originaltype>
          <schematype>PurchaseOrderLines</schematype>
          <serializationname>PurchaseOrderLines</serializationname>
        </typeinformation>
      </xs:appinfo>
    </xs:annotation>
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="unbounded" name="PurchaseOrderLine"
 nillable="true" type="PurchaseOrderLine" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="PurchaseOrderLines" nillable="true" type="PurchaseOrderLines" />
  <xs:complexType name="PurchaseOrderLine">
    <xs:annotation>
      <xs:appinfo>
        <typeinformation>
          <originaltype>PurchaseOrderLine</originaltype>
```

```
          <schematype>PurchaseOrderLine</schematype>
          <serializationname></serializationname>
        </typeinformation>
      </xs:appinfo>
    </xs:annotation>
    <xs:sequence>
      <xs:element minOccurs="0" name="OrderLineNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="ArticleNumber" nillable="true" type="xs:string" /
>
      <xs:element minOccurs="0" name="SupplierArticleNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="ArticleDescription" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="CategoryNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="CategoryDescription" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="Quantity" type="xs:decimal" />
      <xs:element minOccurs="0" name="Unit" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="UnitPrice" type="xs:decimal" />
      <xs:element minOccurs="0" name="RowTotalAmountVatExcluded" type="xs:decimal" />
      <xs:element minOccurs="0" name="StatusText" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="InvoicedQuantity" type="xs:decimal" />
      <xs:element minOccurs="0" name="DeliveredQuantity" type="xs:decimal" />
      <xs:element minOccurs="0" name="IsDeliveryRequired" type="xs:boolean" />
      <xs:element minOccurs="0" name="PriceUnit" type="xs:decimal" />
      <xs:element minOccurs="0" name="VatAmount" nillable="true" type="xs:decimal" />
      <xs:element minOccurs="0" name="DeliveryNoteNumber" nillable="true"
 type="xs:string" />
      <xs:element minOccurs="0" name="DeliveryDate1" nillable="true" type="xs:string" /
>
      <xs:element minOccurs="0" name="DeliveryDate2" nillable="true" type="xs:string" /
>
      <xs:element minOccurs="0" name="UniqueArticleNumber" nillable="true"
 type="xs:string" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="PurchaseOrderLine" nillable="true" type="PurchaseOrderLine" />
```

Example

Use the following XML as an example to create your own purchase-order data.

```
<?xml version="1.0" encoding="utf-8"?>
<PurchaseOrders xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
    <PurchaseOrder>
        <OrderNumber>000006</OrderNumber>
        <SupplierNumber>CN-001</SupplierNumber>
        <CurrencyCode>USD</CurrencyCode>
        <DateCreated>2026-08-01T11:05:01</DateCreated>
        <ContactName>Carl Carlson</ContactName>
        <Description>Some text</Description>
        <StatusText>Received</StatusText>
        <Lines>
            <PurchaseOrderLine>
                <OrderLineNumber>10</OrderLineNumber>
                <ArticleNumber>T0001</ArticleNumber>
                <SupplierArticleNumber>COAS222333</SupplierArticleNumber>
                <ArticleDescription>Speaker cable 10</ArticleDescription>
                <CategoryNumber>CAT1000</CategoryNumber>
                <CategoryDescription>Speakers n stuff</CategoryDescription>
```

```
            <Quantity>650.0</Quantity>
            <Unit>ea</Unit>
            <UnitPrice>300.0</UnitPrice>
            <RowTotalAmountVatExcluded>195000.0</RowTotalAmountVatExcluded>
            <StatusText>Received</StatusText>
            <InvoicedQuantity>0</InvoicedQuantity>
            <DeliveredQuantity>650.0</DeliveredQuantity>
            <IsDeliveryRequired>false</IsDeliveryRequired>
            <PriceUnit>1.0</PriceUnit>
            <VatAmount>0.0</VatAmount>
            <DeliveryNoteNumber/>
            <DeliveryDate1>20260901</DeliveryDate1>
            <DeliveryDate2/>
            <UniqueArticleNumber/>
        </PurchaseOrderLine>
        <PurchaseOrderLine>
            <OrderLineNumber>20</OrderLineNumber>
            <ArticleNumber>T0002</ArticleNumber>
            <SupplierArticleNumber/>
            <ArticleDescription>Projector Television</ArticleDescription>
            <CategoryNumber/>
            <CategoryDescription/>
            <Quantity>475.0</Quantity>
            <Unit>ea</Unit>
            <UnitPrice>2200.0</UnitPrice>
            <RowTotalAmountVatExcluded>1045000.0</RowTotalAmountVatExcluded>
            <StatusText>Received</StatusText>
            <InvoicedQuantity>0</InvoicedQuantity>
            <DeliveredQuantity>475.0</DeliveredQuantity>
            <IsDeliveryRequired>false</IsDeliveryRequired>
            <PriceUnit>1.0</PriceUnit>
            <VatAmount>0.0</VatAmount>
            <DeliveryNoteNumber/>
            <DeliveryDate1>20260901</DeliveryDate1>
            <DeliveryDate2/>
            <UniqueArticleNumber/>
        </PurchaseOrderLine>
        <PurchaseOrderLine>
            <OrderLineNumber>30</OrderLineNumber>
            <ArticleNumber>T0003</ArticleNumber>
            <SupplierArticleNumber/>
            <ArticleDescription>Surround Sound Receiver</ArticleDescription>
            <CategoryNumber>CAT1000</CategoryNumber>
            <CategoryDescription>Speakers n stuff</CategoryDescription>
            <Quantity>450.0</Quantity>
            <Unit>ea</Unit>
            <UnitPrice>1.0</UnitPrice>
            <RowTotalAmountVatExcluded>144000.0</RowTotalAmountVatExcluded>
            <StatusText>Received</StatusText>
            <InvoicedQuantity>0</InvoicedQuantity>
            <DeliveredQuantity>450.0</DeliveredQuantity>
            <IsDeliveryRequired>false</IsDeliveryRequired>
            <PriceUnit>1.0</PriceUnit>
            <VatAmount>0.0</VatAmount>
            <DeliveryNoteNumber/>
            <DeliveryDate1>20260901</DeliveryDate1>
            <DeliveryDate2/>
            <UniqueArticleNumber/>
        </PurchaseOrderLine>
    </Lines>
    <SupplierName>Contoso Asia</SupplierName>
    <RequisitionedBy>Jennifer Smith</RequisitionedBy>
    <CreatedBy>Ben Martin</CreatedBy>
</PurchaseOrder>
```

```
<PurchaseOrder>
    <OrderNumber>000013</OrderNumber>
    <SupplierNumber>JP-001</SupplierNumber>
    <CurrencyCode>USD</CurrencyCode>
    <DateCreated>2012-11-19T12:19:50</DateCreated>
    <ContactName/>
    <Description>Some other text</Description>
    <StatusText>Open</StatusText>
    <Lines>
        <PurchaseOrderLine>
            <OrderLineNumber>10</OrderLineNumber>
            <ArticleNumber>M0018</ArticleNumber>
            <SupplierArticleNumber/>
            <ArticleDescription>Polyol</ArticleDescription>
            <CategoryNumber/>
            <CategoryDescription/>
            <Quantity>2246.25</Quantity>
            <Unit>lb</Unit>
            <UnitPrice>10.0</UnitPrice>
            <RowTotalAmountVatExcluded>22462.50</RowTotalAmountVatExcluded>
            <StatusText>Received</StatusText>
            <InvoicedQuantity>0</InvoicedQuantity>
            <DeliveredQuantity>2246.25</DeliveredQuantity>
            <IsDeliveryRequired>false</IsDeliveryRequired>
            <PriceUnit>1.0</PriceUnit>
            <VatAmount>0.0</VatAmount>
            <DeliveryNoteNumber/>
            <DeliveryDate1>20260901</DeliveryDate1>
            <DeliveryDate2/>
            <UniqueArticleNumber/>
        </PurchaseOrderLine>
        <PurchaseOrderLine>
            <OrderLineNumber>20</OrderLineNumber>
            <ArticleNumber>M0018</ArticleNumber>
            <SupplierArticleNumber/>
            <ArticleDescription>Polyol</ArticleDescription>
            <CategoryNumber/>
            <CategoryDescription/>
            <Quantity>4.4</Quantity>
            <Unit>lb</Unit>
            <UnitPrice>10.0</UnitPrice>
            <RowTotalAmountVatExcluded>44.0</RowTotalAmountVatExcluded>
            <StatusText>Open</StatusText>
            <InvoicedQuantity>0</InvoicedQuantity>
            <DeliveredQuantity>0</DeliveredQuantity>
            <IsDeliveryRequired>false</IsDeliveryRequired>
            <PriceUnit>1.0</PriceUnit>
            <VatAmount>0.0</VatAmount>
            <DeliveryNoteNumber/>
            <DeliveryDate1>20260901</DeliveryDate1>
            <DeliveryDate2/>
            <UniqueArticleNumber/>
        </PurchaseOrderLine>
    </Lines>
    <SupplierName>Contoso Chemicals Japan</SupplierName>
    <RequisitionedBy>Jennifer Smith</RequisitionedBy>
    <CreatedBy>Ben Martin</CreatedBy>
</PurchaseOrder>
<PurchaseOrder>
    <OrderNumber>000035</OrderNumber>
    <SupplierNumber>US-111</SupplierNumber>
    <CurrencyCode>USD</CurrencyCode>
    <DateCreated>2014-02-28T22:29:53</DateCreated>
    <ContactName>CHARLIE</ContactName>
```

```
        <Description>More text</Description>
        <StatusText>Open</StatusText>
        <Lines>
            <PurchaseOrderLine>
                <OrderLineNumber>10</OrderLineNumber>
                <ArticleNumber>T222333</ArticleNumber>
                <SupplierArticleNumber>004522604</SupplierArticleNumber>
                <ArticleDescription>PLL1910M 19in 1280x1024 DVI VGA LED Monitor w
 Integrated Sp</ArticleDescription>
                <CategoryNumber>44110000</CategoryNumber>
                <CategoryDescription>OFFICE AND DESK ACCESSORIES</CategoryDescription>
                <Quantity>100.0</Quantity>
                <Unit>ea</Unit>
                <UnitPrice>199.0</UnitPrice>
                <RowTotalAmountVatExcluded>19900.0</RowTotalAmountVatExcluded>
                <StatusText>Open</StatusText>
                <InvoicedQuantity>40.0</InvoicedQuantity>
                <DeliveredQuantity>0</DeliveredQuantity>
                <IsDeliveryRequired>true</IsDeliveryRequired>
                <PriceUnit>1</PriceUnit>
                <VatAmount>0.0</VatAmount>
                <DeliveryNoteNumber/>
                <DeliveryDate1>20260901</DeliveryDate1>
                <DeliveryDate2/>
                <UniqueArticleNumber/>
            </PurchaseOrderLine>
        </Lines>
        <SupplierName>Contoso Office Supply</SupplierName>
        <RequisitionedBy>Jennifer Smith</RequisitionedBy>
        <CreatedBy>Ben Martin</CreatedBy>
    </PurchaseOrder>
</PurchaseOrders>
```

Element descriptions

The following table describes XML elements that may not be self-explanatory or need clarification.

XML element	Description
ContactName	You can decide who the contact person is according to the needs of your solution. For example, the contact person could be the creator of the order or the person who requested the purchase. Ideally, the contact should be someone accounts-payable personnel can contact if there is an issue.
RequisitionedBy	The person who requested the items to be purchased.
CreatedBy	The person who created the purchase order.
StatusText	The status of the purchase order. This is specific to your integration, but could be, for example, "received", "pending", and more.
UnitPrice	The price per unit of the ordered article or category.
PriceUnit	The number of units included in the price based on the quantity. In some systems, the price unit is used to calculate prices to a larger degree of accuracy. Default value: 1

XML element	Description
InvoicedQuantity	The number of items that have already been invoiced.
DeliveryDate1	The earliest expected delivery date. However, if `DeliveryDate2` is not specified, then DeliveryDate1 is the due date. The date format must be YYYYMMDD.
DeliveryDate2	The due date, or latest date that delivery is required. The date format must be YYYYMMDD.
UniqueArticleNumber	A globally unique article identifier, such as a global trade item number.

Delete documents

You can delete individual documents (or batches) at any time if you encounter a problem with a document.

You cannot restore documents that have been deleted. If you delete documents accidentally, you must send the documents to Tungsten AP Essentials again to process them again.

Delete documents from Tungsten AP Essentials Office

You can delete documents from most views in the document list view.

1. Select the view that contains the document or batch to delete.
2. Select one or more documents to delete.

   Verify that the current view is **Documents** or **Batches** to avoid deleting entire batches unintentionally.

3. Select **Delete**.
   A dialog appears to confirm the deletion.

Delete batches from the Admin Center

1. Navigate to the appropriate **Documents** view.
2. Select one or more batches to delete.
3. Select **Delete**.

   A dialog appears to confirm the deletion. Deleted batches remain in the system, but are hidden. To display deleted batches, select **Show deleted** in the **Explore** view.

Enable PGP for the SFTP target system

SFTP transfers files via a secure, encrypted connection. However, after file transfer is complete, the files are unencrypted on the destination system. If this is a problem for you, the SFTP target system service can encrypt the ZIP files it sends to the target system using Pretty Good Privacy (PGP) encryption. This provides an additional level of security because files remain encrypted on the target system after they are transferred.

1. Upload your PGP public key to the **Resources** view in ASC or PUB format.
   Do not select ⛔ to enable the resource.
2. In the SFTP target system settings, select **Zip files before sending**. PGP requires this setting to be enabled.
3. In the **PGP public key** setting, select the file that you uploaded to the **Resources** view.
4. Select **OK** to save your settings.
   After you save the settings, output ZIP files are encrypted using PGP. To turn off PGP encryption, clear the **PGP public key** setting.

Enable SSH key authentication for the SFTP target system

SFTP transfers files via a secure, encrypted connection. You can optionally connect to your SFTP server using SSH key authentication. AP Essentials supports SSH keys in PEM format.

To enable SSH key authentication for the SFTP target system service:

1. In the SFTP target system settings, specify the **User name** associated with the SSH key.
2. Open the private SSH key file (in PEM format) in a text editor. Copy the contents of the file and paste it into the **SSH private key** setting.
3. If the private key was generated using a passphrase, type it in the **SSH passphrase** setting.
4. Select **Test**, to test the connection.
5. Select **OK**.

User interface: Admin Center

This section provides detailed descriptions of every dialog and view within the user interface for AP Essentials Admin Center. It serves as a reference for users to understand the various elements, settings, and functionality available in each part of Admin Center. When you select a help button in Admin Center, you go to one of the topics in this section.

- Account type view
- Account view
- Add new partner account group view
- Add new partner account view
- Add subsidiary view
- Approval hierarchy view

- Audit trail view
- Business unit name view
- Classification view
- Coding & approval trigger view
- Correction trigger view
- Customer accounts view
- Document volumes report view
- Documents view
- E-Invoice Connect view
- Email input view
- Email address view
- Email forwarding view
- Email templates view
- Event log view
- Extraction view
- Group view
- Image upload view
- Master data service view
- Master data views
- Notifications view
- On hold code view
- On hold codes view
- Partner view
- Partners view
- Process control view
- Purchase order lines view
- Purchase order view
- Purchase orders view
- Reject code view
- Reject codes view
- Rejection trigger view
- Resources view
- Separation view
- Service plan view
- Services view
- Storage view
- Subsidiaries view
- Target system configuration view
- Target system configuration view: Coupa AP
- Target system configuration view: Coupa
- Target system configuration view: Dynamics AX (Embedded) settings

- Target system configuration view: Dynamics 365 for Finance and Operations settings
- Target system configuration view: Dynamics AX settings
- Target system configuration view: E-conomic settings
- Target system configuration view: Email settings
- Target system configuration view: NetSuite settings
- Target system configuration view: Oracle Financials Cloud
- Target system configuration view: PROCESS DIRECTOR Accounts Payable
- Target system configuration view: SAP S/4HANA Cloud ES
- Target system configuration view: SFTP settings
- Target system configuration view: XML locally settings
- Target system configuration view for top-level administrators
- Target system view
- Tungsten Copilot view
- Usage summary view
- User management view
- Validation view
- Verification view
- Workflow step view
- Workflow view
- Workflow view (for adding or editing a workflow)

Account view

Use this view to view or adjust the account settings in Admin Center.

To access this view in Admin Center, select an **Account** node in the administration tree.

The settings displayed can vary depending on whether you select a partner or customer account. Use these settings to view or adjust the account settings.

Service plan	
Edit	Displays a view to edit the service plan.

Model	Determines the licensing model: • The **Live** model is for customers in production. • The **Demo** model is for organizations that use Tungsten AP Essentials for demonstration purposes. • The **Trial** model is for organizations that want to test Tungsten AP Essentials.
Period start	Specifies when the current period of service plan started.
Period end	Specifies when the current period of service plan ends.

Volume	The number of documents that are licensed during the period specified by the service plan. In other words, the number of documents the customer can process during the specified period. Document volume data is updated every 5 hours.
Enforce subscription period	Automatically pauses the account when the subscription period ends. Dates for **Period start** and **Period end** are expressed in UTC time and are inclusive. For example, if **Period start** is 2026-01-01 and **Period end** is 2026-01-31, then the subscription is valid from 2026-01-01 00:00 until 2026-01-31 at 23:59 UTC time.
Enforce volume limit	Automatically pauses the account when the document volume reaches its limit. For example, if **Volume** is set to 100, the account pauses after the 100th document is processed.
Description	Use this setting to save notes about the licensing. For example, if you made special arrangements to extend the length of a demo account, you can type the details here.
Reference	The text that you type here is used as the customer billing report reference in the billing report.
Reference ID 1, **Reference ID 2**	Tungsten Automation uses these IDs for internal record-keeping. These settings can only be edited by Tungsten Automation personnel and subsidiary administrators.

Usage	
Documents processed since...	The number of documents successfully processed since the account was enabled or the date specified. The number displayed here might not match the Volume report in Analytics because they use different calculation methods. Also, this number comes from data that the system retains indefinitely, whereas Analytics reports include only data from the past two years.
Documents remaining	The number of documents remaining in the current period that you can process without incurring charges for overage.
Document overage	The number of documents over the amount included in your service plan.
Days remaining in period	The number of days remaining in the current service plan period. For live accounts, this is the number of days until the current billing cycle ends. For trial accounts, this is the number of days until the trial ends.

Days since period ended	The number of days since the current service plan period ended. For live accounts, this is the number of days that have passed since the current service plan ended. For trial accounts, this is the number of days since the trial ended.

Preview features	
[varies]	Displays a list of available preview features. The preview features that appear can vary depending on which preview features are enabled on the parent account. Enabled preview features are denoted with a check mark.

For more information about accounts, see Accounts: Overview.

Usage summary view

This view displays usage information for sub-accounts.

To access this view in Admin Center, select a **Usage summary** node in the administration tree.

This view is available on the subsidiary, partner, partner group, and customer group levels. Document volume data is updated every 5 hours. Use these settings to get an overview of customer account usage:

Name	Displays the name of a partner or customer account. Selecting the name takes you to the account view of the partner or customer you selected.
Model	Determines the licensing model: • The **Live** model is for customers in production. • The **Demo** model is for organizations that use Tungsten AP Essentials for demonstration purposes. • The **Trial** model is for organizations that want to test Tungsten AP Essentials. The model is empty if no service plan is specified.
Document volume	The number of documents that are licensed during the period specified by the service plan. In other words, the number of documents the customer can process during the specified period. Document volume data is updated every 5 hours. The progress indicator changes color as the licensed volume of documents is consumed. • 0% - 80% = Green • 80% - 100% = Yellow • 100% or more = Red If a service plan is specified without a document volume, the progress bar does not indicate any progress.

Time period	Displays the beginning and ending dates of the service plan. The time period is empty if a service plan is specified without a time period. The progress indicator changes color as the licensed time period nears expiration. • 0% - 80% = Green • 80% - 100% = Yellow • 100% or more = Red

Email templates view

Use these settings when editing email templates that Tungsten AP Essentials uses when sending notifications.

To access this view in Admin Center, select the **Email templates** node in the administration tree view.

Template	Lists the email templates that are in use at the current account level. The name of the template reflects the event that causes the email to send automatically.
Templates for partners	Lists the email templates that are used when creating a new partner. These templates only appear at the subsidiary level. When you create a new partner, the templates listed here are copied to the **Template** list of the partner account.
Templates for customers	Lists the email templates that are used when creating a new customer. These templates only appear at the partner level. When you create a new customer, the templates listed here are copied to the **Template** list of the customer account.

Select a template to edit its settings.

Subject	The subject of the email. When an email notification is sent, the subject is prefixed with the name of the originating partner account or customer account, enclosed in brackets.
Body	The body of the email.
Enable HTML	Use to enable HTML in the email body.

Variables	The variables that appear can vary depending on the selected email template. In some templates, `%DocumentId%` returns the Track ID instead of the Document ID. This will be corrected in an upcoming update. For details about current behavior and upcoming changes, see "Edit email templates." • `%AccountName%` - The name of the partner account. • `%ApproveUrl%` - A link that takes the user to the invoice for approval. • `%APIKey%` - The API key of the partner account. • `%APIService%` - The URL you use to access the API. • `%CustomerName%` - The name of the customer. • `%Currency%` - The currency of the invoice. • `%DueDate%` - The invoice due date. • `%EmailInputAddress%` - The default email address that accepts invoices via the Email input service. • `%GrossAmount%` - The gross amount of the invoice. • `%ParentName%` - The partner or account name. • `%PasswordLink%` - A link that the user can follow to set the password. • `%Reason%` - The reason an invoice was rejected by the system or a user. • `%SiteUrl%` - The URL you use to access Tungsten AP Essentials. • `%Sender%` - The user who rejected the invoice. • `%Services%` - The services available. • `%SupplierName%` - The supplier name of the invoice. • `%SystemUrl%` - An alternative to `%SiteUrl%`, the URL you use to access Tungsten AP Essentials. • `%TrackId%` - The tracking ID of the document. • `%UserName%` - The login name of the user. • `%WorkflowUser%` - The name of the recipient (workflow user) of the notification email.

User management view

Use this view in Admin Center to specify settings that apply to all users.

To access this view in Admin Center, select a **User management** node in the administration tree view.

Use this view and its child views to manage users.

Single sign-on	
Enable	Enables single sign-on for the current account.
Identity provider	Specifies the identity provider that you want to use for single sign-on.
Tenant ID	The **Tenant ID** of the organization as it appears in the Azure Active Directory settings (**Overview** > **Basic information** settings). This setting is only visible if **Identity provider** is a multi-tenant provider.
Two-factor authentication	
Enforce two-factor authentication	If selected, all users on the current account level must configure two-factor authentication in order to log in. You can exclude users from two-factor authentication individually in the User view.
Tracking ID	
Include the customer external reference ID in the tracking ID	Determines whether the tracking ID is prefixed with the **External ID** of the customer. When selected, tracking IDs use this format: prefix-YYYYMMDD-X This setting applies to all of the customers of the current partner. This setting does not add the prefix to documents that are already in the system. Likewise, the prefix is not removed from the tracking IDs of existing documents if you clear this setting at a later date. This setting is only available on the partner level.

Users view

Use this view to add or edit a user in Admin Center.

To access this view in Admin Center, navigate to **Account** > **User management** > **Users** in the tree view.

Use this view to add or edit a user.

Add	Displays a view that you can use to add a new user.
Import	Displays a view that you can use to import multiple users using a CSV file. This button is not available on all levels of the tree view.

Export	Prompts you to download a CSV file containing user information from the current view. This is helpful for administrators who need to get an overview of users and their settings. The CSV contains this information: • User name • Full name • Email • Phone number • Notes • Whether an identity provider is used (true/false) • Role • Groups • Manager user name • Monetary limit • Monetary limit currency • Substitute user name • Last login date • Whether two-factor authentication is used (true/false) • Privileges • Suborganization access • Whether the user is enabled (true/false) • Whether the user is paused (true/false)
User name	The name you use to log in. You can select the user name to display a view that you can use to edit its settings.
Full name	The full name (first name and last name) of the user.
Email	The email address of the user.
Role	The role of the user. • **Admin** - Administrators who manage accounts, users, and settings in Admin Center. The Admin user must have the Manage accounts privilege to change settings. Without this privilege, administrators can access the Admin Center, but they cannot edit settings. • **User** - Users who process documents and only have access to Tungsten AP Essentials Office.
Disabled	Indicates the user is disabled. Only Tungsten Automation system administrators can enable disabled accounts. Contact support to enable a disabled account.
Paused	Indicates the user is paused.

Reset password	Displays a dialog that asks if you are sure if you want to reset the user password. If you select **OK**, a new, random password is created for the selected user. The new password is sent to the user via email. Password reset is not allowed on paused or disabled user accounts. You cannot choose or see the password that is sent to the user.
Delete	Displays a dialog that asks if you are sure you want to delete the user. If you select **OK**, the user is deleted from the system.

Refer to User management: Overview for more information.

User view

Use this view to specify user settings in Admin Center.

To access this view in Admin Center, select a user name, or select **Add**, in the **Users** view.

Use this view to add or edit a user. The settings that appear in this view vary, depending on which document process you use. For accounts payable, the settings are buyer-centric. For accounts receivable, the settings are seller-centric.

See more information about user management.

User view for accounts payable organizations

Edit	Lets you edit the settings in the current view. After you select Edit, two buttons appear: • **Save & close** - Saves any changes you made and returns to the **Users** view. • **Cancel** - Returns to the **Users** view without saving any changes.
Reset password	Resets the password and sends a notification email to the user.
Resume	Resumes a user account that was paused due to inactivity.
Delete	Deletes the current user.
Profile	
Use identity provider	Determines whether the user uses single sign-on. If this setting is selected, the user cannot log in to Tungsten AP Essentials via the Tungsten AP Essentials login page; the user must be authenticated using single sign-on. If **Use identity provider** is selected when you create a new user, the user does not receive an email containing log-in information from Tungsten AP Essentials.

User name	The name you use to log in to Tungsten AP Essentials.
Full name	The real name (first name, last name) of the user.
Email	The email address of the user.
Role	The role of the user. • **Admin** - Administrators who manage accounts, users, and settings in Admin Center. The Admin user must have the Manage accounts privilege to change settings. Without this privilege, administrators can access the Admin Center, but they cannot edit settings. • **User** - Users who process documents and only have access to Tungsten AP Essentials Office.
Phone	The phone number of the user.
Substitute	Specifies an alternate user for workflow services. You can use this setting, for example, if the user is absent, and you want to choose another user as a temporary replacement. When this setting is empty, nothing happens. When you specify a substitute, the substitute user replaces the current user in all workflows until you change this setting to empty again. If you have workflows that use groups, instead of individual users, to assign invoices, make sure the substitute user belongs to the same groups as the user being substituted. This setting only appears when: • Workflow services are enabled. • The user **Role** is set to **User**.
Notes	Use this setting to make administrative notes about the user. For example, if the user is your main contact at the customer site, you can make a note of this here for your reference.
Privileges	
[Settings vary]	Displays privileges that you can associate with the selected user.
Customer organization access/Buyer access	
All customer organizations (current and future) or **All buyers (current and future)**	Grants the user access to all customer organizations/buyers, including new customer organizations/buyers that you create in the future. For example, the user can process documents for all buyers, and all of the buyers appear in the **Buyers** list in the upload view. If you add new buyers in the future, the user can process their documents as well.

Selected customer organizations/Selected buyers	Restricts user access to the customer organizations/ buyers specified in the list.
Allow access to unclassified documents	Grants the user access to documents that AP Essentials was unable to classify automatically. This setting is only visible if buyer/seller classification is enabled. When this setting is enabled, and the user opens an unclassified document, the user can only assign the document to buyers/sellers that the user has access to.
Approval	
Manager	Specifies the next user in a linear approval hierarchy who has a larger monetary limit than this user.
Amount	Determines the maximum invoice amount the user can approve without approval from a manager. If the user approves an invoice that has a total amount greater than the amount you specify here, the invoice is sent to the **Manager** for approval.
Currency	Specifies the currency of the **Amount**. This setting is only enabled if you use currency master data.
Two-factor authentication	
Remove two-factor configuration	Deletes the two-factor authentication configuration for the selected user, so the user must set up a new configuration in order to log in. Use this button to prevent unauthorized access to Tungsten AP Essentials if a mobile device is lost, or if the security of the device was compromised in some other way.
Let this user to log in without using two-factor authentication	By selecting this setting, you override the **Enforce two-factor authentication** setting, so the user does not need to use two-factor authentication to log in.
Audit trail	
Show successful authentication events	Displays successful user-login events.
Event time	The date and time that the event occurred.
Changed by	Indicates the user that triggered the event.
Message	Provides user-specific event information such as: • When the user has accessed the system and what functionality was accessed. • Changes to privileges and other user-account modifications. • What functionality/data a person has accessed.

User view for accounts receivable organizations

Edit	Lets you edit the settings in the current view. After you select Edit, two buttons appear: • **Save & Close** - Saves any changes you made and returns to the **Users** view. • **Cancel** - Returns to the **Users** view without saving any changes.
Reset password	Resets the password and sends a notification email to the user.
Resume	Resumes a user account that was paused due to inactivity.
Delete	Deletes the current user.
Profile	
Use identity provider	Determines whether the user uses single sign-on. If this setting is selected, the user cannot log in to Tungsten AP Essentials via the Tungsten AP Essentials login page; the user must be authenticated using single sign-on. If **Use identity provider** is selected when you create a new user, the user does not receive an email containing log-in information from Tungsten AP Essentials.
User name	The name you use to log in to Tungsten AP Essentials.
Full name	The real name (first name, last name) of the user.
Email	The email address of the user.
Role	The role of the user.
Phone	The phone number of the user.
Notes	Use this setting to make administrative notes about the user. For example, if the user is your main contact at the customer site, you can make a note of this here for your reference.
Privileges	
[Settings vary]	Displays privileges that you can associate with the selected user.
Customer organization access/Seller access	
All customer organizations (current and future) or **All sellers (current and future)**	Grants the user access to all customer organizations/sellers, including new customer organizations/sellers that you create in the future. For example, the user can process purchase orders for all of the sellers, and all of the sellers appear in the **Sellers** list in the upload view. If you add new sellers in the future, the user can also process their purchase orders.
Selected customer organizations/Selected sellers	Restricts user access to the customer organizations/sellers specified in the list.

Two-factor authentication	
Remove two-factor configuration	Deletes the two-factor authentication configuration for the selected user, so the user must set up a new configuration in order to log in. Use this button to prevent unauthorized access to Tungsten AP Essentials if a user loses a mobile device, or if the security of the device was compromised in some other way.
Let this user to log in without using two-factor authentication	By selecting this setting, you override the **Enforce two-factor authentication** setting, so the user does not need to use two-factor authentication to log in.
Audit trail	
Show successful authentication events	Displays successful user-login events.
Event time	The date and time that the event occurred.
Changed by	Indicates the user that triggered the event.
Message	Provides user-specific event information such as: • When the user has accessed the system and what functionality was accessed. • Changes to privileges and other user-account modifications. • What functionality/data a person has accessed.

Import users view

Use this view to import multiple users.

To access this dialog in Admin Center, select **Import** in the **Users** view.

The **Import** button is not available in the **Users** view on all levels of the tree view.

Use this view to import multiple users.

Download example file	Downloads a file that you can use as a template to create your own CSV.
Upload a CSV file	Uploads a CSV file that you can use to import multiple users simultaneously.
Save	Saves the imported user settings.
Send welcome emails to created users	After you select **Save**, newly created users receive an email containing login information.

Grant default privileges to newly created users with the User role	When this setting is enabled, newly created users with the **User** role are granted these privileges upon creation: • Access Explore • Access Received • Access Upload (if the Image upload service is enabled) • Access Verify (if the Verification service is enabled) • Access Approve (if the Workflow service is enabled) • Update online learning Note: Privileges do not change for existing users or users with the **Admin** role. If this setting is not enabled, newly created users with the **User** role are not granted any privileges.

User groups view

Use this view to manage user groups in Admin Center.

To access this view in Admin Center, expand **Account** > **User management** in the tree view and select **User groups**.

Use this view to manage user groups.

Add	Displays a view that you can use to add a new user group.
Name	The name of an existing group. You can select the group name to display a view that you can use to edit its settings.
Description	An optional description of the user group.
Delete	Displays a dialog that asks if you are sure you want to delete the group. If you select **Yes**, the group is deleted from Tungsten AP Essentials.

For more information, see User management: Overview.

User group view

Use this view to specify user group settings.

To access this dialog in Admin Center, select a user group name, or select **Add**, in the **User groups** view.

Use this dialog to add or edit a user group.

Profile	
Name	The name of the group.
Description	A description of the group.
Users	

Show	Filters the user list for easier viewing.
Full name	The full name of the user.
User name	The login name of the user.
Privileges	
Privileges	Displays privileges that you can associate with the group. Each member of the group is granted the privileges that you select here.
Presets	Presets are a convenient way to apply commonly used privileges to a group, based on the role of the group. Select a preset and select **Apply** to assign the privileges to the current group.
Apply	Adds the privileges of the current preset to the group.
Customer/Buyer access - Determines which customers/buyers members of the group have access to.	
Allow access to unclassified documents	Grants users access to documents that AP Essentials was unable to classify automatically. This setting is only visible if buyer/seller classification is enabled. When this setting is enabled, and the user opens an unclassified document, the user can only assign the document to buyers/sellers that the user has access to.
Show	Filters the customer/buyer list for easier viewing.
Name	The name of the customer, customer group, or buyer.
External ID	A unique ID that identifies the customer or buyer organization in the target system.
Audit trail - Displays audit trail information for the current user group.	
Event time	The date and time that the event occurred.
Changed by	Indicates the user who triggered the event.
Message	Provides user-specific event information such as: • When the user has accessed the system and what functionality was accessed. • Changes to privileges and other user-account modifications. • What functionality/data a person has accessed.

Refer to the User management: Overview for more information.

Approval hierarchy view

This view visualizes linear approval hierarchies that are defined in the user settings.

To access this view in Admin Center, expand an **Account** node in the administration tree view at a customer level and select the **Approval hierarchy** node.

Use this view to understand how invoices are routed in a linear approval workflow. This view uses the combined **Approval** settings of each user to display the approval hierarchy in a way that is easy to understand.

Show all users	Displays all users, including users that are not managers and have no monetary limit. In other words, users who are not included in an approval hierarchy are also displayed.
Full Name	The full name of the user.
Email	The email address of the user.
Monetary limit	The monetary limit of the user.

Services view

Use this view to add or remove services and access service settings in Admin Center.

To access the **Services** view in Admin Center, select a **Services** node in the administration tree.

Use this view to add or remove services and access service settings. The services and settings that are available may vary depending on your role and which **Services** node you selected in the administration tree.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

Analytics	Provides reports about document status, document volumes, performance statistics, and more.
Classification	Automatically routes invoices to the correct partner.
Copilot	Enhances Tungsten AP Essentials Office with generative AI assistance.
Email input	Enables users to send invoices by email to the system.
Extraction	Determines how document information is interpreted.
e-Invoice Connect	Simplifies invoice processing by connecting you to hundreds of thousands of companies that are already connected and exchanging e-invoices.
Image upload	Enables users to upload images to the system using a secure connection.
Master data	Determines user interaction with master data when verifying invoices.
Notifications	Notifies users of various events by email. For example, an email notification can be sent when Tungsten AP Essentials receives a batch or when a batch is rejected.
Process control	Automates production elements, such as processing new documents upon arrival.

Purchase order	Enables the sharing of purchase-order information between Tungsten AP Essentials and the target system.
Separation	Provides an interface to separate documents in a batch quickly and easily.
Storage	Provides long-term archiving of document images and data.
Target system	Specifies the target system and how document information is sent to it.
Validation	Provides automated functions that help ensure the correctness of invoice data.
Verification	Enables users to easily verify documents in a web browser.
Workflow	Enables users to perform accounts-payable and workflow activities.

Classification view

Use these settings to define the Classification service.

To access this view in Admin Center, select a **Services** node in the tree view and select **Classification**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

Services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree.

Enable buyer classification	If a customer has multiple buyers, this setting automatically assigns invoices to the appropriate buyers based on information that you provide via AP Essentials Connect or the API. Although you enable this setting at the partner level to make it available to customer accounts, the functionality is only performed at the customer level.
Enable address classification	This feature helps identify suppliers when you receive invoices that have the same supplier name, but different addresses. New internal classification methods have made this setting almost obsolete, so do not enable this setting unless invoices with the same supplier name, but different addresses, are not being classified properly.

Tungsten Copilot view

Use these settings to define the Tungsten Copilot service.

To access this view in **Admin Center**, select a **Services** node at the partner level in the administration tree, then select **Copilot**. You must have the **Manage Copilot settings** privilege to change these settings.

Tungsten AP Essentials does not enforce spending or usage limits on your AI service account. You are solely responsible for setting and adhering to any usage or spending limits.

To use Tungsten Copilot, AP Essentials Office users must have the Access Copilot and Access EXPLORE privileges, as well as access to all buyers in the organization.

Test	Tests whether AP Essentials can connect to your AI service account. Testing the connection incurs a cost because it involves making an API call, which uses tokens. Each request processes input and generates a response, and the cost is based on the number of tokens used in both.

Enabled	Determines whether the service is enabled. You can enable or disable the service at any time. Disabling the service does not delete its settings.
OpenAI	• **API key** — Required. The secret key you use to access your OpenAI account. • **Organization** — Optional. The organization ID you specify here is added to the OpenAI organization header. Users belonging to multiple organizations can use this ID to specify which organization to use for API requests. Usage from these requests counts toward the subscription quota, which helps manage limits. This service uses the gpt-5-mini model.
Azure OpenAI Service	• **API key** — Required. The API key you use to access your Azure OpenAI account. • **Endpoint** — Required. The endpoint URL for the Azure OpenAI service. • **Deployment** — Required. The name of your Azure OpenAI model deployment. In Azure OpenAI Service, you must deploy a model before you can use it. When you create the deployment, you assign it a deployment name. Enter that exact deployment name here. This value is case-sensitive and must match the name defined in your Azure OpenAI resource. • **Model** — Required. The AI model name for Azure OpenAI Service.

Email input view

Use these settings to define the **Email input** service.

To access this view in **Admin Center**, select a Services node in the administration tree and select **Email input**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary depending on your role and which Services node you selected in the administration tree.

Edit	Lets you edit the settings in the current view. **Save** and **Cancel** buttons appear after you select **Edit**. Any changes or deletions that you make do not take effect until you select **Save**. If you regret your changes, select **Cancel**.
Email address prefix	Specifies a prefix that will precede all email addresses.
Email domain name	Specifies the email domain name. Learn about using your own domain. This setting is read-only.

Input addresses	
Add	Displays a view for adding a new email input address.
Delete	Deletes the selected email address settings.
Input email address	Specifies email addresses that accept invoices as attachments. Selecting an address displays a view that you can use to edit the email input settings.
Document type	Specifies which document type is expected by invoices that are sent to this address. If **Use subject or default** is selected, the document type is determined according to the procedure described here.
Buyer	Specifies which buyer to send the invoices to. If **Use subject or default** is selected, the buyer is determined according to the steps described here.
Attachments	Specifies whether attachments contain one or multiple invoices.
Email forwarding	
Add	Displays a dialog for adding a new forwarding email address.
Delete	Deletes the selected email-forwarding settings.
Email address	An email address that has email-forwarding settings applied. Also known as the forwarding email address. Selecting an email address displays a dialog that you can use to change the email forwarding settings.
Accepted	A copy of all email that is successfully accepted by Tungsten AP Essentials is sent to the forwarding email address.
Discarded	A copy of all email that is discarded by Tungsten AP Essentials is sent to the forwarding email address. An email can be discarded if it does not contain an attached invoice, or the attachment is invalid.
Return the email to the sender	Determines whether a copy of the email is returned to the sender. This is helpful because it alerts the sender that something has gone wrong.

Email address view

Use these settings to specify the email addresses you use for receiving invoices via email.

To access this view in Admin Center, select an email address in the **Input addresses** list or select **Add** in the Email input view.

Email address	The email address that accepts invoices from you or your suppliers.
Copy to clipboard	Copies the email address to the clipboard, so you can paste it into an email.

Buyer	Determines which buyer to send the invoices to. You can select individual buyers or choose one of the settings below. The setting that appears depends on whether you have buyer classification enabled: • **Use email subject** - This setting is available if you do not have buyer classification enabled. The buyer is determined by a specially formatted email subject. If the subject is empty or incorrectly formatted, the invoice is routed to the customer. • **Use email subject or buyer classification** - This setting is only available when buyer classification is enabled. If the email subject is properly formatted, the email subject is used. Otherwise, invoice information is used to find the buyer automatically. A link to **Settings** appears, which you can use to restrict which buyers incoming invoices from the current email are routed to.
Document type	Specifies which document type is expected for invoices that are sent to this address. If **Use email subject** is selected, the document type is determined according to the email subject. If the subject is empty or incorrectly formatted, the default document type is used.
Attachments	**One document per attachment** - Specifies that each attachment contains only one invoice (no separation). **Multiple documents per attachment** - Specifies that each attachment can contain more than one invoice (blank-page separation).
Attachment priority	**None** - All attachments are processed. **XML** - If an email has XML attachments and attachments in other formats, only XML attachments are processed. Other attachments, such as PDF and image files, are ignored unless there are no XML attachments. **Image** - If an email has image or PDF attachments and attachments in other formats, only image and PDF attachments are processed. Other attachments, such as XML files, are ignored unless there are no image or PDF attachments.

Attachment formats	Determines which attachment formats you accept for processing via email input. Select **Supported formats** to select or clear all formats. When AP Essentials receives email input: • If at least one attachment matches any of the selected formats, the email is accepted. The email is considered accepted in regards to email forwarding settings. • If no attachments match any of the selected formats, the email is discarded. The email is considered discarded in regards to email forwarding settings. If you do not select all formats, it increases the possibility that someone sends documents in a format that you do not accept. Therefore, consider enabling email forwarding and the **Return the email to the sender** setting to inform senders of discarded emails.

It is possible to use the email subject for the buyer and not the document type and vice versa. For example, if you select **Use email subject** in the **Buyer** setting, and you select **Swiss invoices** in the **Document type** setting, a correctly formatted email subject would look like this:

```
ExternalBuyerID |
```

In the example above, the external ID of the buyer is specified before the pipe character, and nothing is specified after the pipe character because the document type is specified in the settings on the **Email address** view.

Conversely, if you select a buyer in the **Buyer** setting, and you select **Use email subject** in the **Document type** setting, a correctly formatted email subject would look like this:

```
| DocumentType
```

Email forwarding view

Use these settings to specify the conditions that trigger the forwarding of input email.

To access this view in **Admin Center**, select **Email input** at the customer level, select **Email forwarding** and select **Add** or select an existing email address in the list.

Use these settings to specify the conditions that trigger the forwarding of input email.

Accepted	A copy of all email that is successfully accepted by Tungsten AP Essentials is sent to the forwarding email address.
Discarded	A copy of all email that is discarded by Tungsten AP Essentials is sent to the forwarding email address. An email can be discarded if it does not contain an attached invoice, or the attachment is invalid.

Forward email to this address	Specifies the email address that you want to forward email to.
Return the email to the sender	Determines whether a copy of the email is returnedto the sender. This is helpful because it alerts the sender that something has gone wrong.
All buyers (current and future)	Applies these settings to email from all buyers, including new buyers that you create in the future. If you do not select this option, you must specify buyers in the list at the bottom of the dialog.
Selected buyers	Restricts the application of these settings to the buyers you select in the list.

Extraction view

Use these settings to define the Extraction service.

To access this view in **Admin Center**:

- Navigate to a **Services** node in the administration tree and select **Extraction**.
- If your organization uses buyer entities, expand a buyer node in the administration tree and select **Extraction**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The settings that appear here can vary, depending on your role and which **Services** node you selected in the administration tree:

Document types	
Reset to customer settings	Resets the extraction settings of the current buyer, so they match the extraction settings of the parent customer account. This button only appears on the buyer level, if the current buyer has extraction settings that differ from the parent account.
Default document type	Specifies which document type to use if no type is selected when the user uploads invoices.

Document types	
Only use country-specific subtypes and the XML document type	When selected, you can only use country-specific document subtypes, with one exception: you are also optionally allowed to use the XML document type on the customer level. If you use document subtypes and edit the extraction settings on the buyer level, the document types available are limited to: • Document types that match the country of the buyer. • The XML document type. If you select this setting and select **Save**, this setting validates your setup to make sure you are not combining generic document types with country-specific document types. It also warns you if, for example, any buyer organizations do not have a country specified.
Document type	Lists the document types that are available for data extraction. Select the name of a document type to display a view that specifies field settings for the document type.
System name	The internal name of the document type. Use the **System name** to specify the document type when sending invoices via email.
Country	Specifies the country supported by the document type.
Document subtype	Specifies the document subtype.
Base type	Determines what kind of document you want to extract. The current base types are: • Other • Purchase order • Remittance advice • Supplier invoice
XML	
Render CII XML invoices (ZUGFeRD, Factur-X, and XRechnung) using the official stylesheet	Determines whether you process CII XML invoices using the original image or an image rendered from the XML.
General	

Document types	
Extraction engine	Determines which extraction method interprets document information. • **Classic engine** - The default extraction engine used for recognizing text in documents before the advanced engine became available. • **Advanced engine** - An alternative engine, which features improved interpretation of noisy images and handwriting. When you enable the advanced engine, you have the option to **Use pre-trained document library for first pass extraction**. This setting helps interpret documents from new suppliers more accurately using an AI-powered, pre-trained document library. Read more about first-time extraction.

Page separation method	Determines how invoices are separated when you submit multiple invoices in a batch.
	• **Blank page** - Each invoice is preceded by a blank page.
	• **Barcode** - The first page of each invoice is labeled with a barcode in one of these formats:
	  • Code 128
	  • EAN-8
	  • EAN-13

Auto-rotate images	Automatically detects incorrect rotation of document images in all directions and corrects the image rotation. This is helpful, for example, if images are often scanned upside-down, or if your scanner can only scan images sideways. On very rare occasions, auto-rotation can rotate images incorrectly, so you must correct the rotation during verification.
Display supplier numbers during verification	Determines whether the supplier number is visible when verifying invoices.
Extra searchable fields	
Add	Adds a new row that you can use to specify a custom filter field for the document list views in Tungsten AP Essentials Office. This button is only visible when editing the **Extraction** settings.
Field	Specifies the custom filter field.
Display name	Determines the name of the column in the document list view.
Field category	Shows if the field comes from a document type, supplier master data, or customer master data.

Document types	
	Removes the row from the list and the document list views in Tungsten AP Essentials Office.

Document type view

Use these settings to specify which document fields you want to use during extraction and verification.

To access this view in Admin Center: Navigate to a **Services** node in the administration treeview at the partner level or customer level, select **Extraction**, and select the name of the document type that you want to edit.

Use these settings to specify which fields you want to display when verifying documents. You can also use this view to add custom fields to a document type.

Display name	The user-friendly name of the document type as it appears in the interface.
System name	The name used internally by AP Essentials to identify the document type.
Document subtype	Specifies the document subtype. Not all document types are subtypes.

Header fields

These settings determine which header fields are displayed when verifying invoices. Selecting a field name opens a view that you can use to specify the settings of the field.

Add header field	Displays a view that you can use to create a custom field for extraction. This button is only visible if you selected **Edit** in the **Extraction** view.
Line-item fields	Determines which line-item fields are displayed when verifying invoices. Selecting a field name opens a view that you can use to specify the settings of the field.
Name	The name of the field as it appears in the output that is sent to the target system.
Type name	The internal name of the field, which is used to: • Connect fields to master data. • Specify the field in custom API integrations. • Specify the field in data templates.
Type	Specifies the field type: • **Text** - You can optionally define a **Field format** using regular expressions when you choose this type. • **Date** - Specifies a date field. • **Amount** - Specifies an amount field.

Group	Shows which group the field belongs to when displayed in Office.

Line-item fields

These settings determine which line-item fields are displayed when verifying invoices. Selecting a field name opens a view that you can use to specify the settings of the field.

Add line-item field	Displays a view that you can use to create a custom line-item field for extraction. This button is only visible if you selected **Edit** in the **Extraction** view.
Name	The name of the field as it appears in the output that is sent to the target system.
Type name	The internal name of the field, which is used to: • Connect fields to master data. • Specify the field in custom API integrations. • Specify the field in data templates.
Type	Specifies the field type: • **Text** - You can optionally define a **Field format** using regular expressions when you choose this type. • **Date** - Specifies a date field. • **Amount** - Specifies an amount field.
Group	Shows which group the field belongs to when displayed in Office.

Rules

Only enabled validations are visible here. See the list of available field validations at the end of this help topic.

Verify	Determines whether the validation is performed during verification. ℹ You can override rules during verification.
Workflow	Determines whether the validation is performed in a workflow. ℹ You cannot override rules during approval.
Rule	Select the validation rules that you want to apply to the current document type. Only rules that are enabled on the parent account in the **Validation** view are displayed here. See the table below for a complete list of available validation rules.

Origin	Indicates the source that created the rule. • **System** - A standard AP Essentials rule. • **Partner account** - A custom rule created on the partner level. • **Parent account** - A custom rule created on the partner level, when viewed from a customer account. • **Customer account** - A custom rule created on the customer account level.

Display order

Use these settings to specify the order in which fields are displayed when verifying invoices.

Header field groups	Contains groups of header fields.
Add new group	Creates a new, empty group with the name specified in the box.
	Removes the group. If you remove a group that contains fields, the fields are moved to the **General** group.
	Changes the order of the selected group.
	A handle that you can select and drag with your mouse to move a field to the desired position.
Table field groups	Contains groups of line-item fields.

Available field validation rules

The validation rules in your system can vary depending on your setup. Administrators can change these settings in the Admin Center. There are separate validations for accounts payable and accounts receivable document processes.

Accounts payable validations

Bankgiro	Performs a checksum validation of Swedish bankgiro account numbers. The validation is performed on the `SupplierAccountNumber2` field. The validation rule is available for Swedish document types.
Creditor reference	Performs length, identifier and checksum validations on the `PaymentReferenceNumber` field to ensure the validity of creditor reference numbers. This validation is currently only available for Swiss document types and requires the `PaymentReferenceNumber` field.

Due date	Validates the due date field (`InvoiceDueDate`). This validation makes sure that the date: • occurs on or after today's date. • does not occur too far in the future. • is a valid date. Note that English date formats are valid on all document types, including non-English document types. **Due-date limit (days)** - Due dates are only valid if they do not exceed the current date plus the number of days you specify here. **Calculate due date from payment-terms master data** - Uses payment terms master data to validate and optionally supply the due date. Payment-terms master data is only used during extraction and when a document is opened during verification.

Duplicate invoice check	Warns if invoices with the same supplier number, invoice number, invoice date or invoice amount exist during verification or workflow processes. This can prevent duplicate invoices caused by: • the supplier resending the same invoice by mistake or on purpose. • the same invoice being scanned more than once. • scanning software errors. • an error in AP Essentials. • original invoice attachments that are not recognized as an attachments and treated as separate invoices. AP Essentials checks for duplicates: • After document extraction. • During verification. • During approval. • During document registration and post. • During export. The supplier number must be specified in order for this validation to work. If a duplicate invoice is detected during verification or approval, the validation error is set on all relevant fields. For example, if **Include invoice date** and **Include invoice amount** are selected, and a duplicate invoice is detected, then the validation error is set on the invoice number, invoice date and invoice amount fields. All relevant fields necessary for the duplicate invoice check are required. For example, if **Include invoice date** and **Include invoice amount** are selected, then invoice number, invoice date and invoice amount are all required in the document type. If any field is missing, the duplicate check will not execute. The supplier number and invoice number are always checked when performing this validation, however, **Include invoice date** and **Include invoice amount** checks are optional and can be toggled in the **Duplicate invoice check** setting. If **Include invoice date** and **Include invoice amount** are selected, the invoice number, invoice date and invoice amount must all be the same as a previously processed invoice in order to be considered a duplicate. If you select **Include invoice amount**, the total amount field is used. However, if the total amount field is missing from the document type, the net amount field is used. If a user overrides this validation, it is noted in the document history. This validation relies on data collection that is only gathered when this validation is enabled. Therefore, duplicate invoices are not validated against invoices that were processed prior to enabling this validation. The duplicate invoice check is performed per buyer, so it is possible to have invoices with the same invoice number, for example, if they are for different buyers.

Goods received quantity	Ensures that invoiced quantities match the quantities of goods received (3-way matching) by performing two checks:
	• The quantity on the invoice must be equal to or less than the delivered quantity of the goods received on the purchase order:
	`invoice quantity ≤ PO goods received quantity`
	• The quantity on the invoice must be equal to or less than the delivered quantity of the goods received on the purchase order minus the invoiced quantity on purchase order:
	`invoice quantity ≤ (PO goods received quantity - PO invoiced quantity)`
	Invoices that fail this validation are automatically put on hold.
	Automatic retry (days) - specifies the number of days AP Essentials will continue to automatically check the goods received quantity before sending the invoice to the next step. Automatic retry is only triggered if you override this validation during verification or approval and approve the invoice. Checks will be made automatically and continuously until the document passes validation or until the number of days you specify here passes, whichever comes first. If you change this setting, the new value is applied to invoices that are already on hold.
	ⓘ In order to use this validation, you must enable the Purchase order service.
	ⓘ In order to use this validation, your purchase-order data must include the `DeliveredQuantity` field in `PurchaseOrderLine`.

IBAN	Performs a checksum validation (ISO 7064) to ensure IBAN numbers are valid. The validation is performed on the `SupplierIBAN1`, `SupplierIBAN2`, `SupplierIBAN3` and `SupplierIBAN4` fields. If the document type contains multiple IBAN fields, all of the IBAN fields are validated.

Invoice date	Validates the invoice date field (`InvoiceDate`). This validation makes sure that the date: • occurs before or equal to today's date. • does not occur too far in the past. • is a valid date. **Invoice-date limit (days)** - Invoice dates are only valid if they are not older than the current date, minus the number of days you specify here. **Process limit (days)** - Invoices are stopped if the invoice date is older than the current date minus the number of days you specify here. Unlike **Invoice-date limit**, you cannot override this validation error by pressing Enter during verification. The value you specify here must be greater than **Invoice-date limit** unless you specify 0 to disable this setting (default value: 0).
Line items cannot be empty	Makes sure line items are specified on documents. If no line items are found during extraction, or if all line items are missing or removed during verification or approval, the validation fails and a warning message is displayed. The validation error is set on the total amount field, and you cannot override this validation error. In other words, you cannot process the document further without line items.

Line-item row	Validates each line-item row to ensure that the amounts add up to the row total. If no line-item rows are found on the document, the validation is not performed. This validation handles amounts up to 5 decimal places.
	The validation checks if the calculated row total and the captured row total match within an acceptable margin of error. The validation calculates the row total by multiplying the delivered quantity by the unit price and applying any discounts. Then the calculated row total and the captured row total are compared using a margin of error. If the amounts exceed the margin of error, the validation fails.
	Discounts
	When performing the calculations, the validation considers discounts (percentage discounts and amount discounts) on the row total and the unit price in this order:
	1. The discount is applied to the total amount.
	`LIT_VatExcludedAmount = (LIT_DeliveredQuantity * LIT_UnitPriceAmount) * (1 - LIT_DiscountPercent) – | LIT_DiscountAmount|`
	2. The discount is applied to the unit price.
	`LIT_VatExcludedAmount = LIT_DeliveredQuantity * (LIT_UnitPriceAmount * (1 - LIT_DiscountPercent) – | LIT_DiscountAmount|)`
	Note that the absolute value of the discount amount is used. Fields in bold must be selected (enabled) in the **Document type** view in order for the validation to work properly. The discount fields are optional.
	Margin of error
	The validation uses two different margins of error when comparing the calculated value with the row total. An absolute tolerance of 1 and a relative tolerance (the row total times 0.01) is used.

Line-item total amount	Ensures that the total amount of the invoice matches the total sum of all line-item rows when verifying line items. The validation compares the sum of the amount fields and the total sum of all line-item rows with the total amount. `InvoiceTotalVATIncludedAmount = SumOfTotalNetAmountFromLineItems + InvoiceTotalVATAmount + DeliveryCost + DeliveryCostPackaging + DeliveryCostInsurance + DeliveryCostToll + DeliveryCostPostage - InvoiceDiscountAmount` This validation allows a margin of error of 0.5. In other words, if the amount is off by +/- 0.5, a validation error is not triggered. **Example**: If a line-item total amount on the invoice is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50. For remittance advices, see the **Line-item total amount** validation in the *Accounts receivable validations* section below.
Maximum total amount	This validation can help prevent documents with high amounts from passing through the system unnoticed. • **Maximum total amount limit** - Makes sure the absolute value of the total amount field (`InvoiceTotalVATIncludedAmount`) does not exceed the value you specify here. If you do not use the total amount field, the net amount field (`InvoiceTotalVATExcludedAmount`) is checked instead. If the absolute value total amount is greater than the value you specify here, the field is marked with a warning icon, but you can override the validation. • **Process limit (amount)** - This validation works the same as the **Maximum total amount limit**, however, you cannot override the **Process limit**. Therefore, if you receive an invoice that exceeds the process limit, you must increase the value of this setting to continue, or delete the document.
OCR number	Performs a checksum validation for OCR numbers on Swedish invoices. The validation is performed on the `PaymentReferenceNumber` field. You can only enable this validation for Swedish document types.

Organization number	Performs a checksum validation for organization numbers on Swedish invoices. The validation is performed on the `SupplierTaxNumber1` field. You can only enable this validation for Swedish document types.
Payment type	Validates various payment fields, depending on the payment type. You can only use this validation for Danish, Norwegian and Swedish document types. **Default cash-account number** - The default cash account to use when you specify **Entry only** as the payment type. See also: • Processing Danish invoices with E-conomic. • Processing Norwegian invoices with E-conomic • Processing Swedish invoices with E-conomic If you use this validation, you must select **Verify** and **Workflow**.
Plusgiro	Validates Swedish plusgiro account numbers. The validation is performed on the `SupplierAccountNumber1` field. You can only enable this validation for Swedish document types.
PO number (deprecated)	This setting has been replaced by the settings in the purchase order service.
Prevent total amount of zero	Makes sure that the total amount field (`InvoiceTotalVATIncludedAmount`) is not zero or empty. If you do not use the total amount field, the net amount field (`InvoiceTotalVATExcludedAmount`) is checked instead. If neither field is enabled in the document type, the validation is not performed.

Purchase order quantity	Ensures that the invoiced quantities match the quantities on the purchase order (2-way matching) by performing two checks:
	• Quantities on the invoice must be equal to or less than the quantities on the purchase order.
	`invoice quantity ≤ PO quantity`
	• The quantity on the invoice must be equal to or less than the purchase order quantity minus the invoiced quantity on purchase order.
	`invoice quantity ≤ (PO quantity - PO invoiced quantity)`
	Purchase order over-quantity tolerance (percent) - Determines how much the quantity on the invoice can exceed the purchase order quantity.
	For example, assume you type 10 in this setting to allow a tolerance of 10%. You have a purchase order with a line-item quantity of 20 items. The matching invoice line, however, has a quantity of 22. Because 20 plus 10% is 22, the quantity is within the tolerance and passes validation. If the matching invoice line had a quantity of 23, it would exceed the 10% tolerance and fail validation.
	In order to use this validation, you must enable the Purchase order service.

Purchase order unit price	Ensures that the invoiced unit prices match the unit prices on the purchase order (2-way matching). The unit prices on the invoice must be equal to or less than the unit prices on the purchase order to pass this validation. `invoice unit price ≤ PO unit price` **Purchase order over-price tolerance (percent)** - Determines how much the price on the invoice can exceed the purchase order price. For example, assume you type 10 in this setting to allow a tolerance of 10%. You have a purchase order with a line-item price of $20. The matching invoice line, however, has a price of $22. Because 20 plus 10% is 22, the price is within the tolerance and passes validation. If the matching invoice line had a price of $23, it would exceed the 10% tolerance and fail validation. In order to use this validation, you must enable the Purchase order service.

Remittance advice line-item total amount	Ensures that the total amount matches the total sum of all line-item rows when verifying line items on remittance advices. In other words, `InvoiceTotalVATIncludedAmount` must equal the sum of all `LI_InvoiceTotal` fields. **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing sum of the line-item amounts with the total amount of the remittance advice. **Example**: If you specify 0.5 here and the total amount on the remittance advice is 23.00, the validation will pass if the sum of the line-item total amount fields is anywhere between 22.50 and 23.50.
Supplier tax code	Applies default tax codes to header and line-item fields. The validation is performed on the `TaxCode` and `LIT_TaxCode` fields.
Swiss bank account	Makes sure the fields are formatted according to document type field format and that required field values are specified. The validation requires that all of the fields from at least one of these field groups are specified: • IBAN (`SupplierIBAN1`) • ESR Ref (`EsrReference`), ESR No (`EsrNumber`) and ESR Amount (`EsrAmount`) • PC Account (`SupplierPcAccountNumber`), BLZ (`SupplierBankCodeNumber1`), BICSwift (`SupplierBicSwiftNumber`) and Bank account (`SupplierAccountNumber1`) This validation is only available for Swiss document types, and all of the fields above must have **Accept empty value** and **Enforce validation** selected in the field view.
Swiss QR reference	Checks the validity of QR references found in QR-IBAN numbers. First, the validation checks positions 4 through 9 of the IBAN, using a zero-based index. If the value of positions 4 through 9 is within the range, 30000 - 31900, and the QR reference is exactly 27 characters long, the validation verifies the checksum of the reference field. This validation is only available for Swiss document types and requires the `QrReference` field.

Total amount	Ensures that the amount fields add up to the total amount field on the invoice. See how . **`Net amount sum`** = `InvoiceTotalVATExcludedAmount + DeliveryCost + DeliveryCostPackaging + DeliveryCostInsurance + DeliveryCostToll + DeliveryCostPostage - InvoiceDiscountAmount` **`Total amount sum`** = **`Net amount sum`** + `InvoiceTotalVATAmount - WithholdingTaxAmount - WithholdingTaxAmount2` This validation handles amounts up to 5 decimal places and supports a margin of error that you specify in the **Maximum difference allowed** setting. To pass the validation, the absolute value of `Total amount sum` minus `InvoiceTotalVATIncludedAmount` cannot be greater than **Maximum difference allowed**. `ABS(`**`Total amount sum`** `- InvoiceTotalVATIncludedAmount) > MaximumDifferenceAllowed` **Maximum difference allowed** Specifies the margin of error (plus or minus) that is permitted when comparing the total amount field with the calculated total amount. **Example**: If you specify 0.5 here and the total amount on the invoice is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50.

Total tax amount	This validation ensures that the sum of all sub-tax fields equals the value of the total tax field. `InvoiceTotalVatAmount = InvoiceTaxAmount1 + InvoiceTaxAmount2 + InvoiceTaxAmount3 + InvoiceTaxAmount4` At least one of these fields must be selected (enabled) in the Document type dialog in order for the validation to work properly: • `InvoiceTaxAmount1` • `InvoiceTaxAmount2` • `InvoiceTaxAmount3` • `InvoiceTaxAmount4` **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing the total tax field with the sum of the other tax fields. **Example**: If you specify 0.5 here and the total tax on the invoice is 23.00, the validation will pass if the sum of the other tax fields is anywhere between 22.50 and 23.50. If you change any of the tax amounts, the total tax amount is automatically updated with the new sum.

VAT rate	Ensures that the VAT rate is one of the rates specified in the Allowed VAT rates box. Use semicolons (;) to separate valid VAT rates. You can write the VAT rates using any standard method of writing a percentage. For example, if you want to allow rates of 0%, 12.5% and 25%, you can type the following values in the Allowed VAT rates box: 0.0;12.5;25.0 During verification, you cannot add rates that do not exist in the document type, but you can remove rates that you do not want validated. This validation handles amounts up to 5 decimal places. The margin of error between the captured rate and the calculated rate cannot exceed 0.005. This validation uses these fields: • `InvoiceNetAmount1`, `InvoiceTaxAmount1`, `InvoiceTaxRate1` • `InvoiceNetAmount2`, `InvoiceTaxAmount2`, `InvoiceTaxRate2` • `InvoiceNetAmount3`, `InvoiceTaxAmount3`, `InvoiceTaxRate3` • `InvoiceNetAmount4`, `InvoiceTaxAmount4`, `InvoiceTaxRate4` ...and so on, for each VAT rate. In addition to the validations listed above, this rule also makes sure `InvoiceTotalVatRatePercent` matches one of the specified rates. When you select the VAT rate field during verification, it is not highlighted on the invoice image if the value is calculated from other fields.

Accounts receivable validations

Delivery date	Validates delivery date fields of a purchase order. This validation makes sure that the date: • occurs on or after today's date. • does not occur too far in the future. • is a valid date. Also, if `PO_DeliveryDate2` is enabled, the validation makes sure `PO_DeliveryDate2` occurs after `PO_DeliveryDate1`. **Delivery-date limit (days)** - Delivery dates are only valid if they are not older than the current date plus the number of days you specify here. These fields are validated by this rule if enabled: • `PO_DeliveryDate1` • `PO_DeliveryDate2` • `LIT_PO_DeliveryDate` If the delivery date is not always known, consider enabling **Accept empty value** on the fields above to avoid validation errors.

Duplicate purchase order check	Warns if purchase orders with the same customer number, purchase order number, purchase order date or purchase order amount exist during verification. This can prevent duplicate purchase orders caused by: • the customer resending the same purchase order by mistake or on purpose. • the same purchase order being scanned more than once. • scanning software errors. • an error in AP Essentials. • original purchase order attachments that are not recognized as an attachments and treated as separate purchase orders. AP Essentials checks for duplicates: • After document extraction. • During verification. • During export. ⓘ The customer number must be specified in order for this validation to work. If a duplicate purchase order is detected during verification, the validation error is set on all relevant fields. For example, if **Include purchase order date** and **Include purchase order amount** are selected, and a duplicate purchase order is detected, then the validation error is set on the purchase order number, purchase order date and purchase order amount fields. All relevant fields necessary for the duplicate purchase order check are required. For example, if **Include purchase order date** and **Include purchase order amount** are selected, then purchase order number, purchase order date and purchase order amount are all required in the document type. If any field is missing, the duplicate check will not execute. The customer number and purchase order number are always checked when performing this validation, however, **Include purchase order date** and **Include purchase order amount** checks are optional and can be toggled in the **Duplicate purchase order check** setting. If **Include purchase order date** and **Include purchase order amount** are selected, the purchase order number, purchase order date and purchase order amount must all be the same as a previously processed purchase order in order to be considered a duplicate. If you select **Include purchase order amount**, the total amount field (`PO_TotalTaxIncludedAmount`) is used. However, if the total amount field is empty or missing from the document type, the net amount field (`PO_TotalTaxExcludedAmountvalue`) is used. If a user overrides this validation, it is noted in the document history. This validation relies on data collection that is only gathered when this validation is enabled. Therefore, duplicate purchase orders are not validated against

Line items cannot be empty	Makes sure line items are specified on documents. If no line items are found during extraction, or if all line items are missing or removed during verification, the validation fails and a warning message is displayed. The validation error is set on the total amount field, and you cannot override this validation error. In other words, you cannot process the document further without line items.
Line-item row	Validates each line-item row to ensure that the amounts add up to the row total. If no line-item rows are found on the document, the validation is not performed. This validation handles amounts up to 5 decimal places. The validation checks if the calculated row total and the captured row total match within an acceptable margin of error. The validation calculates the row total by multiplying the quantity by the unit price. Then the calculated row total and the captured row total are compared using a margin of error. If the amounts exceed the margin of error, the validation fails. **Margin of error** The validation uses two different margins of error when comparing the calculated value with the row total. An absolute tolerance of 1 and a relative tolerance (the row total times 0.01) is used. This validation requires these fields: • `LIT_PO_OrderedQuantity` • `LIT_PO_UnitPriceAmount` • `LIT_PO_TaxExcludedAmount`
Line-item total amount (for remittance advices)	Ensures that the sum of the line-item amounts adds up to the total amount of the remittance advice. The validation compares the sum of the line-item amount fields (`LIT_RA_AmountPaid`) with the total amount field (`RA_TotalAmountPaid`). **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing sum of the line-item amounts with the total amount of the remittance advice. **Example**: If you specify 0.5 here and the total amount on the remittance advice is 23.00, the validation will pass if the sum of the line-item total amount fields is anywhere between 22.50 and 23.50. For purchase orders, see the **Line-item total amount** validation below. For invoices, see the **Line-item total amount** validation in the *Accounts payable validations* section above.

Line-item total amount (for purchase orders)	Ensures that the sum of the line-item amounts adds up to the total amount of the purchase order. The validation compares the sum of the line-item amount fields (`LIT_PO_TaxExcludedAmount`) and tax amount field (`PO_TotalTaxAmount`) with the total amount field (`PO_TotalTaxIncludedAmount`). If `PO_TotalTaxIncludedAmount` is not enabled, `PO_TotalTaxExcludedAmount` is used instead. Note: Charge and discount fields are excluded from the calculation. This validation allows a margin of error of 0.5. In other words, if the total amount of a purchase order is off by +/- 0.5, a validation error is not triggered. **Example**: If the total amount on the purchase order is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50. For remittance advices, see the **Line-item total amount** validation above. For invoices, see the **Line-item total amount** validation in the *Accounts payable validations* section above.
Maximum total amount	This validation can help prevent documents with high amounts from passing through the system unnoticed. • **Maximum total amount limit** - Makes sure that the total amount field (`PO_TotalTaxIncludedAmount`) does not exceed the value you specify here. If you do not use the total amount field, the net amount field (`PO_TotalTaxExcludedAmount`) is checked instead. If the total amount is greater than the value you specify here, the field is marked with a warning icon, but you can override the validation. • **Process limit (amount)** - This validation works like the **Maximum total amount limit**, however, you cannot override the validation. Therefore, if you receive an invoice that exceeds the process limit, you must increase the value of this setting to continue, or delete the document.

Order date	Validates the order date field (`OrderDate`) of a purchase order. This validation makes sure that the date: • occurs before or equal to today's date. • does not occur too far in the past. • is a valid date. **Order-date limit (days)** - Order dates are only valid if they are not older than the current date minus the number of days you specify here. **Process limit (days)** - The validation fails and cannot be overridden if the order date is older than the current date minus the number of days you specify here. Unlike **Order-date limit**, you cannot override this validation error by pressing Enter during verification. The value you specify here must be greater than **Order-date limit** unless you specify 0 to disable this setting (default value: 0).
Prevent total amount of zero (for purchase orders)	Makes sure that the total amount field (`PO_TotalTaxIncludedAmount`) is not zero or empty. If you do not use the total amount field, the net amount field (`PO_TotalTaxExcludedAmount`) is checked instead. If neither field is enabled in the document type, the validation is not performed.
Prevent total amount of zero (for remittance advices)	Makes sure that the total amount paid field (`RA_TotalAmountPaid`) is not zero or empty. If the field is not enabled in the document type, the validation is not performed.

Total amount	Ensures that the total amount field equals the sum of the net value and tax amount fields of a purchase order.
	`PO_TotalTaxIncludedAmount = PO_TotalTaxExcludedAmount + PO_TotalTaxAmount`
	If any of the fields above are disabled or missing from the document type, the validation is not performed.
	Note: Charge and discount fields are excluded from the calculation.
	This validation handles amounts up to 5 decimal places and supports a margin of error that you specify in the **Maximum difference allowed** setting.
	To pass the validation, the absolute value of the total amount minus the sum of the net value and tax amount fields cannot be greater than **Maximum difference allowed**
	`ABS(PO_TotalTaxIncludedAmount - (PO_TotalTaxExcludedAmount + PO_TotalTaxAmount)) <= MaximumDifferenceAllowed`
	Maximum difference allowed - Specifies the margin of error (plus or minus) that is permitted when comparing the total amount field with the calculated total amount.
	Example: If you specify 0.5 here and the total amount on the purchase order is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50.

Custom rules

Custom rules are only available if an administrator creates them.

Field view

Use this view to specify field settings or add a custom field to a document type.

To access this view in Admin Center, select a field in the **Document type** view.

The settings that appear can vary depending on the field type and whether it is a predefined or custom field. For example, the predefined `InvoiceCurrency` and `InvoiceCredit` fields lack some of the settings below due to internal business logic.

Name	The name of the field as it appears in the output that is sent to the target system.

Type name	The internal name of the field. Use this name to: • Connect fields to master data. • Specify the field in custom API integrations. • Specify the field in data templates. Precede the Type name with "LIT_" to specify a line-item field. By default, a custom line-item field captures values up to 100 characters in length (alphanumeric characters and special characters), unless you specify another format in the Format settings.
Display name	The user-friendly name of the field as it appears in the interface. If you leave this setting empty, the value in the **Name** setting is used.
Type	Specifies the field type: • **Text** - You can optionally define a **Field format** using regular expressions when you choose this type. • **Date** - Specifies a date field. • **Amount** - Specifies an amount field.
Accept empty value	If the field is not found, validation is skipped and the field status is set to *Complete*. However, if the field is found, validation is performed. In either case, you can choose to leave the field empty.
Empty and hidden by default	When selected, the field is initially empty and hidden from Office users. Office users can toggle the visibility of the field.
Enforce validation	Determines whether the field must pass validation. If this setting is selected, you cannot complete the invoice verification until the field passes validation and the field status is *Complete*.
Extraction	
Skip extraction	When you select this setting, Tungsten AP Essentials does not look for the field on incoming documents. However, the field is available for manual entry during verification. This is helpful if you want to manually add information to documents by setting a value on a field that does not exist on the incoming documents. This setting is only available for custom header fields. It is not available for line-item fields.

Barcode extraction	Select this setting if the field you want to capture is a barcode. AP Essentials supports these barcode formats: • Code 128 • EAN-8 • EAN-13 This setting is only available for custom header fields whose **Type** setting is set to **Text**.
Only accept extracted values that match the format	This setting is available for any line-item field whose field type is set to text. When you select this setting, extracted field values that match the field format settings below are marked as complete (). Field values that do not match the format are set to empty. Using this setting in combination with a strict format setting can prevent incorrect fields from being captured. When specifying the field format, try to be as strict as possible. For example, if the field contains only numbers, exclude letters from the format specification. Likewise, if the field is always a specific length, specify the length as well. When you enable this setting on an order number field (`InvoiceOrderNumber` or `LIT_OrderNumber`), only values that match the field format settings below are captured and considered as field suggestions. Enabling this setting on the order number field can also improve automatic document type classification results. If you use this setting for the `InvoiceOrderNumber` and `LIT_OrderNumber` fields, you must specify the same field format for both fields. If you also use buyer classification, use the **Regular expression** format for best results.
Default value	

Use default value	Specifies the default value of the field if no field is found during extraction. When you select this setting, an additional setting appears which you can use to save the default value on a per supplier/customer basis: • **Save default value per supplier** (for accounts payable processes). • **Save default value per customer** (for accounts receivable processes). For example, if you select **Save default value per supplier**, the default value is updated, on a supplier basis, each time the value is changed during verification. In other words, if you set the default value to "ABC", the value is initially "ABC" for all suppliers. However, if an Office user changes the field value to "XYZ" during verification, the new default value for that particular supplier will be "XYZ". The other suppliers will keep the original default value of "ABC". This setting is only available for custom header fields whose **Type** setting is set to **Text**.
Missing amounts	
Zero amount by default	When an amount field cannot be found or the field value is invalid, the value is automatically set to a zero amount (0.00). If the default value is not changed during verification, a zero amount is sent to the target system. See also: Handling missing or invalid amounts.
Empty value by default	When an amount field cannot be found or the field value is invalid, the value is automatically set to an empty value. If the default value is not changed during verification, an empty amount is sent to the target system. See also: Handling missing or invalid amounts.
Master data	
Use master data to suggest field values	When selected, the master data that you select in the box is used to suggest field values for this field.
Use master data to validate the field value	When selected, the master data is also used to validate the field value. For example, if you type a field value that does not exist in the master data, a validation warning is displayed. However, you can press Enter to override the warning (unless **Enforce validation** is selected). This setting appears after you select **Use master data to suggest field values**.

<table>
<tr><td>Use master data to improve extraction</td><td>When selected, <code>Name</code> and <code>Description</code> values from generic master data are used to find fields and improve extraction results. Also, if a match is found, the field value is taken from the master data value.

This setting appears after you select Use master data to suggest field values and it applies only to custom header fields that use generic master data.

All terms (separated by spaces) found in the master data <code>Name</code> and <code>Description</code> are used to locate the field on the document. For example, assume you have the following master data for a custom field:

<table><tr><th>Name</th><th>Value</th><th>Description</th></tr><tr><td>John Doe</td><td>john.doe@example.com</td><td>Corporate HQ contact</td></tr><tr><td>Jane Doe</td><td>jane.doe@example.com</td><td>Polychemtex</td></tr><tr><td>Will Smith</td><td>will.smith@example.com</td><td>Contoso</td></tr></table>
The first master-data item has "John Doe" as the <code>Name</code> and "Corporate HQ contact" as the <code>Description</code>. In this case, Tungsten AP Essentials searches for all five terms individually on the document when trying to locate the field. In other words, for the first master-data item, Tungsten AP Essentials searches for each of these terms separately (case insensitive):

• John
• Doe
• Corporate
• HQ
• Contact

If "John" or "Doe" or any of the other terms are found on the document, it is considered a match. However, Tungsten AP Essentials searches all terms from all master data on all pages of the document before making a determination. If Tungsten AP Essentials finds more than one match, the master-data item with the most matches is chosen, and the field value is set using the <code>Value</code> (example: john.doe@example.com).</td></tr>
<tr><td>Master data display format</td><td>Determines how the master data appears when verifying invoices.</td></tr>
<tr><td colspan="2">Format</td></tr>
<tr><td>Regular expression / Compact format</td><td>Determines whether you use a regular expression or the compact format to validate the field.
When specifying the field format, try to be as strict as possible. For example, if the field contains only numbers, exclude letters from the format specification. Likewise, if the field is always a specific length, specify the length as well.</td></tr>
</table>

Field format (regular expression)	Specifies a regular expression that the field must match in order to pass validation.
Field format (compact)	Specifies a compact field format that the field must match in order to pass validation. You can only edit this setting for custom fields, if the field **Type** is **Text**, and these predefined fields: **BuyerContactPersonName**, **BuyerContactReference**. Select all of the character types that can appear in the field: **Numeric**, **Uppercase letters**, **Lowercase letters**, **Special characters**, and **Space**. The field value you specify here cannot exceed 511 characters. For example, you cannot specify N(1-512).
Test value	Use this box to test the field format. Type an example field value and select **Test** to see if the example value matches the **Field format**. **Note**: When testing the compact format, negative signs are ignored.

Image upload view

Use these settings to define the Image upload service.

To access this view in **Admin Center**, select a **Services** node in the administration tree and select **Image upload**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree.

Currently, there are no service-specific settings.

E-Invoice Connect view

Use these settings to specify service settings for the **e-Invoice Connect** integration.

To access this view in Admin Center, select a **Services** node in the tree view and select **e-Invoice Connect**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

Setting	Description
Edit	Lets you edit the service settings and displays additional buttons.

Setting	Description
Save	Saves the current settings.
Cancel	Cancels editing without saving any changes.
Test	Tests current connections to e-Invoice Connect.
Connection	Displays a view for adding and editing connections.
Members	
[Settings vary]	Displays e-Invoice Connect connections. A single connection is displayed if you connect to e-Invoice Connect on the customer account level. If you connect on the buyer level, multiple buyer connections are displayed in a table. • **Member ID** - The member ID you use to connect to E-Invoice Connect. • **Member name** - The name of the E-Invoice Connect member that you use to connect to E-Invoice Connect. • - Removes the connection.
Notifications	
Invoice status update	• **Document approved and posted** - Sends the 'Approved' document status to e-Invoice Connect when a document is approved in AP Essentials and posted successfully to the target system. • **Document deleted** - Sends the 'Rejected' document status to e-Invoice Connect when a document is deleted in AP Essentials. • **Document verified** - Sends the 'Verified' document status to e-Invoice Connect when a document is verified in AP Essentials. • **Document rejected** - Sends the 'Rejected' document status together with the selected reject code to e-Invoice Connect when a document is rejected in AP Essentials. If you have connections on the buyer level, these settings are default for each buyer. To override the default settings for an individual buyer, select a buyer in the **Buyer-specific settings** list, and use the view that appears to specify the settings.

Setting	Description
Master data	
Supplier synchronization	• **Allow supplier upload** - Lets e-Invoice Connect copy supplier master data from Tungsten AP Essentials to e-Invoice Connect. • **Allow organization identifiers** - Lets e-Invoice Connect include tax registration and organization numbers when copying supplier master data from AP Essentials. • **Allow organization bank accounts** - Lets E-Invoice Connect include bank account information when copying supplier master data from AP Essentials. • **Allow blocked suppliers** - Lets e-Invoice Connect copy suppliers that are blocked in AP Essentials. If you have connections on the buyer level, these settings are default for each buyer. To override the default settings for an individual buyer, select a buyer in the **Buyer-specific settings** list, and use the view that appears to specify the settings.

e-Invoice Connect Connection view

Use these settings to specify a connection to e-Invoice Connect.

To access this view in Admin Center, select a **Services** node in the tree view, select **e-Invoice Connect**, and select **Connection**.

Use these settings to specify a connection to e-Invoice Connect for the **e-Invoice Connect** integration.

Connect on customer account level	Defines one connection to e-Invoice Connect on the customer account level.
Connect on buyer level	Lets you define different connections for each buyer.
Administrator credentials	
User name	The user name of an administrator account for your e-Invoice Connect member.
Password	The password of the administrator account for your e-Invoice Connect member. The credentials are used to obtain an authentication token, which enables communication with e-Invoice Connect. The user name and password are not saved in Tungsten AP Essentials. Therefore, you must enter the credentials any time you change the member identification settings.
Member identification	

Member ID	The ID of the member in e-Invoice Connect. If **Connect on customer account level** is selected, all documents are processed with the same e-Invoice Connect member. If **Connect on buyer level** is selected, you can specify different members for each buyer. To disconnect a buyer, select in the previous view. You cannot disconnect buyers from this view by removing member IDs.
Environment	Determines the environment to use for e-Invoice Connect. • **Prod** - Sends real invoices to the production environment for normal business use. • **PreProd** - Sends test invoices to the pre-production environment so you can validate your integration before going live. Test invoices are isolated from production data and are not sent to government systems. Invoices sent using the pre-production workflow can only be submitted through the e-Invoice Connect API. Email delivery is not available in the pre-production environment.

Master data service view

Use these settings to define the Master data service.

To access this view in **Admin Center**, select a **Services** node in the administration tree and select **Master data**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The settings can vary, depending on your role, which document process you use and which **Services** node you select in the administration tree.

Let users update supplier/customer data when verifying documents	Determines whether users can change supplier data when verifying invoices in AP Essentials Office. If this setting is not selected, users: • Can only select suppliers that already exist in the system when verifying invoices. • Cannot add new suppliers or edit existing suppliers. • Cannot change the spelling of an existing supplier. This setting also applies to administrators in Admin Center. When this setting is enabled, administrators with the **Manage accounts** privilege can edit supplier/customer master data in Admin Center.

Restore learning data for suppliers reinstated within 7 days of deletion	Prevents the loss of online learning data when a supplier is deleted by accident. If you delete a supplier while this setting is enabled, and later add or import the same supplier, with the same supplier number, within seven days from the time of deletion, the online learning data associated with the supplier is restored. To be reinstated, the supplier number of the imported supplier must match a previously deleted supplier number. This feature is not available for customers in AR processes.
Master data upload	
Master data on customer account level	Uploads master data on the customer account level and shares the master data between all buyers/sellers of the customer account. This is helpful, for example, if a customer account has several buyers/sellers that share many of the same suppliers/customers.
Master data on buyer/seller level	Uploads master data on the buyer/seller level. Use this setting only if each buyer/seller has its own unique master data. If your buyers/sellers share the same master data, such as suppliers, select **Master data on customer account level** instead. **Example**: If you have three buyers, and all three buyers have identical supplier master data, do not select this setting. Changing the master data upload settings affects which master data is visible in the master data views. For example, if you upload **Master data on buyer/seller level** and then switch to uploading **Master data on customer account level**, any master data that was previously uploaded on the buyer/seller level is no longer visible in the master data views. Conversely, if you upload **Master data on customer account level** and then switch to uploading **Master data on buyer/seller level**, any master data that was previously uploaded on the customer account level is no longer visible in the master data views. Master data is not deleted in either case, so if you revert to your previous setting, the master data remains.
Import master data	

Start master-data import at	Specifies the time that you want to synchronize master data each day. The time you specify here is UTC time. To use this setting, your ERP system must support master data services.
Number of times to import per day	Determines how many times per day (max 4) that you want to import master data. For example, if you specify "3", master data is imported every 8 hours, starting at the time you specify to **Start master-data import at**. This setting only applies to master data that does not have delta synchronization enabled.
Number of times to import per day using delta synchronization	Determines how many times per day (max 32) that you want to import master data using delta synchronization. Some integrations support delta synchronization, which means only the master data that has changed gets updated. Delta synchronization consumes less bandwidth than normal master data synchronization, and therefore, can be performed more times per day than normal master data synchronization. This setting only applies to master data that has delta synchronization enabled. The **Number of times to import per day** setting above is not applied to master data that has delta synchronization enabled.
Synchronize master data	Synchronizes the master data in Tungsten AP Essentials with master data from the target system. To use this setting, your ERP system must support master data services.
Supplier validation	

Use supplier master data to validate suppliers	Checks if at least one of the selected master-data fields can be found on the document. If none of the fields selected below are found on the document, the **Supplier name** field receives a validation error. These master-data fields are available for selection: • Account number • Bank number • Organization number • Tax registration number • **At least one of the selected fields must be found** - Even if multiple fields are selected, only one field must be found to pass validation. • **All of the selected fields must be found** - If any of the selected fields are not found, the supplier field is marked () during verification. To ensure the correct supplier is selected, the validation searches for the values of the fields above using fuzzy logic. This means it attempts to find the field values anywhere on the invoice. This can lead to unexpected results if your master data contains incomplete or inaccurate information. Therefore, the more complete the master data is, the better the result.

Notifications view

Use these settings to add or edit notifications for the Notification service.

To access this view in Admin Center, select a **Services** node in the tree view and select **Notifications**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary depending on your role and which **Services** node you selected in the administration tree.

Setting	Description
Email notifications	
Edit	Lets you edit the settings in the current view. **Save** and **Cancel** buttons appear after you select **Edit**. Any changes or deletions that you make do not take effect until you select **Save**. If you regret your changes, select **Cancel**.
Add	Displays a dialog for adding a new notification.
Delete	Deletes the selected notification.

Setting	Description
Event	Specifies the event that triggers the notification. You can select the event to display a dialog that you can use to edit its settings.
Action	The method used to deliver the notification.
Recipient	The recipient of the notification.
Notes	Displays notes about the notification.

Notification view

Use these settings to add a new notification in Admin Center.

To access this dialog in Admin Center, select an event, or select **Add**, in the **Notifications** view.

Use these settings to add a new notification:

Event	Specifies the event that triggers the notification.
	• **Batch received** - Tungsten AP Essentials successfully received a batch.
	• **Batch rejected** - A batch was rejected by a user.
	• **Document assigned** - The document has been assigned to a user by an automated process or manually by another user.
	• **Input failed** - A batch or document was rejected by the system. This can be caused by a corrupt file.
	• **Export failed** - the export activity failed. This status is triggered, for example, if the target system does not respond. If this happens, you can open the batch in the document list view to see details about what went wrong. When the issue is resolved, simply select **OK** in the document view to send the batch again.
	• **Held** - The document has been placed on hold by a user.
	When you select **Held** , two additional recipient types appear:
	  • **Holder** - Sends the notification to the person who put the document on hold.
	  • **Users with the 'Unhold documents' privilege** - Sends the notification to all users who have the *Unhold documents* privilege.
	• **Pending manual verification** - The batch was extracted and is ready for manual correction if necessary.
	• **Request for information** - A user posted a question to the document.
	• **Usage warning** - the account has used 80%, 90%, or 100% of the maximum volume or allotted time specified in the service plan. The system checks the usage level every five hours.
	• **Organization activated** - An organization was activated.
	• **Organization deactivated** - An organization was deactivated.

Action	The method used to deliver the notification. • **Send email** - Sends the notification via email. • **Post to web page** - Posts the notification to a web page.
Recipient type	Determines whether you want to send the notification to a specific email address or a **Role**, group, or other entity which can be linked to multiple email addresses in the system. This setting is only visible when **Action** is **Send email**.

Add recipients	Displays a view that you can use to specify which users and groups receive the email notification. This setting is only visible for the **Usage warning** event when the action is **Send email** and the recipient type is **Email address**.
Recipient	The email address you want to send notifications to. This setting is only visible when **Recipient type** is **Email address**.
Role	The **Role** you want to send notifications to. This setting is only visible when the **Recipient type** is **Role**.
Address	A URL to a web page that is set up to receive notifications from the system. This setting is only visible when the **Action** is set to **Post to web page**.
Number of days to wait before sending the notification if the document remains on hold	Specifies the number of days to wait before sending the notification. For example, if you specify a waiting period of five days, the notification will not be sent until the document has been on hold for five consecutive days. After the waiting period is triggered, a notification is sent each day until the document is no longer on hold. If the document is no longer on hold before the waiting period ends, the notification is not sent. This setting is only visible when **Event** is **Held**.
Level	Determines which level the notification applies to. For example, if you create a notification for a usage warning on the subsidiary level, and you select **Partner account** here, usage warning notifications are only triggered by events on the partner level. This setting is only visible on the subsidiary and partner level for the usage warning notification. • **Partner account** - The notification is only triggered by usage on the partner account. • **Partner account and customer account** - The notification is triggered by usage on the partner and customer accounts. • **Partner account, customer group and customer account** - The notification is triggered by usage on the partner, customer group, and customer accounts.

Trigger	Determines what triggers the notification. • **All** - Sends notifications for time and volume usage. • **Time** - Sends notifications when an account has used 80%, 90%, or 100% of its allotted time specified in the service plan. • **Volume** - Sends notifications when document volume is 80%, 90%, or 100% of the maximum volume specified in the service plan. This setting is only visible for the Usage warning notification.
Notes	Optional text to help you organize and keep track of notifications. This text does not appear in the notification itself.

Process control view

Use these settings to define the **Process control** service.

To access this view in Admin Center, select a **Services** node in the tree view and select **Process control**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary depending on your role and which Services node you selected in the administration tree. Customer administrators can edit these settings in Admin Center.

Received documents	
Force manual document separation on all batches	When selected, all new batches must be separated manually before they can be processed. This setting is only visible if **Separation** services are enabled.
Data verification	
Never	Extracted documents are sent directly to the target system without verification.
On field error	Only documents with field errors must be verified. Documents without validation errors are sent directly to the target system.
Always	All documents must be verified, except for complete documents from suppliers that have been marked to bypass verification.
Export, register, and post	

Perform registration step	This setting is only visible on some target systems when **Workflow** services are enabled. Determines whether documents must be registered in the target system before starting the workflow. It can be helpful to skip registration if your target system does not require registration, because it decreases calls to the target system and prevents documents from entering correction workflows prematurely due to validation errors in the target system. You cannot change the buyer while approving a document if this setting is selected.
Keep batch together	When selected, documents are not sent to the target system until all of the documents in the batch are complete. If this setting is not selected, each document is sent to the target system as soon as it is ready, without waiting for the rest of the batch. Office users can override this setting on individual batches by selecting one or more batches in the document list view and clicking .

Purchase order view

Use these settings to define the Purchase order service.

To access this view in **Admin Center**, select a **Services** node on the customer level in the administration tree and select **Purchase order**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree:

General	
Validate order number in invoice header	Invoices must have a purchase order number (in the invoice header) that matches an order number for the supplier. This validation is not performed when you verify an invoice in the Admin Center by selecting **Open in Office** in the Admin Center (**Document details** view).
Line pairing	
Manual line-pairing	Determines whether you can match PO numbers with line items during verification.

Automatic line-pairing	Determines whether Tungsten AP Essentials automatically matches PO numbers with line items during verification. The supplier number and order number fields must be found on the invoice for line pairing to work. Purchase-order numbers can appear as header fields and as line-item fields on an invoice. When the purchase-order service matches PO numbers: • If none of the line items have a PO number, the service uses the header PO number for all of the line-item PO fields. • If any of the line items contain a PO number, the line-item PO number is used instead of the header PO number. If a line item is missing a PO number, the value remains empty, and the line item is treated as a service item in the target system.

Separation view

Use these settings to define the Separation service.

To access this view in **Admin Center**, select a **Services** node in the administration tree and select **Separation**.

Use these settings to define the Separation service. The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree.

Currently, there are no service-specific settings.

Storage view

Use these settings to define the Storage service.

To access this view in **Admin Center**, select a **Services** node in the administration tree and select **Storage**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree. In Admin Center, customer administrators can view these settings, but only partner administrators can edit them.

Create image link	Creates a link (URL) in the invoice output data (XML) that points to the invoice image in Tungsten AP Essentials Storage. If you clear this setting, image links that were previously created no longer work. You can use image links to view document images in Tungsten AP Essentials storage. This setting is helpful if you want to display document images in an external system. Authentication is not required to view images that are accessed via an image link. The image link is saved in an XML element named Permalink. If the XML output you use does not support the Permalink element, the image link cannot be added to the XML output.
Show image link in STORAGE view	Displays the image link for *Successfully processed* invoices on the **Information** tab in the document view.
Image width	Specifies the width to use when displaying document images via an image link (default value: 777). The height is automatically scaled proportionately according to the width you specify here. This setting affects all image links, even for existing documents.

Target system view

Use this view in Admin Center to define target-system services.

To access this view, select a **Services** node in the administration tree and select **Target system**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

Use these settings to define the Target system service. The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree:

API-key	Specifies the API key to use when accessing the API using custom integrations.
Target systems	Lists the target systems that are available to export data to.
Configuration	Displays a dialog for configuring settings specific to the target system. The settings in the dialog can vary, depending on the target system.

Business unit name view

Use these settings to map individual buyers in Tungsten AP Essentials to business units in Oracle Financials Cloud.

To access this view in Admin Center, select **Map buyers to legal entities**, then select **Buyer-specific settings**.

Use these settings to map buyers in Tungsten AP Essentials to business units in Oracle:

Buyer	Displays the available buyers that you can map to business units in Oracle.
Business unit name	Specifies which business units in Oracle correspond to buyers in Tungsten AP Essentials. By default, any empty settings use the **Business unit name** specified in the previous view (target system settings).

Target system configuration view

To access this view, navigate to **Services** > **Target system** and select **Configuration**.

Use these links to find the settings specific to your target system:

- Coupa AP
- Coupa (deprecated)
- Dynamics AX
- Dynamics 365 for Finance and Operations
- E-conomic
- Email
- NetSuite
- Oracle Financials Cloud
- PROCESS DIRECTOR Accounts Payable
- SAP S/4HANA Cloud ES
- SFTP
- XML locally

If you use Tungsten AP Essentials Connect, and you change the Target system configuration settings, you must run the AP Essentials Connect configuration wizard again before you upload new invoices.

Target system configuration view: Coupa AP

Use these settings to configure the Coupa integration.

To access this view, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **Coupa AP**, and select **Configuration**.

This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

The settings that appear here vary, depending on the target system, version, and current account level. Use these settings to specify settings for the target service:

Test	Checks whether the integration can connect to Coupa using the connection settings.
Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Export attachments	Files that are attached to a document during verification or approval are also included with the output. This setting requires: • Storage services. • **XML version** set to **ReadSoft Online XML (2.0)**.
Export original email	Includes the original input email in the output. The original email with all of its attachments, which may also contain other invoices, is included in the output.
Connection	
System URL	The URL of the Coupa system.
Token-based client ID	The client identifier value in Coupa.
Token-based secret	The client secret value in Coupa.

Coupa scopes	A list of Coupa permissions (separated by spaces) to use with the Coupa client credentials. If you accidentally change this setting, you can copy and paste these permissions (scopes), which the integration uses by default: `core.accounting.read core.supplier.read core.contract.read core.invoice.read core.invoice.write core.purchase_order.read core.common.read core.user.read`
Content groups	
Content group mapping	Maps content groups to customer accounts/buyers, so you can filter data import according to the Coupa content groups you specify here. List each content group separated by a semicolon. You use this setting in combination with other settings below. For example, to filter supplier data import, select **Content group filtering** in the **SUPPLIERS** section. Use the **Buyer-specific settings** to specify different settings for individual buyers. When filtering data import, suppliers that belong to the Everyone group are not imported by default. You must specify "Everyone" in the **Content group mapping** box to import suppliers that belong to the Everyone content group.
Suppliers	
Use display name if available	Appends the supplier display name in Coupa to the supplier name in Tungsten AP Essentials.
Delta synchronization	When enabled, only suppliers that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems. We recommend using delta synchronization. However, to ensure you get the most recent data, you may want to disable delta synchronization if you: • Change supplier numbers. • Change the **Use display name if available** setting. • Change the **Source for Tax registration number** setting.

Filtered synchronization	When this setting is selected, only suppliers that have a custom field named `send_to_kofax` enabled in Coupa are imported to AP Essentials. This setting also applies to dependent master data, such as purchase orders and contracts. For example, if this setting is enabled, and a supplier does not have the `send_to_kofax` field enabled, neither the supplier nor its purchase orders or contracts are imported to AP Essentials. If this setting is not selected, all suppliers and dependent master data are imported.
Content group filtering	When selected, only suppliers and supplier data (contracts and purchase orders) that belong to the content groups specified in the **Content group mapping** settings are imported.
Use supplier sites	Creates a supplier in AP Essentials for each supplier site in Coupa. If Coupa provides a supplier site address, it is used as the supplier address. Otherwise, the main supplier address is used. Select **Exclude suppliers without sites** to exclude suppliers that do not have sites in Coupa from master-data synchronization. Toggling this setting resets online learning. In other words, all suppliers are treated as new suppliers and must be learned again. If **Delta synchronization** is enabled, a complete synchronization is performed the first time.
Supplier description mapping	Maps the supplier description field in AP Essentials to supplier information in Coupa when supplier master data is imported from Coupa. Use the **Buyer-specific settings** to specify different settings for individual buyers.

Source for Tax registration number	Specifies where the supplier tax registration number is obtained when importing supplier master data. • **Priority based (default)** - Uses the first available value from the following sources, in order: 1. The first active tax registration from the first active supplier address. If no valid registration is found, proceed to step 2. 2. The VAT number from the first active remit-to address. If unavailable, proceed to step 3. 3. The tax ID of the supplier. • **Tax registrations - Tax ID** - Uses the first active tax registration from the first active supplier address. If none exist, the TaxRegistrationNumber remains empty. • **Remit to address - Tax ID** - Uses the VAT number from the first active remit-to address. If unavailable, the TaxRegistrationNumber remains empty. • **Supplier - Tax ID** - Uses the tax ID of the supplier. If you change this setting, we recommend performing a supplier synchronization with **Delta synchronization** disabled. After synchronization completes, you can enable **Delta synchronization** again. To manually synchronize suppliers, navigate to **Explore** > **Master data** > **Suppliers** and select **Synchronize**.
Purchase orders	
Delta synchronization	When enabled, only purchase orders that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems. We recommend using delta synchronization. However, you may want to disable delta synchronization if, for example, you changed the filter settings, and you want to ensure you get all the new data.
PO statuses to synchronize	Only purchase orders with the statuses you specify here (semicolon-separated) are imported. By default, only purchase orders with the *issued* status are imported.

PO line statuses to synchronize	Only purchase order lines with the statuses you specify here (semicolon-separated) are imported. By default, only purchase order lines with these statuses are imported: • cancelled • closed • created • currency_hold • draft • expensed • partially_received • received • soft_closed_for_invoicing • soft_closed_for_receiving
Use PO prefix templates	Displays the **PO prefix templates** setting which removes prefixes from POs during import and restores prefixes during export. This helps Coupa clients avoid issues with PO matching when PO prefixes are in use. Use the **Buyer-specific settings** to specify different settings for individual buyers.
Match POs to buyers using charts of accounts	Displays the **Chart of Accounts for POs** setting which limits purchase order import to the chart of accounts (CoA) you specify here. This setting ensures only relevant purchase orders are synchronized. For more granularity, use the **Buyer-specific settings** to specify charts of accounts for individual buyers. During PO matching, only purchase orders that belong to the CoA of the corresponding buyer are available.
PO date filtering	Displays the **Created within** setting which synchronizes only purchase orders created within the specified date range. Limiting synchronization to a relevant time period helps users find applicable purchase orders more quickly while reducing the number of requests sent to Coupa. Use the **Buyer-specific settings** to specify different date ranges for individual buyers.
Users	

Synchronize users	Determines whether you want to import users from Coupa. When enabled, this feature automatically imports users from Coupa which you can use as field suggestions to easily specify requesters during verification. Displays the **Requester mapping** setting, which you can use to map a AP Essentials field to the Coupa requester. Enter the AP Essentials field type name that you want to map to the requester in Coupa. This feature is an alternative to importing users using lookups.
Currencies	
Chart of accounts determines currency	Determines whether the chart of accounts automatically determines the base currency needed for determining the master data exchange rate. If you do not select this setting, the **Base currency** setting determines the currency. The currency is determined by the currency of the default chart of accounts in Coupa. If the default chart of accounts is empty, the master data exchange rate is zero.
Base currency	The base currency to use for master data exchange-rate calculation when the chart of accounts is not used. The base currency is the standard against which all other currencies are compared. If **Base currency** is empty, and **Chart of accounts determines currency** is not selected, the master data exchange rate is zero. Use the **Buyer-specific settings** to specify different base currencies for individual buyers.
Lookup values	
Name based lookups	A semicolon-separated list of lookup names that you want to import from Coupa. In Coupa, "lookups" are similar to field suggestions (autocomplete) in Tungsten AP Essentials. They are used for fields in Coupa that require users to choose from a list of options. A lookup consists of a lookup name and a number of options, each called a lookup value. Lookup values are grouped into named sets. Each named set that you specify (semicolon separated) in the **Name based lookups** setting is imported as master data with the same name. You can connect fields to master data to provide autocomplete functionality in Tungsten AP Essentials. In this manner, you can use Coupa lookups while processing documents in Tungsten AP Essentials.

External Ref Num based lookups	A semicolon-separated list of lookup external reference number lookups that you want to import from Coupa. This setting works the same as the **Lookup names** setting, but it uses external reference number lookups instead of lookup names.
Delta synchronization	When enabled, only lookup names that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems. We recommend using delta synchronization. However, you may want to disable delta synchronization if, for example, you changed the **Lookup names** setting, and you want to ensure you get all the new data.
Contracts	
Delta synchronization	When enabled, only contracts that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems.
Content group filtering	When enabled, only contracts that belong to the content groups specified in the **Content group mapping** settings are imported.
Excluded contract numbers	Contract numbers you specify here (semicolon-separated) are excluded during master data synchronization. By default, contracts from the punchout catalog are excluded to prevent duplicate contract numbers from being imported. ⓘ This setting is not validated when you test the target system settings.
Export	
Submit documents	By default, the integration posts documents to Coupa in the draft state. Selecting this setting additionally submits documents to Coupa after being successfully posted in the draft state. If a document cannot be submitted for any reason, it remains in Coupa in the "On Hold" or "Pending Approval" state, depending on your settings in Coupa.

Default chart of accounts	The chart of accounts to use for invoices in Coupa if the `ChartOfAccount` field is empty or does not exist and no default chart of accounts is specified on the buyer level. Use the **Buyer-specific settings** to specify charts of accounts for individual buyers. When testing the integration settings by selecting **Test**, if errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view, but you must select **Buyer-specific settings** to correct highlighted settings in the buyer-specific settings view.
Default billing account template	You must specify this setting. Due to limitations in the Coupa API, this setting cannot be empty because all created invoices must have a billing string. If you want to prevent the default value from being used further in the Coupa process, you can set up a posting block or a workflow rule in Coupa to stop this. The coding combination to use for line items in Coupa if the `LIT_BillingAccount` field is empty or does not exist and no default billing account is specified on the buyer level. Use the **Buyer-specific settings** to specify billing account templates for individual buyers. When testing the integration settings by selecting **Test**, if errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view, but you must select **Buyer-specific settings** to correct highlighted settings in the buyer-specific settings view.
Line-item placeholder for header-only invoices	The placeholder text to use for invoices that have no line items.
Custom field mapping	Specifies data templates you want to use to specify custom field mappings between Tungsten AP Essentials and Coupa. Data templates are not necessary unless the default field mappings do not meet your requirements.
Custom line-item field mapping	Specifies data templates you want to use to specify custom line-item field mappings between Tungsten AP Essentials and Coupa. Data templates are not necessary unless the default field mappings do not meet your requirements.
Automatic tax line description	The line-item description text that appears when tax lines are created automatically by the **Enforce line level taxation** setting.

Enforce line-level taxation	Maps header tax fields to line items in Coupa. Use the **Buyer-specific settings** to specify different settings for individual buyers.
Calculate missing tax rates	Automatically calculates tax rates and amounts when they are missing. Use this setting in conjunction with the **Enforce line level taxation** setting. Use the **Buyer-specific settings** to specify different settings for individual buyers.
Remit-to code	Displays settings that you can use to map Tungsten AP Essentials fields to Coupa remit-to codes. Use the **Use remit-to code (Buyer-specific settings)** to specify which buyers use **Remit-to code mapping**. Use the **Remit-to code mapping** setting to specify the field type name of the field you want to map. Use the **Buyer-specific settings** to map different fields for individual buyers.
Use default remit-to code	When Tungsten AP Essentials imports remit-to codes from Coupa, they are saved as supplier banks in the supplier master data. When **Use default remit-to code** is selected, if you do not specify a remit-to code during invoice verification, and there is only one remit-to code for the current supplier, that remit-to code is used when the invoice is sent to Coupa. This setting is only visible when **Use remit-to code** is selected.

Credit note handling	Determines whether credit note amounts are exported as positive or negative values. • **Export amounts as verified (default)** - Users determine the sign during verification. If a user verifies a credit note using negative amounts, the amounts are exported as negative values. However, if a user verifies a credit note using positive amounts, the amounts are exported as positive values. • **Export amounts as negative values** - Credit note amounts are exported as negative values, regardless of what users submit during verification. • **Export amounts as positive values** - Credit note amounts are exported as positive values, regardless of what users submit during verification. Regardless of the setting you choose, if a user submits a mix of negative and positive line-item amounts, the lines are kept as is, no changes are made. Use the **Buyer-specific settings** to specify different credit note handling settings for individual buyers. Unspecified buyer settings use the setting at the customer account level.
Link to invoice images in AP Essentials storage	Saves space in Coupa by linking to invoice images in Tungsten AP Essentials storage instead of sending invoice images to Coupa. The link to the invoice image is specified in the **Image Scan** setting in Coupa. When viewing invoice information in Coupa, you can select the link to open the invoice image in your web browser. This setting is only visible if the Storage service is enabled. To use this feature, **Create image link** must be selected in the **Storage** settings.
Default unit of measure	The default unit of measure to use if the unit of measure field is missing, but quantities are specified on a line item. The integration checks for the presence of the unit of measure field when determining the line type. If the unit of measure is missing, the line type defaults to amount (InvoiceAmountLine) in Coupa. Use the **Buyer-specific settings** to specify different default units of measure for individual buyers.
Calculate missing net amounts	If the net amount (InvoiceTotalVatExcludedAmount) is missing, it is automatically calculated by subtracting InvoiceTotalVATAmount from InvoiceTotalVatIncludedAmount.

Test mode	
Test mode	Sends output to an SFTP server, bypassing Coupa, so you can test your output before you begin production. You must specify the buyers you want to test in the **Buyer-specific settings**. • **SFTP host name** — The host name of the server you want to connect to for testing. • **SFTP port** — The TCP/IP port of the test server. • **SFTP remote path** — The location on the test server where you want to save transferred files. • **SFTP user name** — The user name to use to log in to the server. • **SFTP password** — The password of the SFTP user. • **SSH private key** — Connects to the SFTP server using SSH key authentication. • **SSH passphrase** — The passphrase for **SSH private key** (optional).
Document transformation	
XSL transformation	Determines whether and how to transform output data before it is sent to Coupa. • **None** — No transform is applied. • **XSLT resource file** — Displays the **XSL transformation file** setting which you can use to specify the resource file you want to use for the transformation. • **Custom transformation** — Displays the **Custom XSL transformation** setting which you can use to type an XSL transformation.
Simplified Coupa XML without lines	Omits invoice lines and tax lines from Coupa XML. Replaces lines and header tax lines with empty collections. This feature can be helpful if you use custom XSLT transformations to generate line items and header tax lines dynamically based on header data and other sources.
Misc.	
Replace invalid characters	Replaces invalid characters during master data import with the **Replacement character** you specify. This is helpful, for example, if your master data contains invalid characters, such as line breaks, which cause errors on import. When you enable this setting, invalid characters detected during the import process are automatically replaced with the specified **Replacement character**.

If you have network restrictions on IP addresses, Tungsten AP Essentials uses these IP addresses to connect to Coupa:

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

Target system configuration view: Coupa

Use these settings to configure the Coupa integration.

To access this dialog, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **Coupa** and select **Configuration**.

This topic refers to an older version of the Coupa integration that is being phased out in favor of the latest integration, the Coupa AP integration.

The settings that appear here vary, depending on the target system, version and current account level. Use these settings to specify settings for the target service.

Test	Checks if the integration can connect to Coupa using the connection settings. When you test the integration settings, any errors detected in **Buyer-specific settings** are highlighted in this view, but you must select **Buyer-specific settings** to correct those errors.
Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.

Export attachments	Files that are attached to a document during verification or approval are also included with the output. This setting requires: • Storage services. • **XML version** set to **ReadSoft Online XML (2.0)**.
Export original email	Includes the original input email in the output. The actual, original email with all of its attachments, which may also contain other invoices, is included in the output.
Connection	
System URL	The URL of the Coupa system.
API key	The API key you use for authentication within Coupa.

Use token-based authorization	Determines whether you want to use token-based authorization (OAuth 2.0) to connect to Coupa API. The **API key** setting above is not needed when using token-based authorization. After token-based authorization is set up, the integration automatically renews the access token, so you do not need to handle token expiration manually. When you enable this setting, these additional settings are displayed: **Token-based client ID** - The client identifier value in Coupa. **Token-based secret** - The client secret value in Coupa. **Coupa scopes** - A list of Coupa permissions (separated by spaces) to use with the Coupa client credentials. If you accidentally change this setting, you can copy and paste these permissions (scopes), which the integration uses by default: core.accounting.read core.approval.read core.approval.write core.budget.read core.budget.write core.business_entity.read core.business_entity.write core.catalog.read core.catalog.write core.common.read core.common.write core.contract.read core.contract.write core.easy_form_response.read core.easy_form_response.write core.expense.read core.expense.write core.integration.read core.integration.write core.inventory.adjustment.read core.inventory.adjustment.write core.inventory.asn.read core.inventory.balance.read core.inventory.common.read core.inventory.consumption.read core.inventory.consumption.write core.inventory.receiving.read core.inventory.receiving.write core.inventory.transfer.read core.inventory.transfer.write core.invoice.approval.bypass core.invoice.approval.write core.invoice.create core.invoice.delete core.invoice.read core.invoice.write core.order_pad.read core.order_pad.write core.pay.payment_accounts.read core.pay.payments.read core.pay.payments.write core.pay.virtual_cards.read core.pay.virtual_cards.write core.payables.invoice.read core.payables.invoice.write core.project.read core.project.write core.purchase_order.read core.purchase_order.write core.requisition.read core.requisition.write core.sourcing.pending_supplier.read core.sourcing.pending_supplier.write core.sourcing.read core.sourcing.response.award.write core.sourcing.response.read core.sourcing.response.write core.sourcing.write core.supplier_sharing_settings.read core.supplier_sharing_settings.write core.supplier.read core.supplier.risk_aware.read core.supplier.risk_aware.write

Sender domain	The sender domain that is specified in Coupa for Tungsten AP Essentials as a 3rd-party invoice sender.
Sender identity	The sender identity that is specified in Coupa for Tungsten AP Essentials as a 3rd-party invoice sender.
Export	
Default chart of accounts	The chart of accounts to use for invoices in Coupa if the `ChartOfAccount` field is empty or does not exist and no default chart of accounts is specified on the buyer level. Use the **Buyer-specific settings** to specify charts of accounts for individual buyers.
Default billing account template	You must specify this setting. Due to limitations in the Coupa API, this setting cannot be empty because all created invoices must have a billing string. If you want to prevent the default value from being used further in the Coupa process, you can setup a posting block or a workflow rule in Coupa to stop this. The coding combination to use for line items in Coupa if the `LIT_BillingAccount` field is empty or does not exist and no default billing account is specified on the buyer level. Use the **Buyer-specific settings** to specify billing account templates for individual buyers.
Custom field mapping	Specifies data templates you want to use to specify custom field mappings between Tungsten AP Essentials and Coupa. Data templates are not necessary unless the default field mappings do not meet your requirements.
Enforce line level taxation	Maps header tax fields to line items in Coupa.
Calculate missing tax rates	Automatically calculates tax rates and amounts when they are missing. Use this setting in conjunction with the **Enforce line level taxation** setting.
Use remit-to code	Displays the **Remit-to code template** setting, which you can use to specify a data template for remit-to codes.
Calculate missing net amounts	If the net amount (InvoiceTotalVatExcludedAmount) is missing, it is automatically calculated by subtracting InvoiceTotalVATAmount from InvoiceTotalVatIncludedAmount.

Use default remit-to code	When Tungsten AP Essentials imports remit-to codes from Coupa, they are saved as supplier banks in the supplier master data. When **Use default remit-to code** is selected, if you do not specify a remit-to code during invoice verification, and there is only one remit-to code for the current supplier, that remit-to code is used when the invoice is sent to Coupa. This setting is only visible when **Use remit-to code** is selected.
Suppliers	
Use display name if available	Appends the supplier display name in Coupa to the supplier name in Tungsten AP Essentials.
Delta synchronization	When enabled, only suppliers that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems. We recommend using delta synchronization, however, you may want to disable delta synchronization if, for example, you change supplier numbers or the **Use display name if available** setting, and you want to make sure you get all the new data.
Filtered synchronization	When this setting is selected, only suppliers that have a custom field named `send_to_kofax` enabled in Coupa are imported to Tungsten AP Essentials. This setting also applies to dependent master data, such as purchase orders and contracts. For example, if this setting is enabled, and a supplier does not have the `send_to_kofax` field enabled, neither the supplier nor its purchase orders or contracts are imported to Tungsten AP Essentials. If this setting is not selected, all suppliers and dependent master data are imported.
Purchase orders	
Coupa API filter	The name of the API filter in Coupa that simplifies response output for purchase orders. If you use the Purchase order service, the API filter is required and greatly increases the performance of the integration by reducing the amount of data that is transmitted between Tungsten AP Essentials and Coupa when synchronizing purchase-order master data.

Delta synchronization	When enabled, only purchase orders that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems. We recommend using delta synchronization, however, you may want to disable delta synchronization if, for example, you changed the filter settings, and you want to make sure you get all the new data.
Lookup values	
Lookup names	A comma-separated list of lookup names that you want to import from Coupa. In Coupa, "lookups" are similar to field suggestions (autocomplete) in Tungsten AP Essentials. They are used for fields in Coupa that require users to choose from a list of options. A lookup consists of a lookup name and a number of options, each called a lookup value. Lookup values are grouped into named sets. Each named set that you specify (comma separated) in the **Lookup names** setting is imported as master data with the same name. You can connect fields to master data to provide autocomplete functionality in Tungsten AP Essentials. In this manner, you can use Coupa lookups while processing documents in Tungsten AP Essentials.
Delta synchronization	When enabled, only lookup names that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems. We recommend using delta synchronization, however, you may want to disable delta synchronization if, for example, you changed the **Lookup names** setting, and you want to make sure you get all the new data.
Contracts	
Delta synchronization	When enabled, only contracts that have been updated or changed since the last synchronization are imported. This is beneficial because it saves bandwidth between systems.

If you have network restrictions on IP addresses, Tungsten AP Essentials uses these IP addresses to connect to Coupa:

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

Target system configuration view: Dynamics AX (Embedded) settings

Use these settings to configure the Dynamics AX 2012 integration using the embedded connector.

To access this dialog, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **AX Connector (Embedded)**, and select **Configuration**.

Use this target system to configure the Dynamics AX 2012 integration without using AP Essentials Connect.

The settings that appear here vary, depending on the target system, version, and current account level. Use these settings to configure Dynamics AX 2012 using the embedded connector:

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Validate	Tests the current settings for correctness.
Integration	
Process invoices on Invoice Journal	Determines whether invoices are created in invoice journals or register and approval journals. If you select this setting, non-PO invoices are created in invoice journals. If you do not select this setting, non-PO invoices are created in Invoice Register and Invoice Approval journals.
Create Vendor Invoices for PO invoices	Determines whether PO invoices are created on Vendor Invoice or journals. If you select this setting, PO invoices are created on Vendor Invoice journals. If you do not select this setting, invoices are created according to the Process invoices on Invoice Journal setting.
Journal line description template	Specifies the data template for the journal line description in Dynamics AX.

Release date comment template	Specifies the data template for the release date comment in Dynamics AX.
Document field template	Specifies the data template for the document field in Dynamics AX.
Do not sync suspended or blocked dimensions	Prevents blocked dimensions (dimensions that are "Suspended" or set to "Do not allow manual entry" in Dynamics AX) from being synchronized when master data is synchronized.
Invoice Journal	
Journal Name	Specifies the invoice journal name.
Journal description template	Specifies the data template for the journal description in Dynamics AX.
Default approver	Specifies the default voucher approver.
Default sales tax group	Specifies the default voucher tax group.
Default item sales tax group	Specifies the default voucher tax item group.
Invoice Register	
Journal name	Specifies the Invoice Register journal name.
Journal description template	Specifies the data template for the Invoice Register journal description.
Default approver	Specifies the default voucher approver.
Default sales tax group	Specifies the default voucher tax group.
Default item sales tax group	Specifies the default voucher tax item group.
Archive	
Save images locally	Saves invoice images locally.

Target system configuration view: Dynamics 365 for Finance and Operations settings

Use these settings to configure the Dynamics 365 for Finance and Operations integration.

To access this dialog, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **Dynamics 365 for Finance and Operations**, and select **Configuration**.

The settings that appear here vary, depending on the current account level. Use these settings to configure Tungsten AP Essentials for use with Dynamics 365 for Finance and Operations:

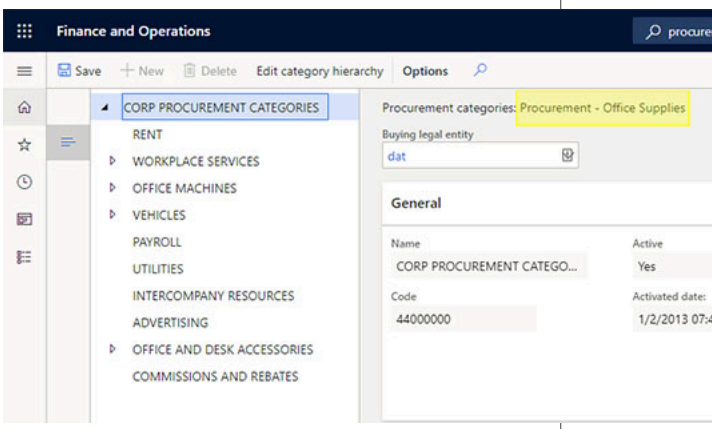
Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.

Consolidate output	When enabled, XML data for multiple documents is sent to the target system in a single XML file at regular intervals. Normally, Tungsten AP Essentials sends documents to the target system one at a time as soon as they are ready. When output is consolidated, however, documents are kept until the **Interval in minutes** has passed. Then, the XML data for all documents that are ready is sent to the target system together in one XML file. If you select to consolidate output, these settings are available: • **Interval in minutes** – Specifies how often documents are sent to the target system. You cannot specify less than 5 minutes. • **Max number of documents in output** – Specifies the maximum number of documents to include in each output file. If the number of documents available for sending exceeds the number you specify here, multiple files are sent until all currently available documents have been sent. **Example** Assume **Interval in minutes** is set to 15, **Max number of documents in output** is set to 20, and there are 100 documents ready to be sent to the target system. When the 15-minute interval is triggered, five XML files (each containing 20 documents) are sent to the target system simultaneously. When **Consolidate output** is enabled, **ReadSoft Online XML (2.0)** is used to create the document output.
Export original email	Sends the original input email to Dynamics 365 as a document attachment. Due to an issue in Dynamics 365 (issue 819855), the vendor invoice document attachment V2 entity does not work correctly with multiple attachments. Until Microsoft resolves this issue, this feature only works with the V1 entity. If you use this feature, you must also select **Use Vendor invoice document attachment V1**. To accept email attachments in Dynamics 365, the EML file type must be listed as a file type that can be uploaded in the **File types** settings of the **Document management parameters** in Dynamics 365.

Export original document	Sends the original input document to Dynamics 365 as an attachment. Select **Export original in ZIP file** to compress original documents in a ZIP file before they are sent to Dynamics 365. Due to an issue in Dynamics 365 (issue 819855), the vendor invoice document attachment V2 entity does not work correctly with multiple attachments. Until Microsoft resolves this issue, this feature only works with the V1 entity. If you use this feature, you must also select **Use Vendor invoice document attachment V1**.
Connection	
System URL	The URL of the Dynamics 365 tenant. For example, `https://mycompany.cloudax.dynamics.com`.
AD tenant	The **Directory Tenant ID** that is specified on the application registration page in Azure AD. Optionally, you can use the active directory domain name.
Client application ID	The **Application Client ID** that is specified on the application registration page in Azure AD.
Client secret	The client secret **Value** that you create when registering Tungsten AP Essentials in Azure AD.
Export	
Recurring data job ID	The ID of the recurring data job you create in Dynamics 365.
Default procurement category	Optional. The name of the category to use when the procurement category and article number are not specified on the invoice.
Custom field mapping	The custom field pattern (data template) you use to map Tungsten AP Essentials data to Dynamics 365 header fields (vendor invoice header entities).
Custom line-item field mapping	The custom field pattern (data template) you use to map Tungsten AP Essentials data to Dynamics 365 line-item fields (vendor invoice line entities).

Negative amount fields for credit notes	For credit notes only, this setting determines which fields, if any, in the **Custom field mapping** setting will have negative values. The field type names you specify here (semicolon-separated) will have negative values on credit notes sent to the target system when used in conjunction with the **Custom field mapping** setting. In other words, the fields you specify here must also be mapped to a header field in the **Custom field mapping** setting. For example, assume you want `InvoiceTotalVATAmount` to be sent to the target system as a negative amount (for credit notes). In this case, you must specify `InvoiceTotalVATAmount` here, and you must also map `InvoiceTotalVATAmount` to a Dynamics 365 header field in the **Custom field mapping** setting. By default, this setting contains these fields: • InvoiceTotalVatExcludedAmount • InvoiceTotalVatIncludedAmount • InvoiceTotalVATAmount
Add default line if no line items exist	Automatically adds a default line to documents if no line items exist and no PO number is specified on the document. The default line contains the currency, procurement category, vendor account, and invoice account.
Add empty tax groups if none exist	Automatically adds empty header and line-item fields for sales tax groups if they are not specified on the document.
Use Vendor invoice document attachment V1	Select this setting to use the Vendor invoice document attachment V1 entity. Clear this setting to use the newer version (V2). Make sure you use the corresponding ZIP file when you create a recurring job.
Master data import	
Referenced group size	Specifies the number of records to join per HTTPS request.
Tax registration number source	Specifies the Dynamics 365 field you want to import as master data for the tax registration number. • **Registration number** (default) • **Tax exempt number** • **Foreign vendor tax registration ID**
Suppliers	
Synchronize supplier bank accounts	Imports supplier bank account information from Dynamics 365.
Purchase orders	

Synchronize purchase orders	Dynamics 365 for Finance and Operations uses a predefined set of PO statuses. • **Open Order** (backorder) - Confirmed but not yet received or invoiced. • **Received** - Goods/services have been received but not invoiced. • **Invoiced** - Invoice has been processed. • **Canceled** - The PO has been canceled. The **Synchronize purchase orders** setting determines whether purchase order information is imported from Dynamics 356 for Finance and Operations. When this setting is enabled, purchase orders with "Open order" and "Received" status are imported, while those with Invoiced or Canceled status are not. If PO statuses are specified in the **PO statuses to synchronize** setting, only the purchase order statuses that you specify (semicolon-separated) are imported. Invoiced and Canceled invoices are never imported. When specifying PO statuses, type "backorder" to designate the Open order status. Type "received" for the Received status. Statuses are not case sensitive.
Items	
Item number mapping source	Determines which Dynamics 365 field is used to populate the item number master data. • Item number - Item master data is synchronized with ReleasedProduct.ProductNumber. • Product number - Item master data is synchronized with ReleasedProduct.ItemNumber.
Procurement categories	

Procurement category hierarchy	Limits the import to the specified procurement category hierarchy in Dynamics 365. To locate the name of the procurement category in Dynamics 365: 1. Use the search button in Dynamics 365 to locate the Procurement Categories page. 2. The text to the right of Procurement categories: is the name of the procurement category. In the example image below, you would copy the text highlighted in yellow, Procurement - Office Supplies. 
Parent procurement category	Imports only the categories that belong to this parent in the selected hierarchy.
Include categories without code	Imports procurement categories even if the category code is missing.
Only import categories without sub-categories	Imports only the procurement categories that do not have any sub-categories (leaf nodes).

If you have network restrictions on IP addresses, Tungsten AP Essentials uses these IP addresses to connect to Dynamics 356 for Finance and Operations.

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

Target system configuration view: Dynamics AX settings

Use these settings to configure the Dynamics AX integration using AP Essentials Connect.

To access this view, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **Dynamics AX**, and select **Configuration**.

Use this target system to configure the Dynamics AX 2012 integration using AP Essentials Connect. To configure the integration without using AP Essentials Connect, use these settings.

The settings that appear here vary, depending on the target system, version and current account level. Use these settings to specify settings for the target service:

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Custom network credentials	Specifies whether to use the default user or specify another user using User name and Password (True/False).
User name (USER)	The user to use, if **Custom network credentials** is set to **True**. The Windows user you specify here must have access to the URI. If **Store image file** is set to **True**, the user must also have access to the folder you specify in the **Directory to store** setting.
Password (PASSWD)	The password for **User name**.
Domain	The network domain that the user specified in **User name** belongs to.
Approver personnel number	The personnel number of the Dynamics AX user to use to perform preliminary and final booking.
Transaction text template	Specifies the data template to use to set the transaction text field in Dynamics AX.
Default sales tax group	Specifies the default sales tax group code that is attached to customers and suppliers (vendors) in Dynamics AX.
Default item sales tax group	Specifies the default item sales tax group in Dynamics AX.

Is Dynamics AX 2009	Specifies whether the target system is Dynamics AX 2009. • **True** - The target system is Dynamics AX 2009. • **False** - The target system is Dynamics AX 2012.

When using Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

Target system configuration view: E-conomic settings

Use these settings to configure the E-conomic integration.

To access this view, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **E-conomic** and select **Configuration**.

The settings that appear here vary, depending on the target system, version and current account level. Use these settings to specify settings for the target service:

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Validate	Checks wheter the integration can connect to E-conomic using the Connection settings.
Connection	
Use e-conomic integration version 2	Select this setting when you specify an **Agreement Grant Token** that uses the new app named "Tungsten AP Essentials version 2."
Agreement Grant Token	The **Agreement Grant Token** you use for token-based authentication with E-conomic.

Integration	
Extended integration	Determines whether to use the latest integration with new features, or to use an older version of the integration for backwards compatibility. When selected, the system uses the latest integration technology with the newest features. When cleared, the system uses the old version of the integration for backwards compatibility. Note that the older version does not get updated with new features.
Day book name	The day book to use to register supplier invoices.
Default contra account	The default expense-account number to use if one is not defined for the supplier. This account number is used as the default coding suggestion.
Default cost type	If you use Project master data, you must specify the default cost type here. Optionally, you can define a custom field with the type name "CostType" and use master data to populate the field with values. If you do not define a custom field, the default cost type is always used.
Payment type from supplier	Determines whether payment information (supplier number, OCR, message, giro account, account number IBAN, SWIFT) is taken from E-conomic or the captured document in Tungsten AP Essentials. When selected, the payment type and related fields are taken from the supplier in E-conomic. When not selected, the payment type and related fields are taken from the captured document in Tungsten AP Essentials.
VAT Code from supplier	Determines whether the VAT code is taken from E-conomic or the captured document in Tungsten AP Essentials when using general ledger coding. • When this setting is selected, the VAT code is taken from the supplier contra account in E-conomic and applied to the invoice during registration. • When this setting is not selected, the value from the `InvoiceTotalVatRatePercent` field on the captured document is used to look up the VAT code in E-conomic, and the code is automatically applied to the invoice during registration.
Entry text template	Specifies the value of the Text field in E-conomic. You can specify placeholders (using the internal names of the fields in the document type) within brackets.
Payment message template	Specifies the value of the Message field in E-conomic. You can specify placeholders (using the internal names of the fields in the document type) within brackets.
Projects	

Import projects	Determines whether to import project master data from E-conomic. This makes account coding easier by providing a list of account codes to choose from.
Cash accounts	
Cash accounts list	Specifies valid cash account numbers (comma separated) for use with entry-only payment types.
XML version	The XML output version you use to send processed invoice data to the target system.

When using Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

If you have network restrictions on IP addresses, Tungsten AP Essentials uses these IP addresses to connect to E-conomic:

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

Target system configuration view: Email settings

Use these settings to configure the Email target system.

To access this view, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **Email**, and select **Configuration**.

The settings that appear here vary depending on the target system, version and current account level. Use these settings to specify settings for the target service:

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Embed image and exported attachments in XML output	Embeds images and attachments in the XML output as a Base64 string instead of exporting them as separate files. This setting is disabled unless the **XML version** is **ReadSoft Online XML (2.0)**.
Export attachments	Files that are attached to a document during verification or approval are also included with the output. This setting requires: • Storage services. • **XML version** set to **ReadSoft Online XML (2.0)**.
Export original document	This setting is only applicable when combined with **Embed image and exported attachments in XML output**. When you select **Export original document** and **Embed image and exported attachments in XML output**, the original input document is embedded in the XML output as a Base64 string.
Test	Verifies that the address specified in the **Mail to** box is valid.
Email settings	
Mail to	Specifies the email recipient of invoice output. Processed invoices are sent to this address as attachments. Invoice data is saved in XML files, and invoice images are saved in TIF files.
Subject	Specifies the subject of the email.
Document output	

XML version	The XML output version to use for the XSL transformation.
XSL Transformation	Specifies the name of the XSLT file you want to use to transform invoice data (optional). The list is populated from files that have been uploaded to the **Resources** view. When using email as the target system, use only XSL transforms that output XML.
Download sample	Downloads an example XML file to use as a basis for your transformation.

When using Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

Target system configuration view: NetSuite settings

Use these settings to configure the NetSuite target system.

To access this dialog, select a **Services** node in the administration tree view, select **Target system**, select **Netsuite** and select **Configuration**.

The settings that appear here vary depending on the target system, version and current account level. Settings that are used for invoices (vendor bills) are also used for credit notes (vendor credits).

The **System URL** setting has been removed because the system URL is now detected automatically. No user action is required.

Use these settings to specify settings for the target service:

Output image format	Determines the format of the output invoices. • **PDF** - If the original PDF is color, the output PDF is also color. Original text layers are preserved. If the original PDF lacks text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** - A black and white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Choose this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** - This setting is only available for the NetSuite integration. When selected, no invoice image is sent to NetSuite. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Connection	
Account	The NetSuite account ID (required). To locate the account ID in NetSuite, navigate to **Setup** > **Company** > **Company Information**. The account ID is casesensitive.
Token ID	Specifies the token ID when using the token-based authentication method. If this setting is empty, **Email**/**Password** authentication is used instead. See NetSuite documentation for more information about token-based authentication.
Token secret	Specifies the token secret that corresponds to the **Token ID**. For security purposes, the number of hidden characters don't necessarily match the number of characters in the token secret.
Account concurrency	Specifies the number of simultaneous web API service calls that can be made to NetSuite. Specify a value between 0 and 32. Higher values increase parallel processing and overall throughput per organization. Changing this setting to anything greater than zero requires additional licensing from NetSuite.

Disable mandatory custom field validation	Determines whether custom fields are validated. • Selected - Custom fields are not validated. • Cleared - Custom fields are validated.
Application ID	The application ID of the Tungsten AP Essentials connector in NetSuite. This setting is required when using password-based authentication.
Consumer Key	The consumer key of the Tungsten AP Essentials connector in NetSuite. This setting is required when using token-based authentication. See NetSuite documentation for more information about token-based authentication.
Consumer secret	The consumer secret of the Tungsten AP Essentials connector in NetSuite. This setting is required when using token-based authentication.
Integration	
Custom form ID	Leave blank to use the default vendor bill form in NetSuite. Optionally, specify one or multiple custom forms IDs to use. Use the **Buyer-specific settings** to specify custom form IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Default expense account	The default expense account number to use if no expense account is defined for the vendor.
GE dummy item code	The fallback NetSuite item code used when a line item on a general-expense invoice lacks a matching item code. If you want to register *all* non-PO-based invoices as item lines in NetSuite (instead of expense lines), specify the item code to use for such lines. Otherwise, leave this setting blank. Learn how to create dummy codes.
Post non-PO invoice lines as item lines when an item code is specified	Ensures that invoice lines on non-PO invoices are posted as item lines in NetSuite if a valid item code is specified during verification. The GE dummy item code is only used when the item field is left blank and **GE dummy item code** is specified. Enable this setting on the buyer level in the **Buyer-specific settings**.

PO dummy item code	The fallback NetSuite item code used when a line item on a PO invoice lacks a matching item code. Use **PO dummy item code** in the following scenarios: • When you use line-pairing and process invoices that have additional lines that are not specified on the PO. • When you do not use line-pairing and process invoices where the invoice total amount differs from the PO total amount. Learn how to create dummy codes.
Custom field mapping	The data template you use to map Tungsten AP Essentials data to NetSuite vendor bill and vendor credit fields.
Custom expense field mapping for line items	The data template you use to map AP Essentials data to NetSuite expense fields.
Custom expense field mapping for accounts	The data template you use to map AP Essentials coding lines to expense records in NetSuite.
Custom item field mapping	The data template you use to map AP Essentials data to NetSuite item fields.
PO receipt check	Ensures POs are in the *Pending Billing* state, or a variant of that state, when exporting invoices to NetSuite. Disable this setting if you need to bill POs before goods are received in NetSuite. • Enabled (default) - POs must have the *Pending bill* state, or a variant of that state, in NetSuite in order to create and bill PO invoices in NetSuite. Document export fails for invoices that fail the check during export. • Disabled - The integration does not check the PO status when exporting invoices to NetSuite. Clear this setting if you need to bill POs before goods are received. To bill POs before goods are received, **ADVANCED RECEIVING** and **BILL IN ADVANCE OF RECEIPT** must be enabled in NetSuite. If either of these settings is not enabled, document export fails.
Target image folder	The NetSuite archive image folder name (required). To locate Folders in NetSuite, navigate to **Documents** > **Files** > **File Cabinets**. The folder must be at root level in NetSuite.
Use tax code from supplier	Select this setting to get the tax code from the supplier data in NetSuite if the tax code field is undefined or left blank during verification.

Use Supplier Entity ID as supplier number	When selected, the NetSuite supplier entity ID is mapped to the supplier number in AP Essentials and the NetSuite supplier company name is mapped to the AP Essentials supplier name. When this setting is not selected, NetSuite supplier internal ID is mapped to the supplier number in AP Essentials and the NetSuite supplier entity ID is mapped to the AP Essentials supplier name.
Override SuiteTax with tax data from AP Essentials	If your NetSuite solution uses SuiteTax engine, select this setting to use tax data from AP Essentials instead of tax calculations from SuiteTax engine. After you select this setting, additional settings appear. • **Custom tax type field mapping** — Specifies the field type name of the AP Essentials field that maps to the taxType field in NetSuite. • **Custom tax type item field mapping** — Specifies the field type name of the AP Essentials line-item field that maps to the item taxType field in NetSuite. Use the **Buyer-specific settings** to specify whether tax data is overwritten for individual buyers. If you enable tax overriding on the buyer level, tax data from AP Essentials is used, even if the tax values are missing. ⓘ You cannot use **Override SuiteTax with tax data from AP Essentials** and **Calculate use tax automatically** simultaneously.
Calculate use tax automatically	Select this setting to use tax calculations from SuiteTax engine instead of tax data from AP Essentials. Use the **Buyer-specific settings** to specify whether you use SuiteTax engine for individual buyers. ⓘ This setting only applies to US SuiteTax accounts. ⓘ You cannot use **Override SuiteTax with tax data from AP Essentials** and **Calculate use tax automatically** simultaneously.
Suppliers	

Saved search ID	The ID of the supplier saved search in NetSuite. Set to **customsearchapsvendors** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Custom field lists	
List field IDs	Specifies the field IDs of NetSuite list fields (**Transaction Body Field** of type **List/Record**) that you want to import as master data. Separate multiple fields with semicolons (;). The Client Suite Script and Server Suite Script features must be enabled in NetSuite (**Setup** > **Company** > **Enable Features** > **SuiteCloud** > **SuiteScript** group).
Expense list field IDs	Specifies the field IDs of NetSuite list fields (**Transaction Column Fields** expenses of type **List/Record**) that you want to import as master data. Separate multiple fields with semicolons (;).
Item list field IDs	Specifies the field IDs of NetSuite list fields (**Transaction Column Fields** items of type **List/Record**) that you want to import as master data. Separate multiple fields with semicolons (;).
Locations	
Exclude inactives	Determines whether inactive locations are included when importing master data from NetSuite.
Include parent in name	Determines whether the parent structure is included in the **Name** field when importing location master data from NetSuite. When Tungsten AP Essentials imports master data from NetSuite, address information is added to the **Description** field of the location master data, regardless of your selection.
Tax codes	
Saved search ID	The ID of the tax code saved search in NetSuite. If your NetSuite solution uses SuiteTax engine and tax code master data, enter "customsearchapstaxcodes" here to import tax codes correctly. If you do not use the SuiteTax engine, leave this setting empty to continue importing tax code master data as usual.

Classifications	
Include parent in name	Determines whether the parent structure is included in the **Name** field when importing classification master data from NetSuite.
Saved search ID	The ID of the classifications saved search in NetSuite. Set to **customsearchapsclassifications** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Departments	
Exclude inactives	Determines whether inactive departments are included when importing master data from NetSuite.
Include parent in name	Determines whether the parent structure is included in the **Name** field when importing department master data from NetSuite.
Items	
Saved search ID	The ID of the item saved search in NetSuite. Set to **customsearchapsitems** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Purchase orders	
Import only billable POs	Only imports purchase orders marked as billable (isBillable) in NetSuite. Purchase orders that are not marked as billable are excluded from import.

Saved search ID	The ID of the PO saved search in NetSuite. Set to **customsearchapspurchaseorders** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Accounts	
Saved search ID	The ID of the accounts saved search in NetSuite. Set to **customsearchapsglaccounts** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Projects	
Saved search ID	The ID of the projects saved search in NetSuite. Set to **customsearchapsprojects** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.
Customers	
Saved search ID	The ID of the customers saved search in NetSuite. Set to **customsearchapscustomers** when using the Tungsten AP Essentials NetSuite bundle. Use the **Buyer-specific settings** to specify saved search IDs for individual buyers. When testing the integration settings by selecting **Test**, if any errors are detected in the **Buyer-specific settings**, this setting is highlighted in this view; however, you must select **Buyer-specific settings** to correct any highlighted settings in the buyer-specific settings view.

If you have network restrictions on IP addresses, Tungsten AP Essentials uses these IP addresses to connect to NetSuite:

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

Target system configuration view: Oracle Financials Cloud

Use these settings to configure the Oracle Financials Cloud integration.

To access this view, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **Oracle Financials Cloud**, then select **Configuration**.

The settings that appear here vary, depending on the target system, version, and current account level. Use these settings to specify settings for the target service.

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Export original email	Sends the original input email to Oracle Financials Cloud as an attachment.
Export original document	Sends the original input document to Oracle Financials Cloud as an attachment. Select **Export original in ZIP file** to compress original documents in a ZIP file before they are sent to Oracle Financials Cloud.
Connection	
System URL	The URL to use to connect to the Oracle Financials Cloud system.

User name	The user name to use to connect to Oracle Financials Cloud. The user you specify must have privileges to perform many functions in Oracle Financials Cloud, such as creating invoices, reading suppliers, and purchase orders, and more.
Password	The password for the Oracle Financials Cloud user.
Integration	
Default distribution combination	The distribution combination to use by default.
Distribution combination template	A data template that determines the format of distribution combinations. Default value: `%$BuyerExternalId%-%AccountCode%`
Automatically insert net amount lines	Adds net amount lines to invoices that are missing line-item tables.
Default payment method code	Determines the default payment method code if none is specified during verification.
Header field mapping	The data template to use when mapping Tungsten AP Essentials data to payables header fields in Oracle. Use this setting if you need to map additional fields or information that are not already provided by the default field mappings. You can also use this setting to override default field mappings. Separate multiple field mappings using semicolons.
Line-item field mapping	The data template to use when mapping Tungsten AP Essentials data to payables line-item fields in Oracle. Use this setting if you need to map additional fields or information that are not already provided by the default field mappings. You can also use this setting to override default field mappings. Separate multiple field mappings using semicolons. Mapping is not supported for net amount and freight line-item fields.
Global descriptive flexfield template	The data template to use when mapping Tungsten AP Essentials data to global payables descriptive flexfields in Oracle. Separate multiple field mappings using semicolons. Use the **Buyer-specific** settings to specify data templates for individual buyers. See example field mappings.
Descriptive flexfield template	The data template to use when mapping Tungsten AP Essentials data to payables descriptive flexfields in Oracle. Separate multiple field mappings using semicolons. See example field mappings.

Line-item descriptive flexfield template	The data template to use when mapping Tungsten AP Essentials data to line-item descriptive flexfields in Oracle. See example field mappings. Mapping is not supported for net amount and freight line-item fields.
Link to invoice images in Tungsten AP Essentials storage	Saves space in Oracle Financials Cloud by linking to invoice images in Tungsten AP Essentials storage instead of sending invoice images to Oracle. The link to the invoice image is added to the invoice as an attachment in Oracle. When viewing invoice information in Oracle, you can select the link to open the invoice image in your web browser. This setting is visible only if the Storage service is enabled. To use this feature, **Create image link** must be selected in the **Storage** settings.
Document and purchase order currencies must match	If the currency on the document differs from the currency on the purchase order, an information message appears.
Document and purchase order suppliers must match	If the supplier on the document differs from the supplier on the purchase order, an information message appears.
Document and purchase order supplier sites must match	If the supplier site on the document differs from the supplier site on the purchase order, an information message appears.
Normalize supplier sites	Removes the supplier number and dash from the supplier site field before sending the invoice to Oracle.
Map buyers to legal entities	Maps buyers in Tungsten AP Essentials to legal entities in Oracle. Selecting this setting also displays the **Business unit name** setting. When this setting is not selected, buyers in Tungsten AP Essentials are mapped to the business units in Oracle where the buyer name matches the business unit name. The external ID of the buyer is also used to specify the coding segment value. When this setting is selected, you specify the business unit name of the legal entity you want to map to, and the external ID of the buyer specifies the legal entity ID or legal entity name in Oracle. Use the **Buyer-specific** settings to map individual buyers to legal entities.

Business unit name	Specifies which buyers in Tungsten AP Essentials correspond to business units in Oracle. You must select **Map buyers to legal entities** to display this setting. Use the **Buyer-specific** settings to specify business units for individual buyers.
Identify service lines by missing quantity and price	Automatically classifies matched PO lines as service lines if both quantity and price fields are empty or zero. Otherwise, lines are treated as goods.
Disable "Pay alone" for credit memos	Sets **PayAloneFlag** to `false` for all credit memos sent to Oracle Financials Cloud for each buyer you select in the **Buyer-specific settings**. This overrides the supplier-level pay alone setting, which is commonly set to `true` for invoices. Standard invoices are not affected by this setting and continue to inherit the pay-alone value from the supplier configuration.
Suppliers	
Synchronize default payment methods	Retrieves default payment methods during supplier master data synchronization.
Create a supplier for each supplier site	Creates a supplier in Tungsten AP Essentials for each supplier site in Oracle.
Filter supplier types	When importing supplier master data, only suppliers that match the supplier types you specify here are imported. Separate multiple supplier types with commas. Example: `Supplier, Contractor, Sub-Contractor` Leave this setting blank to import all suppliers.
Exclude inactive supplier sites	Excludes inactive supplier sites during master-data synchronization, so only active supplier sites are imported to Tungsten AP Essentials.
Synchronize setting: Invoices require PO	Sets the supplier master-data setting (**Invoices require PO**) to true when **Create a supplier for each supplier site** is enabled and [site].InvoiceMatchOption is set to "Order" in Oracle Financials Cloud. Use the **Buyer-specific** settings to enable this setting for individual buyers.
Filter by site purpose	Filters suppliers by site purpose during synchronization. Only suppliers that match the Oracle site purposes you specify in the **Site purposes to synchronize** setting are synchronized. Separate multiple site purposes using semicolons. Use the **Buyer-specific** settings to enable this setting for individual buyers. Buyer-specific settings override values specified in the **Site purposes to synchronize** setting.

Purchase orders	
Import received quantities from purchase order	Automatically populates line-item received quantities in Tungsten AP Essentials using PO data from Oracle.
Import invoiced quantities from purchase order	Automatically populates line-item invoiced quantities in Tungsten AP Essentials using PO data from Oracle.
Additional PO statuses	A comma-separated list of extra purchase-order statuses that you want to synchronize in addition to "OPEN" and "CLOSED FOR RECEIVING". "OPEN" and "CLOSED FOR RECEIVING" PO statuses are synchronized by default, so you do not need to specify them here. Not all statuses are available to the **Additional PO statuses** setting by default. Contact support if you want to import purchase orders with a status that is not available.
Additional PO line statuses	A comma-separated list of extra purchase-order line statuses that you want to synchronize in addition to "OPEN" and "CLOSED FOR RECEIVING". "OPEN" and "CLOSED FOR RECEIVING" PO statuses are synchronized by default, so you do not need to specify them here. Default values: CANCELED, CLOSED, CLOSED FOR INVOICING, CLOSED FOR RECEIVING, FINALLY CLOSED, ON HOLD, OPEN, REJECTED, NONE. "NONE" is a dummy status that is used to indicate PO lines without a status in Oracle. In Oracle Financials Cloud, PO lines do not have a status when the PO header status is "INCOMPLETE". Not all statuses are available to the **Additional PO line statuses** setting by default. Contact support if you want to import purchase orders with a status that is not available.
General ledger accounts	

Synchronize master data using Oracle reports	Determines whether data from coding combination reports synchronizes automatically from Oracle reports. We recommend using the **Synchronize master data using Oracle REST API** setting below instead. Using the Oracle REST API requires the least amount of setup. Optionally, you can import accounting data manually by exporting the coding combination reports and using the Master-data import app for Microsoft Excel to import the data to Tungsten AP Essentials. ⓘ You cannot select **Synchronize master data using Oracle reports** and **Synchronize master data using Oracle REST API** at the same time. Choose one or the other, but not both.
Report job path	The path to the report job for accounting master data.
Report job name	The name of the report job for accounting master data.
Account type	The type of entries in the report job for GL accounts.
Coding field types	A comma-separated list of the type of entries in the job report for coding segments.
Synchronize master data using Oracle REST API	Determines whether master data synchronizes automatically using the Oracle REST API. This is the recommended method that requires the least amount of setup compared to **Synchronize master data using Oracle reports**. ⓘ You cannot select **Synchronize master data using Oracle reports** and **Synchronize master data using Oracle REST API** at the same time. Choose one or the other, but not both.
GL-account segment	The coding segment API name for GL accounts.
Other coding segments	A comma-separated list of the coding segment API names.
Tax handling	
Synchronize tax classification	Retrieves tax-classification master data from Oracle, which you can use for field suggestions during verification.
Synchronize ship-to location	Retrieves location master data from Oracle, which you can use for field suggestions during verification.
Items	

Inventory organization code	Determines what item master data is imported. The inventory organization code is simply called "Organization" or "OrganizationId" in Oracle; it is not the "Organization Name". When you specify an inventory organization code here, only items from that organization are imported as master data. You can select **Buyer-specific settings** to specify inventory organization codes on the buyer level.

If you have network restrictions on IP addresses, Tungsten AP Essentials uses the IP addresses below to connect to Oracle.

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

Target system configuration view: PROCESS DIRECTOR Accounts Payable

Use these settings to configure the PROCESS DIRECTOR Accounts Payable target system.

To access this view, select a **Services** node in the administration tree view, select **PROCESS DIRECTOR Accounts Payable** (or **AP Essentials Connect -PROCESS DIRECTOR Accounts Payable**), and select **Configuration**.

The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree. Use these settings to specify settings for the target service.

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Configuration	

Client (CLIENT)	The SAP client number. This setting must match the **CLIENT** setting in SAP.
User name (USER)	The user for connecting to SAP. This setting must match a **USER** setting in SAP.
Password (PASSWD)	The password for **User name**. This setting must match the **PASSWD** setting for the user in SAP. Alternatively, use the **Password** setting to specify a complete connection string. For details, refer to the note at the end of this topic. For security purposes, the number of hidden characters does not necessarily match the number of characters in the password.
Language (LANG)	The SAP system language. This setting must match the **LANG** setting in SAP.
System number (SYSNR)	The SAP system number. This setting must match the **SYSNR** setting in SAP.
Server host (ASHOST/MSHOST)	The name of the SAP application or message-server host. This setting must match the **ASHOST/MSHOST** setting in SAP.
Message server	
Use message-server host	Determines whether the SAP message server is used when logging in to SAP. • **Message-server system name (R3Name)** - The SAP R/3 system name. This setting must match the **R3Name** setting in SAP. • **Message-server group (GROUP)** - The name of the SAP server group. This setting must match the **GROUP** setting in SAP. • **System ID (SYSID)** - The three-letter system ID of the SAP system.
SNC	
Use secure network communications	Determines secure network communications are sued when communication with SAP. • **SNC library path (SNCLIB)** - The SNC library path. • **SNC partner name (SNCPARTNERName)** - The name of the SNC partner (application server). • **SNC my name (SNCMYName)** - The name of the SNC user. • **SNC quality of protection (SNCQOP)** - The quality of SNC protection (protection level).

Local copy	
File location	Determines whether you save local copies of the output (optional). Output is still sent to PROCESS DIRECTOR, even if you use this feature. You can choose to save a copy of the XML output, the output image, or both. Specify a file location to use this feature. Otherwise, leave this setting blank.
Save document XML	Determines whether XML output is saved in the **File location** you specify.
Save document image	Determines whether document images are saved in the **File location** you specify.
Archiving	
Archive original image	Determines whether the original, incoming document images are stored in the SAP archives. When selected, you must specify the **Original image archive doc type** and **Original image archive identification** settings. Archiving must be enabled and configured in SAP to use this feature.

Original image archive doc type	The SAP archive document type. You can specify multiple image archive doc types by separating them with a semicolon. Specify each image archive doc type using this format:
	`ImageFormat:DocType`
	where `ImageFormat` is the image format and `DocType` is the SAP doc type.
	Example:
	`PDF:ZEIC_PDF; TIF:ZEIC_TIF`

Original image archive identification	Determines which SAP archiving system (**Content repository ID**) to send the image files to. This setting must match a **Content repository ID** setting in SAP. You can specify multiple image archive IDs by separating them with a semicolon. Specify each image archive ID using this format:
	`ImageFormat:ArchiveID`
	where `ImageFormat` is the image format and `ArchiveID` is the SAP archive ID.
	Example:
	`PDF:Z1; TIF:Z2`

Archive original email	Determines whether the original, incoming emails are stored in the SAP archives. When selected, you must specify the **Original email archive doc type** and **Original email archive identification** settings. Archiving must be enabled and configured in SAP to use this feature.

Original email archive doc type	The SAP archive document type.
Original email archive identification	Determines which SAP archiving system (**Content repository ID**) to send the email files to. This setting must match a **Content repository ID** setting in SAP.
Archive output image	Determines whether document images are stored in the SAP archives. When selected, you must specify the **Image archive identification** and the **Image archive doc type**. Archiving must be enabled and configured in SAP to use this feature.
Output image archive doc type	The SAP archive document type.
Output image archive identification	Determines which SAP archiving system (**Content repository ID**) to send the image files to. This setting must match a **Content repository ID** setting in SAP.
Archive source reference	This setting is no longer used.
Source reference archive doc type	This setting is no longer used.
Source reference archive identification	This setting is no longer used.
Content	
Set empty amount fields to zero	When an amount field is empty, the value is automatically set to a zero amount (0.00) before sending the value to PROCESS DIRECTOR Accounts Payable.
Include field positions	Sends field position data to PROCESS DIRECTOR Accounts Payable.
Import	
Supplier master-data file	Specifies the location of an XML file that contains supplier master data that you want to import for use with Tungsten AP Essentials. The XML file is created by settings that you specify in PROCESS DIRECTOR Accounts Payable within SAP. You must specify the complete file path and file name.
Supplier file backup	Determines whether Tungsten AP Essentials saves copies of imported supplier master-data files. Tungsten AP Essentials names each file with a timestamp and saves the files in a subfolder named "Imported." Selecting this setting displays the **Supplier backup history** setting.

Supplier backup history	The number of days to keep the supplier master-data backup files. Tungsten AP Essentials automatically deletes backup files that are older than the number of days you specify here.
Live data	
Online	Select this setting to retrieve entity data directly from PROCESS DIRECTOR Accounts Payable instead of using the Tungsten AP Essentials cache.
Document output	
XML version	Defines the XML format you want to use as the basis for your XSL transformation. • If you use the sample XSLT file as the basis for the XSL transformation, select **Internal** here. • If you create your own XSLT file, select **Tungsten AP Essentials XML (2.0)**, and use the Tungsten AP Essentials XML (2.0) schema when creating your XSL transformation.
XSL transformation	Specifies the name of the XSLT file you want to use to transform invoice data. The list is populated from files that have been uploaded to the **Resources** view. This XSLT file contains the default XSL transformation for sending processed invoice information to PROCESS DIRECTOR Accounts Payable. You can download the file as-is, and upload it to the **Resources** view, and specify the file here to use it in your solution. You can optionally modify the transformation to meet your specific needs, but this is not necessary.
Download sample	Prompts you to download a sample output document.

Tungsten AP Essentials Connect
Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

If you require additional parameters to connect to your system (other than CLIENT, USER, SYSNR, and so on) you can use the **Password** setting to specify a connection string that contains all of the parameters that you need.

Begin the connection string with #CONNECTIONSTRING#, followed by each parameter and its value, separated by spaces.

Example:

```
#CONNECTIONSTRING#R3Name=QA2 MSSERV=3600 GROUP=PUBLIC
MSHOST=server.example.com CLIENT=110 LANG=EN USER=Some_User PASSWD=Abcd.1234
SYSNR=00
```

If you use this method to connect, you do not need to specify the other connection settings in this view.

Target system configuration view: SAP S/4HANA Cloud ES

Use these settings to configure the SAP S/4HANA Cloud ES target system.

To access this view, select a **Services** node in the administration tree view, then select **Configuration**.

The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree. Use these settings to specify settings for the target service.

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Connection	
System URL	The URL of the SAP S/4HANA Cloud ES system (required).

User name	The user name for connecting to SAP S/4HANA Cloud ES (required).
Password	The password for the SAP S/4HANA Cloud ES user (required). For security purposes, the number of hidden characters does not necessarily match the number of characters in the password.
Document export	
Default GL account number	The default GL account number to use when creating line items.
Link to invoice images in AP Essentials storage	Saves space in SAP by linking to invoice images in Tungsten AP Essentials storage instead of sending invoice images to SAP. You must specify readsoftonline.com as a trusted host in the **Maintain Trusted Network Zone** settings in SAP.
Calculate tax automatically	When selected, SAP calculates the taxes, rather than using the tax values on the document.
Integration	
Header field mapping	The data template to use when mapping Tungsten AP Essentials data to header fields in SAP. Use this setting if you need to map additional fields or information that are not already provided by the default field mappings. You can also use this setting to override default field mappings. Separate multiple field mappings using semicolons.
Line-item field mapping	The data template to use when mapping Tungsten AP Essentials data to line-item fields in SAP. Use this setting if you need to map additional fields or information that are not already provided by the default field mappings. You can also use this setting to override default field mappings. Separate multiple field mappings using semicolons. You cannot map line-item fields to **Purchasing Document References** fields in SAP.
Master data import	

Purchase order period (days)	Only purchase orders created within the period of time you specify here are imported. For example, if you choose **1 year**, only purchase orders created within the last year are imported. In other words, purchase orders that are more than one year old are not imported. If you select **Custom**, the **Purchase order period (days)** box appears. Specify a specific number of days to import.
Exclude fully invoiced purchase orders	When selected, completed purchase orders are not imported.
Purchase order history CDS API	The API and resource name of the communication scenario that retrieves the purchase order history. You must configure CDS views with corresponding communication scenarios in SAP S/4HANA Cloud ES to complete this setting.
Company tax procedures CDS API	The API and resource name of the communication scenario that retrieves the company tax procedures. You must configure CDS views with corresponding communication scenarios in SAP S/4HANA Cloud ES to complete this setting.
Country tax codes CDS API	The API and resource name of the communication scenario that retrieves the country tax codes. You must configure CDS views with corresponding communication scenarios in SAP S/4HANA Cloud ES to complete this setting.
Tax types CDS API	The API and resource name of the communication scenario that retrieves the tax types. You must configure CDS views with corresponding communication scenarios in SAP S/4HANA Cloud ES to complete this setting.
Company GL accounts CDS API	The API and resource name of the communication scenario that retrieves the country general ledger accounts. You must configure CDS views with corresponding communication scenarios in SAP S/4HANA Cloud ES to complete this setting.

<table>
<tr><td>Import WBS elements</td><td>Imports Work Breakdown Structure (WBS) elements from SAP and makes them available as master data for selected buyers.
Buyer selection - Determines which buyers can import WBS master data.
WBS statuses to synchronize - Specifies the WBS element statuses to synchronize, separated by semicolons. Default values: 00;10;12;20;40;42
Active WBS statuses - Determines which WBS statuses are considered active master data objects in AP Essentials, separated by semicolons. Default values: 00;10
Use the following values when specifying WBS statuses.<table><tr><th>WBS status value</th><th>Description</th></tr><tr><td>00</td><td>Created</td></tr><tr><td>10</td><td>Released</td></tr><tr><td>12</td><td>Partially released</td></tr><tr><td>20</td><td>Locked</td></tr><tr><td>40</td><td>Completed</td></tr><tr><td>42</td><td>Closed</td></tr></table></td></tr>
<tr><td colspan="2">Document export</td></tr>
<tr><td>Default GL account number</td><td>The default GL account number to use when creating line items.</td></tr>
<tr><td>Link to invoice images in AP Essentials storage</td><td>Saves space in SAP by linking to invoice images in Tungsten AP Essentials storage instead of sending invoice images to SAP.</td></tr>
<tr><td>Calculate tax automatically</td><td>When selected, SAP calculates the taxes automatically.</td></tr>
<tr><td>Park invoices with too many service entry sheets</td><td>If an invoice has multiple service entry sheets, and the integration cannot determine which sheets to use, select this setting to avoid rejection by automatically parking invoices until they can be handled manually.</td></tr>
<tr><td>Park invoices that do not have service entry sheets</td><td>If an invoice has missing, unapproved, or already fully invoiced service entry sheets, select this setting to avoid rejection by automatically parking invoices until they can be handled manually.</td></tr>
</table>

When using Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

Target system configuration view: SFTP settings

Use these settings to configure the SFTP target system.

To access this view, select a **Services** node in the administration tree view, select **Target system**, select **SFTP**, and select **Configuration**.

The SFTP target system service uses secure file transfer protocol (SFTP) to transfer data securely and supports these encryption algorithms:

- ssh-ed25519
- ecdsa-sha2-nistp256
- ecdsa-sha2-nistp384
- ecdsa-sha2-nistp521
- ssh-rsa
- ssh-dss

The settings that appear here vary depending on the target system, version, and current account level. These settings specify settings for the target service:

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.

Consolidate output	When enabled, XML data for multiple documents is sent to the target system in a single XML file at regular intervals. Normally, Tungsten AP Essentials sends documents to the target system one at a time as soon as they are ready. When output is consolidated, however, documents are kept until the **Interval in minutes** has passed. Then, the XML data for all documents that are ready is sent to the target system together in one XML file. If you select to consolidate output, these settings are available: • **Interval in minutes** – Specifies how often documents are sent to the target system. You cannot specify less than 5 minutes. • **Max number of documents in output** – Specifies the maximum number of documents to include in each output file. If the number of documents available for sending exceeds the number you specify here, multiple files are sent until all currently available documents have been sent. **Example** Assume **Interval in minutes** is set to 15, **Max number of documents in output** is set to 20, and there are 100 documents ready to be sent to the target system. When the 15-minute interval is triggered, five XML files (each containing 20 documents) are sent to the target system simultaneously. When **Consolidate output** is enabled, you must use **ReadSoft Online XML (2.0)** as the **XML version** in the **Document output** settings below. You can combine this setting with the **Zip files before sending** setting to reduce the number of connections to the target system.
Embed image and exported attachments in XML output	Embeds images and attachments in the XML output as a Base64 string instead of exporting them as separate files. This setting is disabled unless the **XML version** is **ReadSoft Online XML (2.0)**.
Export attachments	Files that are attached to a document during verification or approval are also included with the output. This setting requires: • Storage services. • **XML version** set to **ReadSoft Online XML (2.0)**.

Export original email	Includes the original input email in the output. The actual, original email with all its attachments, which may also contain other invoices, is included in the output. In **ReadSoft Online XML (2.0)**, the name of the email file is included in the System fields list (XPath: `Document/SystemFields/SystemField[Type='emailfilename']/Text`).
Export original document	This setting is only applicable when combined with **Embed image and exported attachments in XML output**. When you select **Export original document** and **Embed image and exported attachments in XML output**, the original input document is embedded in the XML output as a Base64 string.
Test	Checks whether the SFTP settings can connect correctly.
SFTP connection	
Host name	The address of the target server.
TCP/IP port	The port used to access the server.
Remote path	The folder where you want to save files on the SFTP server.
User name	The login name of an account that has write permissions on the server.
Password	The password for **User name**. For security purposes, the number of hidden characters does not necessarily match the number of characters in the password.
SSH private key	Connects to the SFTP server using SSH key authentication. Paste the contents of the private key file (in PEM format) in the box.
SSH passphrase	The passphrase for **SSH private key** (optional).
Subfolder	

Use dynamic subfolders	Determines whether subfolders are created based on a field value from the document (default: cleared). When selected, the **Dynamic subfolder field** setting appears, which specifies the XPath of the field that determines the name of the folder. **Example** This is useful if you want to group documents in folders by their supplier names. In this case, you specify the XPath of the supplier field (/Document/Invoice/Supplier/Name) in the Dynamic subfolder field box. Then, for every document that is exported, Tungsten AP Essentials will create a subfolder using the value from the supplier field. So documents from supplier "Abc" are saved in the "Abc" folder, and all documents from supplier "123" are saved in the "123" folder.
Document	
Use TXT as output	Determines whether the output data is plain text or XML (default: cleared). When selected, the **File extension** setting appears. • **txt - Text** – Appends output files with the TXT file extension. • **csv - Comma-separated values** – Appends output files with the CSV file extension. Only the file extension is changed. You must ensure that the file contents are comma-separated when you edit your custom XML transformation.
Encoding	The encoding that you want to use when writing the XML document (utf-8, iso-8859-1, us-ascii, and more). If you use an XSL transform to transform invoice data, the encoding of the XSLT file must match the encoding specified here.
XSL transformation	Specifies the name of the XSLT file used to transform invoice data (optional). This is a legacy setting and should not be used for new configurations. Instead, use the **XSL transformation** option in the **Document output** settings, as described later in this topic.

Split multi-TIFF	Splits multi-TIFF files into separate files. For example, if the invoice image is a multi-TIFF named`invoice.tif` and it contains three pages, each page is saved as a separate file in the following manner: `invoice_001.tif invoice_002.tif`, and `invoice_003.tif`.
Use temporary name	Determines whether a temporary file name is used while files are transferring to the target-system server. • **true** – Files have a "tmp" extension during the transfer. When the transfer is complete, the file name is changed to the correct extension, such as PDF, TIF, XML. • **false** – Files are transferred to the target system without changing the file extensions.
Zip files before sending	Compresses all files to be transferred in a ZIP file.
PGP public key	Specifies your PGP public key, which must be in ASC or PUB format. If you specify a public key here, ZIP files are transferred via SFTP using PGP encryption. You must upload your public key to the **Resources** view to be able to select it here. To turn off PGP encryption, empty this setting. This setting is only visible if you select **Zip files before sending**.
Document output	
XML version	The XML output version you use for the XSL transformation. **Tungsten AP Essentials XML (2.0)** is recommended.
XSL Transformation	Specifies the name of the XSLT file you want to use to transform invoice data (optional). The list is populated from files that have been uploaded to the **Resources** view.
Download sample	Prompts you to download an example XML file that you can use as a basis for your transformation.

When using Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

If you have network restrictions on IP addresses, Tungsten AP Essentials uses these IP addresses to connect to your SFTP server:

System	IP addresses
Europe	4.245.142.139
US	172.206.134.109
Asia and Australia	4.254.91.182

If you use the SFTP server provided by Tungsten AP Essentials, your system needs access to this IP address: 176.34.252.165.

Target system configuration view: XML locally settings

Use these settings to configure the "XML locally" target system.

To access this view, select a **Services** node in the administration tree view on the partner level or customer level, select **Target system**, select **XML locally**, and select **Configuration**.

The settings that appear here vary, depending on the target system, version, and current account level. Use these settings to specify settings for the target service.

Output image format	Determines the format of the output invoices. • **TIF** – A black-and-white TIF image. • **PDF** – If the original PDF is in color, the output PDF is also in color. Original text layers are preserved. If the original PDF does not contain text layers, Tungsten AP Essentials adds text layers from the interpreted data. • **PDF (black and white)** – A black-and-white PDF. Original text layers are discarded and recreated using Tungsten AP Essentials interpretation results. Select this setting for the smallest file size. When Tungsten AP Essentials receives XML invoices, it creates invoice images that may contain color; however, the file size is still small. • **No image** – Invoice images are not sent to the target system. Only invoice data is sent. If you change the output format, the change only applies to invoices that you upload after the change is made. Invoices that are already in the system at the time of the change are not affected.
Embed image and exported attachments in XML output	Embeds images and attachments in the XML output as a Base64 string instead of exporting them as separate files. This setting is disabled unless the **XML version** is **ReadSoft Online XML (2.0)**.
Export attachments	Files that are attached to a document during verification or approval are also included with the output. This setting requires: • Storage services. • **XML version** set to **ReadSoft Online XML (2.0)**.
Document output	
XML version	The XML output version you use for the XSL transformation.
XSL Transformation	Specifies the name of an internal XSLT file that you use to transform the document data (optional).

When using Tungsten AP Essentials Connect and you change the target system configuration settings, run the AP Essentials Connect configuration wizard again before you upload new invoices.

Validation view

These settings determine which validations are available on the **Rules** tab of the **Document type** view.

To access this view in Admin Center, select a **Services** node on the partner level in the tree view and select **Validation**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

To use the validations, you must enable them here and then enable them in the **Extraction** service settings on the **Rules** tab of the **Document type** view.

Verify the **SUPPORTED COUNTRIES** column to make sure the rule you want to use is available for the document type you have chosen in the **Extraction** view.

The rules that you see here can vary depending on which rules are enabled on the parent account.

Available field validation rules

The validation rules in your system can vary depending on your setup. Administrators can change these settings in the Admin Center. There are separate validations for accounts payable and accounts receivable document processes.

Accounts payable validations

Bankgiro	Performs a checksum validation of Swedish bankgiro account numbers. The validation is performed on the `SupplierAccountNumber2` field. The validation rule is available for Swedish document types.
Creditor reference	Performs length, identifier and checksum validations on the `PaymentReferenceNumber` field to ensure the validity of creditor reference numbers. This validation is currently only available for Swiss document types and requires the `PaymentReferenceNumber` field.

Due date	Validates the due date field (`InvoiceDueDate`). This validation makes sure that the date: • occurs on or after today's date. • does not occur too far in the future. • is a valid date. Note that English date formats are valid on all document types, including non-English document types. **Due-date limit (days)** - Due dates are only valid if they do not exceed the current date plus the number of days you specify here. **Calculate due date from payment-terms master data** - Uses payment terms master data to validate and optionally supply the due date. Payment-terms master data is only used during extraction and when a document is opened during verification.

Duplicate invoice check	Warns if invoices with the same supplier number, invoice number, invoice date or invoice amount exist during verification or workflow processes. This can prevent duplicate invoices caused by: • the supplier resending the same invoice by mistake or on purpose. • the same invoice being scanned more than once. • scanning software errors. • an error in AP Essentials. • original invoice attachments that are not recognized as an attachments and treated as separate invoices. AP Essentials checks for duplicates: • After document extraction. • During verification. • During approval. • During document registration and post. • During export. The supplier number must be specified in order for this validation to work. If a duplicate invoice is detected during verification or approval, the validation error is set on all relevant fields. For example, if **Include invoice date** and **Include invoice amount** are selected, and a duplicate invoice is detected, then the validation error is set on the invoice number, invoice date and invoice amount fields. All relevant fields necessary for the duplicate invoice check are required. For example, if **Include invoice date** and **Include invoice amount** are selected, then invoice number, invoice date and invoice amount are all required in the document type. If any field is missing, the duplicate check will not execute. The supplier number and invoice number are always checked when performing this validation, however, **Include invoice date** and **Include invoice amount** checks are optional and can be toggled in the **Duplicate invoice check** setting. If **Include invoice date** and **Include invoice amount** are selected, the invoice number, invoice date and invoice amount must all be the same as a previously processed invoice in order to be considered a duplicate. If you select **Include invoice amount**, the total amount field is used. However, if the total amount field is missing from the document type, the net amount field is used. If a user overrides this validation, it is noted in the document history. This validation relies on data collection that is only gathered when this validation is enabled. Therefore, duplicate invoices are not validated against invoices that were processed prior to enabling this validation. The duplicate invoice check is performed per buyer, so it is possible to have invoices with the same invoice number, for example, if they are for different buyers.

Goods received quantity	Ensures that invoiced quantities match the quantities of goods received (3-way matching) by performing two checks:
	• The quantity on the invoice must be equal to or less than the delivered quantity of the goods received on the purchase order:
	`invoice quantity ≤ PO goods received quantity`
	• The quantity on the invoice must be equal to or less than the delivered quantity of the goods received on the purchase order minus the invoiced quantity on purchase order:
	`invoice quantity ≤ (PO goods received quantity - PO invoiced quantity)`
	Invoices that fail this validation are automatically put on hold.
	Automatic retry (days) - specifies the number of days AP Essentials will continue to automatically check the goods received quantity before sending the invoice to the next step. Automatic retry is only triggered if you override this validation during verification or approval and approve the invoice. Checks will be made automatically and continuously until the document passes validation or until the number of days you specify here passes, whichever comes first. If you change this setting, the new value is applied to invoices that are already on hold.
	ⓘ In order to use this validation, you must enable the Purchase order service.
	ⓘ In order to use this validation, your purchase-order data must include the `DeliveredQuantity` field in `PurchaseOrderLine`.

IBAN	Performs a checksum validation (ISO 7064) to ensure IBAN numbers are valid. The validation is performed on the `SupplierIBAN1`, `SupplierIBAN2`, `SupplierIBAN3` and `SupplierIBAN4` fields. If the document type contains multiple IBAN fields, all of the IBAN fields are validated.

Invoice date	Validates the invoice date field (`InvoiceDate`). This validation makes sure that the date: • occurs before or equal to today's date. • does not occur too far in the past. • is a valid date. **Invoice-date limit (days)** - Invoice dates are only valid if they are not older than the current date, minus the number of days you specify here. **Process limit (days)** - Invoices are stopped if the invoice date is older than the current date minus the number of days you specify here. Unlike **Invoice-date limit**, you cannot override this validation error by pressing Enter during verification. The value you specify here must be greater than **Invoice-date limit** unless you specify 0 to disable this setting (default value: 0).
Line items cannot be empty	Makes sure line items are specified on documents. If no line items are found during extraction, or if all line items are missing or removed during verification or approval, the validation fails and a warning message is displayed. The validation error is set on the total amount field, and you cannot override this validation error. In other words, you cannot process the document further without line items.

Line-item row	Validates each line-item row to ensure that the amounts add up to the row total. If no line-item rows are found on the document, the validation is not performed. This validation handles amounts up to 5 decimal places.
	The validation checks if the calculated row total and the captured row total match within an acceptable margin of error. The validation calculates the row total by multiplying the delivered quantity by the unit price and applying any discounts. Then the calculated row total and the captured row total are compared using a margin of error. If the amounts exceed the margin of error, the validation fails.
	Discounts
	When performing the calculations, the validation considers discounts (percentage discounts and amount discounts) on the row total and the unit price in this order:
	1. The discount is applied to the total amount.
	`LIT_VatExcludedAmount = (LIT_DeliveredQuantity * LIT_UnitPriceAmount) * (1 - LIT_DiscountPercent) – | LIT_DiscountAmount|`
	2. The discount is applied to the unit price.
	`LIT_VatExcludedAmount = LIT_DeliveredQuantity * (LIT_UnitPriceAmount * (1 - LIT_DiscountPercent) – | LIT_DiscountAmount|)`
	Note that the absolute value of the discount amount is used. Fields in bold must be selected (enabled) in the **Document type** view in order for the validation to work properly. The discount fields are optional.
	Margin of error
	The validation uses two different margins of error when comparing the calculated value with the row total. An absolute tolerance of 1 and a relative tolerance (the row total times 0.01) is used.

Line-item total amount	Ensures that the total amount of the invoice matches the total sum of all line-item rows when verifying line items. The validation compares the sum of the amount fields and the total sum of all line-item rows with the total amount. `InvoiceTotalVATIncludedAmount = SumOfTotalNetAmountFromLineItems + InvoiceTotalVATAmount + DeliveryCost + DeliveryCostPackaging + DeliveryCostInsurance + DeliveryCostToll + DeliveryCostPostage - InvoiceDiscountAmount` This validation allows a margin of error of 0.5. In other words, if the amount is off by +/- 0.5, a validation error is not triggered. **Example**: If a line-item total amount on the invoice is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50. For remittance advices, see the **Line-item total amount** validation in the *Accounts receivable validations* section below.
Maximum total amount	This validation can help prevent documents with high amounts from passing through the system unnoticed. • **Maximum total amount limit** - Makes sure the absolute value of the total amount field (`InvoiceTotalVATIncludedAmount`) does not exceed the value you specify here. If you do not use the total amount field, the net amount field (`InvoiceTotalVATExcludedAmount`) is checked instead. If the absolute value total amount is greater than the value you specify here, the field is marked with a warning icon, but you can override the validation. • **Process limit (amount)** - This validation works the same as the **Maximum total amount limit**, however, you cannot override the **Process limit**. Therefore, if you receive an invoice that exceeds the process limit, you must increase the value of this setting to continue, or delete the document.
OCR number	Performs a checksum validation for OCR numbers on Swedish invoices. The validation is performed on the `PaymentReferenceNumber` field. You can only enable this validation for Swedish document types.

Organization number	Performs a checksum validation for organization numbers on Swedish invoices. The validation is performed on the `SupplierTaxNumber1` field. You can only enable this validation for Swedish document types.
Payment type	Validates various payment fields, depending on the payment type. You can only use this validation for Danish, Norwegian and Swedish document types. **Default cash-account number** - The default cash account to use when you specify **Entry only** as the payment type. See also: • Processing Danish invoices with E-conomic. • Processing Norwegian invoices with E-conomic • Processing Swedish invoices with E-conomic If you use this validation, you must select **Verify** and **Workflow**.
Plusgiro	Validates Swedish plusgiro account numbers. The validation is performed on the `SupplierAccountNumber1` field. You can only enable this validation for Swedish document types.
PO number (deprecated)	This setting has been replaced by the settings in the purchase order service.
Prevent total amount of zero	Makes sure that the total amount field (`InvoiceTotalVATIncludedAmount`) is not zero or empty. If you do not use the total amount field, the net amount field (`InvoiceTotalVATExcludedAmount`) is checked instead. If neither field is enabled in the document type, the validation is not performed.

Purchase order quantity	Ensures that the invoiced quantities match the quantities on the purchase order (2-way matching) by performing two checks:
	• Quantities on the invoice must be equal to or less than the quantities on the purchase order.
	`invoice quantity ≤ PO quantity`
	• The quantity on the invoice must be equal to or less than the purchase order quantity minus the invoiced quantity on purchase order.
	`invoice quantity ≤ (PO quantity - PO invoiced quantity)`
	Purchase order over-quantity tolerance (percent) - Determines how much the quantity on the invoice can exceed the purchase order quantity.
	For example, assume you type 10 in this setting to allow a tolerance of 10%. You have a purchase order with a line-item quantity of 20 items. The matching invoice line, however, has a quantity of 22. Because 20 plus 10% is 22, the quantity is within the tolerance and passes validation. If the matching invoice line had a quantity of 23, it would exceed the 10% tolerance and fail validation.
	In order to use this validation, you must enable the Purchase order service.

Purchase order unit price	Ensures that the invoiced unit prices match the unit prices on the purchase order (2-way matching). The unit prices on the invoice must be equal to or less than the unit prices on the purchase order to pass this validation. `invoice unit price ≤ PO unit price` **Purchase order over-price tolerance (percent)** - Determines how much the price on the invoice can exceed the purchase order price. For example, assume you type 10 in this setting to allow a tolerance of 10%. You have a purchase order with a line-item price of $20. The matching invoice line, however, has a price of $22. Because 20 plus 10% is 22, the price is within the tolerance and passes validation. If the matching invoice line had a price of $23, it would exceed the 10% tolerance and fail validation. In order to use this validation, you must enable the Purchase order service.

Remittance advice line-item total amount	Ensures that the total amount matches the total sum of all line-item rows when verifying line items on remittance advices. In other words, `InvoiceTotalVATIncludedAmount` must equal the sum of all `LI_InvoiceTotal` fields. **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing sum of the line-item amounts with the total amount of the remittance advice. **Example**: If you specify 0.5 here and the total amount on the remittance advice is 23.00, the validation will pass if the sum of the line-item total amount fields is anywhere between 22.50 and 23.50.
Supplier tax code	Applies default tax codes to header and line-item fields. The validation is performed on the `TaxCode` and `LIT_TaxCode` fields.
Swiss bank account	Makes sure the fields are formatted according to document type field format and that required field values are specified. The validation requires that all of the fields from at least one of these field groups are specified: • IBAN (`SupplierIBAN1`) • ESR Ref (`EsrReference`), ESR No (`EsrNumber`) and ESR Amount (`EsrAmount`) • PC Account (`SupplierPcAccountNumber`), BLZ (`SupplierBankCodeNumber1`), BICSwift (`SupplierBicSwiftNumber`) and Bank account (`SupplierAccountNumber1`) This validation is only available for Swiss document types, and all of the fields above must have **Accept empty value** and **Enforce validation** selected in the field view.
Swiss QR reference	Checks the validity of QR references found in QR-IBAN numbers. First, the validation checks positions 4 through 9 of the IBAN, using a zero-based index. If the value of positions 4 through 9 is within the range, 30000 - 31900, and the QR reference is exactly 27 characters long, the validation verifies the checksum of the reference field. This validation is only available for Swiss document types and requires the `QrReference` field.

Total amount	Ensures that the amount fields add up to the total amount field on the invoice. See how . **`Net amount sum`** = `InvoiceTotalVATExcludedAmount + DeliveryCost + DeliveryCostPackaging + DeliveryCostInsurance + DeliveryCostToll + DeliveryCostPostage - InvoiceDiscountAmount` **`Total amount sum`** = **`Net amount sum`** + `InvoiceTotalVATAmount - WithholdingTaxAmount - WithholdingTaxAmount2` This validation handles amounts up to 5 decimal places and supports a margin of error that you specify in the **Maximum difference allowed** setting. To pass the validation, the absolute value of `Total amount sum` minus `InvoiceTotalVATIncludedAmount` cannot be greater than **Maximum difference allowed**. `ABS(`**`Total amount sum`** `- InvoiceTotalVATIncludedAmount) > MaximumDifferenceAllowed` **Maximum difference allowed** Specifies the margin of error (plus or minus) that is permitted when comparing the total amount field with the calculated total amount. **Example**: If you specify 0.5 here and the total amount on the invoice is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50.

Total tax amount	This validation ensures that the sum of all sub-tax fields equals the value of the total tax field. `InvoiceTotalVatAmount = InvoiceTaxAmount1 + InvoiceTaxAmount2 + InvoiceTaxAmount3 + InvoiceTaxAmount4` At least one of these fields must be selected (enabled) in the Document type dialog in order for the validation to work properly: • `InvoiceTaxAmount1` • `InvoiceTaxAmount2` • `InvoiceTaxAmount3` • `InvoiceTaxAmount4` **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing the total tax field with the sum of the other tax fields. **Example**: If you specify 0.5 here and the total tax on the invoice is 23.00, the validation will pass if the sum of the other tax fields is anywhere between 22.50 and 23.50. If you change any of the tax amounts, the total tax amount is automatically updated with the new sum.

VAT rate	Ensures that the VAT rate is one of the rates specified in the Allowed VAT rates box. Use semicolons (;) to separate valid VAT rates. You can write the VAT rates using any standard method of writing a percentage. For example, if you want to allow rates of 0%, 12.5% and 25%, you can type the following values in the Allowed VAT rates box: 0.0;12.5;25.0 During verification, you cannot add rates that do not exist in the document type, but you can remove rates that you do not want validated. This validation handles amounts up to 5 decimal places. The margin of error between the captured rate and the calculated rate cannot exceed 0.005. This validation uses these fields: • `InvoiceNetAmount1`, `InvoiceTaxAmount1`, `InvoiceTaxRate1` • `InvoiceNetAmount2`, `InvoiceTaxAmount2`, `InvoiceTaxRate2` • `InvoiceNetAmount3`, `InvoiceTaxAmount3`, `InvoiceTaxRate3` • `InvoiceNetAmount4`, `InvoiceTaxAmount4`, `InvoiceTaxRate4` ...and so on, for each VAT rate. In addition to the validations listed above, this rule also makes sure `InvoiceTotalVatRatePercent` matches one of the specified rates. When you select the VAT rate field during verification, it is not highlighted on the invoice image if the value is calculated from other fields.

Accounts receivable validations

Delivery date	Validates delivery date fields of a purchase order. This validation makes sure that the date: • occurs on or after today's date. • does not occur too far in the future. • is a valid date. Also, if `PO_DeliveryDate2` is enabled, the validation makes sure `PO_DeliveryDate2` occurs after `PO_DeliveryDate1`. **Delivery-date limit (days)** - Delivery dates are only valid if they are not older than the current date plus the number of days you specify here. These fields are validated by this rule if enabled: • `PO_DeliveryDate1` • `PO_DeliveryDate2` • `LIT_PO_DeliveryDate` If the delivery date is not always known, consider enabling **Accept empty value** on the fields above to avoid validation errors.

Duplicate purchase order check	Warns if purchase orders with the same customer number, purchase order number, purchase order date or purchase order amount exist during verification. This can prevent duplicate purchase orders caused by: • the customer resending the same purchase order by mistake or on purpose. • the same purchase order being scanned more than once. • scanning software errors. • an error in AP Essentials. • original purchase order attachments that are not recognized as an attachments and treated as separate purchase orders. AP Essentials checks for duplicates: • After document extraction. • During verification. • During export. The customer number must be specified in order for this validation to work. If a duplicate purchase order is detected during verification, the validation error is set on all relevant fields. For example, if **Include purchase order date** and **Include purchase order amount** are selected, and a duplicate purchase order is detected, then the validation error is set on the purchase order number, purchase order date and purchase order amount fields. All relevant fields necessary for the duplicate purchase order check are required. For example, if **Include purchase order date** and **Include purchase order amount** are selected, then purchase order number, purchase order date and purchase order amount are all required in the document type. If any field is missing, the duplicate check will not execute. The customer number and purchase order number are always checked when performing this validation, however, **Include purchase order date** and **Include purchase order amount** checks are optional and can be toggled in the **Duplicate purchase order check** setting. If **Include purchase order date** and **Include purchase order amount** are selected, the purchase order number, purchase order date and purchase order amount must all be the same as a previously processed purchase order in order to be considered a duplicate. If you select **Include purchase order amount**, the total amount field (`PO_TotalTaxIncludedAmount`) is used. However, if the total amount field is empty or missing from the document type, the net amount field (`PO_TotalTaxExcludedAmountvalue`) is used. If a user overrides this validation, it is noted in the document history. This validation relies on data collection that is only gathered when this validation is enabled. Therefore, duplicate purchase orders are not validated against

Line items cannot be empty	Makes sure line items are specified on documents. If no line items are found during extraction, or if all line items are missing or removed during verification, the validation fails and a warning message is displayed. The validation error is set on the total amount field, and you cannot override this validation error. In other words, you cannot process the document further without line items.
Line-item row	Validates each line-item row to ensure that the amounts add up to the row total. If no line-item rows are found on the document, the validation is not performed. This validation handles amounts up to 5 decimal places. The validation checks if the calculated row total and the captured row total match within an acceptable margin of error. The validation calculates the row total by multiplying the quantity by the unit price. Then the calculated row total and the captured row total are compared using a margin of error. If the amounts exceed the margin of error, the validation fails. **Margin of error** The validation uses two different margins of error when comparing the calculated value with the row total. An absolute tolerance of 1 and a relative tolerance (the row total times 0.01) is used. This validation requires these fields: • `LIT_PO_OrderedQuantity` • `LIT_PO_UnitPriceAmount` • `LIT_PO_TaxExcludedAmount`
Line-item total amount (for remittance advices)	Ensures that the sum of the line-item amounts adds up to the total amount of the remittance advice. The validation compares the sum of the line-item amount fields (`LIT_RA_AmountPaid`) with the total amount field (`RA_TotalAmountPaid`). **Maximum difference allowed** - Specifies the margin of error (plus or minus) that is permitted when comparing sum of the line-item amounts with the total amount of the remittance advice. **Example**: If you specify 0.5 here and the total amount on the remittance advice is 23.00, the validation will pass if the sum of the line-item total amount fields is anywhere between 22.50 and 23.50. For purchase orders, see the **Line-item total amount** validation below. For invoices, see the **Line-item total amount** validation in the *Accounts payable validations* section above.

Line-item total amount (for purchase orders)	Ensures that the sum of the line-item amounts adds up to the total amount of the purchase order. The validation compares the sum of the line-item amount fields (`LIT_PO_TaxExcludedAmount`) and tax amount field (`PO_TotalTaxAmount`) with the total amount field (`PO_TotalTaxIncludedAmount`). If `PO_TotalTaxIncludedAmount` is not enabled, `PO_TotalTaxExcludedAmount` is used instead. Note: Charge and discount fields are excluded from the calculation. This validation allows a margin of error of 0.5. In other words, if the total amount of a purchase order is off by +/- 0.5, a validation error is not triggered. **Example**: If the total amount on the purchase order is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50. For remittance advices, see the **Line-item total amount** validation above. For invoices, see the **Line-item total amount** validation in the *Accounts payable validations* section above.
Maximum total amount	This validation can help prevent documents with high amounts from passing through the system unnoticed. • **Maximum total amount limit** - Makes sure that the total amount field (`PO_TotalTaxIncludedAmount`) does not exceed the value you specify here. If you do not use the total amount field, the net amount field (`PO_TotalTaxExcludedAmount`) is checked instead. If the total amount is greater than the value you specify here, the field is marked with a warning icon, but you can override the validation. • **Process limit (amount)** - This validation works like the **Maximum total amount limit**, however, you cannot override the validation. Therefore, if you receive an invoice that exceeds the process limit, you must increase the value of this setting to continue, or delete the document.

Order date	Validates the order date field (`OrderDate`) of a purchase order. This validation makes sure that the date: • occurs before or equal to today's date. • does not occur too far in the past. • is a valid date. **Order-date limit (days)** - Order dates are only valid if they are not older than the current date minus the number of days you specify here. **Process limit (days)** - The validation fails and cannot be overridden if the order date is older than the current date minus the number of days you specify here. Unlike **Order-date limit**, you cannot override this validation error by pressing Enter during verification. The value you specify here must be greater than **Order-date limit** unless you specify 0 to disable this setting (default value: 0).
Prevent total amount of zero (for purchase orders)	Makes sure that the total amount field (`PO_TotalTaxIncludedAmount`) is not zero or empty. If you do not use the total amount field, the net amount field (`PO_TotalTaxExcludedAmount`) is checked instead. If neither field is enabled in the document type, the validation is not performed.
Prevent total amount of zero (for remittance advices)	Makes sure that the total amount paid field (`RA_TotalAmountPaid`) is not zero or empty. If the field is not enabled in the document type, the validation is not performed.

Total amount	Ensures that the total amount field equals the sum of the net value and tax amount fields of a purchase order.
	`PO_TotalTaxIncludedAmount = PO_TotalTaxExcludedAmount + PO_TotalTaxAmount`
	If any of the fields above are disabled or missing from the document type, the validation is not performed.
	Note: Charge and discount fields are excluded from the calculation.
	This validation handles amounts up to 5 decimal places and supports a margin of error that you specify in the **Maximum difference allowed** setting.
	To pass the validation, the absolute value of the total amount minus the sum of the net value and tax amount fields cannot be greater than **Maximum difference allowed**
	`ABS(PO_TotalTaxIncludedAmount - (PO_TotalTaxExcludedAmount + PO_TotalTaxAmount)) <= MaximumDifferenceAllowed`
	Maximum difference allowed - Specifies the margin of error (plus or minus) that is permitted when comparing the total amount field with the calculated total amount.
	Example: If you specify 0.5 here and the total amount on the purchase order is 23.00, the validation will pass if the calculated total amount is anywhere between 22.50 and 23.50.

Custom rules

Custom rules are only available if an administrator creates them.

Custom validation rule view

Use this view to specify custom validation rules in Admin Center.

To access this dialog in Admin Center, navigate to the **Validation** service node on the partner level in the tree view, select **Custom rules**, and select an existing custom rule or select **Add**.

Use these settings to create a custom rule.

Profile	
Name	The name of the rule as it appears in the Validation service and Extraction services.
Base type	The base document type for which the custom rule is available.
Field to validate	The focus of the validation and the field that is marked with a validation error if the rule fails.
Expression	The logic of the validation that determines whether the validation rule passes or fails.

Fields	The fields you can use in the custom rule. Select a field and select **+** to copy a field to the **Expression** box. In addition to fields, the **Fields** setting can contain system values, such as the line item row count (LineItem.RowCount). System values represent numeric values and behave just like fields in your custom expression.
Operators	The operators you can use in the custom rule. Select an operator and select **+** to copy an operator to the **Expression** box.
Functions	The functions you can use in the custom rule. Select a function and select **+** to copy a function to the **Expression** box.
Validation error message	The error message that is displayed in AP Essentials Office if the validation rule fails. Make the error message clear and helpful, so AP Essentials Office users know what is wrong and how to resolve the issue.

Verification view

Use these settings to define the Verification service.

To access this view in **Admin Center**, select a **Services** node in the administration tree and select **Verification**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree.

Allow account coding during verification	Displays the **Accounting** tab in the **Verification** view, so users can verify invoices and perform account coding in the same view. See how . The Coding lines settings also apply when coding during verification.
Display validation errors in a pop-up dialog that requires user interaction	Determines whether a dialog appears when a user attempts to override a validation error. Select this setting to force users to interact with a dialog before overriding a validation error. This is helpful because it requires more interaction by the user, which helps prevent users from accidentally overriding validation errors. When this setting is not selected, validation errors appear in a small callout, which users can override more easily by pressing Tab or Enter.
Use autocomplete when typing field values	Uses text extracted from the invoice to predict values as you type.

Additional information shown when searching for suppliers	In addition to the supplier name, the information you select in this box is also displayed when selecting a supplier in the document view during verification.

Workflow view

Use these settings to define the Workflow service.

To access this view in Admin Center, select a **Services** node in the tree view and select **Workflow**.

To avoid configuration issues, multiple administrators should not edit the same service at the same time.

Use these settings to define the Workflow service. The services and settings available can vary, depending on your role and which **Services** node you selected in the administration tree.

Edit	Lets you edit the settings in the current view. **Save** and **Cancel** buttons appear after you select **Edit**. Any changes or deletions that you make do not take effect until you select **Save**. If you regret your changes, select **Cancel**.

Workflows

Add coding & approval workflow	Displays a dialog that you can use to add a new workflow. You must select **Edit** to see this button.
Add correction workflow	Displays a dialog that you can use to add a new correction workflow. You must select **Edit** to see this button.
Add rejection workflow	Displays a dialog that you can use to add a new rejection workflow. Currently, rejection workflows can only be started by triggers. However, manual selection of rejection workflows will be available in a future release. You must select **Edit** and use custom reject codes to see this button.
Name	Specifies the names of existing workflows. Clicking a name displays a view that you can use to edit the workflow.
Type	Describes the workflow type (Coding & Approval or Correction).
Description	Displays the description of the workflow.
	Deletes the workflow.

Triggers

Send invoices for correction when a new supplier is created during verification	If a new supplier is created during verification, the invoice is sent for correction directly after the invoice is verified. This allows the handler to edit supplier details and send the supplier information to the target ERP system.
Default coding & approval workflow	Specifies which workflow starts if no triggers are activated.
Add coding & approval trigger	Displays a dialog that you can use to add a new trigger for a coding and approval workflow.

Add correction trigger	Displays a dialog that you can use to add a new trigger for a correction workflow.
Add rejection trigger	Displays a dialog that you can use to add a new trigger for a correction workflow. You must use custom reject codes to see this button.
Name	Specifies the names of existing triggers. Selecting a name displays a view that you can use to edit the trigger.
Workflow	Specifies the workflow that the trigger starts.
Trigger type	Specifies whether the trigger is a correction workflow or a coding and approval workflow.
Conditions	Describes the conditions necessary to activate the trigger.
	Deletes the trigger.
	Changes the order of the selected trigger in the list. This determines the order in which the triggers are tested. You cannot change the order of triggers across different trigger types.

Coding

Account types - (visible if the target system supports multiple account types)	
Add	Displays a dialog that you can use to add a new account type.
Name	Specifies the names of existing account types. Selecting a name displays a view that you can use to edit the account type.
Internal name	The internal name that Tungsten AP Essentials and your external financial system use to identify the account type. To populate the account list in the **Accounting** view with general-ledger account master data, the internal name of the account type must be `GeneralLedger`.
	Removes the selected account type from the list.
Default	Specifies the default account type to use when coding invoices (default setting: general ledger).
Coding fields	
Add	Displays a dialog for adding a coding field.
Display name	The display name of the coding field as it appears when coding invoices.
Internal name	The internal name that Tungsten AP Essentials and your external financial system use to identify the coding field.
Account type	Determines which account types this coding field can be used with.
	Removes the selected coding field from the list.
	Changes the order of the selected coding field in the list. This determines the order in which the coding fields appear after the default fields (Account, Debit and Credit).
Coding lines	
Coding lines are optional	If this option is selected, you are not required to specify coding lines.

Warn if no coding lines exist	Displays a warning if no coding lines are specified when you approve the invoice; however, you can ignore the warning and approve the invoice.
Coding lines are required	Displays a warning that you cannot override, if no coding lines are specified when you approve the invoice. You must specify coding lines in order to approve the invoice.
Automatic coding suggestion	
Use automatic coding suggestion	Determines whether automatic coding suggestions are enabled. • **Partner** - Specifies that coding suggestions are shared on the partner level. • **Customer** - Specifies that coding suggestions are shared on the customer level. • **Buyer** - Specifies that coding suggestions are shared on the buyer level. You must use buyers to enable this setting.
Source	Determines where coding suggestions come from. • **Online coding** - Uses historical data from AP Essentials to determine the default coding suggestions. • **Line items** - Inserts each line item as a coding row and uses historical data from AP Essentials to determine the default coding suggestions. When your default account type is general ledger, coding suggestions are made for account fields if you used the same account for all rows when coding previous invoices from the same supplier. Coding amounts for invoices are placed in the debit column, whereas coding amounts for credit notes are placed in the credit column. If the current document type does not have any line items, Online coding is used. If the current document type does have line item fields, but no line items are captured, no coding suggestions are created. • **External system** - Uses coding suggestions provided by an external system.
General	
Allow balancing against total amount	If this setting is not selected, you must balance the debit and credit accounts. When selected, you can balance the invoice against the total amount. This means that the absolute value of the sum of the debits, minus the absolute value of the sum of the credits, must equal the absolute value of the total amount (net or gross, depending on which Balancing amount field you select).
Balancing amount	When Allow total-amount balancing is selected, this setting determines which amount field (net or gross) to use to balance amounts when coding an invoice. You can choose: • Gross amount • Net amount • Gross amount minus VAT amount This setting also determines which amount field is used to calculate coding suggestions (even if Allow total-amount balancing is not selected).
Allow document parking	Enables the **Park document** setting during approval. This setting is only available if the target system supports document parking.

Notifications

Users on the customer-group level cannot access these settings. Customer-group users inherit alert settings from the partner account.

When you save these settings, your local time is converted to UTC and saved in Tungsten AP Essentials. UTC does not change according to daylight-savings time, and no local information is saved with these settings. Therefore, if you live in a region that observes daylight-savings time, your alert settings will be off by one hour, the next time daylight savings occurs.

Alerts	
Approval	• **Instant** - Instantly sends alerts to users who have invoices that need to be approved. This email notification uses the Workflow: Document assigned email template. • **Daily** - Sends a summary of alerts once per day at the time you specify.
Reject	• **Instant** - Instantly sends alerts to exception handlers when an invoice is rejected. • **Daily** - Sends a summary of alerts once per day at the time you specify.
Information request	• **Instant** - Instantly sends alerts to users who have received requests for information from other users. • **Daily** - Sends a summary of alerts once per day at the time you specify.
Notifications	
Notify the exception handler if a workflow step exceeds the maximum duration	Determines whether the exception handler receives an email alert if a step in a workflow exceeds the time specified in **Maximum duration (days)**. Batches that have exceeded the maximum duration are also indicated with an icon () in the document list view. **Maximum duration (days)** specifies the number of days a workflow step can take before an email alert is sent to the exception handler.
Correction handlers	
Add	Adds the selected user to the list of handlers. Every handler in the list receives an email notification whenever an invoice fails registration or posting in the target system.
	Removes the selected user from the list of handlers.

Workflow view (for adding or editing a workflow)

Use these settings to add or edit a workflow.

To access this view in Admin Center, select a **Services** node in the tree view, select **Workflow**, and select the name of an existing workflow, or select **Add coding & approval workflow**, **Add correction workflow**, or **Add rejection workflow** while editing the workflow settings.

Use these settings to add or edit a workflow.

Name	Specifies the name of the workflow.
Description	Specifies the description of the workflow.
Add	Displays a dialog that you can use to add steps to the workflow.
Exception handler	Determines which user can handle exceptions, such as rejected invoices or invoices that have exceeded the **Maximum duration** specified in the **Notifications** settings. This setting is not available for rejection workflows.

Workflow step view

Use this view to specify steps in a workflow.

To access this view in Admin Center, select a **Services** node in the tree view and select **Workflow**. Then select the name of an existing workflow and select .

Use these settings to specify a workflow step when adding a workflow.

Assigned to	Determines which **User** or **Group** can perform this step. When editing a correction workflow, you can also select **Purchase order creator** or **Purchase order requisitioner**.
Description	A short description of the workflow step.
Use approval hierarchy	Select this option to display additional approval methods. • **Linear** • **Single-point** • **Parallel - First action** • **Parallel - Unanimous** Currently, user groups on the partner group and customer group levels do not support approval hierarchies. Do not select **Use approval hierarchy** on a workflow step that is assigned to a user group on the partner group or customer group level.
Check monetary limits using absolute values	Evaluates monetary limits based on the absolute value of document amounts, ignoring whether the amounts are positive or negative. This ensures that documents such as credit notes, which often contain negative amounts, are still validated against configured limits.
Coding	Determines whether account coding is allowed during this step. Users with the **Edit approval documents** privilege can perform coding regardless of the **Coding** setting.

Conditions	
Add	Use these settings to make the step conditional. You can add more than one condition.
Field type	Specifies the type of field you use in the condition. The type you choose here also determines what appears in the adjacent box. For example, if you select**Amount field** in the **Field type** box, all of the amount fields are available for selection in the **Field** box.

Field	Specifies the specific field that you want to use for comparison. If you select a coding field, the coding field is checked on all rows to see if the conditions of the trigger are met.
Operation	Determines how the value of the field is evaluated. • **Contains** - The condition is true if any part of the field value matches the text you specify. For example, if you specify "me", the condition is true for "ACME Inc" and "Multimedia Co." but not for "Example Corp." • **Begins with** - The condition is true if the field value begins with the text you specify. For example, if you specify "ac", the condition is true for "ACME Inc" but it is not true for "First AC Corp." • **Equals** - The condition is true if the field value matches the value you specify. • **Not equals** - The condition is true if the field value does not match the value you specify. • **None equals** - The condition is true if none of the field values in the same column match the value you specify. • **Greater than** - The condition is true if the field value is greater than the value you specify. • **Less than** - The condition is true if the field value is less than the value you specify. • **In list** - Select the link to display a dialog where you can specify a list of items. When a field is evaluated using this operation, it is considered true if the field value appears in the list. This operation is only available if the field type is set to **Supplier**, **Buyer**, **Coding field** or **Text field**. • **Not in list** - Select the link to display a dialog where you can specify a list of items. When a field is evaluated using this operation, it is considered true if the field value does not appear in the list. This operation is only available if the field type is set to **Supplier**, **Buyer**, **Coding field** or **Text field**.
Value	Specifies the value that determines if the condition is true. Alternatively, if you choose **Supplier**, **Buyer**, **Coding field** or **Text field** in the **Type** setting, and select **In list** or **Not in list** as the **Operation**, a link is displayed that you can select to specify a list of items.
	Deletes the condition.

Account type view

Use these settings to edit or add an account type in Admin Center.

To access this view in Admin Center, select a **Services** node at the customer level, select **Workflow**, then select the **Coding** tab. Then select the name of an existing account type, or select **Add** in the **Account types** settings while editing the workflow settings.

Use these settings to edit or add an account type:

Name	The name of the account type as it appears when coding invoices.
Internal name	The internal name that Tungsten AP Essentials and your external financial system use to identify the account type.

Master data display format	Determines how the master data appears when coding invoices.

Coding & approval trigger view

Use these settings to specify a trigger in Admin Center.

To access this view in Admin Center, select a **Services** node in the tree view and select **Workflow**, select the **Triggers** tab. Then select the name of an existing trigger, or select **Add Coding & approval trigger** while editing the workflow settings.

Name	A descriptive name for the trigger.
Start workflow	The workflow you want to use when all of the conditions are true.

Conditions	
Add	Use these settings to make the step conditional. You can add more than one condition.
Field type	Specifies the type of field you use in the condition. The type you choose here also determines what appears in the adjacent box. For example, if you select**Amount field** in the **Field type** box, all of the amount fields are available for selection in the **Field** box.
Field	Specifies the specific field that you want to use for comparison. If you select a coding field, the coding field is checked on all rows to see if the conditions of the trigger are met.

Operation	Determines how the value of the field is evaluated. • **Contains** - The condition is true if any part of the field value matches the text you specify. For example, if you specify "me", the condition is true for "ACME Inc" and "Multimedia Co." but not for "Example Corp." • **Begins with** - The condition is true if the field value begins with the text you specify. For example, if you specify "ac", the condition is true for "ACME Inc" but it is not true for "First AC Corp." • **Equals** - The condition is true if the field value matches the value you specify. • **Not equals** - The condition is true if the field value does not match the value you specify. • **None equals** - The condition is true if none of the field values in the same column match the value you specify. • **Greater than** - The condition is true if the field value is greater than the value you specify. • **Less than** - The condition is true if the field value is less than the value you specify. • **In list** - Select the link to display a dialog where you can specify a list of items. When a field is evaluated using this operation, it is considered true if the field value appears in the list. This operation is only available if the field type is set to **Supplier**, **Buyer**, **Coding field** or **Text field**. • **Not in list** - Select the link to display a dialog where you can specify a list of items. When a field is evaluated using this operation, it is considered true if the field value does not appear in the list. This operation is only available if the field type is set to **Supplier**, **Buyer**, **Coding field** or **Text field**.
Value	Specifies the value that determines if the condition is true. Alternatively, if you choose **Supplier**, **Buyer**, **Coding field** or **Text field** in the **Type** setting, and select **In list** or **Not in list** as the **Operation**, a link is displayed that you can select to specify a list of items.
	Deletes the condition.

Correction trigger view

Use these settings to specify a trigger in Admin Center.

To access this view in Admin Center, select a **Services** node in the tree view and select **Workflow**, select the **Triggers** tab. Then select the name of an existing trigger, or select **Add correction trigger** while editing the workflow settings.

Name	A descriptive name for the trigger.
Start workflow	The workflow you want to use when all of the conditions are true.
Add	Displays settings that you can use to make the step conditional. You can add more than one condition.

Name	Specifies the type of field you use in the condition. The type you choose here also determines what appears in the adjacent box. For example, if you select **Amount field** in the **Name** box, all of the amount fields are available for selection in the **Parameter** box. This setting is the same as the **Field type** setting with one exception: here you can select field validations as a condition. When a validation rule is selected, you can only select **Equals** and **Validation error** in the **Operation** and **Value** settings. In other words, you can use this setting to trigger workflows based on validation errors. Only validations that are enabled for workflows in the **Document type** view can be displayed here. You cannot override validation rules during a workflow step. If you receive a validation error while processing a document in a workflow, correct the error to proceed.
Parameter	Specifies the specific field or validation rule that you want to use for comparison. The choices that appear here vary, depending on what you select in the **Name** setting.
Operation	Determines how the value of the field is evaluated. • **Contains** - The condition is true if any part of the field value matches the text you specify. For example, if you specify "me", the condition is true for "ACME Inc" and "Multimedia Co." but not for "Example Corp." • **Begins with** - The condition is true if the field value begins with the text you specify. For example, if you specify "ac", the condition is true for "ACME Inc" but it is not true for "First AC Corp." • **Equals** - The condition is true if the field value matches the value you specify. • **Not equals** - The condition is true if the field value does not match the value you specify. • **None equals** - The condition is true if none of the field values in the same column match the value you specify. • **Greater than** - The condition is true if the field value is greater than the value you specify. • **Less than** - The condition is true if the field value is less than the value you specify. • **In list** - Displays a link that you can select to display a dialog that you can use to specify a list of items. When a field is evaluated using this operation, it is considered true if the field value appears in the list. This operation is only available if the field type is set to **Supplier**, **Buyer**, **Coding field**, or **Text field**. • **Not in list** - Displays a link that you can select to display a dialog that you can use to specify a list of items. When a field is evaluated using this operation, it is considered true if the field value does not appear in the list. This operation is only available if the field type is set to **Supplier**, **Buyer**, **Coding field**, or **Text field**.
Value	Specifies the value that determines if the condition is true. Alternatively, if you choose **Supplier**, **Buyer**, **Coding field**, or **Text field** in the **Type** setting, and select **In list** or **Not in list** as the **Operation**, a link is displayed that you can select to specify a list of items.

	Deletes the condition.

Rejection trigger view

Use these settings to specify a rejection trigger in Admin Center.

To access this view in Admin Center, select a **Services** node in the tree view and select **Workflow**, select the **Triggers** tab. Then select the name of an existing rejection trigger, or select **Add rejection trigger** while editing the workflow settings.

Name	A descriptive name for the trigger.
Start workflow	The workflow to use when all conditions are true.
Add	Displays settings to make the step conditional. You can add more than one condition.
Field type	Specifies the field type for comparison. This is read-only because rejection triggers always use the reject-code field.
Field	Specifies the field for comparison. This is read-only because rejection triggers always use the reject-code field.
Operation	Determines how the value of the reject code is evaluated. • **Begins with** - The condition is true if the field value begins with the text you specify. For example, if you specify "12", the condition is true for "12" but not true for "312." • **In list** - Displays a link that you can select to display a dialog to specify a list of reject codes. When a field is evaluated using this operation, it is considered true if the field value appears in the list. • **Not in list** - Displays a link that you can select to display a dialog to specify a list of reject codes. When a field is evaluated using this operation, it is considered true if the field value does not appear in the list.
Value	Specifies the value that determines whether the condition is true. Alternatively, if you select **In list** or **Not in list** as the **Operation**, a link displays that you can select to specify a list of reject codes.
	Deletes the condition.

Service plan view

Use this view to manage a service plan in Admin Center.

To access this view in Admin Center, select an **Account** node in the administration tree and select **Edit** in the **Service plan** settings.

Use these settings to adjust the service plan.

Model	Determines the licensing model: • The **Live** model is for customers in production. • The **Demo** model is for organizations that use Tungsten AP Essentials for demonstration purposes. • The **Trial** model is for organizations that want to test Tungsten AP Essentials.
Period start	Specifies when the current period of service plan started.
Period end	Specifies when the current period of service plan ends.
Volume	The number of documents that are licensed during the period specified by the service plan. In other words, the number of documents the customer can process during the specified period. Document volume data is updated every 5 hours.
Enforce subscription period	Automatically pauses the account when the subscription period ends. Dates for **Period start** and **Period end** are expressed in UTC time and are inclusive. For example, if **Period start** is 2026-01-01 and **Period end** is 2026-01-31, then the subscription is valid from 2026-01-01 00:00 until 2026-01-31 at 23:59 UTC time.
Enforce volume limit	Automatically pauses the account when the document volume reaches its limit. For example, if **Volume** is set to 100, the account pauses after the 100th document is processed.
Description	Use this setting to save notes about the licensing. For example, if you made special arrangements to extend the length of a demo account, you can type the details here.
Reference	The text that you type here is used as the customer billing report reference in the billing report.
Reference ID 1, **Reference ID 2**	Tungsten Automation uses these IDs for internal record-keeping. These settings can only be edited by Tungsten Automation personnel and subsidiary administrators.

Audit trail view

This view displays audit trail information in Admin Center.

To access this view in Admin Center, select **Audit trail** in the administration tree view.

Time range	Narrows your search to the time range you select. **From/To** settings display if you select **Custom time range** in the **Time range** box. These settings narrow your search to the specific time and date range you specify.
Search	Searches these columns simultaneously: • Message • Event code • Details code • Changes * * The **Changes** field is located in the event details view. The **Event code** and **Details code** columns can only be searched by number from the **Search** box. For example, searching for "AuthenticationFailed" does not return results in the **Details code** column, but searching for "50385" returns results.
Show successful authentication events	Displays audit trail information for each successful user sign-in.
Event time	The date and time that the event occurred. Selecting the event time displays more information about the event.
Changed by	The user who triggered the event.
Message	Provides details about the event.
Event code	A code that describes the event.
Details code	Provides additional details about the event.

You can also view user-specific audit trail information in the user dialog.

Customer accounts view

Use this view to manage customer accounts in Admin Center.

To access this view in Admin Center, select a **Customers** node in the administration tree. The **Customers** view can appear as a child node of a partner or a customer group.

Use this view to add customer accounts and group accounts.

Add	Displays a view that you can use to add a new customer account.
Add group	Displays a view that you can use to add a new customer account group.
Name	The name of the customer account.

External ID	A value you can use to identify the customer account in an external system, such as your target system.
Process	Displays which document process the account belongs to.
Group	Displays individual customer accounts, groups, or both.
Status	Displays the current state of the customer account: activated or deactivated.
Paused	Displays the current state of the customer account: paused or not paused.
	Displays a context menu with actions you can perform on the account: • **Open in new tab** - Opens the customer account settings in a new tab. • **Activate** - Activates the account. It can take up to one minute to activate an account. • **Deactivate** - Deactivates the account. • **Pause** - Pauses the account. • **Resume** - Resumes the account. • **Move** - Displays a dialog that you can use to move the account to a different group. This option only appears if the account is already in a group. • **Group** - Displays a dialog that you can use to assign the account to a group. • **Ungroup** - Displays a dialog that asks if you want to remove the account from the current group, returning ownership to the parent account. This option only appears if the account is already in a group. • **Copy** - Displays a dialog that you can use to copy the current customer account. • **Delete** - Displays a dialog that asks if you want to delete the account.

Add new customer account view

Use this view to specify customer account settings in Admin Center.

To access this view in Admin Center, select **Add** in the **Customer accounts** view.

The **Service plan** settings are visible only to administrators with the **Manage service plans** privilege.

Use these settings to add a new customer account.

Profile

Process	Determines the document process for the account. • **Accounts payable** - for processing invoices (general expense, purchase order invoices) and credit notes. • **Accounts receivable** - for processing purchase orders and remittance advices.
Name	The name for the customer account. This can be a legal entity or a person.
Organization number	The organization number for the customer account.
VAT number	The VAT number for the organization. You can increase interpretation rates of VAT registration fields by providing your organization VAT number here. In many cases, VAT registration numbers for the buyer and the supplier appear in the invoice header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number on the invoice.
Phone	The phone number for the customer account.
Fax	The fax number for the customer account.
Street address	The street address for the customer account.
Post code	The postal code or ZIP code for the customer account.
City	The city for the customer account.
State	The state for the customer account.
Country	The country for the customer account.
Notes	Use this space to save additional information about the organization.
External reference	
ID	Use this value to identify the organization in an external system, such as your target system.
Contacts	

Add	Creates a new contact. Contact information ensures seamless communication and quick assistance when needed. • **Contact type** (Required) — Choose a contact type, **Sales contact** or **Technical contact**, which best describes the role of the contact person. • **Name** (Required) — The name of the contact person. • **Email** — The email address of the contact person. • **Phone** — The phone number of the contact person. You must specify an email address or phone number.

Services

Analytics	Provides reports about document status, document volumes, performance statistics, and more.
Classification	Automatically routes invoices to the correct partner.
Copilot	Enhances Tungsten AP Essentials Office with generative AI assistance.
Email input	Enables users to send invoices by email to the system.
Extraction	Determines how document information is interpreted.
e-Invoice Connect	Simplifies invoice processing by connecting you to hundreds of thousands of companies that are already connected and exchanging e-invoices.
Image upload	Enables users to upload images to the system using a secure connection.
Master data	Determines user interaction with master data when verifying invoices.
Notifications	Notifies users of various events by email. For example, an email notification can be sent when Tungsten AP Essentials receives a batch or when a batch is rejected.
Process control	Automates production elements, such as processing new documents upon arrival.
Purchase order	Enables the sharing of purchase-order information between Tungsten AP Essentials and the target system.
Separation	Provides an interface to separate documents in a batch quickly and easily.
Storage	Provides long-term archiving of document images and data.

Target system	Specifies the target system and how document information is sent to it.
Validation	Provides automated functions that help ensure the correctness of invoice data.
Verification	Enables users to easily verify documents in a web browser.
Workflow	Enables users to perform accounts-payable and workflow activities.

Service plan

Model	• The **Live** model is for customer accounts in production. • The **Demo** model is for organizations that use Tungsten AP Essentials for demonstration purposes. You can process up to 1,000 documents during a one-year period using a demo account. • The **Trial** model is for organizations that want to test Tungsten AP Essentials. You can process up to 200 documents during a 60-day period using a trial account. If the parent account is a **Live** account, you can choose **Live**, **Demo**, or **Trial**. If the parent account is a **Demo** or **Trial** account, the customer account is also **Demo** or **Trial**, and you cannot change it.
Volume	Determines the number of documents you can process during the licensing period.
Period start	Specifies when the usage period begins.
Period end	Specifies when the usage period ends.
Reference	The text that you type here is used as the customer account billing report reference in the billing report.
Description	You can use this setting to save notes about the licensing. For example, if you made special arrangements to extend the length of a demo account, you can type the details here.
Reference ID 1, **Reference ID 2**	Tungsten Automation uses these IDs for internal record-keeping. These settings can only be edited by Tungsten Automation personnel and subsidiary administrators.

Customer account view

This view displays overview information about a single customer account in Admin Center.

To access this view in Admin Center, select a customer account node in the administration tree.

Use this view to manage customer account settings.

Activate/Deactivate	Activates or deactivates the customer account. It can take up to one minute to activate an account.
Pause/Resume	• **Pause** - Temporarily pauses the account. When an account is paused, users can continue working normally, however, no output is sent to the target system. This is helpful, for example, if you need to suspend a customer account for lack of payment. Unlike deactivation, pausing an account does not cause user accounts to be disabled, no deactivation emails are sent to users, and incoming documents are still accepted. • **Resume** - Resumes the account.
Group/Ungroup	• **Group** - Displays a dialog that you can use to assign the customer account to a group. • **Ungroup** - Displays a dialog that asks if you want to remove the customer account from the current group, returning ownership to the parent partner account. This button is available if the customer account is already in a group.
Move	Displays a dialog that you can use to move the customer account to a different group. This button is available if the customer account is already in a group.
Delete	Displays a dialog that asks if you want to delete the account.
	Searches downward in the account hierarchy for objects, such as sub-organizations, users, and buyers.
Usage	Shows how many documents have been processed during the current period. This data is updated every five hours.
Users	Shows how many users the customer account has.
Buyers	Shows how many buyers the customer account has.
Company profile	Displays a view that you can use to edit the company profile.
Add user	Displays a view that you can use to add a new user.
Services	Displays the **Services** view.
Open Analytics	Opens **Analytics reports** in a new view.
e-Invoice Connect	Opens e-Invoice Connect in a new browser tab. This link is available to customer account administrators with a connected e-Invoice Connect integration.

Buyers view

To access this view in Admin Center, select a **Buyers** node in the administration tree.

Use this view to add a buyer to a customer organization that performs accounts payable operations.

Add	Displays a view that you can use to add a new buyer.
Name	The name of the buyer. Selecting a buyer name navigates to the buyer in the administration tree.
Country	The country of the buyer.
Organization number	The organization number of the buyer.
VAT number	The VAT number of the buyer. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number.
External ID	A value you can use to identify the buyer in an external system, such as your target system.
Actions	Select to display a context menu of actions you can perform on the buyer. • **Open in new tab** - Opens the selected buyer in a new web browser tab. • **Delete** - Displays a dialog that asks if you want to delete the buyer. Deleting a buyer also deletes all in-progress documents attached to the buyer. Supplier master data on the buyer level and email addresses (for email input) are also deleted.

Add new buyer view

Use this view to specify buyer settings in Admin Center.

To access this dialog in Admin Center, select **Add** in the **Buyers** view, or select the name of an existing buyer and select **Company profile**.

Use these settings to add a new buyer.

Profile	
Name	The name of the buyer. This can be a legal entity or a person.
Organization number	The organization number of the buyer.

VAT number	The VAT number of the organization. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number here. In many cases, VAT registration numbers for the buyer and the supplier appear in the invoice header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number on the invoice.
Phone	The phone number of the buyer.
Fax	The fax number of the buyer.
Street address	The street address of the buyer.
Post code	The postal code or ZIP Code of the buyer.
City	The city of the buyer.
State	The state of the buyer.
Country	The country of the buyer.
Notes	Use this space to save additional information about the organization.
External reference	
ID	Use this value to identify the organization in an external system, such as your target system.
Contacts	
Add	Creates a new contact. Contact information ensures seamless communication and quick assistance when needed. • **Contact type** (Required) — Choose a contact type, **Sales contact** or **Technical contact**, which best describes the role of the contact person. • **Name** (Required) — The name of the contact person. • **Email** — The email address of the contact person. • **Phone** — The phone number of the contact person. You must specify an email address or phone number.

Classification	
Alternative name 1	Alternative names of the buyer organization that can help identify the buyer if buyer classification is enabled.
Alternative name 2	
Alternative name 3	

Company profile view

Use this view to edit a company profile in Admin Center.

To access this view in Admin Center, navigate to an organization node, such as a partner, customer, buyer, or seller, and select **Company profile**.

Use this view to edit an organization. The settings that appear here can vary depending on the type of organization you select.

Branding settings are only visible on partner accounts. Only Tungsten Automation can edit branding settings.

Name	The name of the organization. This can be an entity or a person. The **Host name** does not change if you change the name of a partner.
Type	The type of profile. The types that appear can vary depending on your role and which node you selected in the administration tree: • Subsidiary • Partner • Partner group • Customer • Customer group
Organization number	The organization number of the organization.
VAT number	The VAT number of the organization. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number here. In many cases, VAT registration numbers for the buyer and the supplier appear in the invoice header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number on the invoice.
Phone	The phone number of the organization.
Fax	The fax number of the organization.
Street address	The street address of the organization.
Post code	The postal code or ZIP code of the organization.
City	The city of the organization.

Country	The country of the organization. When specifying buyers using XML, the `AddressCountry` element accepts any string value. However, if your master data specifies a country that does not match any of the countries in the **Country** list, it is not displayed here. If you specify countries using master data, the values you specify must match the values in this list in order for automatic classification to work optimally.
Notes	Use this space to save additional information about the organization.
External reference	
External ID	Use this value to identify the organization in an external system, such as your target system.
Contacts	
Add	Creates a new contact. Contact information ensures seamless communication and quick assistance when needed. • **Contact type** (Required) — Choose a contact type, **Sales contact** or **Technical contact**, which best describes the role of the contact person. • **Name** (Required) — The name of the contact person. • **Email** — The email address of the contact person. • **Phone** — The phone number of the contact person. You must specify an email address or phone number.
Branding	
Host name	Specifies the address used to access Tungsten AP Essentials. You must specify a unique sub-domain if you want to use custom branding. The host name does not change if you change the name of a partner.
Title	Specifies the text that appears on the tab in the web browser.
Theme	Determines the look of Tungsten AP Essentials.

Copy customer view

Use this view to copy an existing customer in Admin Center.

To access this dialog in Admin Center, navigate to the **Customers** view and select in the **Actions** column of the customer that you want to copy.

Use these settings to copy an existing customer.

Settings to copy from the existing customer

Services	Determines which services you want to copy or add. Select to display all available services. **Copy these service settings from the customer** - These services and their settings are copied from the customer. Users are not copied. Therefore, settings that involve users, such as workflows and triggers, are not copied. User groups are copied but contain no users. **Add these services from the partner** - These services are added from the partner level, in the same way they are added when adding a new customer. After the new account is created, you must adjust the settings of some of these services. For example, if applicable, you must specify login information for the Target system service.
Groups	Determines whether you want to copy user groups from the existing customer. Remember to add users to the user groups after the new account is created.
New customer details	
Name	The name of the customer. This can be a legal entity or a person.
External ID	Use this value to identify the organization in an external system, such as your target system.
Service plan	
Model	• The **Live** model is for customers in production. • The **Demo** model is for organizations that use Tungsten AP Essentials for demonstration purposes. • The **Trial** model is for organizations that want to test Tungsten AP Essentials.
Volume	Specifies the number of documents that can be processed during the license period that you specify using **Period start** and **Period end**. The volume is automatically determined if you select **Demo** or **Trial** in the **Model** setting.
Period start	Specifies when the service plan starts.
Period end	Specifies when the service plan ends.
Reference	The text that you type here is used as the customer billing report reference.
Description	You can use this setting to save notes about the license. For example, if you made special arrangements to extend the length of a demo account, you can type the details here.

Sellers view

To access this view in Admin Center, select a **Sellers** node in the administration tree.

Use this view to add a seller to a customer account that performs accounts receivable operations.

Add	Displays a view that you can use to add a new seller.
Name	The name of the seller. Selecting a seller name navigates to the seller in the administration tree.
Country	The country of the seller.
Organization number	The organization number of the seller.
VAT number	The VAT number of the seller. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number.
External ID	A value you can use to identify the seller in an external system, such as your target system.
Actions	Select to display a context menu of actions you can perform on the seller. • **Open in new tab** - Opens the selected seller in a new web browser tab. • **Delete** - Displays a dialog where you confirm whether to delete the seller. Deleting a seller also deletes all in-progress documents attached to the seller. Customer master data on the seller level and email addresses (for email input) are also deleted.

Add new seller view

Use this view to specify seller settings in Admin Center.

To access this dialog in Admin Center, select **Add** in the **Sellers** view, or select the name of an existing seller and select **Company profile**.

Use these settings to add a new seller.

Profile	
Name	The name of the seller. This can be a legal entity or a person.
Organization number	The organization number of the seller.

VAT number	The VAT number of the organization. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number here. In many cases, VAT registration numbers for the seller and the customer appear in the document header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number on the document.
Phone	The phone number of the seller.
Fax	The fax number of the seller.
Street address	The street address of the seller.
Post code	The postal code or ZIP code of the seller.
City	The city of the seller.
State	The state of the seller.
Country	The country of the seller.
Notes	Use this space to save additional information about the organization.
External reference	
ID	Use this value to identify the organization in an external system, such as your target system.
Contacts	
Add	Creates a new contact. Contact information ensures seamless communication and quick assistance when needed. • **Contact type** (Required) — Choose a contact type, **Sales contact** or **Technical contact**, which best describes the role of the contact person. • **Name** (Required) — The name of the contact person. • **Email** — The email address of the contact person. • **Phone** — The phone number of the contact person. You must specify an email address or phone number.

Classification	
Alternative name 1	Alternative names of the seller organization that can help identify the seller if seller classification is enabled.
Alternative name 2	
Alternative name 3	

Documents view

Administrators use this view to browse documents and batches, and examine documents in the Online Office document viewer.

To access this view, navigate to **Explore** > **Documents** in the administration tree view.

This view contains multiple tabs that depend on your settings and whether you view a partner or customer account. The available tabs are:

- Documents
- Batches
- AP documents
- AR documents
- AP batches
- AR batches

You can filter the list by file name, status, and other items of interest.

To filter dates in the **Received** column, **Held date** column, or any custom date field that has been made searchable, use the same format that appears in the column. For example, if the date appears as YYYY-MM-DD, apply the same format and separators (dashes in this case) when filtering. The format depends on the language settings of your browser. Filtering by time is not supported.

Enter a complete date or omit the year, month, or day by leaving the corresponding part blank while keeping the separators in the same positions as the full date format. Month and day must be entered as two digits (for example, 06, not 6). For a column showing dates as MM/DD/YYYY:

To filter by	Type
Year only	`//2026`
Month only	`06/`
Day only	`/15`
Month and year	`06//2026`
Day and year	`/15/2026`
Month and day	`06/15`

The same rule applies to any date format your column uses. For example, in a YYYY-MM-DD column, year only is 2026--, and month and year is 2026-06-.

Any part you omit is treated as "match any," while the parts you provide must all match. Partial dates, like full dates, are evaluated using your browser's time zone, so results always align with what is shown in the **Received** and **Held date** columns for your location.

When you filter other date columns, such as **Invoice date**, **Order date**, **Due date**, or **Delivery date**, you must use the format `YYYYMMDD`.

Selecting a **Track ID** in the list on the **Documents** tab displays the **Document details** view. Selecting a **Track ID** in the list on the **Batches** tab displays the **Batch details** view.

<table>
<tr><td>Refresh</td><td>Refreshes the list view.</td></tr>
<tr><td>Unlock</td><td>Unlocks the selected invoice.

Use caution when using this feature because normally an invoice is locked while someone is working with it.</td></tr>
<tr><td>Delete</td><td>Deletes the selected invoice or batch.</td></tr>
<tr><td></td><td>Displays a dialog where you select which columns you want to see in the list and whether you want to see deleted documents. The columns that appear vary, depending on which document process you use: accounts payable or accounts receivable. Available fields include:

<table>
<tr><th>Accounts payable</th><th>Accounts receivable</th></tr>
<tr><td>• Buyer
• Currency
• Current approver
• Due date
• External ID
• File name
• Gross amount
• Held by
• Held date
• Hold reason
• ID
• Invoice date
• Invoice number
• Purchase order
• Received
• Reject reason
• Status
• Supplier name
• Supplier number
• Track ID
• Workflow</td><td>• Base type
• Customer account
• Customer name
• Customer number
• Delivery date
• External ID
• File name
• Held by
• Held date
• Hold reason
• ID
• Order date
• Order number
• Received
• Reject reason
• Seller
• Status
• Total amount
• Track ID</td></tr>
</table>

You can also choose to display deleted documents by selecting Include deleted.</td></tr>
</table>

Document details view

To access this view, select the **Documents** tab and select a **Track ID** in the list.

Open in Office	Opens the current document in AP Essentials Office.

Unlock	Unlocks the current invoice. Use caution when using this feature because normally an invoice is locked while someone is working with it.
Delete	Deletes the current invoice.
Image	Displays the invoice image. • **Full screen** - Displays the invoice image full screen. • **Print** - Opens the invoice image in a new window and displays the print dialog.
History	Displays the document event history.

Batch details view

To access this view, select the **Batches** tab and select a **Track ID** in the list.

Unlock	Unlocks the current batch. Use caution when using this feature because normally a batch is locked while someone is working with it.
Delete	Deletes the current batch.
Documents in batch	Lists all of the documents in the current batch. Selecting the status of a document opens the document in the **Document details** view.
History	Displays the batch event history.

Document volumes report view

Use this view to filter and display document-volume reports.

To access this view in Admin Center, expand an **Explore** node in the administration tree view and select **Document volumes**. This report is available for partners, customers, and customer groups.

This view represents the volume of documents flowing through the system during the specified time period. This is helpful if you want an overview of the amount of work being performed during a given time period.

The report uses the time zone of your computer when displaying data.

The numbers in this view do not correspond to each other. The invoices received during the specified time period are not necessarily the same invoices that were successfully processed. Likewise, some of the invoices received may still be in production, or they may have been deleted. Therefore, documents in the **Received** and **Successfully processed** columns are not correlated.

Another way to understand how this report works is to imagine that the columns are two separate questions: How many invoices were received this month? How many invoices were successfully processed this month?

The report only shows numbers of documents (not batches). If the date range includes batches that have not been split into documents, the batch is not included in the report totals.

Use these settings to filter and display document-volume reports:

Date range	Specifies the date range that the report includes. If you select **Custom date range**, additional settings appear for specifying a date range. You can select dates up to two years prior to the current date.
Show deleted organizations	Determines whether information from deleted organizations is included.
Generate	Creates a report based on the criteria you specify.
Export	Prompts you to download a CSV file containing the information displayed in the current view. You must generate a report before you can export it.
Organization	The name of the buyer organization.
Received	The number of documents received within the specified date range.
Successfully processed	The number of documents that have been successfully processed (export succeeded or post succeeded).

Looking for more reports?

For additional reports about performance, extraction, and much more, see Analytics reports.

Master data views

These views display master data you have imported.

To access these views in Admin Center, expand an **Explore** node in the administration tree view and select **Master data**. If you upload master data on the buyer level (Master data service view settingssee "Master data service view settings"), the master data views only appear at the buyer level.

Because master data is customizable using generic master data objects, the names of the master data sets can vary depending on your setup. The available views also vary depending on whether you use accounts payable or accounts receivable processes. Common master-data types include:

Master data type	Description	Document process
Suppliers	Displays supplier master data that is used for invoice identification. Selecting a supplier displays a dialog that you can use to edit the supplier.	Accounts payable

Master data type	Description	Document process
Customers	Displays customer master data that is used for purchase order identification. Selecting a customer displays a dialog that you can use to view the customer.	Accounts receivable
Currency	Specifies which currencies are allowed in the approval process. • If you do not use currency master data, all currencies are allowed. • If you use currency master data, only the currencies specified in the master data are allowed during the approval process. All other values produce a field error.	Accounts payable, Accounts receivable
GL Accounts	Displays general-ledger accounts that you can use when coding an invoice.	Accounts payable
Payment terms	Displays payment-term master data used for due-date validation.	Accounts payable
Purchase orders	Displays purchase order master data. This view appears under the **Explore** node in the administration tree view, but it is not nested in the **Master data** node.	Accounts payable
[Generic objects]	Generic master data objects can be used to define custom master data not covered by the predefined types. For example, you can use generic master-data objects to specify which values appear for selection in coding field boxes.	Accounts payable, Accounts receivable

The following settings are available in many master data views.

Synchronize	Synchronizes the master data in the current view with the master data in your financial system. This button is only visible for cloud-to-cloud integrations, such as the NetSuite, Coupa AP, and E-conomic integrations. See the **Master data** service view to synchronize all master data types.
Delete	Deletes the selected master-data items. This button is only available in some master-data views.
	Select to specify which columns you want to display in the current view.

Supplier master data view

Use these settings to edit the supplier master data.

To access this dialog in Admin Center, select a supplier in the **Suppliers** view.

Use this view to edit supplier master data.

<table>
<tr><td colspan="2">Profile</td></tr>
<tr><td>Supplier number, Name, Description, etc.</td><td>The master-data fields used to describe the supplier. Note that the fields are displayed on two tabs, Profile and Bank accounts.</td></tr>
<tr><td>Blocked</td><td>Determines whether the supplier is blocked.</td></tr>
<tr><td>Exclude supplier from automatic identification</td><td>When selected, the supplier is not used for supplier identification; however, it is available for selection during verification. This is helpful if you have multiple suppliers with the same name, and you want to designate a preferred supplier by excluding the other suppliers from automatic identification.
Example
Assume you have three suppliers with the same name, but different addresses.
<table>
<tr><th>Supplier</th><th>Address</th><th>Preferred supplier</th><th>Exclude supplier from automatic identification setting</th></tr>
<tr><td>Polychemtex</td><td>USA</td><td>Yes</td><td>Cleared</td></tr>
<tr><td>Polychemtex</td><td>UK</td><td>No</td><td>Selected</td></tr>
<tr><td>Polychemtex</td><td>Sweden</td><td>No</td><td>Selected</td></tr>
</table>
In this example, the first supplier is our preferred supplier because almost all of the invoices come from the US supplier. Therefore, we select Exclude supplier from automatic identification on the other two suppliers. The result is that Tungsten AP Essentials identifies invoices from Polychemtex USA correctly, and invoices from the other locations will not have the supplier selected during verification. In the rare occasions that an invoice is received from one of the other two suppliers, you can simply change the supplier during verification.
All users can change this setting regardless of their privileges. Even users who are not allowed to update master data can change this setting.</td></tr>
</table>

Lock online learning	Locks online learning of documents from the displayed supplier/customer at the current state. Select this setting to prevent verification changes from having a detrimental effect on documents that already have high identification and extraction rates. If you enable this setting, and clear it at a later date, online learning resumes. AP Essentials Office users must have the **Change lock online learning setting** privilege to change this setting during verification. Administrators with the **Manage accounts** privilege can edit this setting.
Allow complete documents to bypass verification	Determines whether invoices without validation errors are sent directly to the target system without verification. Learn more. AP Essentials Office users with the **Change bypass verification setting** privilege can change this setting. In Admin Center, administrators with the **Manage accounts** privilege can change this setting.
Invoices require PO	Improves automatic document type classification by ensuring all documents received by the current supplier have a purchase order number. When you enable this setting, documents from this supplier are classified as purchase order invoices, even if the purchase order is absent from the document. If no purchase order number is found, the order number field is marked with a validation error. Learn more.
Credit notes require PO	Ensures all credit notes received by the current supplier have a purchase order number. If no purchase order number is found, the order number field is marked with a validation error. This setting is similar to disabling **Accept empty value** in the Extraction settings of the order number field, except in this case, the validation is applied per supplier. Unlike **Invoices require PO**, this setting does not affect automatic document classification.
Bank accounts	
Add	Displays a view that you can use to add a new bank account to the current supplier.
Delete	Deletes the selected accounts from the current supplier.

BANK Name, **BANK NUMBER TYPE** etc.	Lists bank account information associated with the current supplier. You can select an existing account number to edit it. Account numbers are hidden, unless you have the **Manage accounts** privilege or the **Manage supplier bank account numbers** privilege.
Edit	Makes the supplier settings editable.
Save & close	Saves the supplier information and returns to the **Suppliers** view.
Cancel	Returns to the **Suppliers** view.

Bank account view

Use these settings to edit the bank account information of a supplier in Admin Center.

To access this dialog in Admin Center, select a supplier in the **Suppliers** view, select the **Bank accounts** tab, and select **Add**.

Use this view to add a bank account to the current supplier.

Bank name (optional)	The name of the bank.
Bank number type (optional)	The type of bank number. If the type you need is not listed, select **None**. • None • BIC • Clearing number
Bank number (optional)	The bank number. Often, the initial digits of an account indicate the bank to which the account belongs.
Account number type (optional)	The type of account number. If the type you need is not listed, select **None**. • None • IBAN • Plusgiro • Bankgiro
Account number (required)	The bank account number. Account numbers are hidden, unless you have the **Manage accounts** privilege or the **Manage supplier bank account numbers** privilege.
OK	Adds the account information and closes the view.
Cancel	Cancels the operation and returns to the supplier view.

Customer master data view

Use these settings to edit individual customer master data.

To access this dialog in Admin Center, select a customer in the **Customers** view.

Use this view to edit customer master data.

Profile	
Customer number, Name, Street, etc.	The master-data fields used to describe the customer.
Blocked	Determines whether the customer is blocked.
Allow complete documents to bypass verification	When selected, customers without validation errors are sent directly to the target system without verification. Learn more. Office users with the **Change bypass verification setting** privilege can change this setting. In Admin Center, administrators with the **Manage accounts** privilege can change this setting.

<table>
<tr><td>Exclude customer from automatic identification</td><td>When selected, the customer is not used for customer identification; however, it is available for selection during verification. This is helpful if you have multiple customers with the same name, and you want to designate a preferred customer by excluding the other customers from automatic identification.
Example
Assume you have three customers with the same name, but different addresses.<table><tr><th>Customer</th><th>Address</th><th>Preferred customer</th><th>Exclude customer from automatic identification setting</th></tr><tr><td>ACME Inc.</td><td>USA</td><td>Yes</td><td>Cleared</td></tr><tr><td>ACME Inc.</td><td>UK</td><td>No</td><td>Selected</td></tr><tr><td>ACME Inc.</td><td>Sweden</td><td>No</td><td>Selected</td></tr></table>In this example, the first customer is our preferred customer because almost all of the purchase orders come from the US customer. Therefore, we select Exclude customer from automatic identification on the other two customers. The result is that Tungsten AP Essentials identifies purchase orders from ACME Inc. USA correctly, and purchase orders from the other locations will not have the customer selected during verification. In the rare occasions that a purchase order is received from one of the other two customers, you can simply change the customer during verification.
All users can change this setting regardless of their privileges. Even users who are not allowed to update master data can change this setting.</td></tr>
<tr><td>Edit</td><td>Makes the customer settings editable.</td></tr>
<tr><td>Save & close</td><td>Saves the customer information and returns to the Customers view.</td></tr>
<tr><td>Cancel</td><td>Returns to the Customers view.</td></tr>
</table>

Payment terms view

Use these settings to define the payment terms settings in Admin Center.

To access this view in Admin Center, select a **Master data** node in the tree view and select **Payment terms**.

Use these settings to manage the payment terms of your suppliers.

Add	Displays a view that you can use to add a new payment term.
Toggle default	Select a payment term in the list and select this button to toggle its default status. The default payment term is used if no match is found during extraction. If a payment term is already set to default, and you want to set another payment term to default, you must first toggle the current default payment term, so it is no longer the default.
Import from suppliers	Populates the list with payment terms from supplier master data. Payment terms that have been added manually in this view are not removed.
Delete	Deletes the selected payment term.
	Specifies which columns you want to display.
Code	Specifies the code of the payment term. Selecting the code displays a view that you can use to edit the payment term.
Buyer	Specifies which buyer uses the payment term.
Description	Describes the payment term.
Days	Specifies the number of days until the payment is due.
Use as default	Specifies which payment term is the default payment term to use if no payment term is found.
Start from	Specifies when to start counting days until payment is due.
Apply	Specifies whether the due date calculation is always applied, or only applied if the due date field is empty.
Empty the due date	Specifies whether Tungsten AP Essentials calculates the due date or empties it.

Payment term view

Use these settings to define the payment terms settings in Admin Center.

To access this view in Admin Center: Expand the **Master data** node in the tree view, select **Payment terms**, and select **Add** or select the code of an existing payment term.

Use these settings to specify a payment term for use with the due date validation.

Edit	Lets you edit the payment term.
Save & close	Saves the payment term and returns to the **Payment terms** view.
Delete	Displays a dialog to confirm that you want to delete the payment term.
Cancel	Closes the dialog and returns to the **Payment terms** view.

Buyer	Determines which buyer uses the payment term.
Code	Specifies the payment term code. During verification, Tungsten AP Essentials matches the payment term code found in the supplier master data with this code to determine how to validate the due date.
Description	Optional text that you use to describe the payment term.
Empty the due date	Determines whether Tungsten AP Essentials empties the due-date value, or calculates the due date according to the settings that follow.
Due date calculation	
Days	Specifies the number of days until the payment is due. Counting begins according to the **Start from** setting.
Start from	Determines when to start counting the days until payment is due. • **Invoice date** - Counting begins on the invoice date. The due date equals the invoice date plus the number of days specified in the **Days** setting. • **End of the month of the invoice date** - Counting begins at the end of the month of the invoice date. For example, assume **Days** is set to "30" and the invoice date is July 9. Counting begins at the end of the month, which is July 31. This means the calculated invoice due date is August 30. In other words, the first day of the next month is day one of the due date calculation.
Apply calculation	Specifies whether the due date calculation is always applied, or only applied if the due date field is empty. • **Always** - When an invoice is processed by a supplier that uses this payment term, the due date calculation is always applied. • **Only if due date is empty** - The calculated due date is only applied if the due date value on the invoice is empty.

On hold codes view

Use these settings to define custom on-hold codes in Admin Center.

To access this view in **Admin Center**, expand the **Explore** node on the customer level in the administration tree and select **On hold codes**.

Use these settings to specify custom on-hold codes that are available when AP Essentials Office users hold an invoice:

Add	Displays a dialog that you can use to define a custom on-hold code.

Delete	Deletes the selected on-hold code.
CODE	Lists available on-hold codes. Selecting a code displays a dialog that you can use to edit the on-hold code and its description.
Description	Displays descriptions of on-hold codes.

On hold code view

Use these settings to edit a custom on-hold code in Admin Center.

To access this view in **Admin Center**, expand the **Explore** node on the customer level in the administration tree, select **On hold codes**, and select **Add** or select an existing on-hold code.

Use these settings to specify a custom on-hold code that is available when AP Essentials Office users hold an invoice:

Code	Displays the current on-hold code.
Description	Displays descriptions of the on-hold code.

Purchase orders view

This view displays purchase orders that are imported from the target system.

To access this view in Admin Center: Expand an **Explore** node in the administration tree view and select **Purchase orders**.

This view displays purchase orders that are imported from the target system. The Purchase order service must be enabled to see this view.

	Specifies which purchase order columns you want to display in this view. You can choose from these columns: • PO Number • Buyer • Supplier name • Supplier number • Contact • Status • Description • Currency code • Created • Created by • Requisitioned by
Search	Searches all columns for values that contain the text you enter in the box. When searching date columns in this view, you must type the entire date in the filter box in `YYYYMMDD` format.

Select a PO number in the list to display detailed information about the purchase order.

Purchase order lines view

This view displays detailed information about the purchase order.

To access this view in Admin Center, expand an **Explore** node in the administration tree view, select **Purchase orders**, and select a PO number in the list.

This view displays detailed information about a purchase order from the **Purchase orders** view. The Purchase order service must be enabled to see this view.

	Specifies which purchase-order line columns to display.

Reject codes view

Use these settings to define custom reject codes in Admin Center.

To access this view in **Admin Center**, expand the **Explore** node on the customer level in the administration tree and select **Reject codes**.

Use these settings to specify custom rejection codes that are available when AP Essentials Office users reject an invoice.

Add	Displays a dialog that you can use to define a custom reject code.
Delete	Deletes the selected reject code.
Code	Lists available reject codes. Selecting a code displays a dialog that you can use to edit the reject code and its description.
Description	Displays descriptions of reject codes.

Reject code view

Use these settings to edit a custom reject code in Admin Center.

To access this view in **Admin Center**, expand the **Explore** node on the customer level in the administration tree, select **Reject codes**. Then select **Add** or select an existing reject code.

Use these settings to specify a custom rejection code that is available when AP Essentials Office users reject an invoice:

Code	Displays the current reject code.
Description	Displays descriptions of the reject code.

Partners view

Use this view to manage partners in Admin Center.

To access this view in Admin Center, select a **Partners** node in the administration tree.

Add	Displays a view to add a new partner.
Add group	Displays a view to group partner accounts.
Name	The name of the partner.
External ID	A value you can use to identify the partner in an external system.
Group	Displays individual partners, groups, or both.
Status	The current state of the partner: activated or deactivated.
	Displays a context menu with actions you can perform on the account: • **Open in new tab** - Opens the customer account settings in a new tab. • **Activate** - Activates the account. It can take up to one minute to activate an account. • **Deactivate** - Deactivates the account. • **Pause** - Pauses the account. • **Resume** - Resumes the account. • **Move** - Displays a dialog that you can use to move the account to a different group. This option only appears if the account is already in a group. • **Group** - Displays a dialog that you can use to assign the account to a group. • **Ungroup** - Displays a dialog that asks if you want to remove the account from the current group, returning ownership to the parent account. This option only appears if the account is already in a group. • **Copy** - Displays a dialog that you can use to copy the current customer account. • **Delete** - Displays a dialog that asks if you want to delete the account. The items that appear in the context menu can vary depending on your privileges. Some items are only available to Tungsten Automation.

Partner view

This view displays overview information about a single partner in Admin Center.

To access this view in Admin Center, select a partner node in the administration tree.

Use this view to manage partner settings.

Activate/Deactivate	Activates or deactivates the account. It can take up to one minute to activate an account.
Group/Ungroup	• **Group** - Displays a dialog for assigning the partner to a group. • **Ungroup** - Displays a dialog that asks if you want to remove the partner from the current group, returning ownership to the parent account. This button appears only if the partner is already in a group.
Move	Displays a dialog for moving the partner to a different group. This button appears only if the partner is already in a group.
Delete	Displays a dialog that asks if you want to delete the account.
	Searches downward in the account hierarchy for objects, such as sub-organizations, users, and buyers.
Usage	Shows how many documents have been processed during the current period.
Users	Shows how many users the partner has.
Customers	Shows how many customers the partner has.
Company profile	Displays a view for editing the company profile.
Add user	Displays a view for adding a new user.
Services	Displays the **Services** view.
Open Analytics	Opens **Analytics reports** in a new view.

Add new partner account view

Use this view to specify partner settings in Admin Center.

To access this view in Admin Center, select **Add** in the **Partners** view.

Use these settings to add a new partner.

Profile

Name	The name of the customer account. This can be a legal entity or a person.
Organization number	The organization number of the customer account.

VAT number	The VAT number of the customer account. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number here. In many cases, VAT registration numbers for the buyer and the supplier appear in the invoice header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number on the invoice.
Phone	The phone number of the customer account.
Fax	The fax number of the customer account.
Street address	The street address of the customer account.
Post code	The postal code or ZIP code of the customer account.
City	The city of the customer account.
State	The state of the customer account.
Country	The country of the customer account.
External reference	
ID	Use this value to identify the organization in an external system, such as your target system.
Contacts	
Add	Creates a new contact. Contact information ensures seamless communication and quick assistance when needed. • **Contact type** (Required) — Choose a contact type, **Sales contact** or **Technical contact**, which best describes the role of the contact person. • **Name** (Required) — The name of the contact person. • **Email** — The email address of the contact person. • **Phone** — The phone number of the contact person. You must specify an email address or phone number.

Services

Analytics	Provides reports about document status, document volumes, performance statistics, and more.
Classification	Automatically routes invoices to the correct partner.
Copilot	Enhances Tungsten AP Essentials Office with generative AI assistance.
Email input	Enables users to send invoices by email to the system.

Extraction	Determines how document information is interpreted.
e-Invoice Connect	Simplifies invoice processing by connecting you to hundreds of thousands of companies that are already connected and exchanging e-invoices.
Image upload	Enables users to upload images to the system using a secure connection.
Master data	Determines user interaction with master data when verifying invoices.
Notifications	Notifies users of various events by email. For example, an email notification can be sent when Tungsten AP Essentials receives a batch or when a batch is rejected.
Process control	Automates production elements, such as processing new documents upon arrival.
Purchase order	Enables the sharing of purchase-order information between Tungsten AP Essentials and the target system.
Separation	Provides an interface to separate documents in a batch quickly and easily.
Storage	Provides long-term archiving of document images and data.
Target system	Specifies the target system and how document information is sent to it.
Validation	Provides automated functions that help ensure the correctness of invoice data.
Verification	Enables users to easily verify documents in a web browser.
Workflow	Enables users to perform accounts-payable and workflow activities.

Service plan

Model	• The **Live** model is for partners in production. • The **Demo** model is for organizations that use Tungsten AP Essentials for demonstration purposes. You can process up to 1,000 documents during a one-year period using a demo account. • The **Trial** model is for organizations that want to test Tungsten AP Essentials. You can process up to 200 documents during a 60-day period using a trial account. If the parent account is a **Live** account, you can choose **Live**, **Demo**, or **Trial**. If the parent account is a **Demo** or **Trial** account, the partner account is also **Demo** or **Trial**, and you cannot change it.
Period start	Specifies when the usage period begins.
Period end	Specifies when the usage period ends.
Volume	Determines the number of documents you can process during the licensing period.
Description	Use this setting to save notes about the licensing. For example, if you made special arrangements to extend the length of a demo account, you can type the details here.
Reference	The text that you type here is used as the partner billing report reference in the billing report.
Reference ID 1, **Reference ID 2**	Tungsten Automation uses these IDs for internal record-keeping. These settings can only be edited by Tungsten Automation personnel and subsidiary administrators.

Branding

Host name	Specifies the address used to access Tungsten AP Essentials. You must specify a unique sub-domain if you want to use custom branding. ⓘ The host name does not change if you change the name of a partner.
Title	Specifies the text that appears on the tab in the web browser.
Theme	Determines the look of Tungsten AP Essentials.

Add new partner account group view

To access this view in Admin Center, select **Add GROUP** in the **Partners** view.

Use these settings to add a new partner group.

Name	The name of the partner. This can be a legal entity or a person.
Organization number	The organization number of the partner.
VAT number	The VAT number of the partner. You can increase interpretation rates of VAT registration fields by providing your organization's VAT number here. In many cases, VAT registration numbers for the buyer and the supplier appear in the invoice header, making it difficult to determine which value to capture. By providing your VAT registration number, Tungsten AP Essentials can exclude your VAT number from the list of possibilities when searching for the correct VAT number on the invoice.
Phone	The phone number of the partner.
Fax	The fax number of the partner.
Street address	The street address of the partner.
Post code	The postal code or ZIP code of the partner.
City	The city of the partner.
State	The state of the partner.
Country	The country of the partner.
External reference	
ID	Use this value to identify the organization in an external system, such as your target system.
Contacts	
Add	Creates a new contact. Contact information ensures seamless communication and quick assistance when needed. • **Contact type** (Required) — Choose a contact type, **Sales contact** or **Technical contact**, which best describes the role of the contact person. • **Name** (Required) — The name of the contact person. • **Email** — The email address of the contact person. • **Phone** — The phone number of the contact person. You must specify an email address or phone number.

Group view

This view displays overview information about a group of partner accounts or customer accounts in Admin Center.

To access this view in Admin Center, select a partner group node or a customer group node in the administration tree.

Use this view to manage group settings.

Activate/Deactivate	Activates or deactivates the account. It can take up to one minute to activate an account.
Pause/Resume	This button is only visible for customer groups. • **PAUSE** - Temporarily pauses all accounts in the group. When an account is paused, users can continue working normally; however, no output is sent to the target system. This is helpful, for example, if you need to suspend a customer account for lack of payment. Unlike deactivation, pausing an account does not cause user accounts to be disabled, no deactivation emails are sent to users, and incoming documents are still accepted. • **RESUME** - Resumes accounts in the group. ⓘ You must resume each member of the group individually.
Delete	Displays a dialog asking if you want to delete the group.
	Searches downward in the group hierarchy for objects, such as sub-organizations, users, and buyers.
Usage	Shows how many documents have been processed during the current period. This panel is only visible for customer groups.
Users	Shows how many users the group has.
Customer accounts	Shows how many customers the group has. This panel is only visible for customer groups.
Partner accounts	Shows how many customers the partner has. This panel is only visible for partner groups.
Company profile	Displays a view for editing the group profile.
Add user	Displays a view for adding a new user at the group level.
Services	Displays the **Services** view. This button is only visible for customer groups.

Document volumes report	Displays the **Document volumes report** view. This button is only visible for customer groups.
Open Analytics	Opens **Analytics reports** in a new view. This button is only visible for customer groups.

Resources view

Use this view in Admin Center to upload and manage resource files, such as XSLT files.

To access this view in Admin Center, select the **Resources** node in a partner account in the administration tree view.

Use this view to upload and manage resource files:

Add	Displays a dialog to upload a new resource.
Name	Specifies the file name of the resource.
Type	Specifies the type of the resource. You can upload: • **Certificates** - for enabling single sign-on. • **AP Essentials Connect plug-ins** - for custom API integrations with AP Essentials Connect. • **Public keys** - for enabling PGP for the SFTP target system. • **XSLT files** - for transforming output data to the required format. Tungsten AP Essentials supports XSLT version 1.0. Other versions are not supported.
Is trusted	Specifies whether the resource is trusted. • - The resource is trusted and can execute code. • - The resource is not trusted and cannot execute code. Trust is only required if you use the document() function in your XSLT or if you use embedded scripts.
Version	Displays the version of a plug-in resource. The version number is taken from the version of the plug-in DLL.
Download	Downloads the resource file. You must have the **Manage accounts** privilege to download resources.
Delete	Deletes the selected resource.

Resources that contain executable code must be approved by Tungsten Automation before they can be used.

Chapter 6

AP Essentials Office

When you log in to Tungsten AP Essentials Office, you have two primary tasks.

- **Uploading documents** – When you have documents that you want to process with Tungsten AP Essentials, you upload them for processing. This is the first step in the document workflow. You can upload invoices in your web browser using the **Upload** view, or you can use a standalone Windows application called Tungsten AP Essentials Connect.
- **Working with documents** – There are several steps to perform when working with documents, but the most common procedures are verifying and approval. The number of steps can vary, depending on the services you use. In fact, if all of your services are managed, many documents can move completely through the system without requiring interaction from you.

See also

Upload document images

Sample documents

Send documents toTungsten AP Essentials

You can upload documents to Tungsten AP Essentials using several methods.

- Use your web browser to upload documents.
- Send documents via email or use the email function for a multi-functional printer (MFP).
- Use a stand-alone Windows application, Tungsten AP Essentials Connect.
- Use a custom integration that uses the API.

Upload documents

To upload documents for processing:

1. Select **Upload** to display the **Upload** view.
2. Select **Select files** and use the dialog that appears to navigate to the images you want to upload. Alternatively, you can drag and drop files to the upload area in the middle of the view.
3. The selected files appear in the view. You can select **Delete** to remove files you do not want to upload.
4. Select the appropriate **Buyer**, **Seller**, **Document type**, and **Document separation**.
5. Select **Upload** to send the documents to Tungsten AP Essentials for processing.

Send documents via email

Tungsten AP Essentials accepts unencrypted email transfer and encrypted email transfer using SSL/TLS encryption (TLS 1.1 or later).

SSL/TLS encryption is a transport-level encryption that protects email during transmission between servers. Tungsten AP Essentials does not support end-to-end email encryption, such as Bitmessage, GPG, PGP, or S/MIME.

To send documents to Tungsten AP Essentials for processing:

1. Create an email and address it to the email address provided to you (specified in the **Email input** service settings).

   AP Essentials processes email regardless of whether it is addressed using To, Cc, or Bcc.
2. Optionally, format the subject of the email if you have been instructed to do so. This is dependent on the input method you use for the Email input service.
3. Attach the document files in a supported file format and send the email.

Page separation

Page separation describes how documents you send to Tungsten AP Essentials are separated. This helps Tungsten AP Essentials determine where one document ends and the next document begins. You can separate documents with a blank page, a barcode, or no separation, depending on your needs.

Before you send documents to Tungsten AP Essentials, consider whether your documents require page separation.

No separation

If you send a small number of documents to Tungsten AP Essentials—via upload, email, or AP Essentials Connect—or if suppliers send documents directly to Tungsten AP Essentials via email, this is probably the best option for you. You do not need to separate documents with blank pages. However:

- When uploading documents using the **Upload** view, every document in the batch must be a single-page document.
- When sending documents via email, each attachment must contain only one document. The **Attachments** setting must be set to **One document per attachment**.

Blank-page separation

If you send many documents to Tungsten AP Essentials—via upload, email, or AP Essentials Connect—this is probably the best option for you. This is also the method you use when using a duplex scanner, which scans both sides of each document page. To use this feature:

- Select **Blank page** in the **Page separation method** setting (Extraction service).

- When sending documents via email, the **Attachments** setting must be set to **Multiple documents per attachment**.
- Precede every document in a batch with a blank page. In other words, the first page of a batch must be a blank page, and you must have a blank page between each document.

This batch contains three documents (outlined in blue), each preceded by a blank page.

Exceptions

You do not need blank pages if:

- The batch only contains one single-page document.
- Every document in the batch is a single-page document.

Tungsten AP Essentials automatically removes blank pages that are used for page separation. However, blank back-pages of scanned images are not removed.

Using blank-page separation greatly improves production efficiency when processing large volumes of multi-page and single-page documents because Tungsten AP Essentials can easily determine where each document begins.

Duplex documents

For duplex documents, you must precede the first document in the file with two blank pages.

Every batch of duplex documents must contain an even number of pages (excluding the blank pages). If a duplex batch has an odd number of pages, Tungsten AP Essentials cannot process the batch and an input-failed email notification is sent with the following error message:

Batch has two leading blank pages but contains an odd number of pages.

Barcode separation

If the first page of each incoming document is labeled with a barcode, you can use the barcodes to separate documents. To use this feature:

- The following barcode formats are supported:
  - Code 128
  - EAN-8
  - EAN-13
- Select **Barcode** in the **Page separation method** setting (Extraction service).

- When sending documents via email, the **Attachments** setting must be set to **Multiple documents per attachment**.
- Place a barcode on the first page of every document in the batch.

This batch contains three documents (outlined in blue). The first page of each document has a barcode in the lower-right corner.

When verifying documents with barcodes, you can indicate the barcode position by selecting the barcode field and drawing a box around the barcode title, which usually appears under the barcode. You cannot draw around the barcode itself. Barcode orientation does not matter. Barcode separation works with horizontally or vertically placed barcodes. If you process documents that contain other barcode fields, we recommend placing the page-separation barcode in the same location on each document.

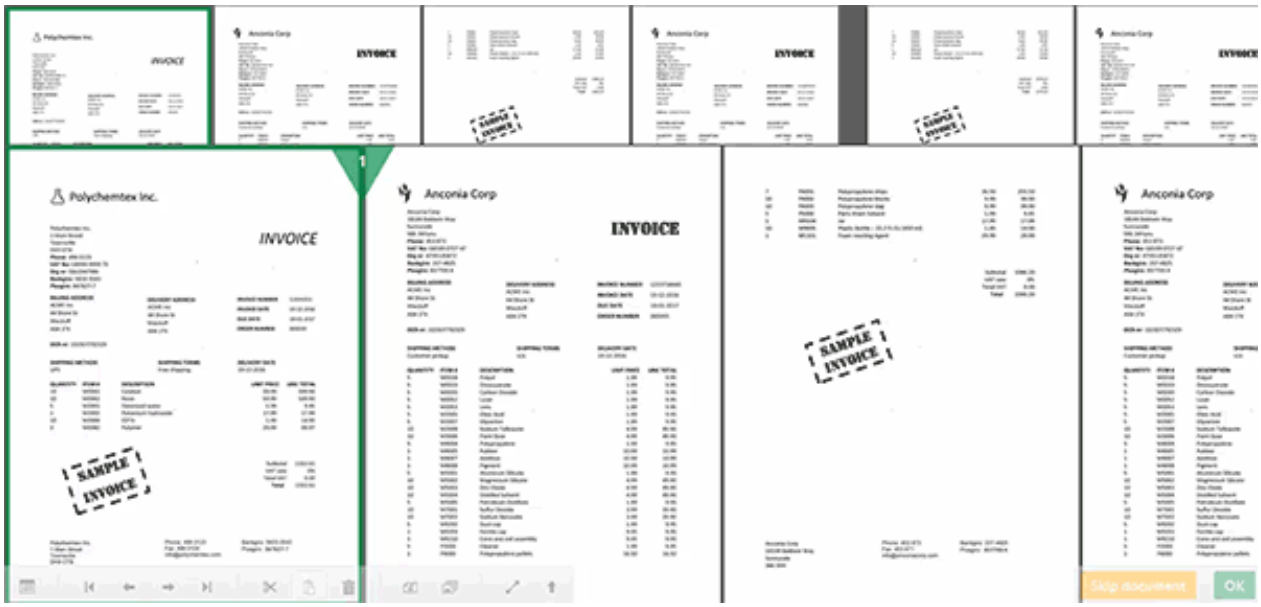
Separate invoices manually

This procedure shows how to separate invoices manually.

When you manually separate invoices, you can:

- Redefine the boundaries between invoices by separating and joining pages.
- Delete unwanted pages.
- Use cut-and-paste to move pages that are in the wrong order.

You need the Manual document separation (Split) privilege to perform this task. Only administrators can assign privileges to user accounts.



To manually separate invoices:

1. Select a document with the status "Document pending manual document separation", and select **Start**. The **Document separation** view appears.
2. Use the arrow keys to navigate left and right through the pages.

   As you navigate through the pages, note that large spaces between pages indicate the boundaries between invoices, while smaller spaces indicate the boundaries between pages.

   The triangle indicates the current page boundary. You can press the Spacebar to:

   - Separate the current pages to create separate invoices.
   - Join the current pages to merge them into the same invoice.

     The current page is highlighted with a green border. You can cut (**Ctrl+X**) or delete (**Delete**) the current page. You can paste (**Ctrl+V**) a previously cut page at the insertion point indicated by the triangle.
3. After you manually separate the invoices to your satisfaction, select **OK** to save your changes and send the invoices for interpretation and processing.

Delete documents

You can delete individual documents (or batches) at any time if you encounter a problem with a document.

You cannot restore documents that have been deleted. If you delete documents accidentally, you must send the documents to Tungsten AP Essentials again to process them again.

Delete documents from Tungsten AP Essentials Office

You can delete documents from most views in the document list view.

1. Select the view that contains the document or batch to delete.
2. Select one or more documents to delete.

   Verify that the current view is **Documents** or **Batches** to avoid deleting entire batches unintentionally.

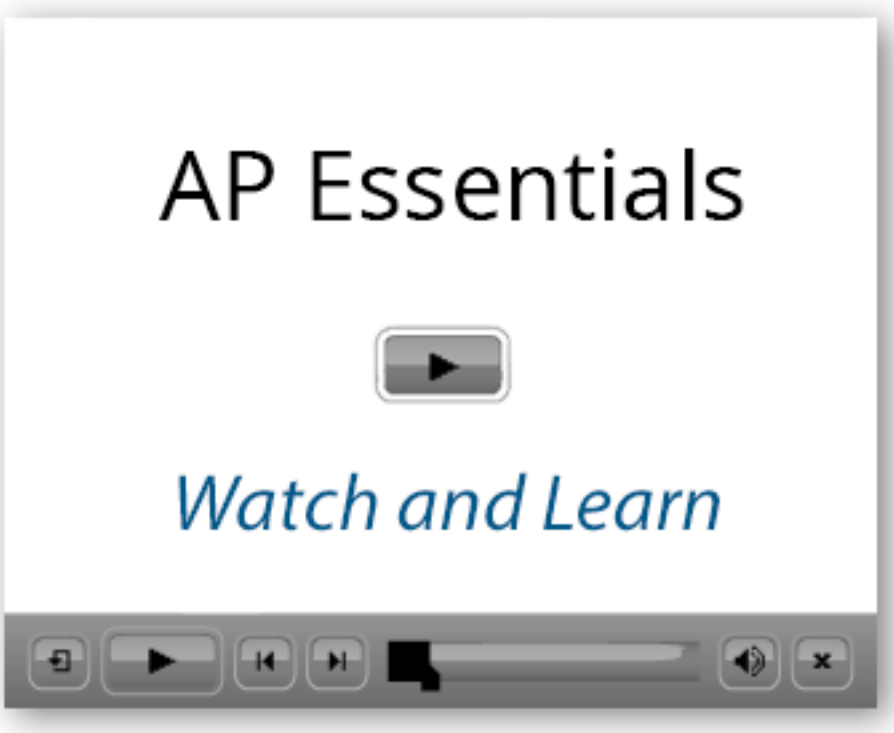
3. Select **Delete**.
   A dialog appears to confirm the deletion.

Delete batches from the Admin Center

1. Navigate to the appropriate **Documents** view.
2. Select one or more batches to delete.
3. Select **Delete**.

   A dialog appears to confirm the deletion. Deleted batches remain in the system, but are hidden. To display deleted batches, select **Show deleted** in the **Explore** view.

Verifying documents: Overview



After document data has been automatically extracted from a document, you verify that the interpreted information is correct in the document view. Whether you verify invoices, credit notes, purchase orders, or remittance advices, the process is the same. Field values and statuses are displayed, so you can confirm and correct values as required. Verifying is an interactive task. You select or type field values to ensure the correctness of the information.

When you select **OK** in the **Verification** view, you complete the verification process for that document. The document is considered "verified" and its status is set to Complete. The document image and the data are ready for the next step in your workflow.

You can access documents that need to be verified in different ways depending on your setup. The most common ways are:

- Through a URL (web address) that is provided in a notification email.
- Through the document list view in Tungsten AP Essentials Office.
- Through the **Document detail** view in Tungsten AP Essentials Admin Center.

What happens next?

Depending on your setup, two different things typically happen after you verify a document:

- The document is sent to the target system. If **Keep batch together** is selected, the document is not sent to the target system until all documents in the batch are completely verified or

approved. Office users can override this setting on individual batches by selecting one or more batches in the document list view and clicking .

- The document is sent to an approval workflow, if you use the workflow service.

Successfully processed documents are deleted from Tungsten AP Essentials after three months. Inactive documents are deleted one year after the last user interaction. Use the Storage service to prevent processed and inactive documents from being deleted.

Select documents for verification

Select documents for verification by following these steps.

1. Select **Verify**.
2. Use the boxes at the top of the view to filter the results.
   If the field you want to filter by is not visible, select to select additional fields. If the field is not available, speak to an administrator about adding additional fields.
3. To verify all of the documents in the document list, select **Start**. Alternatively, you can select the individual documents that you want to verify and select **Start**.
   After you select **Start**, the first document opens for verification.
   When you open a document, it is automatically locked to prevent others from making changes at the same time. The document unlocks automatically four hours after you open it or if another user manually unlocks it, whichever happens first.

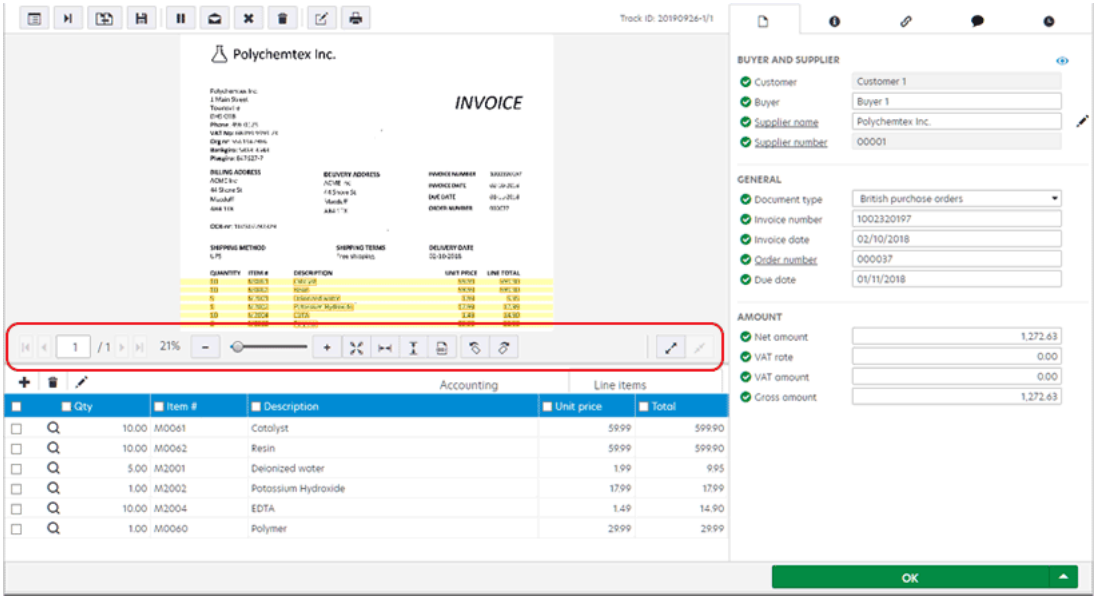
Viewing document images

When you verify documents, you can perform several actions to adjust the document view.

Zoom, rotate, and pagination

Controls for zooming and rotating display near the document image.

If you rotate an image, the output image that is sent to the target system is not rotated.



You can also use keyboard shortcuts to adjust the document image.

Moving the document image

To move the document image, select and drag it.

Using dual displays

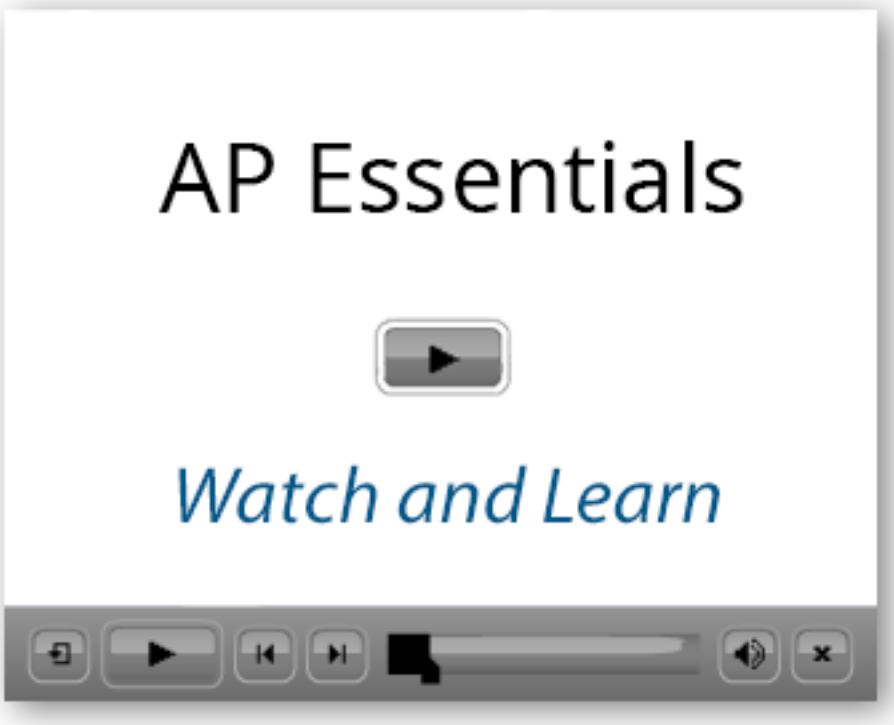
If your computer is connected to two monitors, you can use both monitors by displaying an extra, detached document image view in a new window and moving it to another screen. For a better user experience, you can increase the size of the line-item view, so you can see more line items. For your convenience, the detached view works for single displays, too.

Select on the image control bar to open a document view in a new window. Select to close the detached document image view. The position, size, and zoom level of the detached window are remembered when navigating between documents and login sessions.

Verify single-item (header) fields

This procedure shows how to verify fields, also known as header fields.

To verify documents using the document view:



1. If the status of all the fields is *Complete* (), check their values for correctness and select **OK** at the bottom of the screen.
2. If there are incomplete fields, select the first field that is incomplete. A box appears that explains what is wrong with the field. For example, it can be the wrong format or the value is missing. Problems that are displayed in the box are called validation errors. Validation errors that are marked with a warning () must be fixed and cannot be overridden.
   - If the field you want to capture could not be found, hold the Ctrl key (Command key for Mac) while drawing a rectangle around the field you want to capture on the document image. The value is interpreted automatically. You can also double-click a field on the document image to draw the rectangle automatically.
   - If the correct field is interpreted, but the value was interpreted incorrectly, type the correct value.
   - You can select the titles of underlined field titles to open search dialogs that can help you find correct information. For example, the Supplier name and Supplier number fields. A search dialog is also available for the order number field, if you use the purchase order service to import PO data.
   - Some fields can be connected to master data to display field suggestions (autocomplete) when typing the field value. This makes it easier to select the correct value during verification and prevents validation errors. Typically, autocomplete is enabled on the supplier name field.

If field suggestions (autocomplete) are enabled, and a drop-down list of values appears for selection, make sure the correct value is displayed in the field box when you press Enter (or Tab). Pressing Enter (or Tab) confirms the current value in the field box. Pressing Enter (or Tab) does not select the highlighted field in the drop-down list. This behavior applies to all fields with autocomplete values in AP Essentials Office.

In the image above, pressing Enter will confirm Anconia Corp as the supplier because "Anconia Corp" is displayed in the **Supplier name** box. "Billgore Devices" will not be selected when pressing Enter, even though it is highlighted by the mouse.

3. When the value is correct, press **Enter** to complete the field.
   If the value you enter is in conflict with one or more field validations, and your settings let you to override validation errors, a dialog appears that asks you if you want to override all of the validation errors on the current field.
4. When all the fields are *Complete*, select **OK**.

Line-item fields: Overview

Many invoices include a list of items. For example, an invoice for tools purchased contains a list of tools.

Each line item in the list of items contains the same fields. For example, the fields might be quantity, article number, article description, and price.

A list can contain any number of line items. For example, if one tool is purchased, the list contains one line item. If 75 different tools are purchased, the list contains 75 line items.

Data that can be captured in a list

- You can capture the same kind of data in a list as in single-item fields, for example, character data, dates, and amounts.
- For each supplier, the list of line items must always start on the same page. The list can extend over any number of invoice pages. You can capture data from one list per invoice.
- You can capture data in single-row and multi-row line items.
  Single-row line items: Each line item in the list is on a single row.
  Multi-row line items: Each line item in the list is on multiple rows. Learn more about drawing line-item description fields (LIT_ArticleName) that span multiple rows.
- You can capture data even when different line items in an invoice have different layouts.

Automatic line-item validation

Line items are automatically validated according to rules specified by your administrator.

If a field does not pass validation, the field is highlighted in the table and a warning icon appears at the beginning of the row. If you correct a value, the line item is validated again, and the status icon

disappears. If you override a validation error, you can also choose to override all of the fields in the same column by selecting **Apply to all fields in this column** in the dialog that appears.

A list on an invoice looks like this:

Quantity	Article No.	Description	Unit Price	Price
5	12345	Screwdriver	3.00	15.00
2	9876543	Hammer	9.00	18.00

The preceding list contains two line items: one for screwdrivers and one for hammers.

You can use three line item field profiles such as these to capture the required information in the list:

LI_Quantity	Captures the quantity of every entry in the list.
LI_ProductCode	Captures the article number of every entry in the list.
LI_TotalValue	Captures the total price of every entry in the list.

Verify line items

When you verify an invoice containing line items, the captured line items appear in a view at the bottom of the screen with interpreted results of each item.

Like verifying single-item fields, your goal is to check field values to ensure they match the values on the invoice image. The main difference is that there are no field proposals and there are additional functions you can perform:

	Adds a new, blank row to the line-item table. You can add a row, for example, if a row on the document is missing from the table. The new row is inserted after the row that is in focus. If no row is in focus, the new row is inserted at the top of the table.
	Displays a dialog that you can use to copy imported purchase order lines to the line-item view. This button is only visible if Purchase order services are enabled.
	Displays controls that you can use to draw line-item fields on the document.
	Removes the selected row or column from the line-item table. You can delete a row or column, for example, if the table includes a row that does not contain line items from the document.
	Displays a dialog to match the current line item with purchase-order information from the target system. This button is only visible when Purchase order services are enabled.

After you check and correct all the single-item fields and the line items, and the **OK** button is active, select **OK** to confirm that you are done checking the invoice.

Bulk actions

You can easily apply the same value to all fields in a column or set all of the field statuses in the column to Complete. To do this, select the checkbox at the top of a column and change the value of a field in the same column, or press Enter to override a validation error. After you press Enter, use the dialog that appears to select the actions that you want to perform on all fields in the column.

Draw line-item fields

You can show Tungsten AP Essentials where to find the fields by drawing boxes around the fields on the document image.

Sometimes when you verify a document with line items, the line-item table has missing fields or poor interpretation. When this happens, you can show AP Essentials where to find the fields by drawing boxes around the fields on the document image. Usually, you only have to draw boxes around the fields in the first row of the table, and the program can find the rest of the fields automatically.

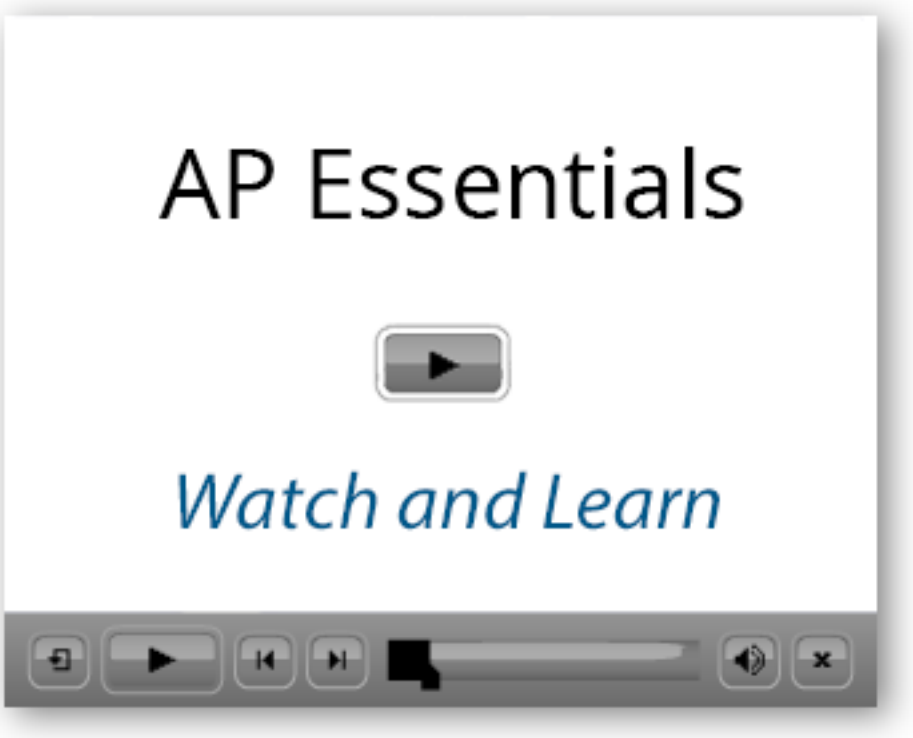
If a line-item table has very poor interpretation, begin by deleting the entire table. To delete the table, select the first checkbox in the table to select all of the rows and select .

1. Select in the line-item view. Note that each button in the line-item view represents a column on the document. Buttons marked with a check are already captured.
2. Select the button that corresponds to the field you want to draw, or redraw, if it is not already selected.
3. Double-click the field value on the document that corresponds to the selected button. Alternatively, while holding down the Ctrl key (Command key for Mac), you can select and drag the mouse to draw a box around the field value. A box appears around the field and the next field button is automatically selected for you.

   When drawing text fields, such as item descriptions, note that a Max rows setting appears. If text fields from this supplier span multiple rows, use this setting to specify the maximum number of rows that you want to capture. Learn more about drawing description fields later in this topic.
4. Repeat steps 2 and 3 for each line-item field you want to capture. You can skip fields that do not appear on the document. If you make a mistake, simply select the button that corresponds to the field you want to correct, and draw it again.
5. Select when you are done drawing boxes around the fields on the first row. The line-item table is interpreted immediately, and the results are displayed.

   If any rows are missing from the table, select again, and draw the missing row on the document image. The existing rows remain, and the new values are automatically interpreted and inserted in the table at the correct position. You can draw missing rows on any page of the document.

See how



Draw beyond the first page

If lines are not captured on pages beyond the first page, you can draw the missing line items on those specific pages.

1. While viewing the page with missing line items, select in the line-item view.
2. When you begin drawing, a dialog appears which asks if you want to clear the line items drawn on other pages. Select **OK** to indicate that you want to draw a new line item.

   All captured lines before the current line remain, but all lines after the current line are cleared and will be reinterpreted after you draw the line-item row. The check marks on the fields in the wizard are also cleared, indicating you have not drawn the fields yet.
3. Draw the missing row as you would draw any line-item row.
4. Select when you are done drawing boxes around the fields on the missing row. The missing row, and all rows after the current row, are interpreted immediately, and the results are displayed.

Draw line-item text fields that are long or span multiple rows

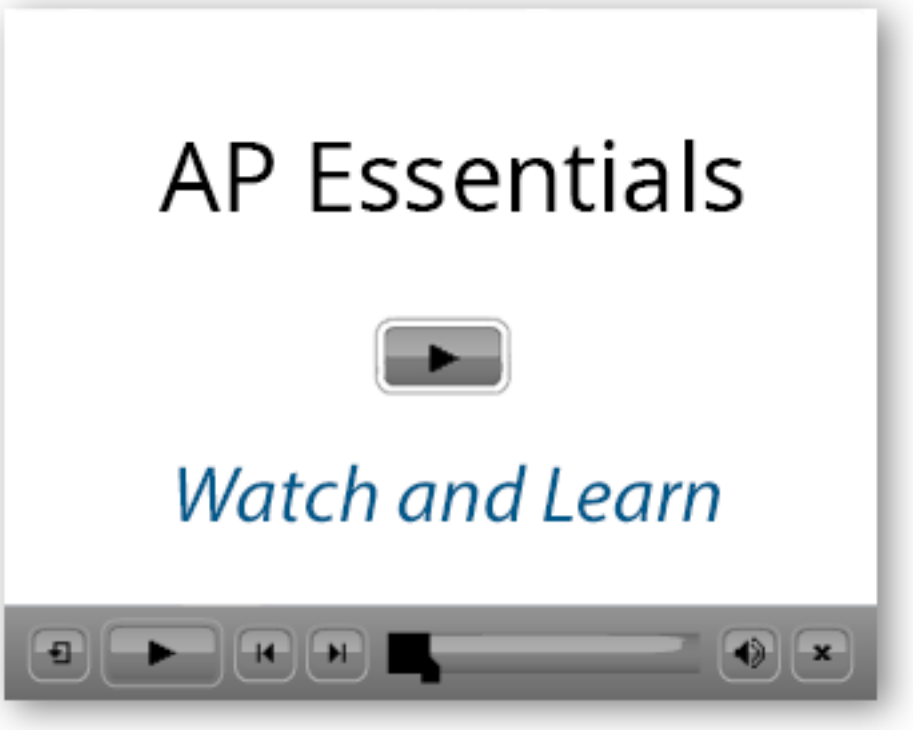
If you encounter line-item text fields that are long or span multiple rows, you may need to help AP Essentials understand how to capture the fields. This feature only applies to line-item fields whose field type is text.

- For long line-item text fields, simply draw a rectangle that extends to the entire width of the column while pressing the Ctrl key.
- For line-item text fields that span multiple rows, you use the Max rows setting to specify the maximum number of rows that you want to capture in the field. For example, selecting 3 captures up to three rows. In this case, only the first three rows are captured in a field containing more than three rows. If you want to capture more than 9 rows in a line-item text field, select **Unlimited** to capture all rows in the field.

  When changing the Max rows setting, there is no need to redraw the field. The change is performed automatically.

  The **Max rows** setting is available for invoices and purchase orders. In order to save the **Max rows** setting, users must have the Update online learning privilege and online learning cannot be locked for the current supplier/customer. However, if you change the **Max rows** setting and lock online learning during the same verification session, the **Max rows** setting is saved because both settings are saved simultaneously.

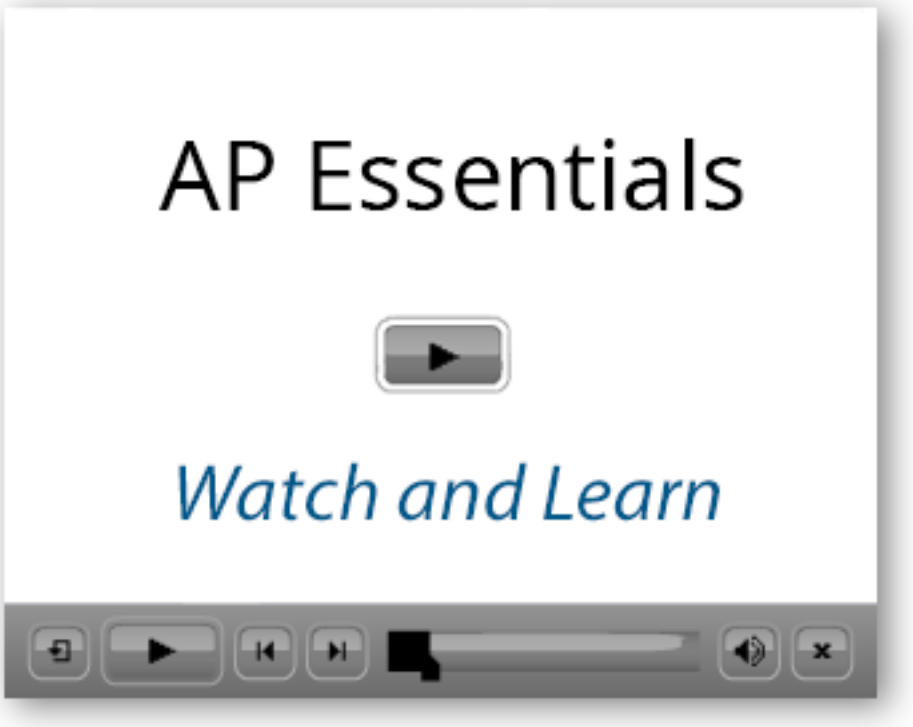
See how



Draw sub-headers in line-item tables

Sometimes you receive documents that combine several purchase orders in one line-item table. When this happens, you can simply draw a box around the first purchase order that appears in the table.

See how

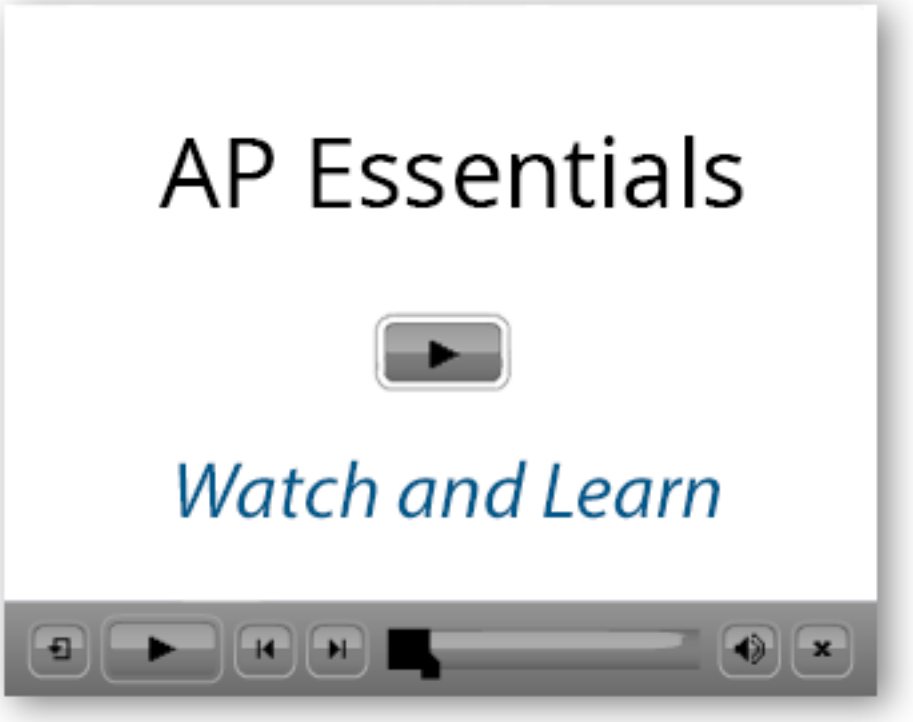


Draw line items with variable columns

Sometimes when you verify a document with line items, the line-item table has variable columns that can be difficult for AP Essentials to find on the first try. For example, a variable column can be a rebate field, where only some lines have a rebate value, resulting in only some rows being captured. In this case, all you need to do is draw a missing line on the document, so AP Essentials knows how to find it the next time the document is interpreted.

When drawing missing fields, you must draw all fields in the row where the field is missing. Drawing only the missing fields is not sufficient.

See how



Capture partial values

When you draw line-item fields, you can capture partial text that is split by a slash, equals sign, or parentheses. This feature is available for invoices and purchase orders, but remittance advices are not supported.

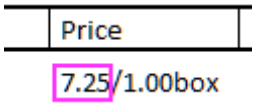
Capture line-item amounts that split by slashes or equals signs

When you draw line-item amount fields, you can capture partial text that is split by a slash (/) or backslash (\). This feature only applies to amount fields.

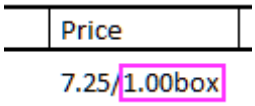
Consider this line-item price, where the price and unit appear together, split by a slash.

Price
7.25/1.00box

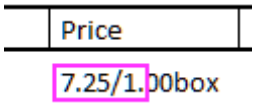
To capture the value to the left of the slash when drawing the line item, double-click the value to left of the slash. AP Essentials automatically captures the value to the left of the slash. In this case, 7.25 is captured and sent to the output.



To capture the value to the right of the slash, double-click the value to right of the slash. AP Essentials automatically captures the value to the right of the slash. In this case, 1.00 is captured and sent to the output. Because this is an amount field, "box" is ignored.



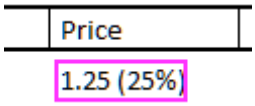
Alternatively, while holding down the Ctrl key (Command key for Mac), you can select and drag the mouse to draw a box around the value you want to capture. If you accidentally draw a box that extends beyond the slash, as illustrated below, AP Essentials automatically detects the slash and captures the value to the left of the slash. In this case, 7.25 is captured and sent to the output, even though additional characters are highlighted.



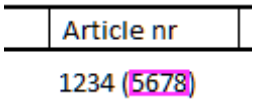
The examples above work the same for backslashes.

Handle values enclosed in parenthesis

AP Essentials handles parentheses differently, depending on whether you draw an amount field or a text field. For amount fields, AP Essentials ignores disturbing text that is found in parentheses. In the next example, 1.25 is captured and "(%25)" is ignored.



When drawing line-item text fields, you can capture the entire value, or you can select to ignore the value inside or outside the parentheses, depending on how you draw the field. In the next example, double-clicking the value in parentheses captures 5678 and ignores the remaining text. Conversely, you could draw around "1234" and ignore the value in parentheses.



Remove line-item capture

You can remove line items from documents and prevent line items from being captured on future documents from the same sender. To remove line-item capture from the current sender:

1. While verifying a document in AP Essentials Office, select the first checkbox in the line-item table to select all of the rows and select .
   The entire table is deleted.
2. Finish verifying the document.
   The next time a document from the same sender is processed, line items are not captured. If you want to resume line-item capture from this sender, simply draw the line-item table the next time you process a document from this sender.

Line-item pairing

Line-item pairing, also known as matching, is the process of ensuring that goods and services ordered are received in the correct quantities and prices according to a purchase order. Tungsten AP Essentials supports line-item matching with purchase-order data from your financial system. The settings in the **Purchase order** service determine whether you can perform manual line pairing, automatic line pairing or both. You can also enable 2-way and 3-way matching field validations to provide additional confirmation that the values are correct.

Perform manual line pairing

To match a line item with purchase order data from the target system when verifying line items:

1. Select any field on the line that you want to match.
2. Select and use the dialog that appears to locate the corresponding line from your financial system.
3. Double-click the corresponding line. The values for these line-item fields are automatically updated with the values from your financial system:
   - Line number (LIT_RowIdentifier).
   - Order number (LIT_OrderNumber).
   - Article number (LIT_ArticleIdentifier).
   - Description (LIT_ArticleName).
   - Unit of measure (LIT_DeliveredQuantityUnitCode)

Configure automatic line pairing

If Automatic line-pairing is enabled, when Tungsten AP Essentials matches a line item successfully, line-item field values are automatically updated with the values from your financial system. Automatic pairing is performed:

- After invoice extraction, but before the invoice is ready for manual verification.
- When you open an invoice for verification.
- Anytime you:
  - Change the supplier.

- Draw on the invoice image.

When Tungsten AP Essentials matches a line item successfully, the values for these line-item fields are automatically updated with the values from your financial system:

- Line number (LIT_RowIdentifier)
- Order number (LIT_OrderNumber)
- Article number (LIT_ArticleIdentifier)
- Description (LIT_ArticleName)
- Unit of measure (LIT_DeliveredQuantityUnitCode)

If automatic line-pairing is enabled, and no match is found for a line, the line-number field is emptied, even if it appears as though the line number was found on the invoice image. Line numbers are emptied in this manner because the numbers on the invoice image rarely match the line number in the target system. If multiple matches are found for a line, the line-number field receives the validation error, “No matching purchase order lines were found.”

How it works

Any time pairing is performed, manually or automatically, Tungsten AP Essentials uses these fields to perform line pairing and validate the results:

Purchase order line	Invoice line field type name
Order line number	LIT_RowIdentifier
Article number	LIT_ArticleIdentifier
Category number	LIT_ArticleIdentifier
Supplier article number	LIT_ArticleIdentifier
Quantity	LIT_DeliveredQuantity
Unit price	LIT_UnitPriceAmount

Copy purchase order lines

Sometimes you may want to copy purchase order lines directly from the imported master data, for example, if supplier invoices do not include purchase order lines in a standard format, and the automatic line pairing feature is unable to find a match. In that case, you can easily copy imported purchase order lines during verification.

1. While verifying an invoice, select in the line-item view.
2. Use the settings in the dialog that appears to locate the purchase orders you need.
3. Select the purchase order lines you want to copy by selecting the checkbox at the beginning of each line.

   ⚠ You can select up to 200 purchase order lines.

4. Select **OK** to copy the selected lines to the line-item view.
   New lines are inserted after the row that is in focus in the line-item view. If no row is in focus, the new row is inserted at the top of the table. The fields below are copied to the

corresponding fields on the invoice if available. If any of the fields below are not available on the invoice, the data for the missing field is not copied.

Purchase order line	Invoice line-item field type name
Order line number	LIT_RowIdentifier
Order number	LIT_OrderNumber
Article number	LIT_ArticleIdentifier
Description	LIT_ArticleName
Unit of measure	LIT_DeliveredQuantityUnitCode
Quantity	LIT_DeliveredQuantity
Unit price	LIT_UnitPriceAmount
Total	LIT_VatExcludedAmount

Sometimes you want PO quantities on the invoice to reflect the remaining quantity (quantity - invoiced quantity). In that case, we recommend displaying invoiced quantities in the **Copy purchase orders** dialog, so you can be aware of any adjustments you may need to make after the lines are copied.

You can display invoiced quantities in the **Copy purchase orders** dialog by clicking and selecting **Invoiced quantity**.

2-way and 3-way matching

In addition to line-item matching, Tungsten AP Essentials can use purchase-order data to automatically perform 2-way and 3-way matching field validations.

- **2-way matching** – ensures that invoiced prices and quantities match purchase order prices and quantities.
- **3-way matching** – ensures that invoiced quantities match the quantities of goods received on the purchase order.

To use these features, an administrator must:

- Enable the matching rules (**Goods received quantity**, **Purchase order quantity**, **Purchase order unit price**) in the validation service.
- Enable the rules you require on the **Rules** tab of the document type. **Goods received quantity**, **Purchase order quantity**, and **Purchase order unit price** all relate to 2-way and 3-way matching. You can choose to enable the validations for **Verify** and/or **Workflow**.
- Enable line pairing in the purchase order service.
- Import purchase-order data.

Verify invoices using 2-way and 3-way matching

Verify invoices using 2-way and 3-way matching is easy. Simply verify invoices like you normally do. If a field does not validate according to the rules, or any other validation rule, a warning icon

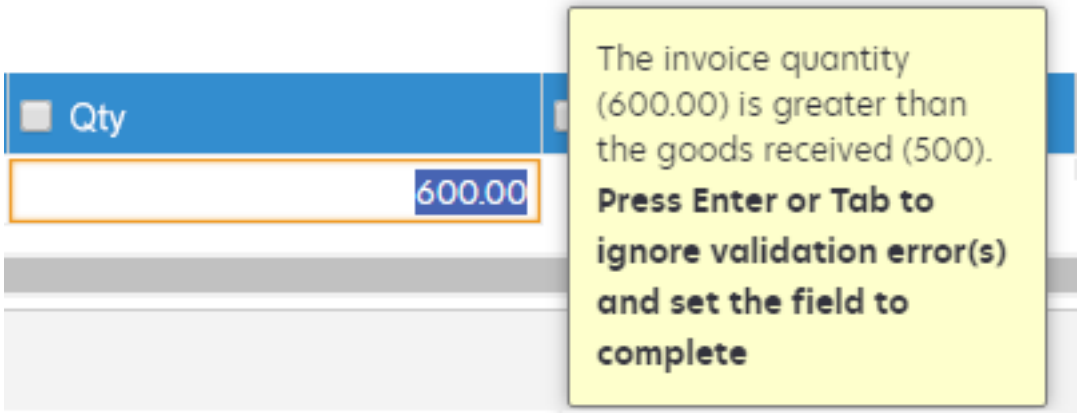
() appears next to the field in question. Select the field to display more information about the validation error, so you can correct it.

Purchase-order information from your financial system is readily available in Tungsten AP Essentials Office. If you need to compare line items on the invoice with purchase order data, select on the line-item row. A dialog appears, which you can use to view the purchase order data from your financial system. To view basic purchase-order information, without line item details, you can select the label of the order-number field to display a dialog containing basic PO information.

Automatic retry of 3-way matching

If the **Goods received quantity** validation fails because the invoice quantity is greater than the amount of goods received, Tungsten AP Essentials can automatically recheck the goods received quantity for you. Automatic retry is only triggered if you override this validation during verification or approval and you verify the invoice by selecting **OK**. Checks are made automatically and continuously until the document passes validation or until the number of days you specify in the **Automatic retry (days)** setting passes, whichever comes first.

Example



Assume you use 3-way matching and 5 days is specified in the **Automatic retry (days)** setting. You verify an invoice where the invoice quantity is greater than the goods received quantity. A validation error is displayed during verification. You press ENTER to override the validation error, and select **OK** to complete the invoice verification. At this point, Tungsten AP Essentials will automatically check the received quantity every day for up to five days until the document passes validation. If the document passes validation or five days pass, whichever comes first, the document is sent to the next step in your process. The next step could be, for example, that the invoice enters a workflow or is sent to the target system.

Save a document

While verifying documents, select Save to save any changes made to the current document.

This is useful if you make changes to field values on a document but you need to pause before you can finish verifying the document. If you close the document and reopen it later, field validations

are performed again. Fields that were once Complete might be marked as incomplete again. However, the saved values from the previous session remain.

Add or edit a supplier

There are several methods for editing supplier information.

You can add or edit supplier information:

- While verifying invoices in Tungsten AP Essentials Office. The user can add new suppliers or change existing suppliers, if **Let users update supplier data when verifying invoices** is selected.
- Through Tungsten AP Essentials Connect.
- Through the API.
- Through AP Essentials Admin Center.

Edit suppliers in AP Essentials Office

To add a new supplier to the **Supplier** box when verifying an invoice, type the name of the new supplier in the **Supplier** box and select the **Add** button that appears. A dialog appears that Add/Edit supplier dialog that you can use to specify the supplier details. The next time you verify an invoice with the same buyer, the new supplier is available for selection.

To change the name of an existing supplier, select the **Edit** button next to the **Supplier** box and use the dialog that appears to edit the name. You can do this, for example, if the supplier name is spelled incorrectly.

Changing the settings of an existing supplier affects documents currently being processed that are connected to the supplier. Changing the supplier name or supplier number does not create a new supplier.

If you are not sure of the name of the supplier, select **Supplier** or press **F2** to display the Suppliers dialog. When you find the supplier you need, double-click it in the list, and it appears in the **Supplier** box. The **Supplier number** box is also filled in simultaneously.

Suppliers are associated with one buyer (or organization), the buyer that is selected when the supplier is created. If you accidentally create two different names for the same supplier or misspell a supplier name, you can edit it.

Example

For this example, two settings must be enabled by an administrator in Admin Center: **Let users update customer data when verifying documents** and **Master data on buyer level**.

Assume you verify an invoice, and "Buyer 1" is selected in the **Buyer** box. Then you type a new supplier name,"Supplier A", in the **Supplier** box. The next time you verify an invoice with "Buyer 1" selected in the **Buyer** box, "Supplier A" appears available in the Supplier box. If you change the buyer, "Supplier A" is no longer available in the Supplier box.

Edit suppliers in Admin Center

Administrators can edit suppliers in Admin Center in the master data views. Simply select a supplier in the supplier master data list to open a dialog that you can use to edit the supplier.

Add or edit a customer

Several methods are available for editing customer information. You can add or edit customer information:

- While verifying documents in AP Essentials Office. You can add and change customers if **Let users update customer data when verifying documents** is enabled.
- Through AP Essentials Connect.
- Through the API.
- Through AP Essentials Admin Center.

Edit customers in AP Essentials Office

To add a new customer to the **Customer name** box while verifying a document, type the name of the new customer in the **Customer name** box and select the **Add** button that appears. A dialog appears, which you can use to specify more details. The next time you verify a document with the same seller, the new customer is available for selection.

To change the name of an existing customer, select the **Edit** button and use the dialog that appears to edit the name. You can do this if the name is spelled incorrectly.

Changing the settings of an existing customer affects documents currently being processed that are connected to the customer. Changing the customer name or customer number does not create a new customer.

If you are not sure of the name of the customer, press **F2** to display the search dialog. When you find the customer you need, double-click it in the list to copy it to the current document.

Each customer is associated with one seller (or organization), the seller that is selected when the customer is created. If you accidentally create two different names for the same customer, or if you misspell a name, you can edit it.

Example

For this example, two settings must be enabled by an administrator in Admin Center: **Let users update customer data when verifying documents** and **Master data on seller level**.

Assume you verify a document, and "Seller 1" is selected in the **Seller** box. Then you type a new customer name, "Customer A", in the **Customer name** box. The next time you verify a document with "Seller 1" selected in the **Seller** box, "Customer A" is available in the **Customer name** box. If you change the seller, "Customer A" is no longer available in the **Customer name** box.

Edit customers in Admin Center

Administrators can edit customers in Admin Center in the master data views. Simply select a customer in the master data list to open a dialog that you can use to edit the customer.

Special handling

Work with currencies

You can change the currency of an invoice during verification and approval.

By default, if AP Essentials finds a currency on an invoice, that currency is used. The currency can be captured from three-letter currency codes (such as USD, EUR, or GBP), from currency symbols (such as $, €, or £), or other currency notations (such as franc, peso, or pound). If no currency is found, the currency of the most recently verified invoice from the same supplier is used.

If you process documents from a supplier or customer that sends documents in multiple currencies, the most recent ten currencies determine the confidence of the extracted currency. For example, assume a supplier sends you a document in US dollars (USD). After you process the document, the same supplier sends another document, but this time the currency is Swedish crowns (SEK). The first time the currency is extracted as SEK, the field status is *Uncertain* (). However, the next time you process a document from the same supplier in either USD or SEK, the field is automatically extracted with high confidence, and the field status is *Complete* (). In this manner, AP Essentials uses up to ten currencies from a single supplier or customer to determine whether the field is complete or uncertain. Only the ten most recently verified currencies are used. The supplier or customer history is used only to determine confidence, not to override a currency that is clearly identified on the current invoice.

You can change the currency of an invoice during verification and approval, either by selecting a value from the **Currency** box or by selecting the currency directly on the invoice image.

How the application resolves shared currency symbols

The $ symbol, for example, is used by multiple currencies, including AUD, USD, SGD, CAD, and others. In this case, AP Essentials determines the appropriate currency code based on the document type. For example, when a document is uploaded using an Australian document type, the $ symbol is interpreted as AUD. When a document is uploaded using a US document type, the same $ symbol is interpreted as USD.

If a shared currency symbol does not correspond to the currency associated with the uploaded document type, AP Essentials uses the following exceptions when drawing or double-clicking the symbol on the document image:

- For the $ symbol, AP Essentials interprets the currency as USD. For example, if a document is uploaded using an Indian document type and contains a $ symbol, the currency is interpreted as USD.
- For other shared symbols, no currency is captured. For example, if a document is uploaded using an Indian document type and contains the £ symbol, no currency is captured when drawing or double-clicking the symbol on the document image.

Select a currency from the Currency box

To change the currency of an invoice, locate the currency field and make the appropriate selection in the **Currency** box. If the **Currency** box does not contain the values you need, please contact your administrator. Administrators can add the specified currency to the currency master data, making it available for selection in the **Currency** box.

Select a currency on the invoice image

Currency codes and symbols are highlighted on the invoice image when detected. As with other fields, you can select a currency code or symbol by drawing a box around it or by double-clicking it on the document image while the **Currency** box is selected. When you change a currency this way, you teach AP Essentials where to expect to find the currency on future documents.

If the correct currency does not appear anywhere on the document image, you can select it directly from the **Currency** box instead of drawing a box or double-clicking. This selection is retained and is not overridden by unrelated currency text elsewhere on the document.

Add comments to invoices

Add notes to invoices using the Comments tab in the document view to mark urgent items or note issues.

To add a note to an invoice, select the **Comments** tab in the document view. Use the panel to add comments to the invoice. This can be useful if you want to mark an invoice as urgent or note other issues.

Reject documents

While verifying documents, select **Reject** ( ) and use the dialog that appears to reject the document and provide a reason for the rejection. This is useful if you want to prevent a document from being processed and sent to the target system. For example, you might reject a document that contains incorrect vendor information. Rejecting a document assigns the *Rejected* status to the document.

After you reject a document, it appears in the **Rejected** document list view. If you enable the **Reject reason** column in any of the document list views, you can use the filter box to search for reject reasons and codes.

When you select **Reject**, a dialog appears. The appearance of the dialog can vary based on your configuration, but the purpose is the same: to specify why you are rejecting the document. The information you provide in the dialog is saved with the document and displayed clearly to anyone who opens the document. The rejection information is also saved in the document history.

By default, Tungsten AP Essentials provides common reasons for you to choose . However, if the default rejection reasons do not suit your needs, an administrator can specify custom reject codes with corresponding descriptions. These custom codes appear in the **Reject document** dialog.

You can view rejected documents in the **Rejected** document list view, where you can also re-verify them if necessary.

You can also reject documents in a workflow.

Administrators can use Admin Center to create custom reject codes and corresponding descriptions that replace the default choices in the **Reject document** dialog.

Delete an invoice

This procedure shows how to delete an invoice while verifying invoices.

Sometimes you need to delete an invoice. For example, delete an invoice if an unwanted image appears in a batch of invoices. To delete an invoice while verifying invoices, perform the following.

1. If you are verifying a batch, select the invoice image in the thumbnail view.
2. Select **Delete**. A dialog appears that prompts you to provide a reason for deleting the document.
3. Type your explanation in the box and select **OK**. The current image is deleted, and the verification process continues.

Send a request for information during verification

If you need information from someone else about an invoice, you can send a request for information.

To request information:

1. Select in the document view while verifying an invoice.
2. Use the dialog that appears to write a comment or question.

   You can optionally choose to send the message to an email recipient. If you choose to send the message to an email recipient, the current document is attached to the email as a PDF file. If you do not specify an email address, the document is sent back to the document list view with an icon that indicates the *Request for information* status.

   After you select **OK**, the batch status and the document status change to *Request for information*, and you return to the document list view. If a notification based on the *Request for information* event is defined in the Notification service, an email alert is sent to the recipients specified.

   Email sent by this feature originates from Tungsten AP Essentials; however, when you select reply in your email app, the email address of the person who sent the request for information is used. In other words, the reply-to field in the email header is set to the email address of the person who sends the request.

Reply to a request

Invoices that have a pending request for information are indicated with an icon in the document list view. When you view an invoice that has a request for information, a dialog appears that displays the message from the person who sent the request. After you adjust the invoice or solve the issue, select **OK**. The status of the invoice returns to *Pending manual verification*, and it is visible to the user who sent the request.

You can restrict access to invoices with the *Request for information* status by using the **Access verify - Reply** privilege. If you want to restrict access in this manner, you must also disable the **Access verify** privilege, which supersedes **Access verify - Reply**.

Mark an invoice as credit or debit

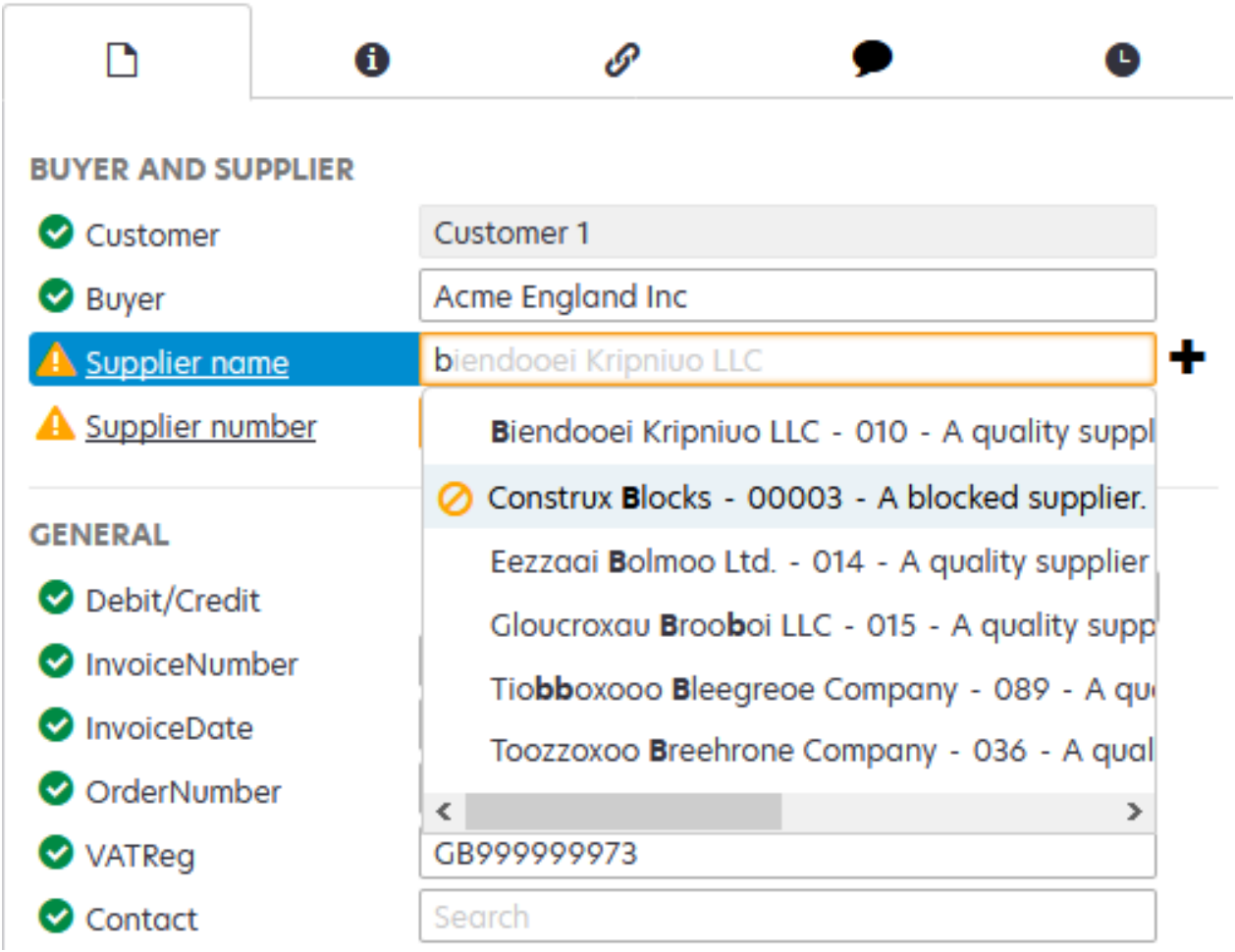
When verifying invoices, you can change invoices from debit to credit and vice versa, if your system is set up to handle both types. To change the invoice type, locate the credit/debit field and make the appropriate selection from the list.

Handle blocked suppliers and customers

In some financial systems, you can mark suppliers and customers as blocked or inactive for various reasons, and there may be office routines for handling such suppliers or customers. For example, if a supplier is involved in negotiations, you might want to make sure that no invoices are processed for that supplier until an agreement is reached. To help manage issues like this, Tungsten AP Essentials can mark blocked suppliers or customers with an icon (⊘) during verification, so you can make better decisions when choosing suppliers or customers.

How it works

When you choose a supplier, for example, during verification, a list of suppliers appears in the Supplier box. Blocked suppliers are marked with an icon (⊘). If you select a blocked supplier, a warning dialog appears. However, you can choose to ignore the warning. If you process documents using accounts receivable processes, this process is the same for customers.



In this example, you can see that the Construx Blocks supplier is blocked.

Setup

You must enable Master data services to use this feature. You specify whether a supplier or customer is blocked using the `Blocked` element in the master data. If you set the `Blocked` element to "true" or "1", the supplier or customer is considered blocked. If you set the `Blocked` element to "false" or "0" or if the `Blocked` element is absent from the master data, the supplier or customer is not blocked.

The true and false values are case sensitive. You must specify true or false in lowercase letters, or use the numbers 1 or 0.

Toggle field visibility

Sometimes when verifying documents from a particular party (supplier or customer), there are fields that you rarely use. To alleviate the repetitiveness of clearing unused fields and remove clutter from the workspace, you can choose to hide unused fields. To toggle field visibility during

verification, you must have the *Update online learning* privilege. Also, online learning cannot be locked, and depending on which document process you use, you must have the *Change field visibility per supplier* privilege or the *Change field visibility per customer* privilege. You must fulfill these conditions:

- You must have the Update online learning privilege.
- You must have the Change field visibility per supplier or Change field visibility per customer privilege.
- Online learning cannot be locked for the current supplier/customer.

Field visibility settings are saved per supplier/customer. Therefore, the supplier/customer field must be set before changing the visibility of any field.

Toggling field visibility is useful for hiding fields that you rarely use. However, to hide fields completely, administrators can use another procedure to specify which fields to display.

Hide a field

1. Ensure the correct supplier/customer is selected because field visibility settings are specific to each supplier/customer.
2. Select while verifying a document.
   Visibility icons appear to the left of each field:
   - - You cannot hide the field because it is not complete and not empty, or the validation settings do not allow an empty value.
   - - The field will be visible the next time you verify a document from the current supplier/customer.
   - - The field will be hidden the next time you verify a document from the current supplier/customer.
3. Select the icon of the field you want to hide.
4. Select **OK** in the dialog to confirm that you want to hide the field.
   The next time you verify a document from the current supplier/customer, the field will be hidden and empty. You can temporarily view hidden fields at any time by selecting at the top of the field list. To display a hidden field again, follow the instructions below.

Display a hidden field

1. Select while verifying a document.
   Visibility icons appear to the left of each field.
2. Select the icon of the field you want to display so it looks like this:
   The next time you verify a document from the current supplier/customer, the field will be visible.

Select invoices to bypass verification

This procedure shows how to allow complete documents to bypass verification.

If you verify invoices on a regular basis, you may notice invoices from a particular supplier are always complete and do not require correction or adjustment. To save time on future invoices from suppliers like these, you can specify that complete invoices bypass verification. Tungsten AP

Essentials Office users can change these settings during verification. Administrators can specify which invoices can bypass verification using Admin Center and master data.

This topic describes how to bypass verification on a supplier basis. To affect all documents, regardless of supplier, use the Process control service.

Office

You must have the **Change bypass verification setting** privilege to perform this procedure.

1. Select or (next to the supplier field) while verifying an invoice.
2. In the dialog that appears, select **Allow complete documents to bypass verification**.
3. Select **Save**. The next time an invoice from this supplier is extracted with all fields complete, the invoice will skip verification and go directly to a workflow (if any exist) or the target system.

Admin Center

Administrators with the **Manage accounts** privilege can specify which suppliers can bypass verification in the **Supplier** view in Admin Center, as well as the **View supplier** dialog in Tungsten AP Essentials Office.

Master data

You can specify which suppliers should bypass verification using supplier master data using the `BypassVerification` element. The `BypassVerification` element is not required and is "false" by default. In other words, if the `BypassVerification` element is not included in your master data, the value remains false, unless you change the value manually using the **View supplier** dialog. If you use the `BypassVerification` element in your master data, the master data overrides any existing settings that were made using the **View supplier** dialog.

You must have the **Change bypass verification setting** privilege to upload master data that contains the `BypassVerification` element. If you do not have this privilege, the master data will still upload, but `BypassVerification` elements are ignored.

Example

Assume you are not using the `BypassVerification` element in your master data. A user selects **Allow complete documents to bypass verification** in the **View supplier** dialog for *Supplier XYZ*. At this point, all complete invoices from *Supplier XYZ* bypass verification. Later, new master data is uploaded. Master data for *Supplier XYZ* is still lacking the `BypassVerification` element, so the settings that were applied in the **View supplier** dialog are still in effect. The next day, the master data is updated again. This time, however, the `BypassVerification` element for *Supplier XYZ* is set to "false". At this point, the master data settings take precedence, and invoices from *Supplier XYZ* no longer bypass verification.

Hold documents

This procedure shows how to hold a document during verification.

Sometimes you need to place a document on hold, such as when a document lacks information, and you want to make sure it does not get processed until the issue is resolved. When a document

is on hold, you cannot process the document until you unhold it. You cannot perform actions such as verifying, approving, or rejecting the document. However, you can save changes to field values, add comments and attachments, or delete the document.

By default, Tungsten AP Essentials displays a text box that you can use to specify why you are holding a document. However, if this method does not suit your needs, an administrator can specify custom on-hold codes with corresponding descriptions that are made available for selection in the **Hold document** dialog.

To hold a document while verifying documents:

1. Select at any time.
   The Hold document dialog appears and prompts you to provide a reason for putting the document on hold.
2. Specify a reason for holding the document and select **OK**.
   The document is put on hold, and you are returned to the document list view. The document appears in the **On hold** document list view and cannot be processed further until you, or someone with the *Unhold documents* privilege, releases it by selecting in the document view.
   If you enable the **Hold reason** column in any of the document list views, you can use the filter box to search for on-hold reasons and codes.

   Add a notification on the **Held** event to make sure documents do not remain on hold for too long.

Create custom on-hold codes

Administrators can use Admin Center to create custom on-hold codes, and corresponding descriptions, which replace the default choices in the **Hold document** dialog. To create custom on-hold codes, use the **On hold codes** view to create up to 100 custom on-hold codes.

Verify utility bills

This procedure shows how to verify utility bills.

A utility bill is an invoice for electricity, water, or gas. In many cases, utility bills do not have an invoice number. The lack of an invoice number can be problematic for Tungsten AP Essentials Office users because they must devise their own invoice numbers and enter them manually every time they process a utility bill. Fortunately, Tungsten AP Essentials can automatically create invoice numbers based on information found on the utility bill, so Office users only need to enter the invoice number manually one time for each supplier. After the initial manual entry, Tungsten AP Essentials learns the format you entered, so you do not have to enter the invoice number again on subsequent utility bills.

How it works

For each supplier that sends you utility bills, you need to show Tungsten AP Essentials how you construct the invoice number field. You do this by manually entering the invoice number field during verification. After you enter the invoice number manually the first time, Tungsten AP Essentials learns the format you entered, so you do not have to enter the field manually again for utility bills from the same supplier. For Tungsten AP Essentials to recognize the field format, it must consist of two fields. Typically, you use a field that is unique to the customer, such as a customer

account number, and the invoice date combined by a separator character. You can use any field that uniquely identifies the customer, but for the purposes of this demonstration, we use the customer account number. The customer account number must be at least six characters long. The separator can be any non-alphanumeric character, such as a space, dash, or asterisk. The date can be a numeric date format.

The result is an invoice number in this format:

```
CustomerAccountNumber-Date
```

...where `CustomerAccountNumber` is the customer account number found on the utility bill, "–" is a separator character—such as a dash, space, or asterisk—and `Date` is the invoice date in a numerical format.

After Tungsten AP Essentials learns the field format, if the invoice date cannot be found on subsequent utility bills, the current date minus seven days is used. In the examples that follow, assume a space is used as the separator character, and the date format you choose is MMYY.

Example 1

Assume the customer account number on the utility bill is 123456777 and the invoice date is 22-01-2020. In this case, the invoice number would be "123456777 0120".

Example 2

Assume the customer account number on the utility bill is 123456777. The invoice date is not found, but today's date is 14-03-2020. In this case, the invoice number would be "123456777 0320" because March 14 minus 7 days is March 7.

Example 3

Assume the customer account number on the utility bill is 123456777. The invoice date is not found, but today's date is 01-05-2020. In this case, the invoice number would be "123456777 0420" because May 1 minus 7 days is April 24.

Alternative fields

Optionally, you can substitute the date field above with another field on the invoice. However, when choosing a non-date field, you lose the functionality of automatically creating the date if the date field is not found. For example, you could use a customer account number combined with a case number.

Verifying utility bills

The first time you verify a utility bill from a new supplier, you must enter the invoice number value manually using the format described above. The next time a utility bill is processed from the same supplier, Tungsten AP Essentials will recognize the invoice as a utility bill and automatically fill in the invoice number value. To successfully recognize invoices as utility bills, these criteria must be met:

- An invoice from the same supplier must have been identified previously with a verified invoice number.
- The computed value of the invoice number must be longer than the value of any captured invoice number on the invoice.

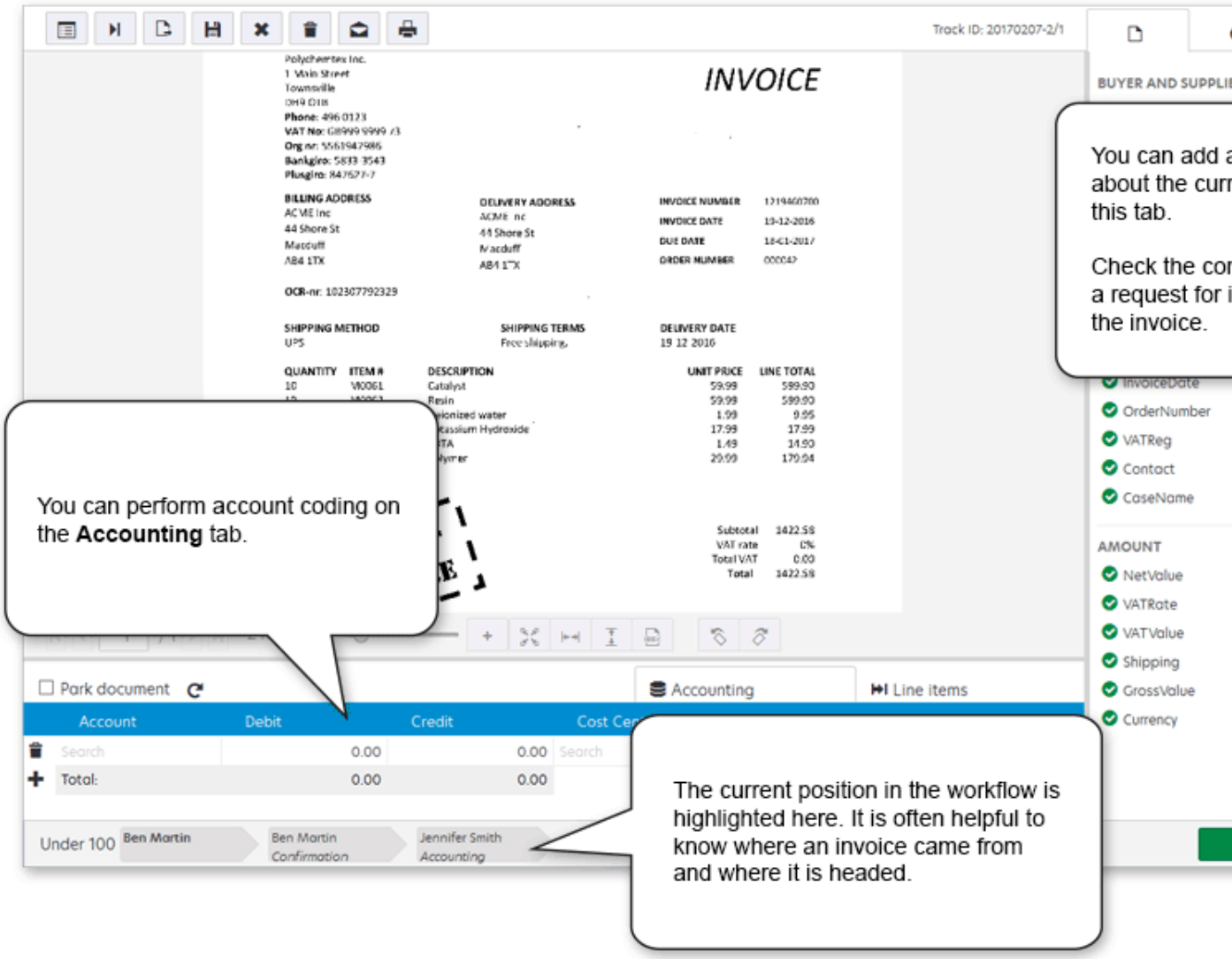
- The computed value of the invoice number cannot be found in any other captured values on the invoice.
- The customer account number, or other field that uniquely identifies the customer, must be at least six characters long, and it must be found on the invoice.

Invoice approval: Overview

Invoice approval is accomplished using Workflow services. Most of the work is performed in the document view. Do not confuse invoice approval with invoice verification, which is accomplished using Verification services. Approving an invoice usually involves one or more of the following tasks:

- Approve invoices by performing tasks such as:
  - Confirming that you ordered the goods or services specified on the invoice.
  - Checking that the quantity of goods received matches the invoice.
  - Confirming that the prices are correct.
- Account coding.
- Correct invoices.
- Authorizing payment

Workflows are visualized as ordered steps at the bottom of the document view.



The tasks you perform depend on the roles and processes in your organization. For example, all employees at an organization may be responsible for confirming amounts on their own invoices, but payment authorization and account coding must be performed by accounting or management personnel. Regardless of how your organization is structured, invoice approval can be performed by directing invoices through workflows and using the commands that are found in the **Document** view when approving or coding an invoice.

There are three kinds of workflows:

- **Coding & Approval** - For account coding and invoice approval.
- **Correction** - For correcting invoices outside of normal workflows.
- **Rejection** - For handling invoices that are rejected using custom reject codes. After an invoice completes a rejection workflow, the document is ready for document approval again, where you

can manually assign it to a workflow, if it does not automatically trigger any applicable coding & approval workflows.

If you do not have any **Coding & Approval** workflows, invoices pass through the workflow service without interaction, unless a correction workflow is triggered. This enables customers to use correction workflows without using workflows for coding and approval.

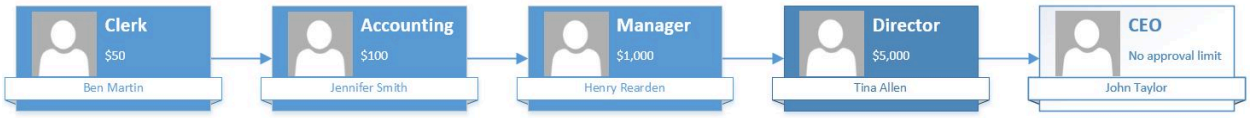
Workflows consist of steps that must be completed before the workflow is considered complete. You specify the steps when you create a workflow. Conceptually, workflow steps can be divided into two categories:

- **Standard workflow steps** - Steps without hierarchies.
- **Workflow steps with hierarchies** - Steps that use managerial hierarchies and monetary limits to dynamically determine who approves each invoice. There are several types of hierarchical approval steps:
  - Linear approval
  - Single-point approval
  - Parallel approval - First action
  - Parallel approval - Unanimous

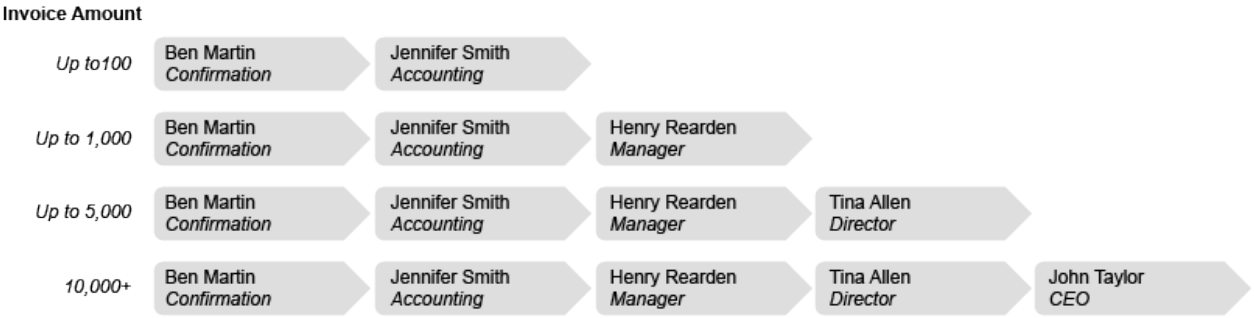
You can use standard steps and steps with hierarchies in the same workflow.

Standard approval workflows (Default)

When creating a workflow for coding and approval, you might create several workflows and use triggers to sort invoices by their total amounts. Assume your organization has this structure:



In the example below, there is a separate workflow for each tier in the hierarchy. Rules determine which workflow an invoice is sent to, based on the invoice amount. Jennifer can approve invoices up to $100, Henry can approve invoices up to $1,000, and so on.



If you have many tiers and approvers in your organization, this can lead to many workflow settings that must be created and maintained. However, the example above can be configured with one workflow using linear approval.

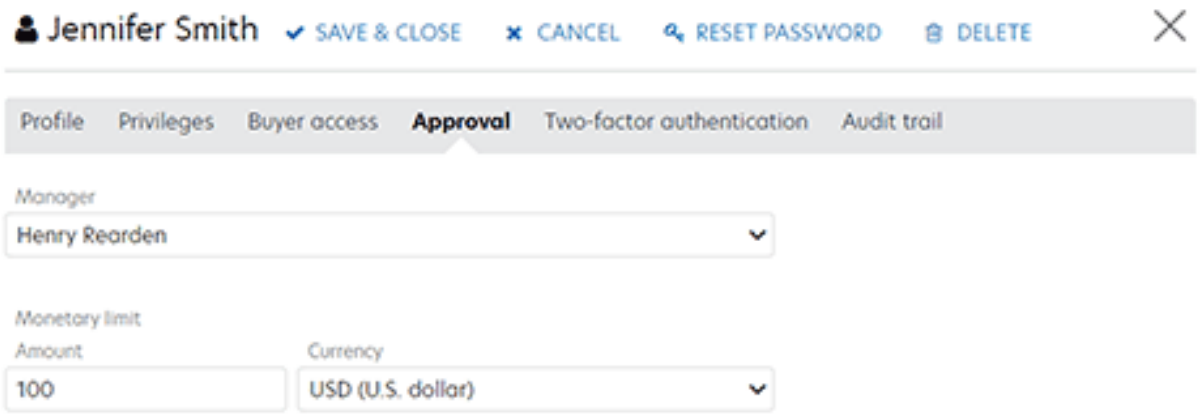
Workflow steps with hierarchies

Workflow steps with hierarchies offer an alternative way to route invoices according to monetary limits that you set on user accounts. Rather than creating multiple workflows, you create only one workflow with **Use approval hierarchy** selected in at least one step, and in the **Approval** settings of each user you specify:

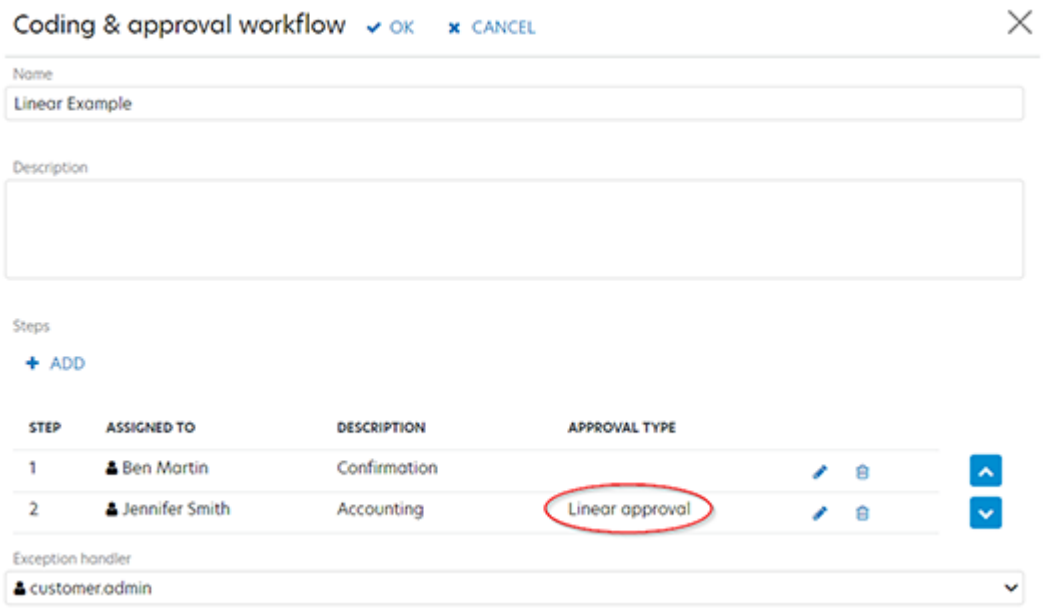
- **Monetary limit** - The maximum total amount the user is allowed to approve.
- **Manager** - The next approver with a higher monetary limit.

Using workflow steps with hierarchies, all of the workflows in the standard workflow example above can be combined into one workflow.

This example uses a linear approval step, where Jennifer has a monetary limit of $100, and Henry is specified as her manager. Henry has a limit of $1,000, and Tina is specified as his manager, and so on.



In the workflow settings, **Linear approval** is specified in the **Approval type** setting for Jennifer. Linear approval settings are not applied to Ben, since his role is to confirm all incoming invoices. When **Linear approval** is selected, Tungsten AP Essentials uses the monetary limit of each user to determine if the user has authority to approve the invoice. If an invoice exceeds the monetary limit of the user, the user still approves the invoice, but it is also escalated to the specified manager for approval. An invoice will continue to escalate in this manner until it reaches a manager whose monetary limit is greater than or equal to the invoice amount.

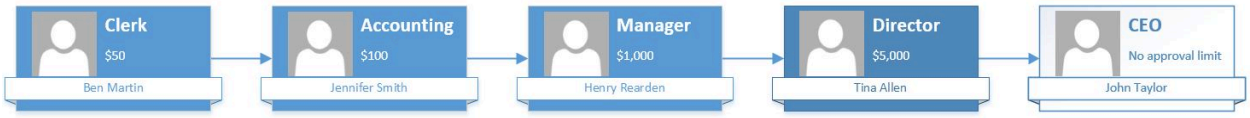


For the sake of simplicity, this topic uses an example hierarchy with a single trunk. However, this feature supports more complex hierarchies with multiple branches.

The **Approval hierarchy** view uses the combined **Approval** settings of each user to display the approval hierarchy in a way that is easy to understand.

There are four types of workflow steps with hierarchies:

- Linear approval
- Single-point approval
- Parallel approval - First action
- Parallel approval - Unanimous



Linear approval

Linear approval routes invoices according to a managerial hierarchy and monetary limits that you set on user accounts. When an invoice enters a linear approval workflow step, Tungsten AP Essentials checks the monetary limit of the first user to determine if the user has authority to approve the invoice. If an invoice exceeds the monetary limit of the user, the user must approve the invoice, and the invoice is sent to the user's specified manager for approval. An invoice will continue to escalate in this manner until it reaches a manager whose monetary limit is greater than or equal to the invoice amount.

Using the example hierarchy above, if an invoice for $4,000 enters the workflow, it will be handled by Ben, Jennifer, Henry, and Tina, who gives final approval.

Single-point approval

Single-point approval is a variation of linear approval. With single-point approval, invoices skip the middle tiers in a hierarchy, so only the initial tier and the highest tier necessary are required.

Using the example hierarchy above, an invoice for $3,000 would only require initial approval from Ben Martin and final approval from Tina Allen. Jennifer Smith and Henry Rearden are skipped.

Single-point approval is helpful for invoices that only require approval from the first manager whose monetary limit exceeds the invoice amount. Using this approval method is efficient because it reduces bottlenecks and potentially requires action from fewer people than linear approval.

Parallel approval - First action

With first-action parallel approval, after the initial approval is performed, the invoice is simultaneously sent to all managers whose monetary limit is equal to or exceeds the invoice amount. For example, after an invoice for $200 is approved by Ben Martin, it is sent to Henry Rearden, Tina Allen, and John Taylor at the same time. Only one of them needs to approve the invoice.

First-action approval is helpful if you need to approve an invoice quickly. Since the invoice is available to multiple people simultaneously, the risk of bottlenecks that prevent the invoice from being approved decreases.

You cannot perform requests for information or reroute invoices that are in a parallel approval step.

Users outside of the approval hierarchy have no influence on a parallel approval step, even if they have privileges to do so. Continuing with the example above, the approval hierarchy ends with Henry Rearden because he is the first manager with a monetary limit greater than the invoice amount. Therefore, Tina Allen is outside of the approval hierarchy for this invoice, and any approval action she takes has no effect, even though her monetary limit exceeds the invoice amount.

Parallel approval - Unanimous

Unanimous parallel approval is a variation of linear approval. With unanimous parallel approval, after the initial approval is performed, the invoice is simultaneously sent to all managers up to the manager whose monetary limit exceeds the invoice amount. Unlike first-action approval, however, all of the managers must approve the invoice for unanimous approval. For example, after an invoice for $500 is approved by Ben Martin, it is sent to Jennifer Smith and Henry Rearden at the same time. Both Jennifer Smith and Henry Rearden must approve the invoice. The order in which they approve the invoice is not important.

Unanimous parallel approval is helpful for approving routine invoices that require approval from multiple people in no particular order.

Invoices are not rerouted if you change the invoice amount during a unanimous parallel approval step.

You cannot perform requests for information or reroute invoices that are in a parallel approval step.

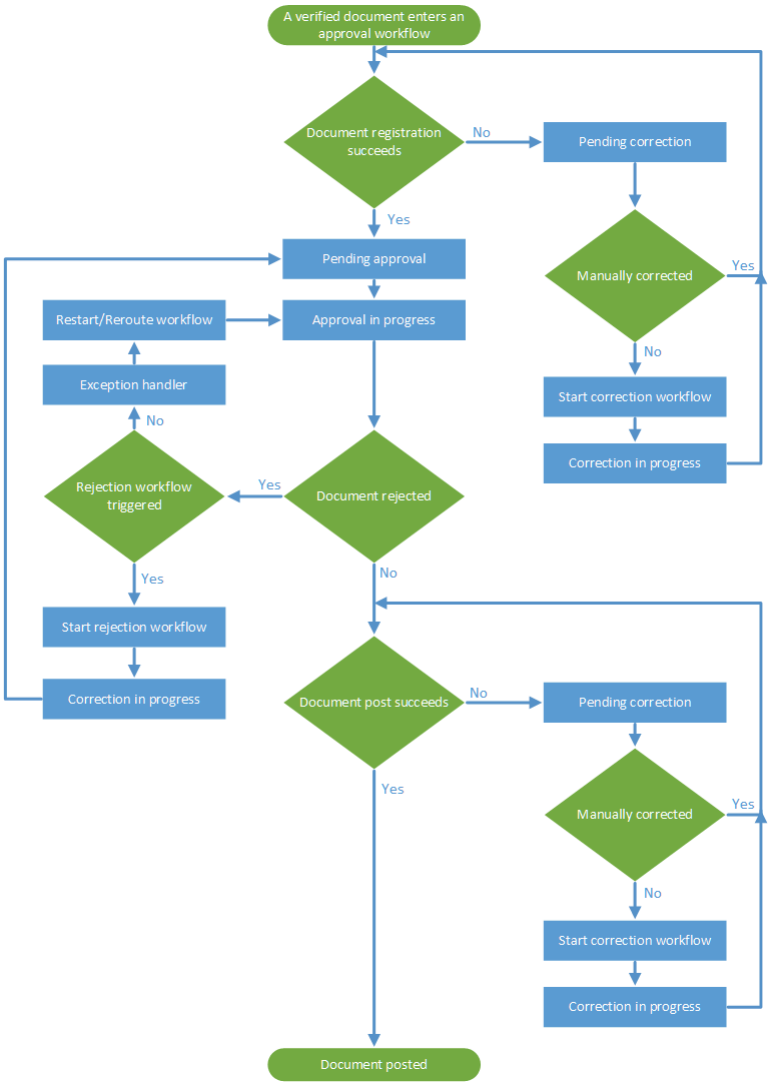
Users outside of the approval hierarchy have no influence on a parallel approval step, even if they have privileges to do so. Continuing with the example above, the approval hierarchy ends with Henry Rearden because he is the first manager with a monetary limit greater than the invoice amount. Therefore, Tina Allen is outside of the approval hierarchy for this invoice, and any approval action she takes has no effect, even though her monetary limit exceeds the invoice amount.

Approve an invoice

This procedure shows how to approve an invoice.

To approve an invoice:

1. Navigate to an invoice that needs to be approved using one of the following methods:
   - Select an invoice from the **Assigned to me** menu in the document list view and select **Start**.
   - Select an invoice from the **Documents** node in the administration tree view and select **Approve**.
2. If prompted, assign a workflow to the invoice.
3. Use the document view that appears to approve the invoice. Your approval tasks are dependent on your role at your company. For example, your tasks might include confirming that you ordered the items on the invoice and that the amounts are correct. Alternatively, your task might be to perform account coding or to authorize invoices for payment. After you ensure the invoice fulfills your criteria for approval, select **OK** to send the invoice to the next step in the approval process. If you are the last step in the approval workflow, the invoice is sent to the financial system for final booking, unless **Park document** is selected.



Tungsten AP Essentials can send alerts when an invoice needs to be approved.

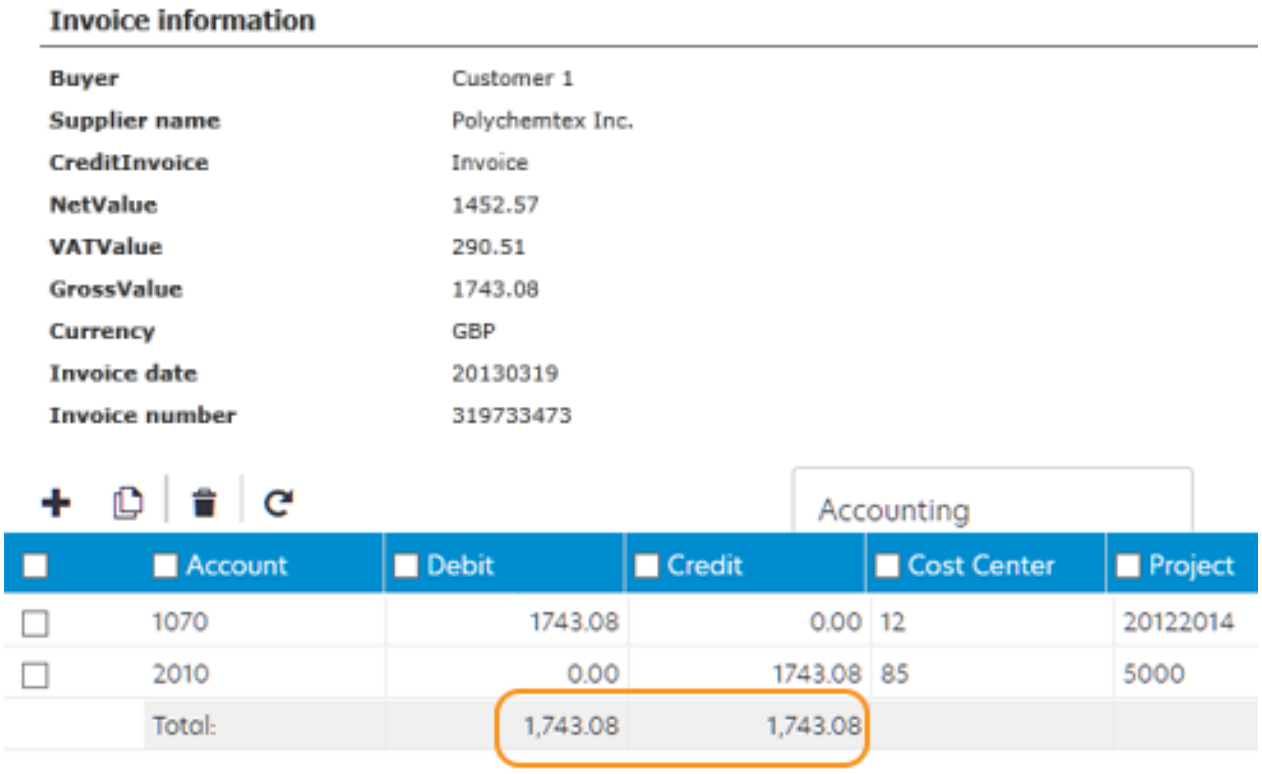
Amount balancing

You can use several methods to balance amounts when coding invoices, depending on the settings you choose in the **Coding** settings:

- Standard debit/credit balancing
- Balancing against the total gross amount
- Balancing against the total net amount

Standard debit/credit balancing

Balancing against the gross amount is the default behavior when **Allow balancing against total amount** is not selected. When you perform debit/credit balancing, the total of the debits must equal the total of the credits.



Invoice information

Buyer	Customer 1
Supplier name	Polychemtex Inc.
CreditInvoice	Invoice
NetValue	1452.57
VATValue	290.51
GrossValue	1743.08
Currency	GBP
Invoice date	20130319
Invoice number	319733473

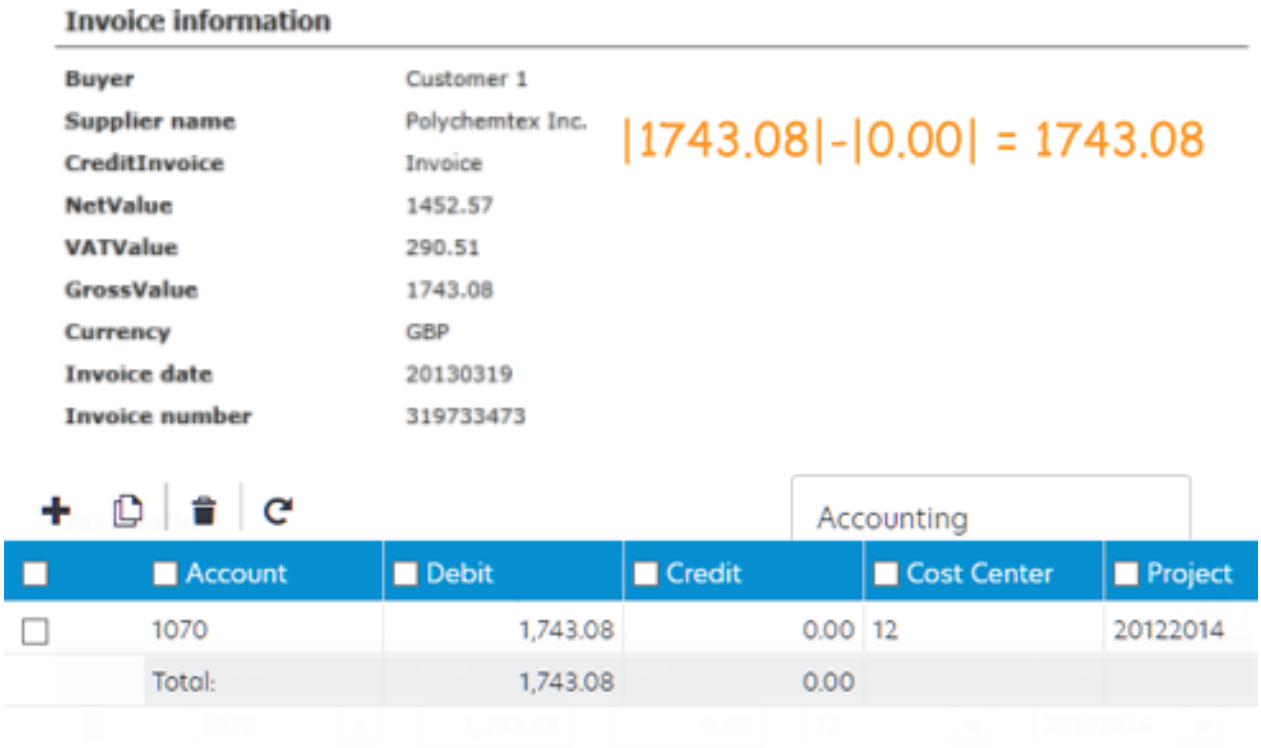
Accounting

Account	Debit	Credit	Cost Center	Project
1070	1743.08	0.00	12	20122014
2010	0.00	1743.08	85	5000
Total:	1,743.08	1,743.08		

In this example, the sum of the debits equals the sum of the credits.

Balancing against the total gross amount

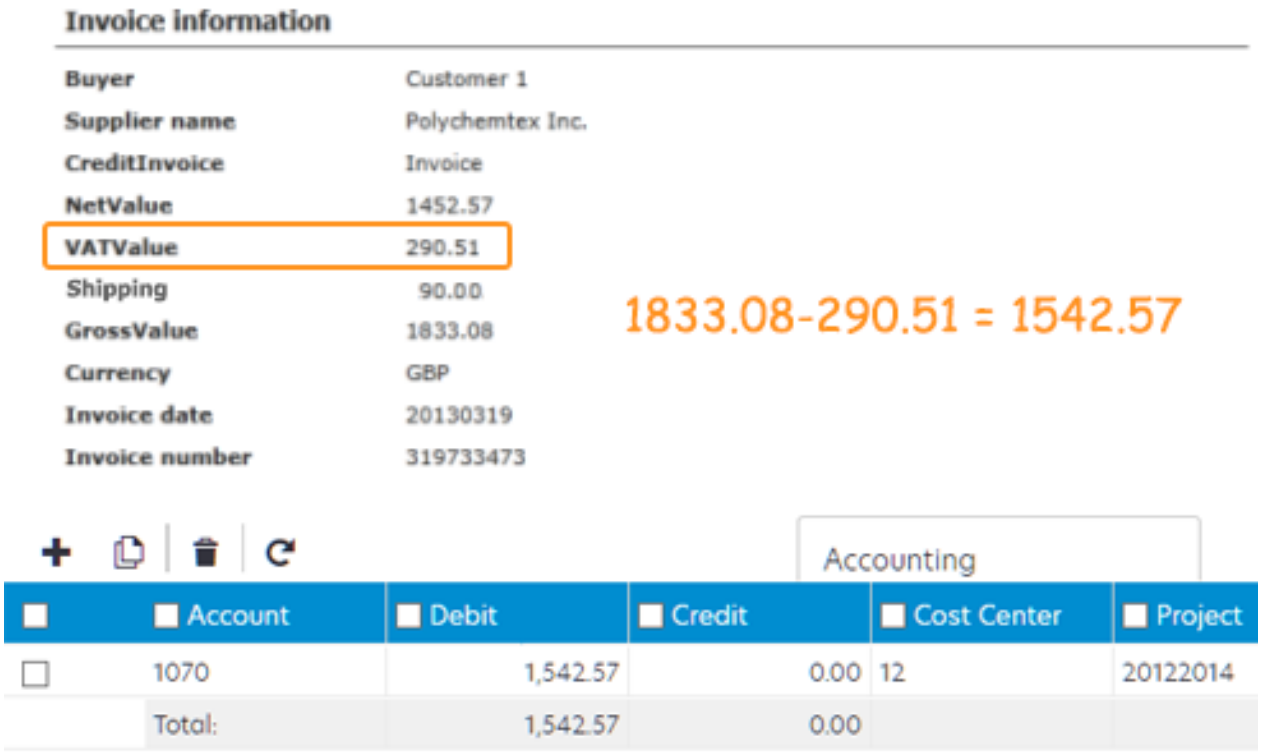
You can balance against the gross amount of the invoice by selecting **Allow balancing against total amount** and selecting **Gross amount** as the **Balancing amount**. When you balance against the gross amount of the invoice, the absolute value of the sum of the debits minus the absolute value of the sum of the credits must equal the absolute value of the gross amount of the invoice.



In this example, the absolute value of the sum of the debits minus the absolute value of the sum of the credits equals the total gross of the invoice.

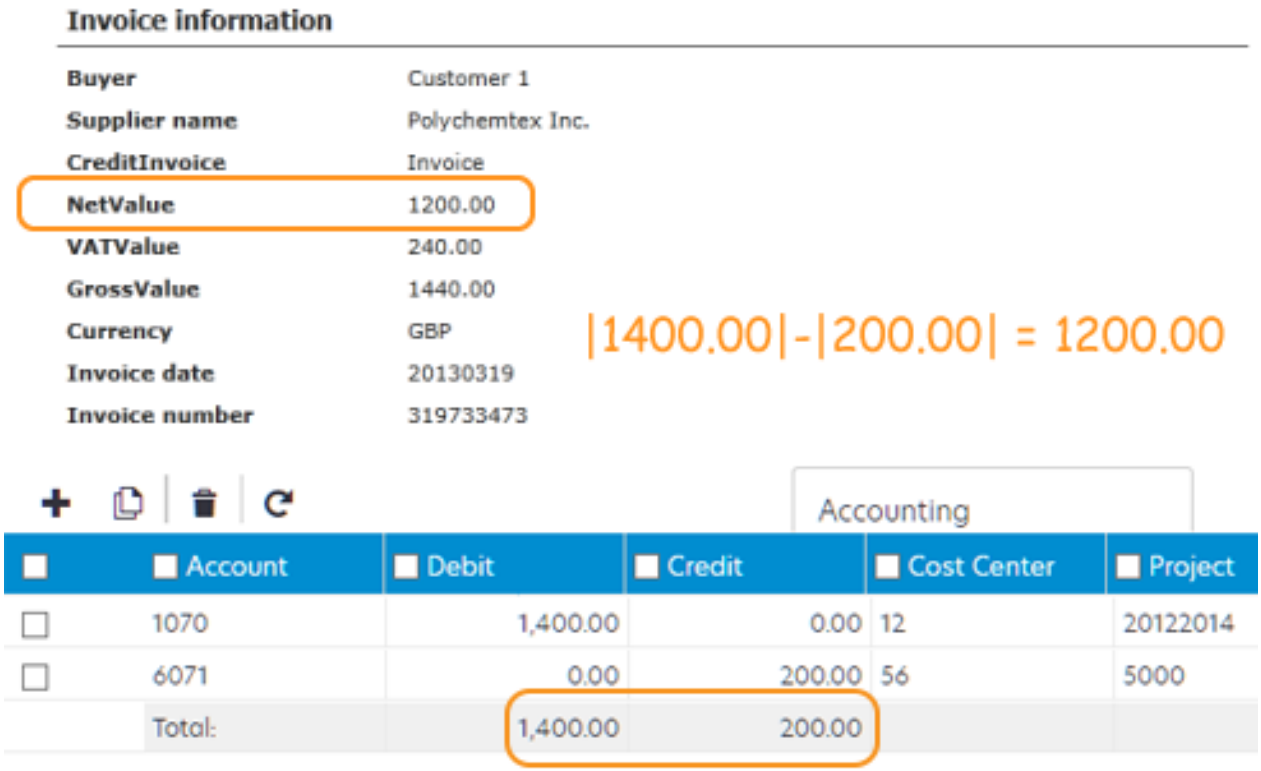
Balancing against the gross amount minus the VAT amount

You can balance against the gross amount of the invoice by selecting **Allow balancing against total amount** and selecting **Gross amount minus VAT amount** as the **Balancing amount**. When you balance against the gross amount minus the VAT of the invoice, the absolute value of the sum of the debits minus the absolute value of the sum of the credits must equal the absolute value of the gross amount of the invoice minus the VAT amount.



Balancing against the total net amount

You can balance against the net amount of the invoice by selecting **Allow balancing against total amount** and selecting **Net amount** as the **Balancing amount**. When you balance against the net amount of the invoice, the absolute value of the sum of the debits minus the absolute value of the sum of the credits must equal the absolute value of the net amount of the invoice.



In this example, the absolute value of the sum of the debits minus the absolute value of the sum of the credits equals the net amount of the invoice.

Code an invoice (account coding)

This procedure shows how to perform account coding on an invoice.

To perform account coding on an invoice:

1. Navigate to an invoice that needs to be approved using one of the following methods:
   - Select an invoice from the **Assigned to me** menu in the document list view and select **Start**.
   - If **Allow account coding during verification** is selected in the Verification service, you can select an invoice from the Verify menu and select **Start**. See how
   - Select an invoice from the **Documents** node in the administration tree view and select **Approve**.
2. Select the **Accounting** tab.
3. Use the **Accounting** table to assign accounting codes and other information according to your accounting procedures.

   - Adds a new coding row after the row that has focus (Shift + Alt + A).

   - Makes a copy of the row that has focus (Shift + Alt + C).

   - Removes the selected rows (Shift + Alt + R).

   - Refreshes coding suggestions.

You can easily apply the same value to all fields in a column. Simply select the check box at the top of a column and change the value of a field in the same column and press Enter. After you press Enter, use the dialog that appears to select the actions that you want to perform on all fields in the column.

4. After you complete the account coding, select **OK** to send the invoice to the next step in the approval process. If you handle the last step in the approval workflow, the invoice is sent to the financial system for final posting, unless you select **Park document**.

Tungsten AP Essentials can send alerts when an invoice needs to be approved.

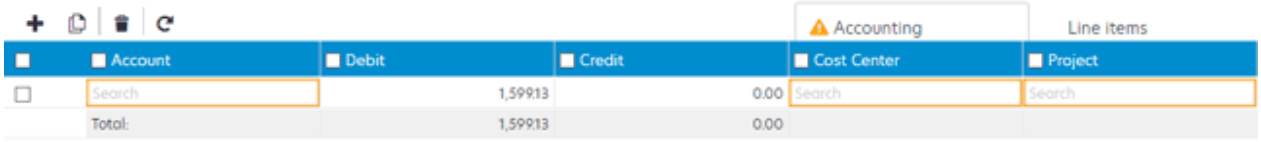
Automatic coding suggestions

When you code invoices, AP Essentials can make your job easier by suggesting accounting codes, coding dimensions, and amounts. Each time you code an invoice, AP Essentials remembers the accounts and coding dimensions you select and the percentages of the amounts on each accounting line. Then, the next time you code an invoice from the same supplier, AP Essentials automatically suggests the account codes, coding dimensions, and amounts based on the choices you made previously.

Automatic coding suggestions are available only for accounting lines with a general ledger account type.

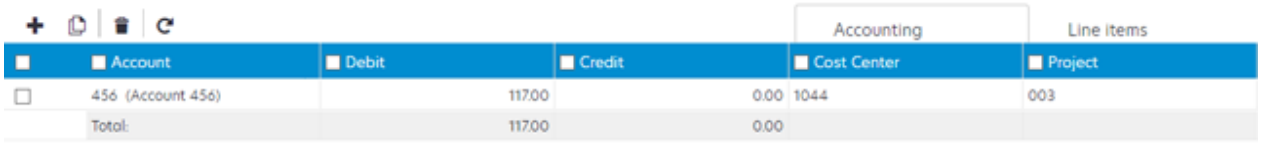
Example

Assume you enabled automatic coding suggestions and code an invoice on account "456" with 100% of the amount in the debit column and zero in the credit column. You also specify "1044" as the cost center and "003" as the project.



Then you select **OK** to complete the approval process and send the invoice to the target system.

The next time you code an invoice from the same supplier, the coding row is automatically filled in for you. In this example, 100% of the invoice amount is in the debit column. Likewise, the account, cost center, and project are the same as the previous coding.

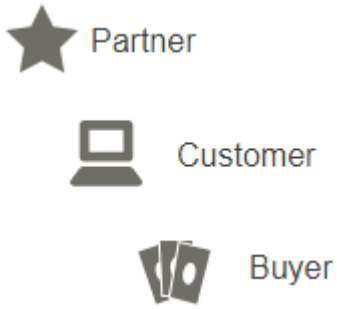


Enable automatic coding suggestions

You enable the **Automatic coding suggestion** setting on the **Coding** tab in Admin Center. Then make sure **Include in coding suggestion** is selected for each coding field that should use coding suggestions.

To populate the account list in the **Accounting** view with general-ledger account master data, the internal name of the account type must be `GeneralLedger`.

How it works



AP Essentials creates an accounts-payable coding history for each supplier. For every invoice that has been completely processed, a coding template is created based on the invoice coding data. The ten most recent templates are stored and used to suggest account codes and amounts during coding.

To determine the suggestion, the system uses a weighted approach. The system assigns 10 times more weight to templates that include coding dimensions. The template with the highest combined weight is used as the suggestion. In the event of a tie, the most recent template with the highest combined weight is used. If all ten templates are unique and occur only once, the most recent one is used.

Only one template is required to receive a coding suggestion.

Each coding template is characterized by:

- The number of lines it contains. Each template can contain up to 100 coding lines.
- Which accounts are specified.
- The order the lines occur, using the account as an index.

- The coding dimension values.
- The amounts as a calculated percentage of the total amount.

If any of these characteristics differ between templates, they are considered unique.

Example

Consider the table below, which represents a chronological coding history from one supplier. The coding history stores at most ten templates, with the most recent at the top and the oldest at the bottom. When a document is completely processed, its coding template is added to the top of the list. If the list already has ten entries, the oldest template is removed. This ensures the history always reflects the ten most recent templates.

In this example, each template is labeled with a letter for clarity. Templates that include coding dimensions are assigned a higher weight. The template with the highest total weight is used as the suggestion for the next invoice from the same supplier. If multiple templates share the highest weight, the most recent template is selected.

Processing Sequence	Template	Account	Percentage	Coding dimensions	Weight
10	C	Debit 1234 Credit 5678	100 100	Special 20	10
9	C	Debit 1234 Credit 5678	100 100	Special 20	10
8	B	Debit 1234 Credit 5678	100 100	Special 15	10
7	B	Debit 1234 Credit 5678	100 100	Special 15	10
6	C	Debit 1234 Credit 5678	100 100	Special 20	10
5	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1
4	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1
3	B	Debit 1234 Credit 5678	100 100	Special 15	10
2	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1
1	A	Debit 1234 Debit 1234 Credit 5678	50 50 100		1

In this scenario:

- Templates B and C each occur three times.
- Template A appears four times but has a lower combined weight.
- Both B and C have a total weight of 30 (3 occurrences × 10), while A totals 4 (4 × 1).

Since templates B and C are tied in weight, and template C is the most recent of the two, it is selected as the coding suggestion for the next invoice from the supplier.

Submitting invoices without coding lines also updates the template history. In other words, "no coding lines" can become a valid coding suggestion if the majority of invoices in the coding history were submitted without coding lines.

The coding history can be shared on different levels: partner, customer, and buyer. The level determines how coding suggestions are shared. For example:

- If you share the coding history on the partner level, all customers of the partner account contribute to and use the same coding suggestions. This can be useful if the customers use the same account codes and have many invoices from the same suppliers.

  If you share the coding history on the partner level, all customers must have the same selection in the **Balancing amount** setting.
  Balancing against the gross amount is the default behavior when **Allow balancing against total amount** is not selected. Read more about amount balancing.

- If you share coding history on the customer level, the coding suggestions stay within the customer and are only shared amongst the buyers of the customer (if the customer has multiple buyers).
- If you share coding history on the buyer level, the coding suggestions stay within the buyer.

  The coding history is only shared behind the scenes. There is no way for one customer to see the coding data of another customer.

Automatic coding suggestions are available only for accounting lines with a general ledger account type.

To provide coding suggestions for other fields, such as coding dimensions, the field must be connected to master data.

For automatic coding suggestions to work, at least one of these fields must be specified in the supplier master-data (ordered below from highest to lowest priority):

- Organization number.
- Tax registration number.
- Supplier number.

Changing any of the fields above (Organization number, Tax registration number, Supplier number) may cause automatic coding suggestions to stop working.

In order to share coding data between partners, customers and buyers, the suppliers must have a value for:

- the supplier number field.
- the VAT registration field or the organization number field.

These special characters are not allowed in the organization number, VAT registration number, and supplier number fields:

- Forward slash (/).
- Backslash (\).
- Number sign (#).
- Question mark (?).
- Control characters from U+007F to U+009F.
- Control characters from U+0000 to U+001F, including:
  - Tab (\t).
  - Linefeed (\n).
  - Carriage return (\r).

When are coding suggestions applied?

The application of coding suggestions is dependent on two settings and whether the settings are enabled () or disabled ():

- **Perform registration step**
- **Allow account coding during verification**

Perform registration step	Allow account coding during verification	Result
		No coding rows are added automatically; however, you can select **Refresh** () during approval to get coding suggestions.

Perform registration step	Allow account coding during verification	Result
		Coding suggestions are applied during registration and displayed during approval.
		Coding suggestions are applied during extraction and displayed during verification.
		Coding suggestions are applied during extraction and displayed during verification.

Refresh coding suggestions

Sometimes you make changes which require you to refresh () coding suggestions. AP Essentials prompts you to refresh your coding suggestions when the:

- Buyer is changed.
- Supplier is changed.
- Invoice/Credit field is changed.
- Net/Gross amount is changed.

In addition to the points above, if you use line items as your coding-suggestion source, AP Essentials also prompts you to refresh your coding suggestions when:

- Line items are added or removed.
- The line-item table is redrawn.
- A line-item amount is changed.

Share coding data across multiple levels

It is possible to share the coding history across multiple levels. When you select multiple levels in the Coding settings, the coding history is shared upwards through the hierarchy. For example, assume you select all three levels. This has several implications:

- When you code an invoice on the buyer level, AP Essentials checks if there is a suitable coding suggestion on the buyer level. If no suggestion is found there, AP Essentials checks the customer level, and if no suggestion is found there, AP Essentials checks the partner level.
- When you code an invoice on the buyer level, the coding history is updated on the parent customer and partner.
- When you code an invoice on the customer level, the coding history is updated in its own customer level and in the parent partner level.

In order to share coding data between partners, customers and buyers, the suppliers must have a value for:

- the supplier number field.
- the VAT registration field or the organization number field.

Choose a source

Automatic coding suggestions can come from one of three sources, which you specify in the Coding configuration settings:

- **Online coding** - Uses historical data from AP Essentials to determine the default coding suggestions.
- **Line items** - Inserts each line item as a coding row and uses historical data from AP Essentials to determine the default coding suggestions.

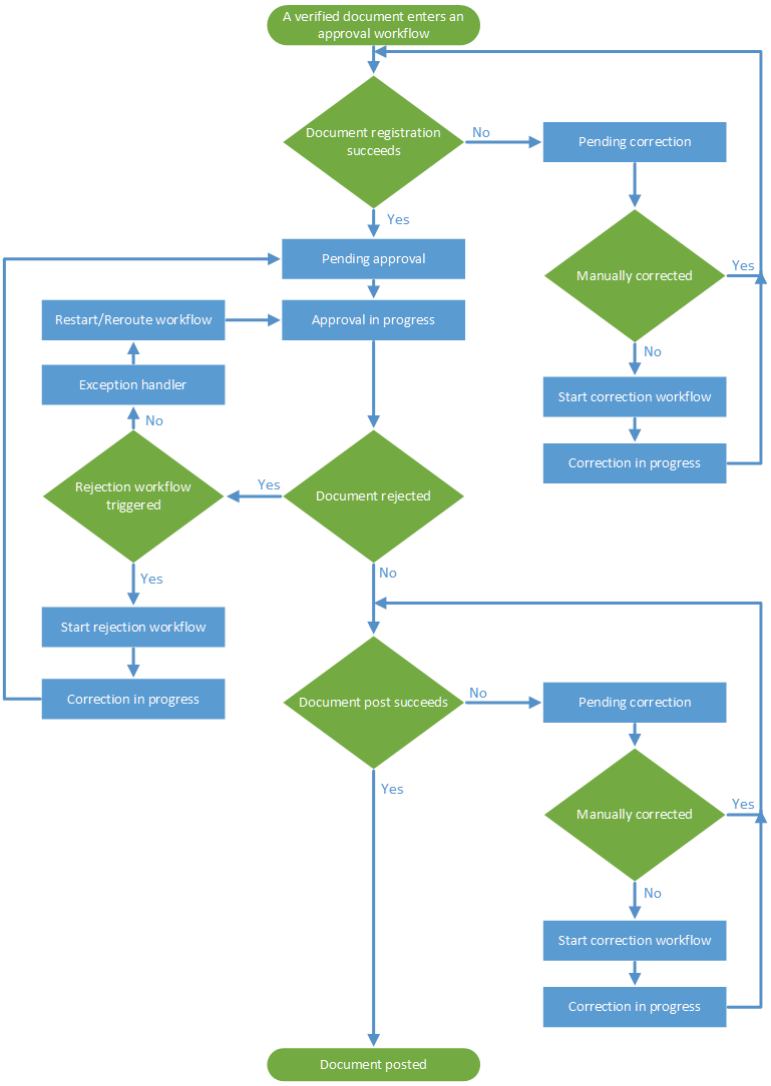
  When your default account type is general ledger, coding suggestions are made for account fields if you used the same account for all rows when coding previous invoices from the same supplier.

  Coding amounts for invoices are placed in the debit column, whereas coding amounts for credit notes are placed in the credit column.

  If the current document type does not have any line items, Online coding is used. If the current document type does have line item fields, but no line items are captured, no coding suggestions are created.
- **External system** - Uses coding suggestions provided by an external system.

Correct an invoice in a workflow

Throughout the approval process, invoice information is sent to the target financial system. This occurs, for example, when an invoice is registered in the financial system directly after it is verified. If the target system rejects the invoice, for example, during registration or posting, it must be corrected and is considered pending correction. You can also correct invoices with other statuses, such as *Document delete failed*. You must have the correct privileges to correct an invoice.



Tungsten AP Essentials can send alerts when an invoice needs to be corrected.

1. Navigate to the document list view, select an invoice that is pending correction, and select **Start**.
2. Use the document view to do any of the following:
   - Correct the errors that are listed on the **Invoice** tab. Note that you can edit the invoice data, which is normally read-only during the approval process.

     You cannot override validation rules during a workflow step. If you receive a validation error while processing a document in a workflow, correct the error to proceed.

   - Send the invoice to a correction workflow.

Select to display a dialog that you can use to choose a workflow. Workflows created here also appear in the **Workflows** tab of the **Workflow** view.

- Delete the document.

  Select to delete the document. If the document status is *Document delete failed*, you can select **Retry delete** to try to delete the document from the target system again.

- Send the invoice back to verification by selecting .

3. If you chose to correct the invoice in step 2, select **OK** after you make your corrections.

Reroute an invoice

Reroute an invoice such as if you think the invoice belongs to another user or if more authorization is required for approval.

1. Select **Reroute** in the document view.
2. Use the dialog to describe why you want to route the invoice and specify who you want to reroute the invoice to.
3. Select **OK**. An email notification is sent to the user you specified in the previous step.

Request information (during approval)

If you need information from someone else about an invoice, you can send a request for information.

Send a request

To request information from another user about an invoice:

1. Select while approving an invoice.
2. Use the dialog that appears to write a comment or question and select the recipient.

You can choose to send the message to another user in Tungsten AP Essentials or an email recipient. If you choose to send the message to an email recipient, the current document is attached to the email as a PDF file.

After you select **OK**, you automatically return to the document list view. If a notification based on the Request for information event is defined in the Notification service, an email alert is sent to the recipients specified.

Reply to a request

Invoices that have a pending request for information are indicated by the status in the document list view. When you view an invoice that has a request for information, the invoice opens with the comments displayed. After you resolve the issue, select **Post information** to return control of the document to the user who sent the request.

Only users with the **Edit approval documents** privilege can make changes to the invoice. If you do not have the **Edit approval documents** privilege, you can only add a message in the **Comments** tab.

Reject an invoice in a workflow

During invoice approval, you can reject an invoice if the amounts are incorrect, the page separation is incorrect, or the invoice is invalid for any reason. To reject an invoice in a workflow:

1. Select **Reject** in the document view.
2. Use the dialog to describe why you want to reject the invoice.

   If the default reasons do not fit your needs, administrators can create custom rejection codes and corresponding descriptions in the **Reject document** dialog.

3. Select **OK**. The invoice receives the *Rejected* status.
   Depending on whether you use custom reject codes and rejection triggers, one of the following happens:
   - If you use custom reject codes and triggers, the invoice is routed to a rejection workflow. If there is no matching trigger, however, the document is sent to the exception handler.
   - If you do not use custom reject codes, an email notification is sent to the exception handler, who can perform these actions:
     - Send the invoice back to verification ().
     - Restart the workflow ().
     - Send the invoice to a different workflow ().
     - Delete the invoice ().
     - Send the invoice, and the entire batch to which it belongs, to manual separation ().
       At this stage, you cannot send the invoice for manual separation if:
       - Any of the documents in the current batch have been pre-registered in the target system.
       - Any of the documents in the current batch have been sent to the target system.

       The entire batch is sent for manual separation, canceling any and all workflows of all invoices in the batch. After separation, all invoices in the batch start over at the verification process.

Handle invoices rejected from workflows

Invoices that are rejected from workflows are sent to an exception handler, who has privileges for performing additional actions on invoices. When an invoice in a workflow is rejected, a notification email is sent to an exception handler. Rejected invoices appear in the document list view and are noted by an icon (). To handle an invoice that was rejected from a workflow:

1. Navigate to the document list view and double-click an invoice with the rejected status ().
2. Check the **Comments** tab to see why the invoice was rejected.
3. Depending on your privileges, use the buttons in the toolbar to do any of the following:
   - Send the invoice back to verification ().
   - Restart the workflow ().
   - Send the invoice to a different workflow ().

- Delete the invoice ().
- Send the invoice, and the entire batch to which it belongs, to manual separation ().

  At this stage, you cannot send the invoice for manual separation if:

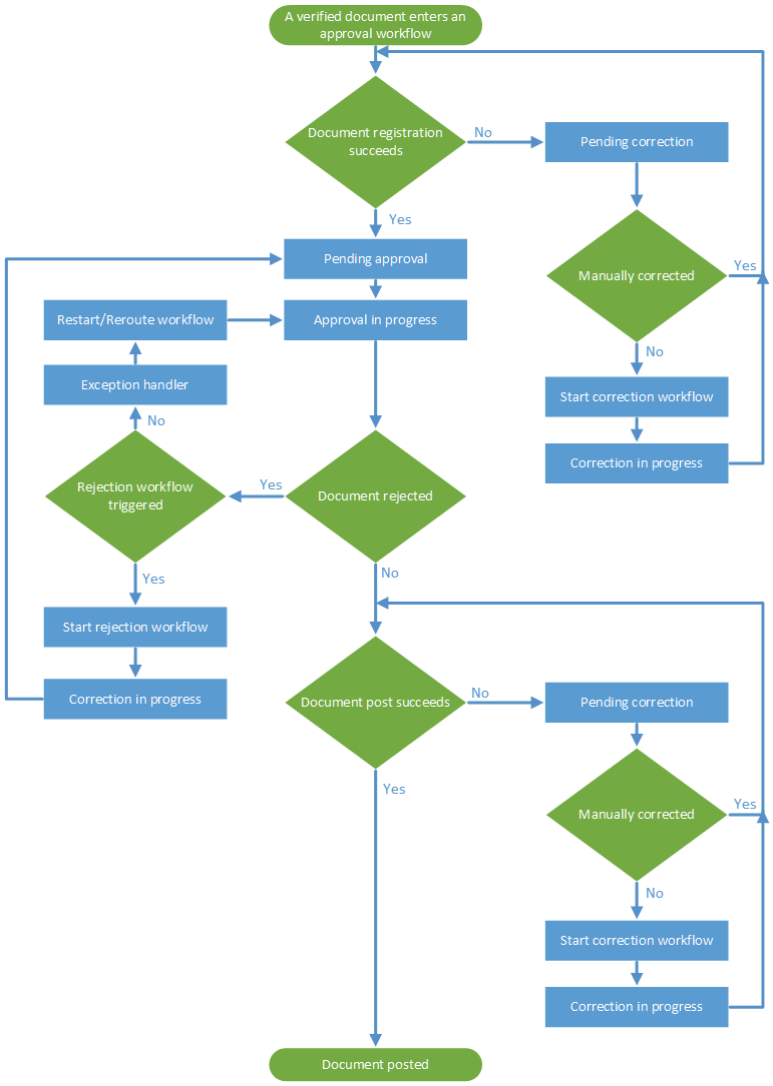
  - Any of the documents in the current batch have been pre-registered in the target system.
  - Any of the documents in the current batch have been sent to the target system.

  The exception handler must have the **Access approve** or **Access manage** privilege to perform this action.

  The entire batch is sent for manual separation, canceling any and all workflows of all invoices in the batch. After separation, all invoices in the batch start over at the verification process.

Approval workflow

The following chart shows how a document moves through a typical approval workflow. The chart is simplified and does not show every available option.



Start a workflow manually

If you do not have rules that automatically start approval workflows, or if an invoice does not trigger any rules, you must start the workflow manually.

To start a workflow.

1. Select a document with the status of *Waiting for user assignment* or *Document pending approval* and select **Start**.
   The document view appears, so you can inspect the document, add comments, or perform other actions.
2. Select **Start**.
3. Select **Assign User** or **Start Workflow**.
   A dialog appears where you can assign a user to the workflow.

You can also send invoices to a workflow during verification from the context menu of the **OK** button (requires the Start workflow from Verification privilege).

Select user dialog

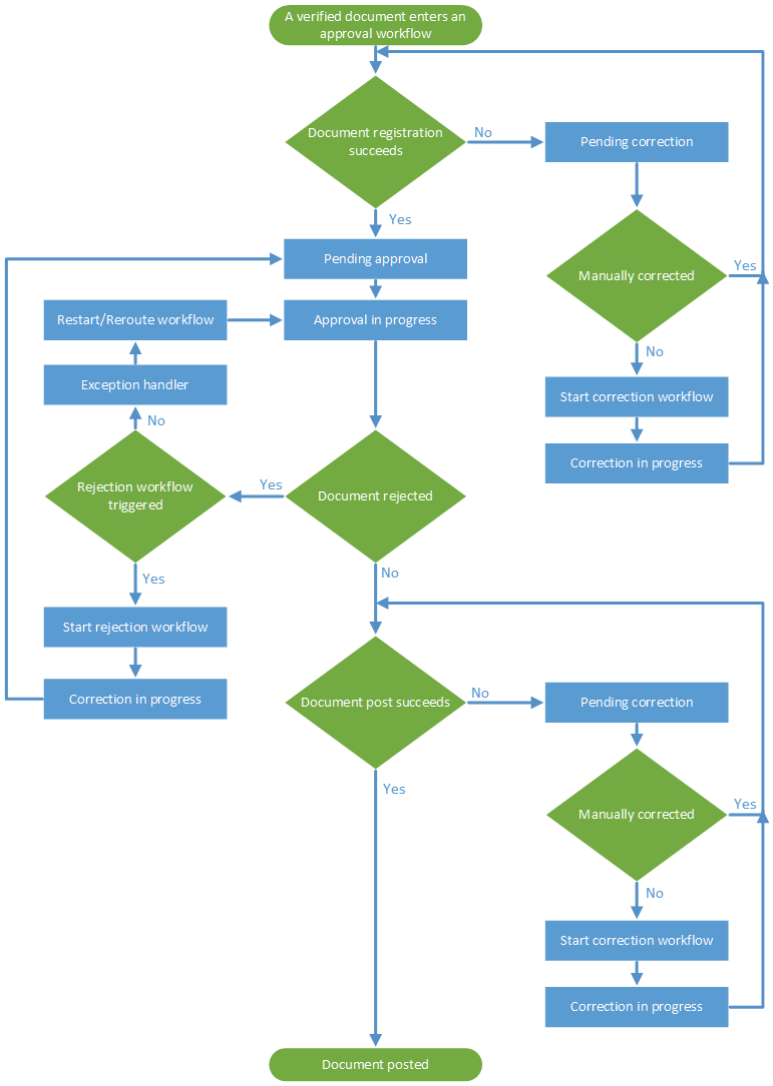
To access this dialog: While approving an invoice, select **OK** in a workflow where the next user must be manually selected.

Use this dialog to select the next user in a workflow where the next user must be manually selected.

[Start typing...]	Specifies the user or group that you want to send the invoice to. You can select a user or group from the list, or begin typing a name to use "begins with" style filtering.
OK	Sends the invoice to the selected user or group.
Cancel	Closes the dialog without taking any action.

Correction workflows

A correction workflow is similar to a normal workflow but handles problem invoices outside of normal workflows.



Parking documents

Select **Park document** when you code an invoice, then select **OK**.

If your target system supports document parking, and **Allow document parking** is enabled by an administrator, you can park documents in the target system while coding an invoice.

Select **Park document** when you code an invoice, then select **OK**. Although the invoice is considered posted in Tungsten AP Essentials, it remains parked in the target system.

Change the buyer while approving an invoice

Sometimes you might want to change the buyer while approving an invoice. This can be problematic, however, depending on your target system. Changing the buyer of an invoice is not as simple as changing the supplier of an invoice because when you change the buyer, you change the

legal entity that is responsible for the invoice. If your target system uses preliminary registration, the invoice is already posted to the buyer during the registration step before you approve the invoice. Therefore, you cannot change the buyer if **Perform registration step** is selected.

To change the buyer while approving an invoice, you must ensure that:

- **Perform registration step** is not selected in the **Process** control service.
- The user has the **Edit approval documents** privilege selected on the **Privileges** tab.

After these conditions are met, the **Buyer** field is editable during approval.

Start workflow and Start correction workflow dialogs

These dialogs let you send the current invoice to a workflow or create a new workflow.

To access these dialogs:

- Select while correcting an invoice.
- Select an invoice in the document list view that is pending correction and select **Start**.
- Use the context menu of the **OK** button during verification (requires the Start workflow from Verification privilege).

You can send the current invoice to a workflow or create a new workflow.

Workflow	Specifies the workflow that you want to send the current invoice to. A graphic depiction of the workflow appears below the box. If any of the users in the workflow are to be selected manually, you can specify the user in this dialog, or you can let the preceding user in the workflow choose the user during approval.
OK	Sends the invoice to the selected workflow. If you are in the document view, selecting **OK** here is the equivalent of selecting **OK** during verification and sending the invoice to a workflow. Therefore, if a validation error occurs, you return to the document view, and you must select **OK + Start workflow** again after you correct the validation errors (if you still want to override the default rules for the invoice).
Cancel	Closes the dialog without taking any action.

Upload files to storage

This topic describes how to upload a file directly to storage without attaching it to a stored document or processing it in Tungsten AP Essentials. Use the document view if you want to attach files to existing documents or use the **Upload** view if you want to upload invoice images for processing.

Sometimes you might want to use the Storage service to store files or documents that you do not want to process or attach to a specific document. For example, if you have a contract that applies

to one or all of your suppliers, there is no need to attach the contract to every invoice you process. Instead, you can upload the contract to storage by itself, so it is always available for reference.

To upload a file to storage without attaching it to an existing document:

1. Navigate to the **Files** view.
2. Select **Upload file** and use the dialog that appears to select the file you want to upload.
3. Specify a buyer and a description in the Upload file dialog. After you select **OK**, the file is uploaded to storage.

   For security reasons, you can only upload files with these extensions:

   - .csv
   - .doc
   - .docx
   - .eml
   - .gif
   - .jpeg
   - .jpg
   - .msg
   - .ofd
   - .ods
   - .p7m
   - .pdf
   - .png
   - .pptx
   - .tif
   - .tiff
   - .txt
   - .xls
   - .xlsb
   - .xlsm
   - .xlsx
   - .xml
   - .zip

Specify a substitute

If you use workflow services, and you are absent from work, you can choose an alternate user to handle documents in workflows that would otherwise be assigned to you. When this setting is empty, nothing happens. When you specify a substitute, the substitute user replaces the current user in all workflows until you change this setting to empty again.

To specify a substitute:

1. Select your username in the main menu at the top of the page.
2. In the menu that appears, select **My profile**.
3. Use the dialog that appears to specify a substitute.
   When you select a substitute, an icon () appears next to users who have an active substitute. Users with the icon are most likely absent themselves and not good candidates for selection as a substitute.

   Clear the substitute setting when you return to work.

Language settings

The Tungsten AP Essentials user interface is translated into these languages:

• English (American, Australian, British, Irish) • Chinese (Simplified) • Danish • Dutch • Finnish • French	• German • Norwegian • Portuguese (Brazil) • Spanish • Swedish

By default, the interface language is determined by the language settings of your web browser. The language settings of your web browser also determine the currency and date formats that are displayed in the document view. If your browser language is not set to a language supported by Tungsten AP Essentials, English is used by default.

If multiple languages are listed in your language settings, the supported language with the highest priority is used. The priority is determined by the order of the list, where the language at the top has the highest priority, and the language at the bottom has the lowest priority.

Chrome

To access these settings in Chrome, navigate to **chrome://settings/languages**.

Edge

To access these settings in Edge, navigate to **edge://settings/languages**.

Firefox

To access these settings in Firefox, navigate to **about:preferences**.

User interface: AP Essentials Office

This section provides detailed descriptions of every dialog and view within the user interface for Tungsten AP Essentials Office. It serves as a reference for users to understand the various elements, settings, and functionality available in each part of AP Essentials Office. When you select a help button in AP Essentials Office, you are directed to one of the topics in this section.

- Add/Edit customer dialog
- Add/Edit supplier dialog
- Copilot dialog
- Copy purchase order lines dialog
- Document history view
- Document list view

- Document separation view
- Document view
- Hold document dialog
- Reject document dialog
- Reroute dialog
- Request information dialog
- Search customers dialog
- Search purchase order lines dialog
- Search purchase orders dialog
- Send to verification dialog
- Search suppliers dialog
- Upload view
- User profile view for Office

Reject document dialog

Use this dialog to reject a document and prevent it from being processed and sent to the target system.

To display this dialog, select in the document view.

Use this dialog to reject a document and prevent it from being processed and sent to the target system. The appearance of this dialog can vary depending on whether an administrator has created custom rejection codes. The information you provide in the dialog is saved with the document and displayed clearly to anyone who opens the document. The rejection information is also saved in the document history.

Default Reject document dialog

The standard dialog has these settings:

Setting	Description
Select a reason for the rejection	Displays standard reasons for rejecting the document.
Type a reason for rejecting the document	You can optionally type why you are rejecting the document.

Custom Reject document dialog

If an administrator has created custom rejection codes, the dialog has these settings:

Setting	Description
Select a reason for the rejection	Displays custom rejection codes for selection.
Description	A read-only description of the rejection code.
Additional information	You can optionally type more information about why you are rejecting the document.

Reroute dialog

Use this dialog to send the current invoice to another user.

To access this dialog, select while approving an invoice.

Select a user	Specifies the user that you want to reroute the invoice to. You can select a user from the list, or begin typing a name to use "begins with" style filtering.
Message	A comment or question to send to the person that you are rerouting the invoice to.
OK	Sends the invoice to the selected user.
Cancel	Closes the dialog without taking any action.

Hold document dialog

Use this dialog to put a document on hold.

To display this dialog, select in the document view.

Use this dialog to put a document on hold. The appearance of this dialog can vary depending on whether an administrator has created custom on-hold codes.

Default Hold document dialog

The standard dialog has this setting:

Type the hold reason	Type why you are holding the document in the space provided.

Custom Hold document dialog

If an administrator has created custom on-hold codes, the dialog has these settings:

Select a hold reason	Displays custom on-hold codes for selection.
Description	A read-only description of the on-hold code.
Additional information	You can optionally type more information about why you are holding the document.

Document history view

Use this view to see the event log of a document.

To access this view, select in the document list view.

Changed date	The date and time the event occurred. To ensure that all users see the correct time for their location, AP Essentials stores all dates and times in a standard format called UTC (Coordinated Universal Time). When you view a document, the system automatically converts the stored UTC time to your browser's local time zone.
Event	Describes changes made to the document. Not all changes are logged in the document history. If a user overrides a validation during verification, it is logged. However, validations that are overridden during approval workflows are not logged.
Changed by	Specifies who made the change.
Comment	Displays additional details about the event.
	Displays a log of changes made to coding lines, buyers, and more.

The document history is updated each time the document is saved.

Add/Edit supplier dialog

Use these settings to edit the supplier of the current invoice.

To access this dialog in AP Essentials Office while verifying an invoice, select or .

To access this dialog in Admin Center, select a supplier in the **Suppliers** view.

Changing the settings of an existing supplier affects documents currently being processed that are connected to the supplier. Changing the supplier name or supplier number does not create a new supplier.

Supplier number, Name, Description, etc.	The master-data fields used to describe the supplier. You need the **View supplier bank account numbers** privilege to edit or add bank account information.
Blocked	Determines whether the supplier is blocked.

<table>
<tr>
<td>Exclude supplier from automatic identification</td>
<td>When selected, the supplier is not used for supplier identification; however, it is available for selection during verification. This is helpful if you have multiple suppliers with the same name, and you want to designate a preferred supplier by excluding the other suppliers from automatic identification.
Example
Assume you have three suppliers with the same name, but different addresses.
<table>
<tr><th>Supplier</th><th>Address</th><th>Preferred supplier</th><th>Exclude supplier from automatic identification setting</th></tr>
<tr><td>Polychemtex</td><td>USA</td><td>Yes</td><td>Cleared</td></tr>
<tr><td>Polychemtex</td><td>UK</td><td>No</td><td>Selected</td></tr>
<tr><td>Polychemtex</td><td>Sweden</td><td>No</td><td>Selected</td></tr>
</table>
In this example, the first supplier is our preferred supplier because almost all of the invoices come from the US supplier. Therefore, we select Exclude supplier from automatic identification on the other two suppliers. The result is that Tungsten AP Essentials identifies invoices from Polychemtex USA correctly, and invoices from the other locations will not have the supplier selected during verification. In the rare occasions that an invoice is received from one of the other two suppliers, you can simply change the supplier during verification.
All users can change this setting regardless of their privileges. Even users who are not allowed to update master data can change this setting.</td>
</tr>
<tr>
<td>Lock online learning</td>
<td>Locks online learning of documents from the displayed supplier at the current state. Select this setting to prevent verification changes from having a detrimental effect on documents that already have high identification and extraction rates.
If you enable this setting, and clear it at a later date, online learning resumes.
AP Essentials Office users must have the Change lock online learning setting privilege to change this setting during verification.</td>
</tr>
</table>

Allow complete documents to bypass verification	Determines whether invoices without validation errors are sent directly to the target system without verification. Learn more. Office users with the **Change bypass verification setting** privilege can change this setting. In Admin Center, administrators with the **Manage accounts** privilege can change this setting.
Invoices require PO	Improves automatic document type classification by ensuring all documents received by the current supplier have a purchase order number. When you enable this setting, documents from this supplier are classified as purchase order invoices, even if the purchase order is absent from the document. If no purchase order number is found, the order number field is marked with a validation error. Learn more.
Credit notes require PO	Ensures all credit notes received by the current supplier have a purchase order number. If no purchase order number is found, the order number field is marked with a validation error. This setting is similar to disabling **Accept empty value** in the Extraction settings of the order number field, except in this case, the validation is applied per supplier. Unlike **Invoices require PO**, this setting does not affect automatic document classification.
	Creates a new row for adding bank account master data.
	Deletes the row.
Save	Saves the supplier information.
Cancel	Closes the dialog.

Add/Edit customer dialog

Use these settings to edit the customer of the current document.

To access this dialog in AP Essentials Office while verifying a document, select or .

Changing the settings of an existing customer affects documents currently being processed that are connected to the customer. Changing the customer name or customer number does not create a new customer.

Use these settings to edit the customer of the current document.

Name, Customer number, etc.	The master-data fields used to describe the customer. Selecting **Customer name** or **Customer number** displays a dialog you can use to find and select a customer.
Blocked	Determines whether the customer is blocked.

<table>
<tr>
<td>Allow complete documents to bypass verification</td>
<td>Determines whether documents without validation errors are sent directly to the target system without verification. Learn more.
Office users with the Change bypass verification setting privilege can change this setting.
In Admin Center, administrators with the Manage accounts privilege can change this setting.</td>
</tr>
<tr>
<td>Exclude customer from automatic identification</td>
<td>When selected, the customer is not used for customer identification; however, it is available for selection during verification. This is helpful if you have multiple customers with the same name, and you want to designate a preferred customer by excluding the other customers from automatic identification.
Example
Assume you have three customers with the same name, but different addresses.
<table>
<tr><th>Customer</th><th>Address</th><th>Preferred customer</th><th>Exclude customer from automatic identification setting</th></tr>
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<tr><td>Polychemtex</td><td>Sweden</td><td>No</td><td>Selected</td></tr>
</table>
In this example, the first customer is our preferred customer because almost all of the documents come from the US customer. Therefore, we select Exclude customer from automatic identification on the other two customers. The result is that Tungsten AP Essentials identifies documents from Polychemtex USA correctly, and documents from the other locations will not have the customer selected during verification. In the rare occasions that a document is received from one of the other two customers, you can simply change the customer during verification.
All users can change this setting regardless of their privileges. Even users who are not allowed to update master data can change this setting.</td>
</tr>
</table>

Lock online learning	Locks online learning of documents from the displayed customer at the current state. Select this setting to prevent verification changes from having a detrimental effect on documents that already have high identification and extraction rates. If you enable this setting, and clear it at a later date, online learning resumes. AP Essentials Office users must have the **Change lock online learning setting** privilege to change this setting during verification.
Save	Saves the customer information.
Cancel	Closes the dialog.

Request information dialog

Use this dialog to request information during verification or approval.

To access this view, select in the document view while verifying an invoice.

Use this dialog to request information during verification or request information during approval. This dialog has slightly different behavior, depending on whether it is used during verification or approval:

- During verification, you do not have to specify an email recipient. If you do not specify an email recipient, the document is sent back to the new document list view with an icon () to indicate that it is awaiting input.
- During approval, you must specify a user or an email recipient.

Email recipient (optional) / User or email recipient	Determines who you want to send the message to. During verification, you can optionally leave this setting blank if you want to send the document back to the document list view with an icon () to indicate that it is awaiting input.
Email subject	Specifies the subject of the email if you choose an email recipient. This setting is only enabled after you specify an email recipient.
Send a copy to my email address	Sends a copy of the email to your email account. This setting is only enabled after you specify an email recipient.
Message	The comment or question you have concerning the current document.

Search purchase order lines dialog

Use this dialog to view purchase order information from the target system and perform line-item matching.

To access this dialog, select in the line-item view during verification.

Use this dialog to perform line-item matching(line-item pairing).

Search	Searches the list for values that contain the text you enter in the box.
	Resets all filters at the top of the list.
	Specifies which columns you want to see in the list. You can choose from these fields: • Line number • Supplier name • Supplier article number • Unique article number • Description • Quantity • Unit price • Price unit • Unit • VAT amount • Total • Status • Delivery date 1 • Delivery date 2 • Delivery note number • Delivery required • Delivered quantity • Invoiced quantity • Currency code • Category number • Category description • Buyer

Copy purchase order lines dialog

Use this dialog to copy imported purchase-order lines to an invoice.

To access this dialog, select in the line- item view during verification.

This dialog displays purchase-order lines imported from the target system. Use this dialog to copy purchase order lines to the current document when performing line-item matching (line-item pairing).

⚠ You can copy up to 200 purchase order lines.

Search	Searches the list for values that contain the text you enter in the box.
⏸	Resets all filters at the top of the list.

	Specifies which columns to display in the list.

Search purchase orders dialog

Use this dialog to browse purchase-order information from the target system.

To access this dialog, select **Order number** in the document view.

This dialog displays purchase-order information from the target system. Use this dialog when correcting PO numbers during verification. For more detailed purchase-order information, select in the line-item view to display the **Search purchase order lines** dialog.

Search	Searches the list for values that contain the text you enter in the box.
⏸	Resets all filters at the top of the list.
	Specifies which columns you want to see in the list. You can choose from these fields: • Buyer • Supplier name • Contact • Status • Description • Currency code • Created by • Requisitioned by

Search suppliers dialog

This dialog displays master data from the supplier registry.

To access this dialog, select **Supplier name** in the document view or press **F2**.

Use this dialog to find and select a supplier in the document view. Use the boxes above each column to filter the results using starts-with matching. For example, typing "Spring" returns Spring, Springfield, Springdale, and more. You can filter more than one column at a time. Double-clicking a supplier closes the dialog and copies the supplier to the current document.

ⓘ The search box uses whole-word matching, whereas the filter boxes above each column use starts-with matching.

Search	Searches all columns for the text you type here using whole-word matching. For example, assume you have suppliers in the city of Springfield. Searching for "Springfield" will return results, but searching for "Spring" will not.
Reset all filters	Resets all column filters.

Settings	Lets you specify which columns to display in the list. Available columns include: • Account number • Account number type • Bank name • Bank number • Bank number type • Blocked • City • Country name • Currency code • Description • Fax • Location • Organization number • Payment method • Payment terms • Postal code • State • Street • Tax code • Tax registration no. • Telephone number • Bypass verification • Exclude from identification • Lock online learning • Invoices require PO • Credit notes require PO

Search customers dialog

This dialog displays master data from the customer registry.

To access this dialog, select **Customer name** in the document view or press **F2**.

Use this dialog to find and select a customer in the document view. Use the boxes above each column to filter the results using starts-with matching. For example, typing "Spring" returns Spring, Springfield, Springdale, and more. You can filter more than one column at a time. Double-clicking a customer closes the dialog and copies the customer to the current document.

The search box uses whole-word matching, whereas the filter boxes above each column use starts-with matching.

Search	Searches all columns for the text you type using whole-word matching. For example, if you have suppliers in Springfield, searching for "Springfield" returns results, but searching for "Spring" does not.
Reset all filters	Resets all column filters.
Settings	Lets you specify which columns to display in the list. Available columns include: • Blocked • City • Country name • Fax • Organization number • Postal code • State • Street • Tax registration no. • Telephone number • Bypass verification • Exclude from identification

Document list view

This view displays individual documents or batches that are available for processing.

To access this view, log in to Tungsten AP Essentials Office.

This view displays individual documents or batches that are available for processing. You can use the navigation menu on the left to filter the documents according to various production states and perform other actions, such as uploading documents. The document list contains details such as the file name, track ID, status, and other document information. You can use the boxes at the top of each column to filter the results using "begins with" style searching. Similarly, you can use the search box at the top of the view to search all of the columns simultaneously (excluding the Received, Gross Amount, and Total Amount columns).

The settings displayed can vary, depending on:

- Your role.
- Your privileges.
- The number of buyers your organization has.
- The document process you use. For example, the view can display AP documents, AR documents, or both, depending on your role and which document processes are in use.

	Toggles the navigation menu.

All customer accounts	This setting is only visible for partner users and customer group users. Use this setting to filter the navigation menu and document list views. By default, all customer accounts are available from the navigation menu and list views. Selecting a specific customer account narrows the scope of the menu and list view to the selected customer account. Headings in the menu can also change, depending on: • Which document processes are in use. • Which document processes the selected customer account uses.
Start	Opens the selected documents for processing in the document view, or loads all the documents if no documents are selected.
⏵	Refreshes the document list.
	Deletes the selected documents.
	Sends *Complete* documents to the target system, while leaving incomplete documents behind to continue processing. This is helpful, for example, if you keep batches together and have a large batch of documents that are ready to be sent to the target system, except for one document that is being delayed for some reason. In this case, you can select this button to send all of the *Complete* documents in the batch to the target system. This button is available in **Documents** mode and **Batches** mode in the **In progress** and **All documents** view. When you select individual documents (in **Documents** mode), only the selected documents with the *Complete* status are sent to the target system. When you select batches (in **Batches** mode), every document with the *Complete* status, in each selected batch, is sent to the target system. ⚠ After you send documents to the target system, you cannot perform page separation on any remaining batches that these documents belong to. This button is only visible to users with the **Access EXPLORE** privilege. You must select at least one document or batch before selecting this button.

	Unlocks the selected documents. When you open a document, it is automatically locked to prevent others from making changes at the same time. The document unlocks automatically four hours after you open it or if another user manually unlocks it, whichever happens first. ⚠ Use caution when using this feature because a document is normally locked while someone is working with it.
	Displays a dialog that you can use to upload a file to storage without attaching it to a stored document or processing it. For example, you can use this feature to store documents containing special instructions for your users. ⓘ Do not use this feature to upload documents for processing.
	Determines which columns are displayed in the list. If the field you want is not available, you can add more filter fields.
⏸	Resets all column filters.
Documents	Displays individual documents in the list view.
Batches	Displays batches in the list view. If you open a document from this view, batches appear in a thumbnail view with the current document selected in the **Document** view.
🔍	Filters all columns in the list according to the text you type in the box. The maximum number of characters that are shown in a column, and are available for filtering, is 200. Characters exceeding the limit are truncated. The number of search results are displayed to the left of the search box and updates as you search or apply filters to the columns. ⓘ Received, Gross Amount, and Total Amount columns are excluded from the universal search.
	Displays the **Document history** dialog.
	Displays the document image for quick inspection and printing. These buttons are not available for viewing batches.
	A workflow step has exceeded the time specified in the **Maximum duration** setting.

	The document is on hold.
	The document is pending approval.
	The document is being processed by the user specified in the tooltip.
	The document was rejected by a user. When viewing batches, this means that at least one document in the batch was rejected.
	The document or batch is pending manual separation.
	The document needs attention. See the tooltip for more information. This icon appears, for example, if the document failed to export to the target system. This icon can also appear on batches that contain documents that failed to export or are pending correction.
	The document has a request for information. When viewing batches, this means that at least one document in the batch has a request for information.
Documents (AP documents/AR documents)	
Upload	Displays a view that you can use to upload documents to Tungsten AP Essentials for processing.
Assigned to me	Lists only documents that are assigned to the current user. This menu is only visible if Workflow services are enabled. This view has a document counter that displays the total number of documents in the view. Document totals only update when you refresh the list, either through the **Refresh** button or by refreshing the page.
Verify	Lists documents that need verification or correction. This view has a document counter that displays the total number of documents in the view. Document totals only update when you refresh the list, either through the **Refresh** button or by refreshing the page.

<table>
<tr><td>Rejected</td><td>Lists documents that have been rejected. This view is visible to users with at least one of the privileges below. The privileges also determine which documents are displayed in the view.<table><tr><th>Privilege</th><th>Documents displayed</th></tr><tr><td>Access verify</td><td>Displays documents that were rejected during verification.</td></tr><tr><td>Access manage</td><td>Displays all documents that were rejected in a workflow, regardless of the assigned user.</td></tr><tr><td>Access approve</td><td>Displays documents that were rejected in a workflow and are assigned to the current user.</td></tr></table>Note that when you view batches, only batches that are rejected during verification are displayed because there is no rejected status for batches in approval workflows.</td></tr>
<tr><td>In progress</td><td>Lists all documents that have not been successfully processed yet.
This view has a document counter that displays the total number of documents in the view. Document totals only update when you refresh the list, either through the Refresh button or by refreshing the page.</td></tr>
<tr><td>Processed</td><td>Lists documents that have been sent to the target system.</td></tr>
<tr><td>All documents</td><td>Lists all documents in the system, including deleted and exported documents.</td></tr>
<tr><td>Held</td><td>Lists documents that are currently on hold.</td></tr>
<tr><td colspan="2">Storage (AP storage/AR storage)</td></tr>
<tr><td>Documents</td><td>Lists documents that have been archived for long-term storage.</td></tr>
<tr><td>Files</td><td>Lists miscellaneous documents that have been uploaded to storage.</td></tr>
</table>

How dates work

The **Received** and **Held date** columns, as well as dates in the document history view, show times in your local time according to the time zone of your web browser.

To ensure that all users see the correct time for their location, AP Essentials stores all dates and times in a standard format called UTC (Coordinated Universal Time). When you view a document, the system automatically converts the stored UTC time to your browser's local time zone.

For example, if a document was received at 14:00 UTC:

- A user in London (UTC+0) sees 14:00.
- A user in Stockholm (UTC+2) sees 16:00.
- A user in New York (UTC-4) sees 10:00.

Although the displayed times are different, they all represent the same moment when the document was received. This allows users in different time zones to view dates and times that are accurate for their own location.

One exception is the **Track ID** column, which includes a date as part of the identifier. This date is fixed at the time the track ID is created and does not change, since the Track ID must remain stable for reliable tracking.

Filter by date

To search for dates using the universal search box at the top of the view, type the entire date in `YYYYMMDD` format.

To filter dates in the **Received** column, **Held date** column, or any custom date field that has been made searchable, use the same format that appears in the column. For example, if the date appears as YYYY-MM-DD, apply the same format and separators (dashes in this case) when filtering. The format depends on the language settings of your browser. Filtering by time is not supported.

Enter a complete date or omit the year, month, or day by leaving the corresponding part blank while keeping the separators in the same positions as the full date format. Month and day must be entered as two digits (for example, 06, not 6). For a column showing dates as MM/DD/YYYY:

To filter by	Type
Year only	`//2026`
Month only	`06/`
Day only	`/15`
Month and year	`06//2026`
Day and year	`/15/2026`
Month and day	`06/15`

The same rule applies to any date format your column uses. For example, in a YYYY-MM-DD column, year only is 2026--, and month and year is 2026-06-.

Any part you omit is treated as "match any," while the parts you provide must all match. Partial dates, like full dates, are evaluated using your browser's time zone, so results always align with what is shown in the **Received** and **Held date** columns for your location.

To filter other date columns, such as **Invoice date** and **Due date**, use the format `YYYYMMDD`.

Document view

Use this view to verify or correct documents.

To access this view, log in to Tungsten AP Essentials Office, select one or more documents, and select **Start**.

Use this view to verify, correct, or approve documents. The settings that appear here vary depending on your privileges. If you opened a document in batch mode, batches appear in a thumbnail view with the current document selected.

	Document list view. Returns to the document list view.
	Skip document. Skips to the next document. If there are no more documents, you return to the document list view.
	Manual document separation (Split). Sends the current batch back to the document list view for manual document separation. To enable this button, the Separation service must be enabled. When you send a document to manual separation, all saved data in the entire batch is lost.
	Send to verification. Sends documents back to verification. This button is visible for documents in these statuses: • Pending approval • Approval rejected • Pending correction • Correction in progress This button does not appear for documents that are on hold. Likewise, this button does not appear if the Verification service is not enabled. You must have the Access manage or Access approve privilege to see this button. You cannot send a document back to verification if the document has already been sent to the target system.
	Reroute. Displays a dialog that you can use to assign the current document to another user. To enable this button, Workflow services must be enabled, and the user must have the **Reroute approval documents** privilege enabled in the **User** view (**Privileges** tab).
	Save. Saves changes to the current document.
	Hold. Puts the document on hold. When a document is on hold, you cannot process the document until you unhold it. You cannot perform actions such as verifying, approving, or rejecting the document. However, you can save changes to field values, add comments and attachments, or delete the document.
	Unhold. Releases a held document. This button is only visible if a document is on hold.
	Reject. Rejects the current document.
	Displays a dialog that you can use to send the current document to a workflow. This button is only visible when correcting a document.
	Delete. Deletes the current document.
	Request information. Displays a dialog that you can use to attach a question to the document.
	Print. Opens the current document in a new window so you can print it.

	Restart workflow. Restarts the current approval workflow. This button only appears when viewing a *rejected* document when workflow services are enabled.
	Displays a dialog that you can use to change the approval workflow. This button only appears when viewing a *rejected* document when workflow services are enabled.
	Displays a dialog that you can use to ask questions to an AI assistant. This button is only available if Tungsten Copilot services are enabled and you have the Access Copilot and Access EXPLORE privileges as well as access to all buyers in the organization. This button is not available for partner users.
	Document. Displays the document fields and their interpreted values. This is where you do most of the work when verifying documents. Selecting underlined field titles opens a search dialog that helps you find correct information. For example, if you select the supplier name or supplier number field titles, a search dialog is displayed. This feature is also available for the order number field, if you use the purchase order service to import PO data.
	Information. Displays batch, document, and origin information that can be useful when handling problem documents. • **Batch** - Displays information about the current batch, such as the batch ID, track ID, file name, customer, date received, and the batch status. • **Document** - Displays information about the current document, such as the document ID, track ID, external ID, document type, and status. • **Origin** - Displays information about the origin of the current document. The information displayed varies depending on the origin of the document. For example, if the document was uploaded via AP Essentials Office, the name of the user who uploaded the document is displayed. If Tungsten AP Essentials receives a document via email input, the email address of the sender and recipient are displayed along with the email subject. Origin information is also saved to the document history. If you use Storage services, documents uploaded before April 2020 will not contain origin information.

	Attachments. Displays any extra files that are attached to the document. You must enable Storage services, and have the **Access Storage** privilege to view this tab and use its features. You can select **Add attachment** to add files to the document. For security reasons, you can only upload files with these extensions: • .csv • .doc • .docx • .eml • .gif • .jpeg • .jpg • .msg • .ofd • .ods • .p7m • .pdf • .png • .pptx • .tif • .tiff • .txt • .xls • .xlsb • .xlsm • .xlsx • .xml • .zip If you use Storage services, and have the **Access Storage** privilege, original emails containing documents appear here.
	Comments. Lets you view and add comments to the document.
	History. Displays a sequential list of document events.
	Toggle field visibility. Toggles field visibility.
Document image view	
	Zoom out.
	Zoom in.
	Fits the document image in the available space.
	Fits the document image according to the available width.
	Fits the document image according to the available height.
	Displays the actual size of the document image.
	Rotates the document image 90 degrees counterclockwise.
	Rotates the document image 90 degrees clockwise.
	Opens a detached document image view in a new window. This feature can improve the user experience if you have dual displays.
	Closes the detached document image view.
Line item view	

<table>
<tr><td>Line items</td><td>Displays captured line-item values, if the document type supports line items.<table>
<tr><td></td><td>Adds a new, blank row to the line-item table. You can add a row, for example, if a row on the document is missing from the table. The new row is inserted after the row that is in focus. If no row is in focus, the new row is inserted at the top of the table.</td></tr>
<tr><td></td><td>Displays a dialog that you can use to copy imported purchase order lines to the line-item view.
This button is only visible if Purchase order services are enabled.</td></tr>
<tr><td></td><td>Displays controls that you can use to draw line-item fields on the document.</td></tr>
<tr><td></td><td>Removes the selected row or column from the line-item table. You can delete a row or column, for example, if the table includes a row that does not contain line items from the document.</td></tr>
<tr><td></td><td>Displays a dialog to match the current line item with purchase-order information from the target system. This button is only visible when Purchase order services are enabled.</td></tr>
</table></td></tr>
<tr><td>Accounting</td><td>Displays controls for coding the document.<table>
<tr><td></td><td>Adds a new, blank row to the accounting table. The new row is inserted after the row that is in focus. If no row is in focus, the new row is inserted at the top of the table.</td></tr>
<tr><td></td><td>Inserts a copy of the selected row.</td></tr>
<tr><td></td><td>Removes the selected row or column from the accounting table. You can delete a row or column, for example, if the table includes a row that does not contain line items from the document.</td></tr>
<tr><td></td><td>Refreshes coding suggestions.</td></tr>
</table></td></tr>
<tr><td>OK</td><td>Completes the verification process.
Keyboard shortcut: <code>Ctrl</code> + <code>Enter</code>.
If you have the Start workflow from Verification privilege, the OK button has a context menu that lets you assign the current document to a workflow.</td></tr>
</table>

Send to verification dialog

Use this dialog to send a document back to verification after it has already been verified.

To display this dialog, select in the document view.

Sending a document back to verification can be helpful. For example, you can send a document back if you need to change the document type after verification is complete. The document must have one of the following statuses:

- Pending approval

- Approval rejected
- Pending correction
- Correction in progress

Type a reason for sending the document back for verification	Required. The reason you type appears in the document history.

Copilot dialog

Use this dialog to ask the AI assistant questions.

To display this dialog, select in the document view. This dialog is not available for partner users.

Tungsten Copilot services must be enabled to use this feature.

Use the dialog to ask natural language questions. For example, ask "How much did we buy from this supplier last month?" or "What's the average total cost on invoices from this supplier?" Tungsten Copilot interprets the queries and returns relevant results based on your own data.

Documents in Storage or Analytics are not available to Tungsten Copilot.

Tungsten Copilot can answer questions related to the following document fields:

- DocumentId
- InvoiceStatus
- ReceiveTime
- TrackId
- BuyerName
- SupplierName
- SupplierNumber
- WorkflowName
- InvoiceAmount
- InvoiceCurrency
- InvoiceDate
- InvoiceDueDate
- InvoiceNumber
- InvoiceOrderNumber

Custom fields, line-item fields, and any other fields not listed above are not available to Tungsten Copilot.

Tungsten Copilot can make mistakes. Always verify important information.

Learn about data security, compliance, and privacy practices at Tungsten Automation.

Upload view

Use this view to upload document images for processing.

To access this view, select **Upload** in the document list view.

Use this view to upload document images for processing. Some of the settings can vary depending on the following factors:

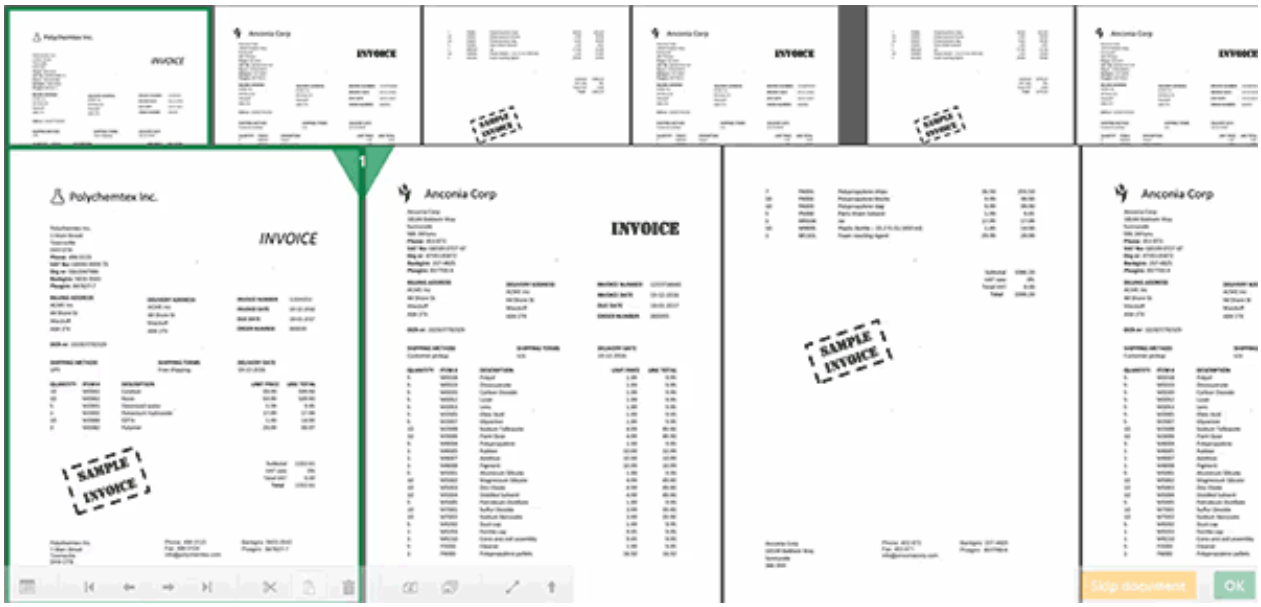
- Your role.
- Your privileges.
- How many buyers your organization has.
- Which document process you use.

Customer account	Specifies which customer account you want to associate with the documents you upload.
Buyer/Seller	Specifies which buyer/seller you want to associate with the documents you upload. If **Enable buyer classification** or **Enable seller classification** is selected in the Classification service settings, you can select **Automatic classification**.
Document type	Specifies the country of origin and type of documents. If you use document types with subtypes, you can select **Automatic classification** to let Tungsten AP Essentials determine which document type to use, based on the fields found on the document.
Document separation	Determines whether the files you upload contain one document per file or multiple documents per file.
Select files...	Displays a dialog where you can select the files that you want to upload to Tungsten AP Essentials for processing.
Remove all files	Removes all of the files from the list of files to be uploaded.
Upload	Uploads all the files displayed in the list.

Document separation view

Use this view to manually separate invoice pages.

To access this view in the document list view, select a document that is pending manual separation and select **Start**.



Use this view to manually separate invoices.

	Returns to the document list view.
	Moves to the first page.
	Moves left.
	Moves right.
	Moves to the last page.
	Cuts the selected page.
	Pastes the last page from the clipboard at the marker (triangle).
	Deletes the selected page.
	Splits/joins pages at the marker (triangle).
	Splits/joins all pages.
/	Toggles a magnified view of the current page.
/	Toggles the thumbnail view.
Skip batch	Cancels all changes and skips to the next batch that is selected for processing. If no other documents are selected for processing, you return to the document list view.
OK	Completes the separation process and submits the batch for reinterpretation.

User profile view for Office

This view displays your user account settings and lets you select a substitute.

To access this view, select your user name in the main menu and select **My profile**.

Use this view to see your user account settings and select a substitute.

Profile	
User name	The name you use to log in to Tungsten AP Essentials.
Full name	The real name (first name, last name) of the user.
Email	The email address of the user.
Phone	The phone number of the user.
Substitute	Specifies an alternate user for workflow services. You can use this setting, for example, if the user is absent, and you want to choose another user as a temporary replacement. When this setting is empty, nothing happens. When you specify a substitute, the substitute user replaces the current user in all workflows until you change this setting to empty again. If you have workflows that use groups, instead of individual users, to assign invoices, make sure the substitute user belongs to the same groups as the user being substituted. When you select a substitute, an icon () appears next to users who have an active substitute. Users with the icon are most likely absent themselves and not good candidates for selection as a substitute.
Notes	Use this setting to make administrative notes about the user. For example, if the user is your main contact at the customer site, you can make a note of this here for your reference.

Chapter 7

Video tutorials

Select a link to open a video tutorial in a new tab.

- What is AP Essentials? (03:19)
- Sending documents to AP Essentials (04:55)
- Processing documents (02:11)
- Drawing line items (01:46)
- Drawing descriptions in line-item tables (00:47)
- Drawing subheaders in line-item tables (00:49)
- Drawing line items with variable rows or columns (02:34)
- Line-item pairing (01:12)
- Customer setup (03:11)
- Uploading for multiple customers using AP Essentials Connect (03:05)
- Total-amount validation (00:55)
- Separation service setup (01:25)
- Using separation services (01:55)

Workflow-related videos

- Creating a workflow (setup) (04:32)
- Processing invoices in a workflow (02:02)
- Adding coding fields (02:23)
- Account coding during verification (00:49)

Chapter 8

Apps

Tungsten AP Essentials is enhanced by a number of mobile and desktop apps.

- Tungsten AP Essentials Connect is a desktop application that you can install on a local computer to perform a number of tasks, such as uploading invoices to Tungsten AP Essentials or uploading master data.
- Mobile Approval is a lightweight app for mobile devices, so you can perform workflow and approval activities on the go.
- The Tungsten AP Essentials Reports Add-in for Microsoft Excel creates reports from Tungsten AP Essentials in Microsoft Excel.
- The Tungsten AP Essentials Data Import app for Microsoft Excel imports master data from Microsoft Excel to Tungsten AP Essentials.

Tungsten AP Essentials Connect

Tungsten AP Essentials Connect is a program you can install on a local computer to perform a number of tasks, such as uploading documents to AP Essentials. It is an alternative to uploading documents using the web interface in AP Essentials. Using AP Essentials Connect, you can upload documents automatically, reducing the effort of uploading documents one by one.

AP Essentials Connect runs as a service in the background, so it is not necessary to start a program each time you want to upload documents. Instead, you simply move the files you want to upload to the folders you specify during the installation setup.

AP Essentials Connect can be beneficial if you want to:

- Upload large numbers of documents.
- Automate the process of uploading documents.
- Download output data from AP Essentials.
- Automatically register supplier documents in external systems.

Note that the user interface for AP Essentials Connect is currently only available in English.

AP Essentials Connect system requirements

AP Essentials Connect supports the following operating systems:

- Windows 11
- Windows 10
- Windows 8.1
- Windows Server 2019 Standard

- Windows Server 2019 Datacenter
- Windows Server 2016

AP Essentials Connect requires the following:

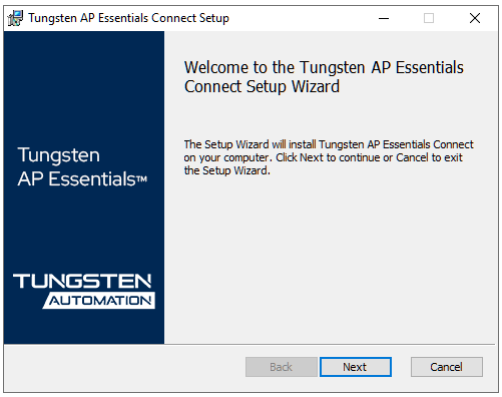
- Microsoft .NET Framework 4.8.
- An HTTPS connection that uses port 443.

Install AP Essentials Connect

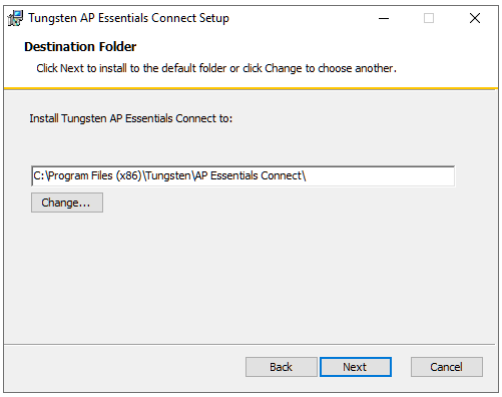
If you use a proxy connection to connect to the Internet, ensure you specify the Windows proxy settings before you install AP Essentials Connect.

To install AP Essentials Connect:

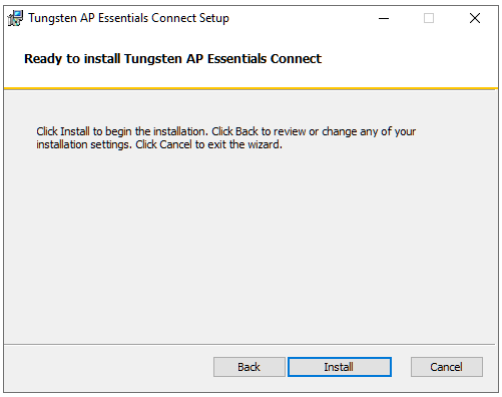
1. Download and run the setup file from the URL that corresponds to your location. Note that an HTTPS connection on port 443 is required to download the installation. After the installation, the connection is required to receive program updates.
   - Europe: https://production.readsoftonline.com/install/connect
   - Australia: https://au.readsoftonline.com/install/connect
   - US: https://us.readsoftonline.com/install/connect



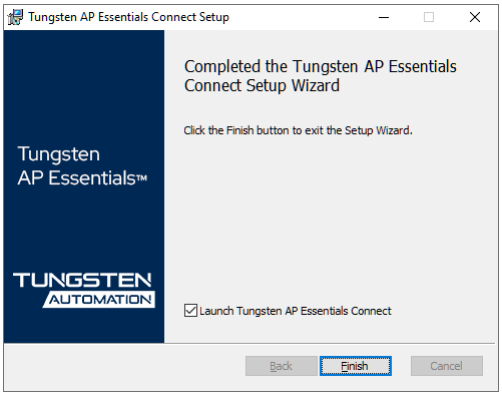
2. Specify the installation folder and select **Next** to continue.



3. Select **Install** to confirm your settings and install AP Essentials Connect.



4. After the installation, select **Finish** to launch AP Essentials Connect and run the setup wizard.



Troubleshoot the installation

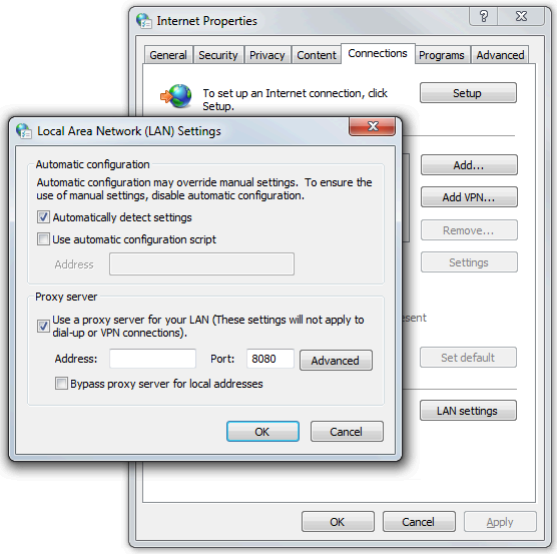
When running the installation, some computers display a message that states, "Installation directory must be on a local drive." If you receive this message, run this command as an administrator in Windows Command Prompt:

```
msiexec /i "C:\Program Files (x86)\Tungsten\AP Essentials Connect\Tungsten AP Essentials Connect.msi" WIXUI_DONTVALIDATEPATH="1"
```

Use AP Essentials Connect with a proxy server

To use AP Essentials Connect with a proxy server, you must adjust the **Local Area Network** settings for the computer that runs the AP Essentials Connect service. To configure the Windows settings:

1. Navigate to the Windows Internet Options.
2. Select the **Connections** tab in the dialog that appears, and select **LAN Settings**.



3. In the dialog that appears, select **Automatically detect settings** and **Use a proxy server for your LAN**.
4. Use the Proxy server settings to specify the details of your proxy server.

Proxy server authentication

If your proxy server requires authentication, you can edit two files to instruct AP Essentials Connect to use the credentials of the current Windows user for authentication.

1. Open the following files in a text editor:
   - `C:\Program Files (x86)\Tungsten\AP Essentials Connect \ReadSoft.Connect.Host.exe.config`
   - `C:\ProgramData\ReadSoft Software Services AB\ReadSoftOnlineConnect\Bin \App.config`
2. In each file, locate the `<system.net>` element and add the following line:

   `<defaultProxy useDefaultCredentials="true" />`

   If there is no `<system.net>` element, add the following to the `<configuration>` element.

```
<system.net>
   <defaultProxy useDefaultCredentials="true" />
</system.net>
```

Configure AP Essentials Connect

Before you begin, ensure your AP Essentials account is properly set up and your target system settings are correctly configured. After you create a new customer account, check the following:

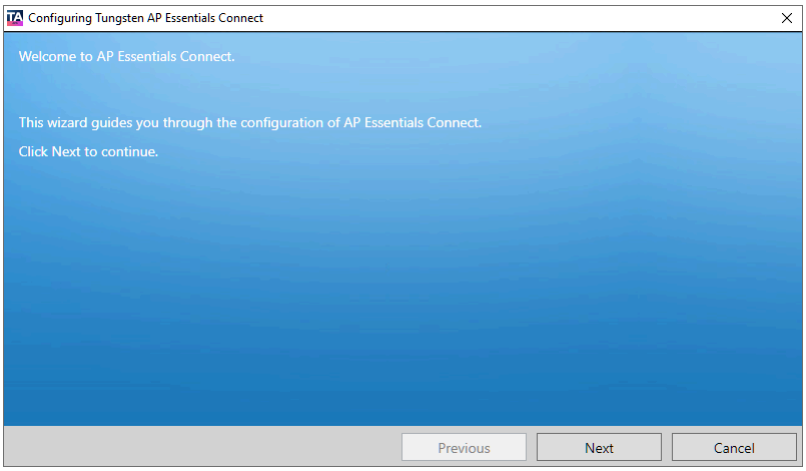
- The target system is specified (**Services** > **Target system**) for the account.
- You can also add buyers if your organization has more than one buyer.

After you create a customer account with appropriate services and buyers, you are ready to configure AP Essentials Connect.

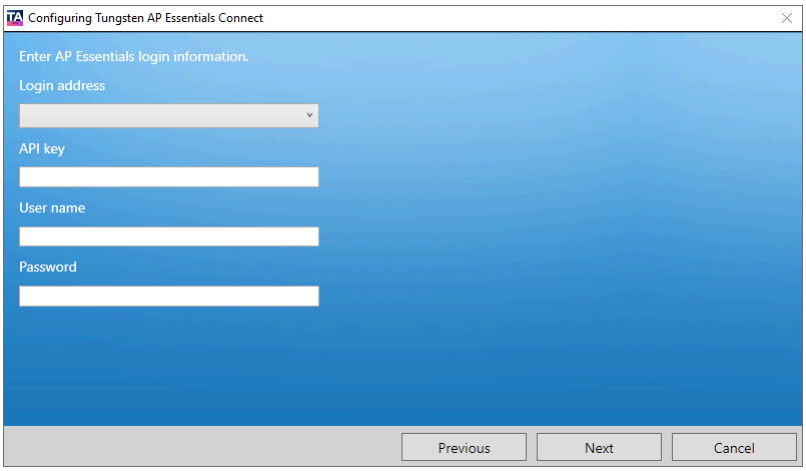
The first time you run AP Essentials Connect, a setup wizard appears to help you configure the initial settings. If you see the AP Essentials Connect dialog instead of the wizard, select **Configure** to display the wizard.

The steps that appear in the wizard may vary, depending on the services that are enabled in AP Essentials.

1. Select **Next** to begin.

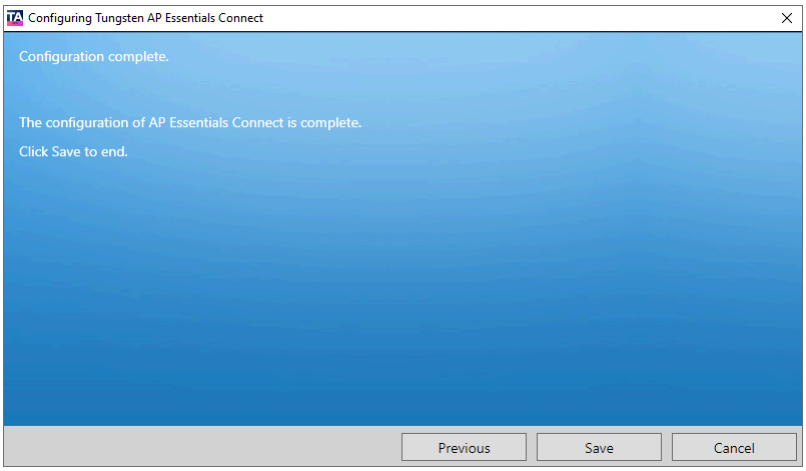


2. Enter the following information from your account-information email: **Login address**, **Authorization key**, **User name**, and **Password**.



Login address	• https://services.readsoftonline.com – for users in Europe. • https://services-us.readsoftonline.com – for US users. • https://services-au.readsoftonline.com – for users in Australia.
Authorization key (API Key)	Obtain the key from your account-information email or from an administrator. Administrators can find the key in the **Target system** view in Admin Center.
User name	The user name you use to log in to AP Essentials. The user must be a customer admin or customer user. If only one target system is enabled on the partner level, partner admins and partner users are also supported. Group users are not supported.
Password	The password for **User name**.

3. Configure optional dialog boxes that may appear, depending on the services that are enabled in AP Essentials.
   - Configure settings for uploading documents
   - Configure settings for uploading master data
   - Configure settings for uploading purchase-order data
   - Configure settings for downloading output data
4. After you complete the required procedures in step 3, select **Save** to save the settings and exit the wizard.



After you complete the configuration, you can use AP Essentials Connect.

AP Essentials Connect
AP Essentials Connect, you must run the configuration wizard again and specify the new upload locations.

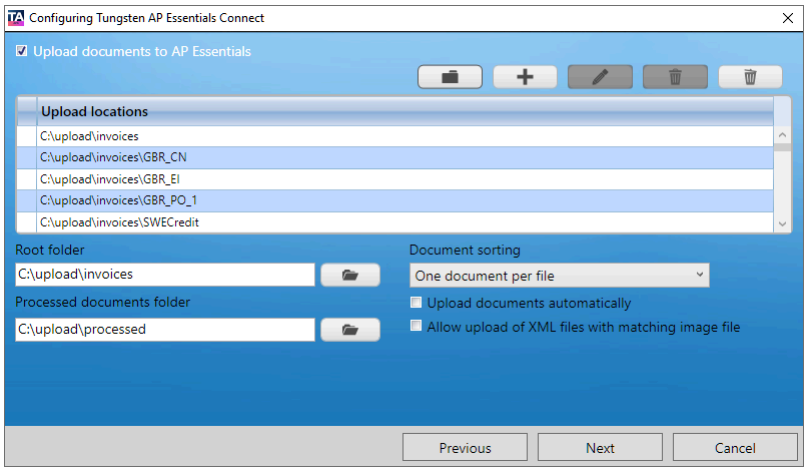
If you want to change the Output image format from TIF to PDF (Target system configuration settings), you must process all documents in the system before you change this setting. Failure to do so will result in output errors.

Windows users who run AP Essentials Connect must have Read, Write, and Modify permissions on all folders you specify in the setup.

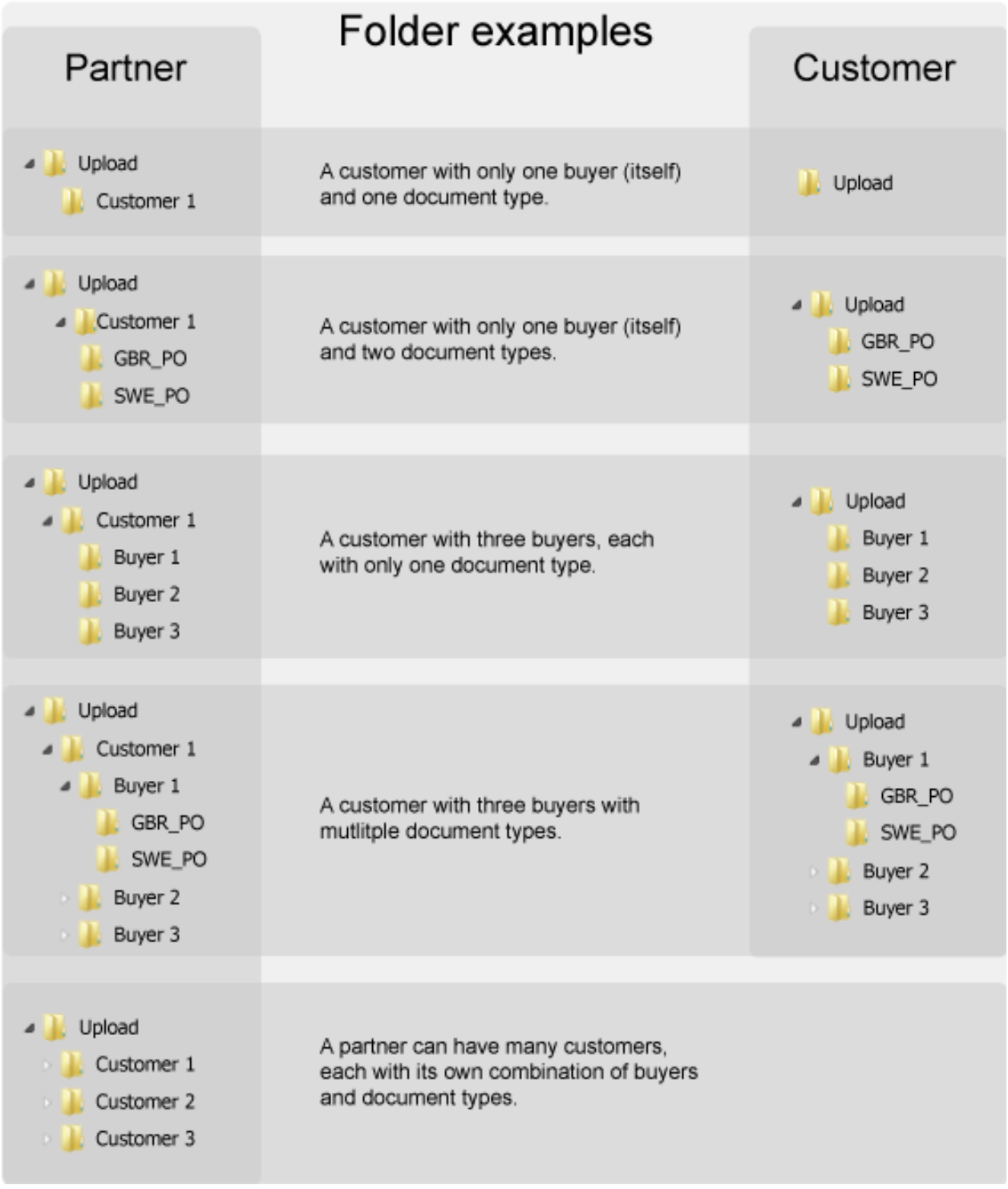
Configure AP Essentials Connect for document upload

Admin users must have the **Process documents** privilege to see this dialog and upload documents using AP Essentials Connect.

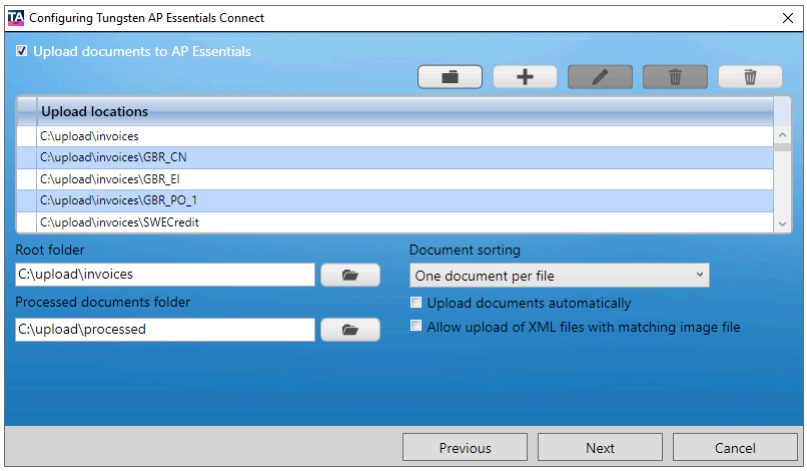
If the Image upload service is enabled, you can use AP Essentials Connect to upload documents to AP Essentials. Customers can upload their own documents for processing, and partner administrators can upload images on behalf of all of their customers.



Ideally, you specify the Root folder, and then select to automatically generate the subfolders. Subfolders are created for each buyer defined in AP Essentials. If no buyers are defined, the subfolder has the same name as the organization (customer account). These subfolders determine which buyer the documents are connected to when they are uploaded to AP Essentials. Additional subfolders are created for each document type, if the buyer has more than one document type.



In this example, the Folder containing scanned images is named "Upload."



- **Upload documents to AP Essentials** – Specifies whether you use AP Essentials Connect to upload documents to AP Essentials.
- – Auto-generates the folder structure inside the **Root folder**.
- – Displays a dialog that you can use to add a folder location manually. When you specify the folder location, you can optionally associate a buyer/seller and document type with the folder. Partner administrators can also specify a customer account.
- – Displays a dialog that you can use to edit the selected folder location.
- – Removes the selected folder from the Upload locations list. Note that the folder is not deleted from the hard drive.
- – Removes all of the folders from the Upload locations list. Note that the folders are not deleted from the hard drive.
- **Upload locations** – Displays a list of locations where AP Essentials Connect looks for images to upload to AP Essentials.
- **Root folder** – Specifies the root location of the document upload location.
- **Processed documents folder** – Specifies the folder where you want to move the images after they have been uploaded.
- **Document sorting** - Determines how many documents each file can contain. See Help for more information about page separation.
- **Upload documents automatically** - When this setting is selected, files located in subfolders of the Folder list are automatically uploaded as soon as they are detected. If this setting is not selected, you must select the Upload documents button in the AP Essentials Connect interface to manually upload images.
- **Allow upload of XML files with matching image file** - Normally, when you upload XML documents, AP Essentials automatically creates a document image from the XML data, so users can visualize the data during verification. If your solution uses XML documents and a document image file, select this setting, so you can upload both of these files, and AP Essentials will display the original document image during verification, instead of creating one from the XML data. This is helpful because it offers the superior data capture of XML, while displaying the original document image, that might contain additional information that is not available in the XML.

  Ensure the corresponding file pairs have the same file name.

This setting does not apply to XRechnung documents. XRechnung documents always use a system-generated document image created from the XML data, even if a matching image file is present in the input folder.

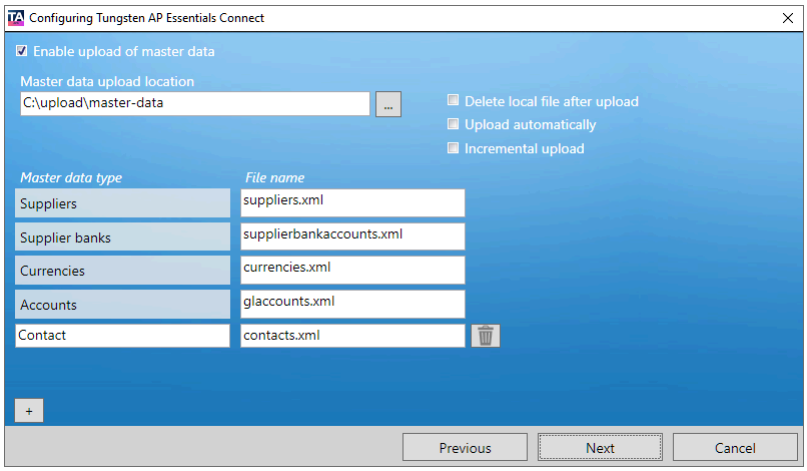
Configure AP Essentials Connect for master data upload

Master data is business information—such as supplier address information or other identifying information—that is used by multiple systems and applications. AP Essentials can use master data from an external system to provide information when processing documents. For example, AP Essentials can use supplier master data to populate the Supplier list during verification.

If the Master data service is enabled, you can use AP Essentials Connect to automatically upload master data to AP Essentials.

Ideally, you set up your financial system to export master data (in the XML format outlined below) to a folder that you specify in the AP Essentials Connect settings. AP Essentials Connect then checks the folder every minute for new files to import.

Each time you import supplier data, all existing suppliers are removed, then the new data is imported. This ensures that your supplier master data only includes current suppliers.



The settings and master data types that appear in this dialog can vary, depending on other settings.

- **Enable upload of master data** – Specifies whether you use AP Essentials Connect to upload master data to AP Essentials.

  You must be an administrator to upload buyers.

- **Master data upload location** – Specifies the location where AP Essentials Connect looks for master data to upload to AP Essentials.

If you are a partner, subfolders are automatically created for each customer account. If a customer account has buyers defined, subfolders are created for each buyer too. Master-data files that are put in the correct corresponding folders are automatically uploaded by AP Essentials Connect. After AP Essentials Connect uploads the master data, files that are successfully imported are moved to the Imported folder. Files that cannot be imported are copied to the Error folder.

In this example, the Folder containing master data to upload is named "Master data."

- **Master data type** – Specifies the type of master data you want to import. This is also the internal name that you reference, for example, when adding custom fields to a document type. AP Essentials supports these master data types by default:
  - **Suppliers**
  - **Supplier banks**
  - **Currencies**
  - **Cost centers**
  - **Supplier cost centers**
  - **Projects**
  - **Accounts** (General-ledger accounts) - Only available when the Workflow service is enabled.
  - **Field values**
  - **Customers, add or update** - Only available when using accounts receivable document processes. Incremental upload is always applied to customer master data that is automatically uploaded through Windows services.
  - **Customers, delete** - Only available when using accounts receivable document processes. This master data type is unique because it deletes the specified items (customers) rather than uploading them.
- **File name** – Specifies the name of the XML file that contains the master data that you want to import.
- **Delete local file after upload** – If selected, the XML file is deleted after it is imported successfully instead of being moved to the Imported folder.

- **Upload automatically** – If selected, AP Essentials Connect checks for new files to import every minute. If you do not select this setting, you can import XML files manually.
- **Incremental upload** – When selected, AP Essentials Connect compares the latest XML file with the previous XML file that was uploaded, and uploads only the new changes. This saves time and decreases network traffic significantly.

  Example

  If you upload an XML file that contains 100 suppliers, and then you upload a new file with two new suppliers (102 in total), AP Essentials Connect compares the files and uploads only the two new suppliers. Conversely, if the second upload contains only 50 suppliers, AP Essentials deletes the missing suppliers from the master data, keeping only the 50 suppliers that are specified in the new XML file.

  AP Essentials Connect uses incremental upload for files that exceed 30 MB in size, even if you do not select this setting.

  If you process documents using accounts receivable processes, incremental upload is always applied to customer master data that is automatically uploaded.

Master data formats

AP Essentials can consume several types of master data. Use the file names specified below when creating the master-data files that you save in the Folder containing master data to upload. You can select the file names to see the XML schema that is used to validate the master data.

Type	File name (schema)
Suppliers	suppliers.xml
Cost centers	costcenters.xml
Supplier cost centers	suppliercostcenters.xml
Supplier banks	supplierbankaccounts.xml
Currencies	currencies.xml
Projects	projects.xml
Accounts	glaccounts.xml
Field values *	fieldvalues.xml

* Although field values are not technically master data, you can upload them using AP Essentials Connect. Field-value data enables you to specify valid field values for interpreted fields. If a field does not validate according to the specification in fieldvalues.xml, it receives a validation error in AP Essentials Office.

Sample

The XML data that you submit for one supplier can look like this, for example:

```
<?xml version="1.0"?>
<Suppliers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <Supplier>
```

```
  <SupplierNumber>00001</SupplierNumber>
  <Name>Polychemtex Inc.</Name>
  <Description>Supplier of quality goods and services at low prices.</Description>
  <TaxRegistrationNumber>GB999999973</TaxRegistrationNumber>
  <OrganizationNunmber>5561947986</OrganizationNunmber>
  <Street>1 Main Street</Street>
  <PostalCode>DH9OTB</PostalCode>
  <City>Townsville</City>
  <CountryName>UK</CountryName>
  <PaymentTerm>30 Days</PaymentTerm>
  <PaymentMethod>Direct Deposit</PaymentMethod>
  <CurrencyCode>GBP</CurrencyCode>
  <Blocked>0</Blocked>
  <TelephoneNumber>4960123</TelephoneNumber>
  <FaxNumber>4960122</FaxNumber>
  <TaxCode>012345</TaxCode>
 </Supplier>
</Suppliers>
```

Folder naming conventions for master data

By default, AP Essentials Connect does not allow special characters, such as dots and slashes, in folder names that you use for uploading and downloading master data. When AP Essentials Connect encounters a special character, it is automatically replaced with an underscore when creating folders. However, you can override the default behavior by adjusting the AP Essentials Connect configuration file, ReadSoft.Connect.Host.exe.config (default location: `C:\Program Files (x86)\Tungsten\AP Essentials Connect\`). This is helpful, for example, if you have an organization that contains special characters in its name, and you require folder names other than the default naming convention.

To override the default behavior, you use XML to specify the incoming name (object name) and the outgoing name (folder name). For example, assume you have a customer account named "example.com". When AP Essentials Connect makes folders for example.com, it changes the name to "example_com". By inserting the following XML in ReadSoft.Connect.Host.exe.config, you can preserve the original name:

```
<FolderNameSubstitutions>
 <FolderNameSubstitution>
  <ObjectName>example.com</ObjectName>
  <FolderName>example.com</FolderName>
 </FolderNameSubstitution>
</FolderNameSubstitutions>
```

In the next example, the dot is changed to a dash instead of the default (underscore).

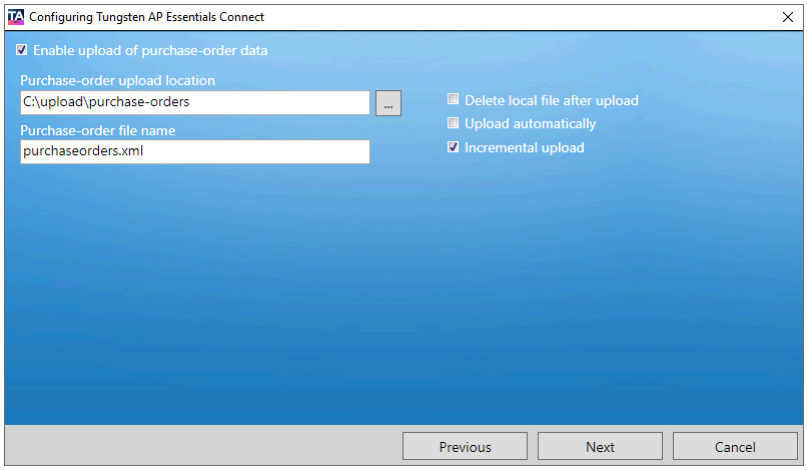
```
<FolderNameSubstitutions>
 <FolderNameSubstitution>
  <ObjectName>example.com</ObjectName>
  <FolderName>example-com</FolderName>
 </FolderNameSubstitution>
</FolderNameSubstitutions>
```

Configure AP Essentials Connect for purchase-order data upload

If the Purchase order service is enabled in AP Essentials Connect, you can use AP Essentials Connect to upload purchase-order data to AP Essentials.

For the Dynamics AX 2012 integration, purchase-order data is synchronized automatically, so you do not need AP Essentials Connect to upload purchase-order data.

The availability of this dialog varies, depending on your role and setup.



- Enable upload of purchase-order data – Specifies whether you use AP Essentials Connect to upload purchase-order data to AP Essentials.
- Purchase order upload location – Specifies the location where AP Essentials Connect looks for purchase-order data to upload to AP Essentials.

For partner accounts, AP Essentials Connect automatically creates subfolders for each customer account. If a customer account has buyers, AP Essentials Connect creates subfolders for each buyer. After AP Essentials Connect uploads the XML files, files that are successfully imported are moved to the Imported folder. Files that cannot be imported are copied to the Error folder.

- **Purchase-order file name** – Specifies the name of the XML file that contains the purchase-order data that you want to import.
- **Delete local file after upload** – If selected, the XML file is deleted after it is imported successfully instead of being moved to the Imported folder.
- **Upload automatically** – If selected, AP Essentials Connect checks for new files to import every minute. If you do not select this setting, you can import XML files manually.
- **Incremental upload** – When selected, AP Essentials Connect compares the latest XML file with the previous XML file that was uploaded, and uploads only the new changes. For example, if you upload a PO file that contains 100,000 purchase orders, and then you upload a new file with two additional purchase orders (100,002 in total), AP Essentials Connect compares the files and uploads only the two new purchase orders. This saves time and decreases network traffic significantly.

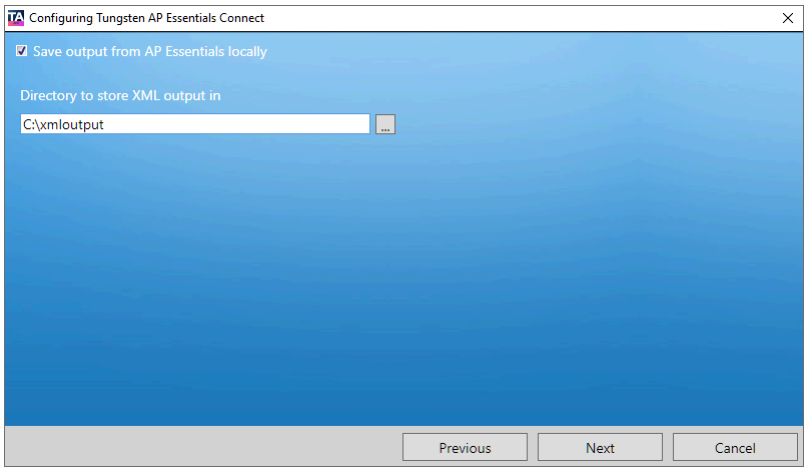
  AP Essentials Connect uses incremental upload for files that exceed 30 MB in size, even if you do not select this setting.

Configure AP Essentials Connect for output download

If the Output to target system service is enabled in AP Essentials, and the target system is XML locally, you can use AP Essentials Connect to download processed document data and images from AP Essentials to a local server.

Admin users must have the **Process documents** privilege to see this dialog and download output data using AP Essentials Connect.

The availability of this dialog varies, depending on your role and setup.



- **Save output from AP Essentials locally** – Specifies whether you use **Downloading output data** to download processed document data to a local folder.
- **Directory to store XML output in** – Specifies the folder where you want the output files to be saved. If you are a partner admin or partner user, subfolders are automatically created for each customer account.

In this example, the Directory for storing XML output is named Download.

Use AP Essentials Connect

After following the procedures above to set up AP Essentials Connect, you are ready to use it in production.

Do not run multiple instances of AP Essentials Connect at the same time for a single customer account. Doing so causes errors because each instance competes to process the same documents.

Upload documents using AP Essentials Connect

You can upload documents to AP Essentials in these supported file formats using AP Essentials Connect.

Admin users must have the **Process documents** privilege to upload documents using AP Essentials Connect.

Automatic uploading

If you selected **Upload documents automatically** when configuring AP Essentials Connect for uploading documents, no interaction is required. When files are moved to the subfolder(s) of the location you specified in the configuration, they are automatically uploaded.

AP Essentials Connect runs continuously in the background as a Windows service and periodically checks (every 15 minutes by default) for new files to upload. When new files are found, they are uploaded automatically. Even if you restart the computer, AP Essentials Connect runs automatically in the background with no need for interaction. If a problem occurs during the upload, the upload operation will timeout after 10 minutes.

Most users use automatic uploading, and set up their scanners to save files directly in the appropriate subfolders that are created during the configuration.

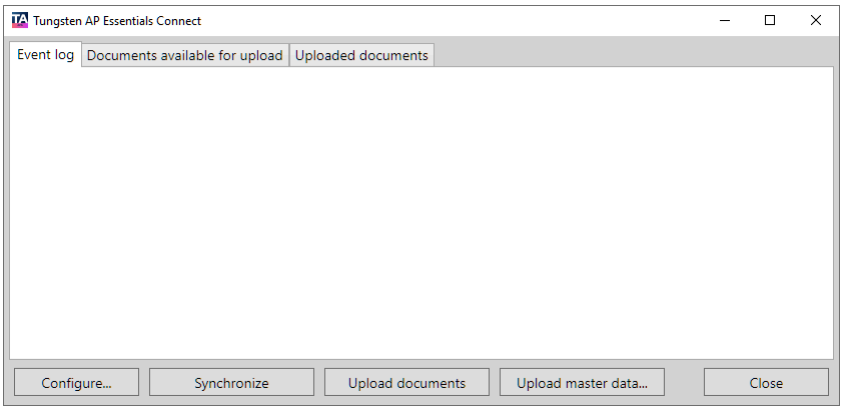
If you have more than one document type, but you place files in the parent folder of the document type folders, the files are uploaded and processed using the Default document type specified in the Extraction service settings.

Likewise, if you use automatic document subtype classification, place documents in the root upload folder of the buyer or customer, rather than a document type subfolder, to use automatic document classification.

Manually upload documents

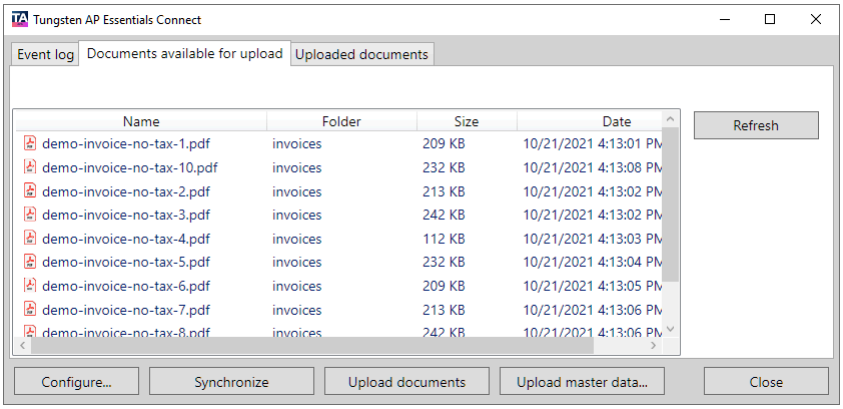
If you did not select **Upload documents automatically** when configuring AP Essentials Connect, you can upload files manually at your convenience:

1. Start AP Essentials Connect from the Windows Start menu.

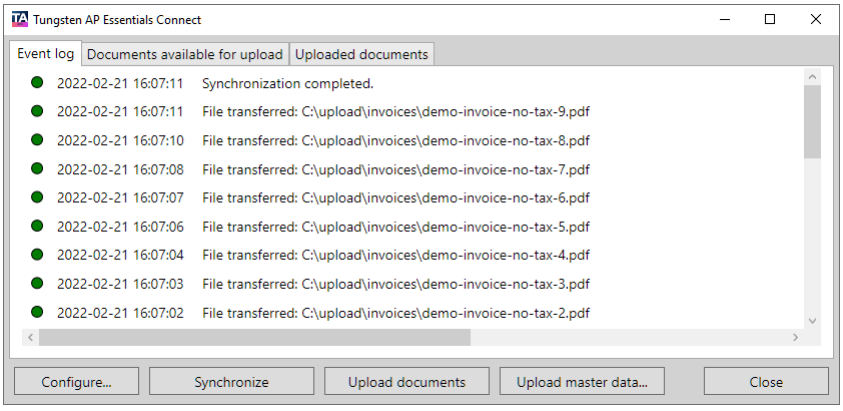


2. Move or scan document image files to an appropriate subfolder of the location you specified in the configuration, and select **Refresh** so you can see the files in the list. You can also select the **Event log** tab to check for errors.

If you do not see files in the list, ensure you place the files in a subfolder that corresponds to an organization or buyer in AP Essentials.



3. Select **Upload documents**. You can select **Refresh** to see that the images have uploaded or use the Event log to monitor the progress of your uploads.



Upload master data using AP Essentials Connect

Master data can be uploaded manually or automatically through a Windows service that runs in the background.

Each time you import supplier data, all existing suppliers are removed, then the new data is imported. This ensures that your supplier master data only includes current suppliers.

Automatically upload master data

If you selected **Upload automatically** when configuring AP Essentials Connect for master data, no interaction is required to upload master data. When master-data files are moved to the folder of the location you specified in the configuration, they are automatically uploaded.

AP Essentials Connect runs continuously in the background as a Windows service and checks every 12 hours for new master-data files. When new master-data files are found, they are uploaded automatically. Even if you restart the computer, AP Essentials Connect runs automatically in the background with no need for interaction. Depending on the amount of master data uploaded, it can take a moment before the data is available for use.

If you process documents using accounts receivable processes, incremental upload is always applied to customer master data that is automatically uploaded.

Upload master data manually

If you did not select **Upload automatically** when configuring AP Essentials Connect for master data, you can upload master-data files manually at your convenience. There are two methods for manually uploading master data:

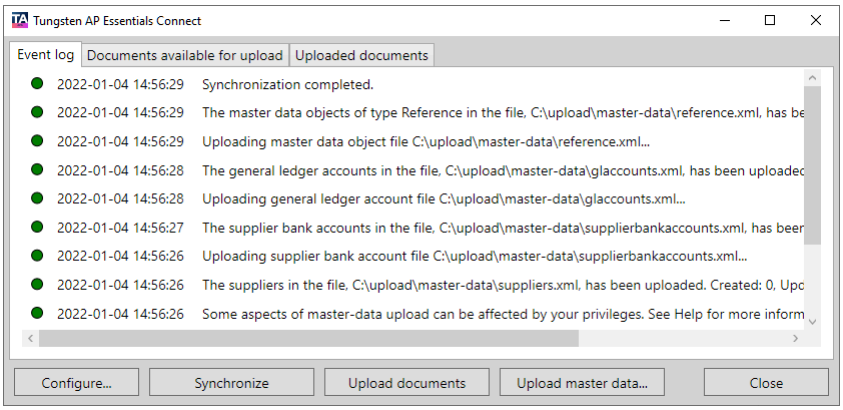
- Selecting the **Synchronize** button synchronizes the master data according to the master data settings you specified in the configuration wizard. This option initializes the action that occurs when master data is uploaded automatically.
- Selecting the **Upload master data** button displays a dialog that you can use to upload a single file containing master data. This is useful for one-time uploads, such as currency master data.

When master data is uploaded or synchronized, it is noted in the **Audit trail** view along with a description of whether or not the operation succeeded.

The customer master data upload can be up to 200 MB. Other master-data files cannot exceed 200 MB in size.

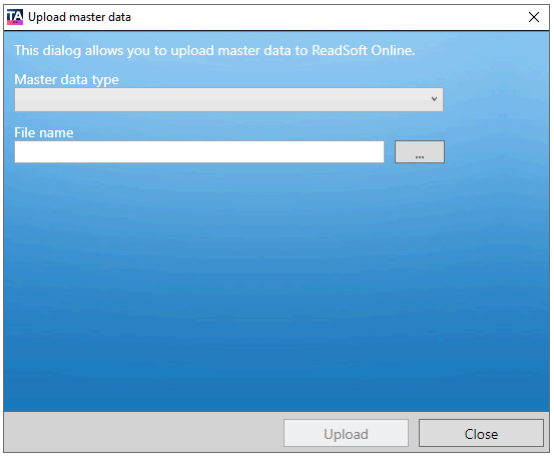
Select the **Synchronize** button

1. Start AP Essentials Connect from the Windows Start menu.
2. Move master-data files to an appropriate folder (or subfolder if you are a partner) of the location you specified in the configuration.
3. Select **Synchronize** to upload the master-data files.



Select the **Upload master data** button

1. Start AP Essentials Connect from the Windows Start menu.
2. Select **Upload master data**.
3. In the dialog that appears, specify the **Master data type**, and use the browse button to select the file that contains the master data you want to upload.



When uploading customer master data through the **Upload master data** button, all existing customer master data is deleted before importing the new customer master data.

The customer master data upload can be up to 200 MB. Other master-data files cannot exceed 200 MB in size.

4. Select **Upload**.
   The progress is displayed in the **Event log** tab, and an additional dialog is displayed after the master data uploads successfully.

Download output data using AP Essentials Connect

If you selected **Save output from AP Essentials locally** in the AP Essentials Connect configuration, processed document data from AP Essentials is automatically downloaded to the folder you specified in the configuration. If you are a partner, a subfolder is created for each customer account. Subfolders are also created for each buyer, if any exist, and for each document type.

Downloading begins immediately after you complete the setup. AP Essentials Connect checks for new data continuously every two minutes and downloads up to 5,000 documents at a time. After AP Essentials Connect downloads the documents, it continues checking every two minutes for more documents. Each downloaded document consists of one XML file (UTF-8) containing the processed data and one multi-TIFF image or PDF of the document. The files are named using a unique ID (GUID).

Admin users must have the **Process documents** privilege to download output data using AP Essentials Connect.

Troubleshoot AP Essentials Connect

Check these issues if you have problems running AP Essentials Connect.

Generic issues

Do not run multiple instances of AP Essentials Connect at the same time for a single customer account. Doing so causes errors because each instance competes to process the same documents.

If you have problems running AP Essentials Connect:

- Ensure that computers that run AP Essentials Connect have access to the URL below that corresponds to your location. AP Essentials Connect uses these URLs to install updates. After the August 2026 release, new URLs take effect.

Current URLs	
Europe	https://webeyeprod.blob.core.windows.net/onlineconnect/install/Deployment.manifest
Asia and Australia	https://webeyeprodasia.blob.core.windows.net/onlineconnect/install/Deployment.manifest
North America	https://webeyeprodna.blob.core.windows.net/onlineconnect/install/Deployment.manifest
New URLs (effective with the August 2026 release)	
Europe	https://connect-updates-prod-eu.readsoftonline.com
Asia and Australia	https://connect-updates-prod-as.readsoftonline.com
North America	https://connect-updates-prod-na.readsoftonline.com

You can select the links above to test if you have access. Select the links using the same computer that runs AP Essentials Connect. If you receive a 404 error, you do not have access.

- Ensure you can download the files that are listed in the page that is displayed when you select one of the links above. To do this, replace "Deployment.manifest" in the URL with one of the file names in the list.
- Log in to AP Essentials using the same computer that runs AP Essentials Connect to ensure you can connect to AP Essentials.
- If you use a proxy connection, ensure the settings are applied to the same user/account that runs AP Essentials Connect. By default, this is a local System account. To test this, access AP Essentials using a location above, then change the AP Essentials Connect user to the same Windows user you tested with.

Mobile Approval

Invoice approval is available in a lightweightlightweight app for mobile devices, so you can perform workflow and approval activities on the go. Using the mobile version, you can manage financial processes and make informed decisions from anywhere, anytime. For busy approvers, the mobility and flexibility can deliver significant efficiency gains.

Using the mobile approval app requires Workflow services, and you are limited to performing basic tasks related to workflow and approval. TypicallyTypically, the mobile approval is automatically displayed when accessing Tungsten AP Essentials Office from a mobile device. If the mobile version is not displayed, however, you can access it manually by appending your login URL with "mobile". For example, if you normally log in to Tungsten AP Essentials at `https://production.readsoftonline.com/` you can access the mobile version at `https://production.readsoftonline.com/mobile`.

Currently, you can perform these tasks:

- View document images and captured information.
- View account coding.
- Approve documents.
- Reject documents.
- Delete documents.
- Request information about a document.
- Reply to requests for information.
- Hold and unhold documents.
- Add and view comments.

Add mobile approval to your home screen

We recommend adding the mobile approval app to the home screen on your mobile device.

Android

1. Launch Chrome for Android and navigate to the mobile version of Tungsten AP Essentials Office as described above.

2. Tap the menu button and tap **Add to homescreen**.
   Other Android web browsers work in a similar manner.

iPhone

1. Launch the Safari browser on your iPhone and navigate to the mobile version of Tungsten AP Essentials Office as described above.
2. Tap the **Share** button.
3. Tap the **Add to Home Screen** icon in the **Share** menu.

Other browsers, like Chrome for iOS, do not offer this feature. Due to the limitations in iOS, only Safari is allowed to add shortcuts to the home screen.

View documents

After you log in to Tungsten AP Essentials Office for mobile devices, a list of documents that require your attention appears. This view is equivalent to the **Assigned to me** view in the desktop version. Tap a document in the list to view its details. Use the tabs at the top of the screen to navigate between views of the captured field values () and coding lines, document images (), and comments (). Note that you can tap a coding line to see more details.

Perform actions

Use the buttons at the bottom of the screen to perform actions on the document. The actions that you can perform on a document can vary, depending on document status and user privileges. Buttons for the most commonly used actions appear at the bottom of the screen. If you cannot see the button you need, tap the vertical ellipsis () to view additional actions. You can perform actions such as:

- ApproveApprove documents ().
- RejectReject documents ().
- DeleteDelete documents ().
- RequestRequest information () about the document.
- Reply to requests for information ().
- PutPut documents on hold ().
- AddAdd comments to documents ().

Approve documents

To approve a document in a workflow, tap at the bottom of the screen. After you approve a document, you return to the document list view.

Reject documents

Rejecting a document is useful, for example, if you want to prevent a document from being processed and sent to the target system. To reject a document in a workflow:

1. From the **Fields** tab (), tap .

2. Use the view that appears to provide the reason for rejecting the document.
3. Tap **Reject**.

Delete documents

You can delete documents at any time if you encounter a problem with a document and determine that the best solution is to delete it.

You cannot restore documents that have been deleted. If you delete documents accidentally, you must send the documents to Tungsten AP Essentials again to process them again.

To delete a document in a workflow:

1. From the **Fields** tab (), tap .
2. Use the view that appears to provide the reason for deleting the document.
3. Tap **Delete document**.

Request information

To request information from another user about an invoice:

To request information about a document:

1. From the **Fields** tab (), tap .
2. Determine whether you want to send a message to a Tungsten AP Essentials user () or send an email message () by tapping the appropriate icon.
3. Specify the recipient of the message in the **To** box.
4. Write your comment or question in the **Message** box.
5. Tap **Request information** to send the request.

To reply to a request for information:

1. From the **Fields** tab (), tap .
2. Write your reply in the **Message** box that appears.
3. Tap **Post information** to send the reply.

Put documents on hold

Sometimes you need to place a document on hold, such as when a document lacks information, and you want to make sure it does not get processed until the issue is resolved. When a document is on hold, you cannot process the document until you unhold it. You cannot perform actions such as verifying, approving, or rejecting the document. However, you can save changes to field values, add comments and attachments, or delete the document.

To hold a document in a workflow:

1. From the **Fields** tab (), tap .

2. Use the view that appears to provide the reason for holding the document.
3. Tap **Hold**.

To unhold a document, open a document that is on hold and tap .

Add comments

You can view comments on the **Comments** tab of a document. To add a new comment:

1. From the **Comments** tab (), tap .
2. Use the box that appears to write a comment.
3. Tap **Add comment**. Your message is added to the comments.

Reports for Microsoft Excel

The AP Essentials Reports Add-in for Microsoft Excel lets you easily create reports from Tungsten AP Essentials in Microsoft Excel.

The add-in supports Excel 2016 (desktop), Office 365, and Excel Online. Earlier versions are not supported. Note that Excel Online cannot open workbooks larger than 5 MB.

Generate reports

To generate reports:

1. Create a new blank workbook in Microsoft Excel.
2. Enable the AP Essentials Reports add-in from the **Office Add-ins** button (**Insert** tab) in Microsoft Excel.
3. In the view that appears, specify:
   - The login URL that you use to log in to AP Essentials.
   - The administrator user name and password of a customer or partner administrator. Single sign-on credentials are not supported.
   - If two-factor authentication is enabled, you must specify a two-factor token. The token is automatically saved in the current workbook for 30 days. If you create a new workbook, you must provide a new token.
4. Select the reports you want to generate and select **Generate**.
   The add-in can generate reports and data sets:

Reports	
Invoice aging	Lists the number of invoices in the system according to these date ranges: greater than 1, 30, 45, and 65 days. This report helps determine how many invoices are overdue for payment. In order to appear in this report, the invoice must have values for the invoice date, currency, and gross amount. Credit invoices are not included in this report. The report includes invoices across all buyers.
Pending invoices	Lists all invoices that are pending verification or approval. This report includes this information about each invoice: • Id • CustomerId • CustomerName • BuyerId • BuyerName • BuyerExternalId • SupplierName • SupplierNumber • TrackId • CreatedDate • Status • Filename • DocumentExternalId • invoicenumber • invoicedate • invoicetotalvatincludedamount • invoicecurrency • invoicecredit
Data sets	

Reports	
Document details	Lists field information about documents currently in the system. Document-detail reports include this information about each invoice: • Id • BatchId • TrackId • CustomerGroupId • CustomerGroupName • CustomerId • CustomerName • BuyerId • BuyerName • BuyerExternalId • CreateDate • CreatedBy • SupplierName • SupplierNumber • Permalink • Status • Filename • DocumentExternalId • invoicecredit • invoicenumber • invoicedate • invoiceordernumber • deliverynote • invoicetotalvatexcludedamount • invoicetotalvatratepercent • invoicetotalvatamount • invoicetotalvatincludedamount • invoicecurrency • suppliervatregistrationnumber Custom fields also appear in the reports. If you use the API, line-item table and accounting field information is also available.
Document details history	Lists field information about documents that have been completely processed within the date range you specify. Only data from the past two years is available. In addition to all of the fields in the document details data set, this data set also includes SuccessfullyProcessedTime.

Reports	
Document process status	Lists status information about documents currently in the system. • Id • TrackId • CustomerGroupId • CustomerGroupName • CustomerId • CustomerName • BuyerId • BuyerName • BuyerExternalId • Filename • SupplierName • SupplierNumber • InvoiceDate • InvoiceNumber • PurchaseOrderNumber • TotalNetAmount • TotalAmount • ReceiveTime • PreprocessingStartTime • PreprocessingEndTime • ExtractionStartTime • ExtractionEndTime • LatestVerifiedTime • LatestVerifier • LatestVerifyRejectTime • LatestVerifyRejecter • LatestWorkflowStarter • LatestApproveTime • LatestApprover • LatestWorkflowRejectTime • LatestWorkflowRejecter • LatestWorkflowRerouteTime • LatestWorkflowRerouter • LatestTargetSystemRejectTime • CreatedDate • CreatedBy • InvoiceCurrency • LatestVerifyInfoRequestTime • LatestVerifyInfoRequester • LatestWorkflowInfoRequestTime • LatestWorkflowInfoRequester • LatestComment • Filename • DocumentExternalId

Reports	
Document process status history	Lists status information about documents that have been completely processed within the date range you specify. Only data from the past two years is available. In addition to all of the fields in the document process status data set, this data set also includes SuccessfullyProcessedTime.
Document consumption details	Lists information about how much customers consume (volume usage and service utilization) so you can collect data that is useful for billing. Only data from the past two years is available. • Id • CustomerGroupId • CustomerGroupName • CustomerId • CustomerName • CustomerModel • CustomerOrganizationNumber • CustomerVatNumber • CustomerExternalId • CustomerBillingReportReference • BuyerId • BuyerName • BuyerExternalId • CreatedDate • TrackId • SupplierName • SupplierNumber • InvoiceNumber • LatestVerifier • LatestVerifiedTime • ContainsLineItemTable • AddedToStorage • WorkflowUsed • SuccessfullyProcessedTime • Filename • DocumentExternalId

Data Import for Microsoft Excel

The Tungsten AP Essentials Data Import app for Microsoft Excel lets you easily import master data from Microsoft Excel to AP Essentials.

The add-in supports Excel 2013 (desktop), Excel 2016 (desktop), Office 365, and Excel Online. Earlier versions are not supported. Note that Excel Online cannot open workbooks larger than 5 MB.

To import master data from Microsoft Excel to AP Essentials:

1. Install and activate the app from the Microsoft Office Store.
2. Open an Excel document that contains the master data that you want to upload to AP Essentials.

   Make a separate Excel sheet for each master-data type. For example, you can have one sheet for suppliers and one sheet for currencies. Each sheet must be named according to the master data type: Suppliers, Currencies, GLAccounts, etc.

   PurchaseOrders and PurchaseOrderLines also need one sheet each. OrderNumber is used to connect line items (PurchaseOrderLines) to corresponding purchase orders (PurchaseOrders), so lines matching an order number are imported as a part of the purchase order.

   Make sure that the column names in Excel conform to the names specified in the tables below. The column names are not case sensitive, and spaces are ignored.

   See examples in this Excel file.
3. Open the AP Essentials Data Import app and specify:
   - The Login URL that you use to log in to AP Essentials.
   - The user name and password. Single sign-on credentials are not supported.
   - If two-factor authentication is enabled, you must specify a Two-factor token. The token is automatically saved in the current workbook for 30 days. If you create a new workbook, you must provide a new token.
4. Select **Synchronize** to start the master-data upload. The app searches the current Excel document for spreadsheets that contain master data and uploads the data to AP Essentials.

When you save the Excel document, the login address and user name are saved with the Excel document. The password is not saved.

Suppliers

Supplier upload is only available for accounts that use accounts payable document processes.

Each time you import supplier data, all existing suppliers are removed, then the new data is imported. This ensures that your supplier master data only includes current suppliers.

Column name	Alternative names	Sample data
Name *	SupplierName	Polychemtex Inc.
Number *	SupplierNumber	00001
Street	StreetAddress, Address	1 Main Street
Description	Desc	Supplier of quality goods

Column name	Alternative names	Sample data
Buyer	Organization, LegalEntity	My Buyer You can specify buyer names or external IDs.
TaxCode	VATCode	123456789
TaxRegistrationNumber	VatRegistrationNumber, TaxRegNo	GB999999973
OrganizationNumber	OrganisationNumber, OrgNo	5561947986
PostalCode	ZipCode, Zip	DH9OTB
City	Town	Townsville
Location	-	North
State	-	Texas
Country	CountryName	US
PhoneNumber	TelephoneNumber, PhoneNo, Phone	(312) 555-1234
FaxNumber	FaxNo, Fax	(312) 555-2234
PaymentTerm	PaymentTerms	30 Days
PaymentMethod	-	Direct Deposit
CurrencyCode	Currency, Cur	GBP
Blocked (Active)	Disabled (Enabled)	1/true/X (0/false)
LockOnlineLearning	LockLearning	1/true/X
BypassVerification	-	1/true/X
RequirePoForInvoices	InvoicesRequirePo	1/true/X
RequirePoForCreditNotes	CreditNotesRequirePo	1/true/X
ExcludeFromIdentification	-	1/true/X

* Required

Customers

Customer upload is only available for accounts that use accounts receivable document processes.

Each time you import customer data, new customers are added and existing customers are updated. No customers are deleted when the new data is imported. You can upload up to 2,000 customers at once.

Column name	Alternative names	Sample data
Name *	CustomerName	Polychemtex Inc.
Number *	CustomerNumber	00001

Column name	Alternative names	Sample data
Description	Desc	North branch
Seller	Organization, LegalEntity	My Seller You can specify seller names or external IDs.
TaxRegistrationNumber	VatRegistrationNumber, TaxRegNo	GB999999976
OrganizationNumber	OrganisationNumber, OrgNo	K28TF62YM3
Street	StreetAddress, Address	1 Main Street
PostalCode	ZipCode, Zip	DH9OTB
City	Town	Townsville
State	-	Texas
Country	CountryName	US
PhoneNumber	TelephoneNumber, PhoneNo, Phone	(312) 555-1234
FaxNumber	FaxNo, Fax	(312) 555-2234
Blocked (Active)	Disabled (Enabled)	1/true/X (0/false)
BypassVerification	-	1/true/X
ExcludeFromIdentification	-	1/true/X
LockOnlineLearning	LockLearning	1/true/X

* Required

Currencies

Column name	Alternative names	Sample data
Code *	CurrencyCode, Number	SEK
Name	CurrencyName, Description	Swedish Krona
Rate	ExchangeRate	1.0
Active	Enabled	1/true/X (0/false)
Buyer	Organization, LegalEntity	My Buyer You can specify buyer names or external IDs.

* Required.

GLAccounts (requires Workflow services)

Column name	Alternative names	Sample data
Code *	AccountCode, AccountNumber, Number	1000
Name	AccountName	Telephone costs
Group	AccountGroup	Main accounts
Description	Desc	Supplier of quality goods
Active	Enabled	1/true/X (0/false)
Buyer	Organization, LegalEntity	My Buyer You can specify buyer names or external IDs.

* Required.

Other master data (must be named according to the master data type)

In addition to GL accounts, you can also upload financial dimensions that are set up as coding fields in the Workflow service, such as Project, CostCenter, Employee, etc.

Only master data that is connected to a field is uploaded to AP Essentials.

Column name	Alternative names	Sample data
Value *	Code, Number, Type + Number (for example: DepartmentNumber)	200010
Name	Type + Name (for example: DepartmentName)	Marketing
Description	Desc	The marketing department
Active	Enabled	1/true/X (0/false)
Buyer	Organization, LegalEntity	My Buyer You can specify buyer names or external IDs.

* Required.

PurchaseOrders

Column name	Alternative names	Sample data
OrderNumber *	OrderNo, Number	CE123456789

Column name	Alternative names	Sample data
SupplierNumber *	SupplierNo, VendorNumber, VendorNo	00001
CurrencyCode	Currency, Cur	USD
DateCreated	Orderdate, Created, Date	2023-10-29T11:05:01
ContactName	Contact	Ben Martin
Description	OrderDescription	Anything can go here.
StatusText	Status, OrderStatus	Open order
SupplierName	VendorName	Polychemtex
Buyer	Organization, LegalEntity	My Buyer You can specify buyer names or external IDs.
RequisitionedBy		Jennifer Smith
CreatedBy		Ben Martin

* Required.

PurchaseOrderLines

If you upload a PurchaseOrderLines sheet, you must also upload a PurchaseOrders sheet. You cannot upload a PurchaseOrderLines sheet by itself.

Column name	Alternative names	Sample data
OrderNumber *	OrderNo, Number	CE123456789
OrderLineNumber *	LineNumber, RowID	1
ArticleNumber	ArticleNo	234233
SupplierArticleNumber	SupplierArticleNo, SupplierArticle	123456
ArticleDescription	Description, Desc, ArticleName	Stereo headphones
CategoryNumber	CategoryNo	123
CategoryDescription	CategoryDesc, CategoryName	Electronics
Quantity	Qty, OrderedQuantity	7
Unit	UOM, UnitOfMeasure	kg
UnitPrice	PricePerUnit, Price	2.00
RowTotal	RowTotalAmount, RowTotalAmountVATExcluded, LineTotal	25.00
StatusText	Status, Linestatus	Received
InvoicedQuantity	InvoicedQty, Invoiced	10
DeliveredQuantity	DeliveredQty, Delivered	10

Column name	Alternative names	Sample data
IsDeliveryRequired	DeliveryRequired, ReceiptRequired	1/true/X (0/false)
PriceUnit	PriceFactor, UnitPriceFactor	1 (Default: 1)
Buyer	Organization, LegalEntity	My Buyer You can specify buyer names or external IDs.
VatAmount		25.00
DeliveryNoteNumber		ES-123456
DeliveryDate1		20230125 The data format must be yyyyMMdd, and the data type for the cell in Excel must be **Text** or **General**.
DeliveryDate2		20230125 The data format must be yyyyMMdd, and the data type for the cell in Excel must be **Text** or **General**.
UniqueArticleNumber		SE12345678

* Required.

Chapter 9

Target system integrations

Tungsten AP Essentials supports integrations with several ERP systems, financial systems, and accounting programs. The level of integration with each target system can vary. For example, some systems simply accept incoming invoice data (output) from Tungsten AP Essentials, whereas others integrate master data and workflows.

Target system (version)	Output formats	Master data	Workflow
Coupa AP (R46)	Data transfer via API, PDF, TIF	Accounts, Suppliers, Currencies, Contracts, Units of measure, PO data	Posting
Coupa (R35)	Data transfer via API, PDF, TIF	Accounts, Suppliers, Currencies, Contracts, Units of measure, PO data	Posting
E-conomic	Data transfer via API, PDF, TIF	Accounts, Cost centers, Currencies, Payment types, Projects, Suppliers	Coding, Posting
Hogia	Data transfer via AP Essentials Connect, XML, PDF, TIF	Not supported	Not supported
Microsoft Dynamics AX 2012 (R2 to R3) ⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.	Data transfer via an integration inside Dynamics AX, PDF, TIF	Accounts, Suppliers, Currencies, and coding fields (coding dimensions)	Preliminary registration, Coding, Posting
Microsoft Dynamics NAV (2016, 2017, 2018, Dynamics 365 Business Central)	Data transfer via an integration inside Dynamics NAV, PDF, TIF	Supplier master data is supported in NAV 2017 CU7 and forward	Not supported

Target system (version)	Output formats	Master data	Workflow
Microsoft Dynamics 365 for Finance and Operations (10.0.47)	Data transfer via API, PDF, TIF	Suppliers (vendors), Procurement categories, Items/articles, Currencies with exchange rates, Sales tax groups, Item sales tax groups, PO data (2-way matching is supported, but 3-way is not)	Posting
NetSuite (2026.2)	Data transfer via API, PDF	Accounts, Cost centers, Currencies, Projects, Suppliers	Preliminary registration, Coding, Posting
Oracle Financials Cloud (23A)	Data transfer via API, PDF, TIF	Accounts, Coding fields, Currencies, Suppliers	Coding, Posting
PROCESS DIRECTOR AP	Data transfer via AP Essentials Connect, PDF, TIF	Suppliers	Coding and posting are possible, but we recommend using built-in functions in PDAP
SAP S/4HANA Cloud ES	Data transfer via API, PDF, TIF	Accounts, Purchase orders, Suppliers	Coding, Parking, Posting

Workflow key

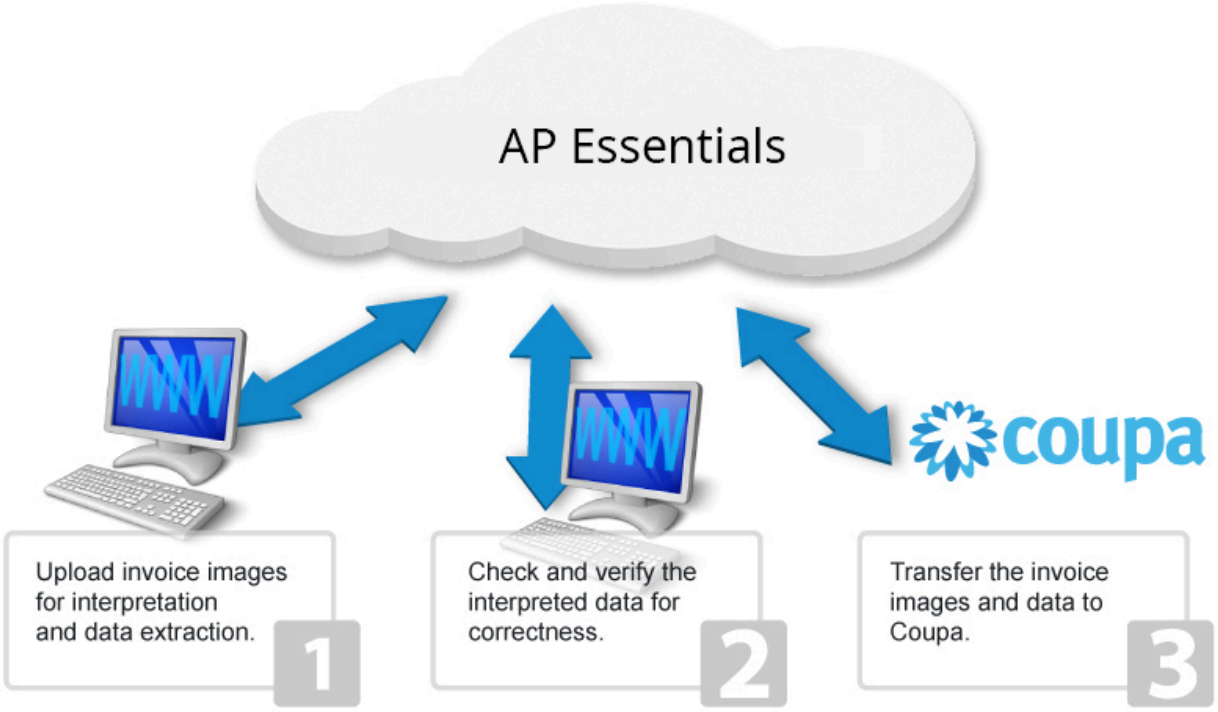
- **Coding** – General ledger account coding
- **Preliminary registration** – Document preliminary registration in the target system
- **Posting** – Document posting in the target system
- **Not supported** – Neither workflows nor general ledger account coding are supported

Coupa AP

This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats— – such as paper, image files, and email— – and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Likewise, administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money, since there is no need for extensive customization.

This integration consists of these components:

- Tungsten AP Essentials.
- Coupa.

Integration features

The Coupa integration enables cooperation between Tungsten AP Essentials and Coupa. It leverages more power and adds value to your current accounts-payable system by extracting data from supplier invoices without any tedious projects or expensive hardware investments.

The Coupa integration supports these features:

- Processing of purchase order and non-PO invoices, as well as credit notes.
- Export invoice images, attachments, and original emails to Coupa.
- Submit documents to Coupa after being successfully posted in the draft state.

- Posting of PO invoices containing one or more purchase orders.
- Manual and automatic line-item pairing.
- General ledger coding for PO invoices.
- The integration supports master data synchronization between Coupa and Tungsten AP Essentials. Suppliers, supplier sites, currencies, contracts, units of measure, users, and PO data can be imported, so the data is available for selection during invoice processing in Tungsten AP Essentials. The base currency needed for master data exchange-rate calculation can be determined automatically from the default chart of accounts in Coupa.

  To reduce bandwidth when importing suppliers, purchase orders, and lookup names, the Coupa integration supports delta synchronization. This means after Tungsten AP Essentials imports data, it only imports changes in the data, rather than importing all the data every time. For example, new suppliers and changed suppliers are imported, whereas suppliers that have not changed between synchronizations are not imported.
- Processing invoices without line-item tables.
- Extraction of tax data and multiple tax rates in headers and line items.
- Data templates for mapping custom fields.
- Custom document transformation using XSLT.

Where to go from here

Before you can use Coupa with Tungsten AP Essentials, you must complete these steps:

1. Configure Coupa.
2. Configure Tungsten AP Essentials for use with Coupa.

After you complete the steps above and the rest of the customer setup, you are ready to begin processing invoices using the integration for Coupa.

Configure Coupa AP for use with Tungsten AP Essentials

Before you can use the Coupa integration with Tungsten AP Essentials, you must:

- Prepare your connection settings.
- Check the supplier settings.
- Create an API response filter. Required for purchase order services.

This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

Prepare your connection settings

Tungsten AP Essentials connects to Coupa using either token-based authorization or an API key. Whichever method you choose, you specify the settings in the target system settings.

Create token-based credentials

To create token-based credentials in Coupa:

1. Log in to Coupa and navigate to **Setup** > **Oauth2/OpenID Connect Clients** .

2. Select **Create** and use the view that appears to create your credentials.
3. Make sure you select **Client credentials** in the **Grant Type** setting.
4. Select these scopes:
   - core.accounting.read
   - core.supplier.read
   - core.contract.read
   - core.invoice.read
   - core.invoice.write
   - core.purchase_order.read
   - core.common.read
   - core.user.read
5. After you complete the settings, select **Save**.
   Note the client **Identifier** and **Secret**. Later when you configure Tungsten AP Essentials for use with Coupa, you specify these values in the target system settings.

Check the supplier settings

1. In Coupa, make sure all of the suppliers have supplier numbers.
2. Select these options in the **Invoicing Configuration** settings:
   - **Create Invoices with No Backing Document**
   - **Allow Non-Backed Lines on PO Invoices**

> You can upload Coupa supplier configurations in bulk. See Coupa documentation for more information.

Configure Tungsten AP Essentials for use with Coupa AP

Before you can use the Coupa integration with Tungsten AP Essentials, you must configure these settings in Tungsten AP Essentials:

- Extraction settings
- Target system
- Master data

> This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

Extraction settings

You must edit the extraction settings for each document type you use and make sure the required AP Essentials fields are specified for the corresponding fields in Coupa. If a document type you use lacks a required field, you must add a custom field using the field type name specified in the tables below. Likewise, the Coupa system must use the required fields specified in the tables below.

<table>
<tr><th>Tungsten AP Essentials field type name</th><th>Coupa field</th><th>Note</th></tr>
<tr><td colspan="3">Header fields</td></tr>
<tr><td>SupplierName</td><td>Supplier record of the same name</td><td>Required.
You do not need to specify a supplier name field in the document type. The supplier name is taken from master data.</td></tr>
<tr><td>InvoiceNumber</td><td>Invoice number</td><td>Required.</td></tr>
<tr><td>InvoiceDate</td><td>Invoice Date</td><td></td></tr>
<tr><td></td><td>Invoice due date</td><td>The due date is calculated in Coupa based on the net payment terms.</td></tr>
<tr><td>InvoiceCurrency</td><td>Currency</td><td></td></tr>
<tr><td>OriginalInvoiceNumber</td><td>Original Invoice Number</td><td rowspan="2"><code>OriginalInvoiceNumber</code> and <code>OriginalInvoiceDate</code> are custom fields that you must add to the document type, if you want to process credit notes. When adding <code>OriginalInvoiceDate</code>, make sure you set the Type to Date.
If you do not add the <code>OriginalInvoiceNumber</code> and <code>OriginalInvoiceDate</code> fields to the document type and an invoice is marked as a credit note, the fields are mapped as noted below:<table><tr><th>Tungsten AP Essentials field</th><th>Coupa field</th></tr><tr><td>InvoiceNumber + "_credit"</td><td>Invoice number</td></tr><tr><td>InvoiceNumber</td><td>Original Invoice Number</td></tr><tr><td>InvoiceDate</td><td>Original Invoice Date</td></tr></table></td></tr>
<tr><td>OriginalInvoiceDate</td><td>Original Invoice Date</td></tr>
<tr><td>Requester</td><td>Requester</td><td><code>Requester</code> is an optional custom field that you can add to the document type. You can use the Lookup names setting or the Users setting to import invoice requesters from Coupa as master data. Then you can connect the <code>Requester</code> field to the master data to provide autocomplete functionality in Tungsten AP Essentials.</td></tr>
</table>

Tungsten AP Essentials field type name	Coupa field	Note
InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3 etc.	Tax Rate (Summary)	
InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3 etc.	Tax Amount (Summary)	
InvoiceTotalVatIncludedAmount	Invoice net amount	
InvoiceTotalVatAmount	Invoice tax value	
DeliveryCost	Shipping amount	
ContractNumber	Contract field (line items)	
ChartOfAccount	Chart of accounts	If this field is empty, or does not exist, the value is copied from the **Default chart of accounts** setting.
BillingAccount		If `LIT_BillingAccount` is empty in the line-item table, the billing account is taken from this field. If this field is empty, or does not exist, the value is copied from the **Default billing account** setting.
InvoiceOrderNumber		If `LIT_OrderNumber` is empty in the line-item table, PO numbers are copied from this field.
Line-item fields		
LIT_RowIdentifier	Purchase order line number	
LIT_ArticleName	Line description	Required.
LIT_DeliveredQuantity	Quantity	Required for lines whose **Type** is set to **Qty** in Coupa.
LIT_UnitPriceAmount	Unit price	Required for lines whose **Type** is set to **Qty** in Coupa.
LIT_DeliveredQuantityUnitCode	Unit of measure	Required for lines whose **Type** is set to **Qty** in Coupa.
LIT_VatExcludedAmount	Line-item total	Required for lines whose **Type** is set to **Amt** in Coupa.
LIT_VATRate1, LIT_VATRate2, LIT_VATRate3 etc.	Tax Rate (line item)	If multiple tax rates are found on the invoice, they are mapped to separate tax lines in Coupa.
LIT_VATAmount1, LIT_VATAmount2, LIT_VATAmount3 etc.	Tax Amount (line item)	If multiple tax amounts are found on the invoice, they are mapped to separate tax lines in Coupa.
LIT_BillingAccount	Billing account	
LIT_OrderNumber	Purchase order number	

Target system settings

Adjust the target system settings in Tungsten AP Essentials.

1. In Admin Center, navigate to the **Target system** view and select **Edit**.
2. Select **Coupa AP** and select **Configuration**.
3. Specify the settings in the view that appears.
   If you use the Purchase order service, you must specify a **Coupa API filter**.
4. Select **Test** to test the connection settings.
   Make corrections if necessary.
5. Select **OK** to confirm your settings and return to the **Target system** view.
6. Select **Save**.

Enforce line level taxation

In Coupa, you can disable tax fields on the header level using the **Enforce line level taxation** setting. If you use the **Enforce line level taxation** setting in Coupa, you should also select **Enforce line level taxation** in the target system settings in Tungsten AP Essentials. You can also select **Calculate missing tax rates** to ensure any missing rates are calculated and inserted in the line-item table.

This table depicts various outcomes of enforcing line level taxation:

Invoice field layout	Taxes	Result in Coupa
Header fields only	Single or multiple tax rates and tax amounts are specified in header fields on the invoice.	An invoice with one line item containing the tax information is exported to Coupa.
Header fields and one line item	Single or multiple tax rates and tax amounts are specified in header fields on the invoice.	Tax information from the header is used to set the tax amounts in the line item.
Header fields and multiple line items	Tax information is specified in header fields and line items on the invoice.	Tax information from the header is ignored, and the tax information in the line items is exported as is.
	A single tax rate is specified in the invoice header.	Tax information from the header is used to set the tax amounts in each line item.
	A single tax amount is specified in the invoice header.	An extra line item is created with the tax amount, but no price. The line-item description is set to "Automatic tax line". If **Calculate missing tax rates** is enabled, the tax amount from the header and the calculated tax rate is set on each line item.

Invoice field layout	Taxes	Result in Coupa
	A single tax rate and tax amount is specified in the invoice header.	The tax rate is set in every line item. An extra line item is created with the tax amount, but no price. The line-item description is set to "Automatic tax line". If **Calculate missing tax rates** is enabled, the tax amount is calculated on each line item. If tax rate is missing in the invoice header, but the tax amount and net amount are specified, the tax rate is also calculated.
	Multiple taxes are specified in the invoice header.	An extra line item is created with the tax amount, but no price. The line-item description is set to "Automatic tax line". If **Calculate missing tax rates** is enabled, the tax amount is calculated on each line item. If tax rate is missing in the invoice header, but the tax amount and net amount are specified, the tax rate is also calculated.

XSL transformation

If the default output and data templates do not provide the output needed for your Coupa system, you can use custom XSLT to transform output data. Custom XSLT can be used to:

Learn more about transforming output for Coupa using custom XSLT.

Master data

Tungsten AP Essentials automatically imports master data from Coupa and uses the data to suggest and validate field values during verification.

This table shows the correlation between Tungsten AP Essentials master data and Coupa data.

Tungsten AP Essentials field (type name)	Coupa field
Supplier master data	
Name	name or display-name
SupplierNumber	number or number - supplier-sites.code

Tungsten AP Essentials field (type name)	Coupa field
Description	By default, the supplier description field is empty. However, you can map the supplier description field to supplier information in Coupa.
Street	primary-address.street1
PostalCode	primary-address.postal_code
City	primary-address.city
CountryName	primary-address.country.name
PaymentTerm	payment-term.code
State	primary-address.state
Blocked	Always set to false. Only active suppliers are imported.
TaxRegistrationNumber	TaxRegistrationNumber is mapped to the first field with a value in the order listed below. 1. supplier-addresses.supplier-address[0].tax-registrations.tax-registration[0].number 2. remit-to-addresses.remit-to-address[0].vat-number 3. tax-id
TelephoneNumber	+ primary-contact.phone-work.country-code + (primary-contact.phone-work.area-code) + primary-contact.phone-work.number Country and area codes are optional. Example: +382 (02)12345 or +382 12345
FaxNumber	+ primary-contact.phone-fax.country-code + (primary-contact.phone-fax.area-code) + primary-contact.phone-fax.number Country and area codes are optional. Example: +382 (02)12345 or +382 12345
Location	supplier-sites.code
PaymentMethod	payment-method
Supplier bank master data	
BankName	remit-to-addresses.name
SupplierNumber	supplier.number
BankNumber	remit-to-addresses.vat-number or remit-to-addresses.local-tax-number
AccountNumber	remit-to-addresses.remit-to-code
Currency master data	
Code	code

Tungsten AP Essentials field (type name)	Coupa field
Name	code
Active	Always set to true.
Contract master data	
Name	supplier.number - name Example: 123456 - ACME Inc
Value	number
Description	name
Active	Always set to true. Only published contracts from active suppliers are imported.
Units of measure master data	
Name	name
Value	code
Purchase order master data (header fields)	
OrderNumber	po-number
SupplierNumber	supplier.number
SupplierName	supplier.name or supplier.display-name
CurrencyCode	order-lines[0].currency.code The currency code from the first order line is used.
DateCreated	created-at
CreatedBy	created-by.email
RequisitionedBy	requisition-header.requested-by.email
ContactName	ship-to-user.email
StatusText	status
Description	n/a
Purchase order master data (line-item fields)	
OrderLineNumber	order-lines.line-num
ArticleNumber	order-lines. source-part-num
SupplierArticleNumber	order-lines.supp-aux-part-num
ArticleDescription	order-lines.description
UniqueArticleNumber	order-lines.manufacturer-part-number
CategoryNumber	order-lines.commodity.category
CategoryDescription	order-lines.commodity.name
Quantity	order-lines.quantity or 0.0

Tungsten AP Essentials field (type name)	Coupa field
Unit	order-lines.uom.code
UnitPrice	order-lines.price or 0.0
RowTotalAmountVatExcluded	order-lines.total or 0.0
StatusText	order-lines.status
InvoicedQuantity	order-lines.invoiced or 0.0
DeliveredQuantity	order-lines.received or 0.0
IsDeliveryRequired	Always set to false.
PriceUnit	Always set to 1.
DeliveryDate1	order-lines.need-by-date
User master data	
Name	fullname
Value	email
Active	active

Master data for lookups

In Coupa, "lookups" are similar to field suggestions (autocomplete) in Tungsten AP Essentials. They are used for fields in Coupa that require users to choose from a list of options. A lookup consists of a lookup name and a number of options, each called a lookup value.

Lookup values are grouped into named sets. Each named set that you specify (semicolon separated) in the **Name based lookups** setting is imported as master data with the same name. You can connect fields to master data to provide autocomplete functionality in Tungsten AP Essentials. In this manner, you can use Coupa lookups while processing documents in Tungsten AP Essentials.

When importing master data for lookups, the field mappings differ depending on whether the lookup is for the `Requester` field or general fields.

Lookup values master data	
Tungsten AP Essentials field (type name)	**Coupa field**
Name	external-ref-code or name
Value	name or external-ref-num
Description	description
Active	active

Import purchase orders by status

By default, AP Essentials imports purchase orders with the *issued* status, and purchase order lines with these statuses:

- cancelled
- closed

- created
- currency_hold
- draft
- expensed
- partially_received
- received
- soft_closed_for_invoicing
- soft_closed_for_receiving

You can customize the statuses of the purchase orders and purchase order lines you want to import in the **Target system** view.

1. Navigate to the **Target system** view and select **Edit**.
2. In the **PO statuses to synchronize** setting, specify the statuses of the purchase orders that you want to import. Separate each status with a comma.
3. In the **PO line statuses to synchronize** setting, specify the statuses of the purchase order lines that you want to import. Separate each status with a comma.
4. Save your settings.
   The next time purchase orders are synchronized, only purchase orders and lines with the statuses you specified are imported.

Map the supplier description field

By default, when AP Essentials imports supplier master data from Coupa, the supplier description field is empty. However, you can map the supplier description field to supplier fields in Coupa, so additional information is available during verification.

1. Navigate to the **Target system** view and select **Edit**.
2. In the **Supplier description mapping** setting, specify a field name from the Coupa supplier entity enclosed in braces. Example: {payment-method}
   - You can specify more than one supplier field from Coupa. Enclose each field name in its own set of braces.
   - Any text not enclosed in braces is treated as static text.
   - Use dots to designate nested fields. Example: {primary-address.country.name}
   - Currently, only fields containing text, numbers, dates, or boolean values are supported.

   Assume you enter the following example in the **Supplier description mapping** setting.

   Supplier status: {status}; Primary country: {primary-address.country.name}

   Continuing with the example above, the value of the description field for a supplier could look like this:

   Supplier status: Active; Primary country: USA
3. Save your settings.
   The next time supplier master data is synchronized, the supplier description field is populated according to the settings you specified.

Specify a default chart of accounts and default billing account template

Normally, you specify a default chart of accounts and default billing account in their respective settings in the **Target system** view . Then, if the chart of accounts field or billing account field is empty or does not exist on an invoice during verification, the default values are used automatically. There may be cases, however, when you want to use different accounts on the buyer level. In this case, you can select **Buyer-specific settings** and use the view that appears to specify default values for individual buyers. Specifying buyer-specific settings is optional, and you do not have to specify default values for all buyers.

When Tungsten AP Essentials determines the chart of accounts and billing account values, field values entered during verification take the highest precedence. If the fields are missing or empty, Tungsten AP Essentials uses the default values specified on the buyer level. If nothing is specified on the buyer level, Tungsten AP Essentials uses the default values specified in the target system settings. In other words, the order of precedence is: verified field values, default buyer settings, default target system settings.

Map remit-to addresses

Suppliers in Coupa can be associated with multiple remit-to addresses. You can save time by having users specify the corresponding remit-to code while verifying invoices in Tungsten AP Essentials, rather than adjusting it later in Coupa. Tungsten AP Essentials lets you accomplish this using a custom field. During verification, a user can specify a code in the custom field which is then mapped to a remit-to address in Coupa. Behind the scenes, Tungsten AP Essentials maps the custom field to the `Remit-To Code` in Coupa.

To set up the custom field and target systems settings in Tungsten AP Essentials for this purpose:

1. Add a custom field to the document type.
   For demonstration purposes, specify "RemitCode" as the **Type name** of the field.
2. Select **Remit-to code** in the target system settings.
3. Select **Use remit-to code (Buyer-specific settings)** and use the view that appears to specify which buyers should use the mapping.
4. Specify the field type name of the custom field in the **Remit-to code mapping** setting.
   Continuing with the example above, specify "RemitCode" in the **Remit-to code mapping** setting.

   After you save your settings, you are ready to specify remit-to addresses during verification. When a user verifies an invoice in Tungsten AP Essentials, the value from the `RemitCode` field is used to designate the appropriate remit-to address in Coupa.

   Note: You can use any field type name to specify whatever value you need to match the reference in Coupa. For example, if your document type already captures a field that corresponds to the reference in Coupa, you can specify the existing field, instead of creating a new custom field. You can also use the **Buyer-specific settings** to map different fields for individual buyers.
5. Optionally select the **Use default remit-to code** setting if all, or most, of your suppliers only have one remit-to address.

When **Use default remit-to code** is selected, if you do not specify a remit-to code during invoice verification, and there is only one remit-to code for the current supplier, that remit-to code is used when the invoice is sent to Coupa.

Map requesters

Documents in Coupa can be associated with a requester. You can save time by having users specify the requester while verifying invoices in Tungsten AP Essentials, rather than adjusting it later in Coupa. Tungsten AP Essentials lets you accomplish this using a custom field which is populated with users from Coupa. During verification, a user can specify a user in the custom field which is then mapped to the requester in Coupa. Behind the scenes, Tungsten AP Essentials maps the custom field to the `Requester` in Coupa.

To set up the custom field and target systems settings in Tungsten AP Essentials for this purpose:

1. Add a custom field to the document type.
   Give the field an appropriate name, such as "Requester," and specify "Requester" as the **Type name** of the field.
2. Select **Use master data to suggest field values** and choose **User** from the box.
3. Select **Synchronize users** in the target system settings.
4. Specify the field type name of the custom field in the **Requester mapping** setting.
   For this example, specify "Requester" in the **Requester mapping** setting to map the field to the requester field in Coupa.

   After you save your settings, setup is complete. When verifying documents, users imported from Coupa are available for selection in the requester field. When the document is sent to Coupa, the value from the requester field is mapped to the requester in Coupa.

   Note that requesters in Coupa can be specified using lookups or contact name and email. The Coupa integration supports both cases.

Troubleshooting

- If you encounter problems with delta synchronization of master data, try disabling delta synchronization in the target system settings. After synchronization is complete, you can enable delta synchronization again.
- In Coupa, make sure all of the suppliers have supplier numbers.
- If you receive audit trail messages about problems with delta synchronization on purchase orders, enable **Filtered synchronization** to exclude suppliers and purchase orders that are not meant to be integrated with Tungsten AP Essentials.
- If you receive 403 errors, make sure these Coupa scopes are specified in the target system settings.
  - core.accounting.read
  - core.supplier.read
  - core.contract.read
  - core.invoice.read
  - core.invoice.write
  - core.purchase_order.read
  - core.common.read

  - core.user.read

  The lack of some scopes, such as `core.invoice.write`, can lead to this issue.
- If you encounter problems importing master data due to invalid characters, such as line breaks, use the **Replace invalid characters** setting to specify a replacement character, which will substitute those invalid characters and allow for a smoother import process.

Transform output for Coupa using custom XSLT

If the default output and data templates do not provide the output needed for your Coupa system, you can use custom XSLT to transform output data. Custom XSLT can be used to:

- Modify or enrich invoice data.
- Add or remove XML elements.
- Validate invoice content before export.
- Access purchase order information retrieved from Coupa.
- Return processing errors back to AP Essentials.

This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

There are two ways to apply custom XSLT in the target system settings.

- Through a file that has been uploaded to the **Resource** view.
- By pasting the XSLT directly in the target system settings.

Tungsten AP Essentials supports XSLT version 1.0. Other versions are not supported.

Available XSLT parameters

Your custom XSLT is applied to the Coupa integration output (Coupa REST API XML). You can optionally include the XSLT parameters below.

Parameter	Description
ApsXml	Contains the original document output from Tungsten AP Essentials in ReadSoft Online XML 2.0 format.

Parameter	Description
Configuration	Contains target system configuration values. Sensitive information, such as connection settings, are not included. These settings are included: • **Default chart of accounts** (`DefaultChartOfAccounts`) • **Default billing account template** (`BillingCombinationTemplate`) • **Line-item placeholder for header-only invoices** (`HeaderInvoiceLineDescription`) • **Default tax category** (`DefaultTaxCategory`) • **Custom field mapping** (`CustomHeaderFieldMapping`) • **Custom line-item field mapping** (`CustomLineItemFieldMapping`) • **Automatic tax line description**(`AutomaticTaxLineDescription`) • **Enforce line level taxation**(`EnforceLineLevelTaxation`) • **Calculate missing tax rates** (`EnableMissedTaxParameterCalculation`) • **Use remit-to code** (`UseRemitToCode`) • **Remit-to code template**(`RemitToCodeMapping`) • **Use default remit-to code**(`UseDefaultRemitToCode`)
PurchaseOrders	Contains purchase order data retrieved from Coupa during processing.

Example XSLT

The following example uses the original document output from Tungsten AP Essentials and target system settings to transform the final document output sent to Coupa.

```
<?xml version="1.0" encoding="utf-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
 xmlns:msxsl="urn:schemas-microsoft-com:xslt" exclude-result-prefixes="msxsl">

  <!-- Output formatted XML -->
  <xsl:output method="xml" indent="yes"/>

  <!-- Include the original XML output from AP Essentials -->
  <xsl:param name="ApsXml"></xsl:param>

  <!-- Include the Export settings from the target system -->
  <xsl:param name="Configuration"></xsl:param>

  <!-- Identity the template that copies all XML nodes -->
  <xsl:template match="@* | node()">
    <xsl:copy>
      <xsl:apply-templates select="@* | node()"/>
    </xsl:copy>
  </xsl:template>
```

```
  <!-- Process the invoice header -->
  <xsl:template match="invoice-header">
    <xsl:copy>
    <xsl:apply-templates/>
    <!-- Specify the value of a field. If this field does not exist in Coupa, it is
 ignored by Coupa. -->
    <example-header-field-1>Example text</example-header-field-1>
    <!-- Specify the value of a field, depending on a value in the target system
 settings. -->
    <example-header-field-2>
      <xsl:choose>
        <!-- Check the value of the default chart of accounts in the target system
 settings. -->
        <!-- If the default chart of accounts is "COA1", specify the value of
 customfield01 as the value of example-header-field-2. -->
        <!-- Otherwise, specify the value of customfield02 as the value of example-
header-field-2. -->
        <!-- The values of customfield01 and customfield01 are taken from the original
 XML output from AP Essentials. -->
        <xsl:when test="$Configuration/SystemConfiguration/DefaultChartOfAccounts =
 'COA1'">
          <xsl:value-of select="$ApsXml/Batches/Batch/Documents/Document/HeaderFields/
HeaderField[Type='customfield01']/Text"/>
        </xsl:when>
        <xsl:otherwise>
          <xsl:value-of select="$ApsXml/Batches/Batch/Documents/Document/HeaderFields/
HeaderField[Type='customfield02']/Text"/>
        </xsl:otherwise>
      </xsl:choose>
    </example-header-field-2>
    </xsl:copy>
  </xsl:template>

</xsl:stylesheet>
```

By default, the Coupa integration output (Coupa REST API XML) is used as input to the XSL transformation. For this example, the XSL looks like the example below.

```
<?xml version="1.0" encoding="utf-8"?>
<invoice-header>
    <document-type>Invoice</document-type>
    <is-credit-note>false</is-credit-note>
    <invoice-date>20230314</invoice-date>
    <invoice-number>0001</invoice-number>
    <payment-order-number/>
    <total-with-taxes d2p1:nil="true" xmlns:d2p1="http://www.w3.org/2001/XMLSchema-
instance"/>
    <gross-total d2p1:nil="true" xmlns:d2p1="http://www.w3.org/2001/XMLSchema-
instance"/>
    <shipping-amount d2p1:nil="true" xmlns:d2p1="http://www.w3.org/2001/XMLSchema-
instance"/>
    <currency>
        <code>USD</code>
    </currency>
    <supplier>
        <number>74</number>
    </supplier>
    <account-type>
        <name>COA-910</name>
    </account-type>
    <invoice-lines>
        <invoice-line>
            <line-num>1</line-num>
            <description>Summary</description>
```

```
            <order-line-num d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/
XMLSchema-instance"/>
            <price>100.00</price>
            <quantity d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance"/>
            <TaxRate d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance"/>
            <TaxAmount d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance"/>
            <total d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance"/>
            <type>InvoiceAmountLine</type>
            <accounting-total d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/
XMLSchema-instance"/>
            <account>
                <code/>
                <segment-1>C1</segment-1>
                <segment-2>100</segment-2>
                <account-type>
                    <name>COA-910</name>
                </account-type>
            </account>
            <currency>
                <code>USD</code>
            </currency>
        </invoice-line>
    </invoice-lines>
    <line-level-taxation>false</line-level-taxation>
    <requester-lookup-name/>
</invoice-header>
```

The `ApsXml` parameter in the XSLT above imports original document output from Tungsten AP Essentials. In this example, the example uses the document output XML below. Note `customfield01` and `customfield02`, whose values are used in the custom XSLT.

```
<?xml version="1.0" encoding="utf-8"?>
<Batches xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
    <Batch>
        <Documents>
            <Document>
                <Parties>
                    <Party>
                        <Type>supplier</Type>
                        <Name>Acme</Name>
                        <ExternalId>74</ExternalId>
                    </Party>
                </Parties>
                <HeaderFields>
                    <HeaderField>
                        <Type>invoicenumber</Type>
                        <Text>0001</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>creditinvoice</Type>
                        <Text>false</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>invoicedate</Type>
                        <Text>20230314</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>invoicetotalvatexcludedamount</Type>
```

```
                        <Text>100.00</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>invoicecurrency</Type>
                        <Text>USD</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>chartofaccount</Type>
                        <Text>COA-910</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>customfield01</Type>
                        <Text>custom field 01 example data</Text>
                    </HeaderField>
                    <HeaderField>
                        <Type>customfield02</Type>
                        <Text>custom field 02 example data</Text>
                    </HeaderField>
                </HeaderFields>
            </Document>
        </Documents>
    </Batch>
</Batches>
```

The `Configuration` parameter in the XSLT above uses the **Export** settings from the target system. For this example, the settings look like the following XML.

```
<SystemConfiguration>
    <DefaultChartOfAccounts>COA1</DefaultChartOfAccounts>
    <BillingCombinationTemplate>C1-100-3500-140000</BillingCombinationTemplate>
    <HeaderInvoiceLineDescription>Summary</HeaderInvoiceLineDescription>
    <DefaultTaxCategory/>
    <CustomHeaderFieldMapping/>
    <CustomLineItemFieldMapping/>
    <AutomaticTaxLineDescription>Automatic tax line</AutomaticTaxLineDescription>
    <EnforceLineLevelTaxation>false</EnforceLineLevelTaxation>
    <EnableMissedTaxParameterCalculation>false</EnableMissedTaxParameterCalculation>
    <UseRemitToCode>false</UseRemitToCode>
    <RemitToCodeMapping/>
    <UseDefaultRemitToCode>false</UseDefaultRemitToCode>
</SystemConfiguration>
```

Given the input above, the XSLT produces the output below.

```
<?xml version="1.0" encoding="utf-8"?>
<invoice-header>
  <document-type>Invoice</document-type>
  <is-credit-note>false</is-credit-note>
  <invoice-date>20230314</invoice-date>
  <invoice-number>XSLT_test</invoice-number>
  <payment-order-number />
  <total-with-taxes d2p1:nil="true" xmlns:d2p1="http://www.w3.org/2001/XMLSchema-
instance" />
  <gross-total d2p1:nil="true" xmlns:d2p1="http://www.w3.org/2001/XMLSchema-instance" /
>
  <shipping-amount d2p1:nil="true" xmlns:d2p1="http://www.w3.org/2001/XMLSchema-
instance" />
  <currency>
    <code>USD</code>
  </currency>
  <supplier>
    <number>74</number>
  </supplier>
  <account-type>
```

```
    <name>COA-910</name>
  </account-type>
  <invoice-lines>
    <invoice-line>
      <line-num>1</line-num>
      <description>Summary</description>
      <order-line-num d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance" />
      <price>100.00</price>
      <quantity d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance" />
      <TaxRate d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-instance" /
>
      <TaxAmount d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance" />
      <total d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-instance" />
      <type>InvoiceAmountLine</type>
      <accounting-total d4p1:nil="true" xmlns:d4p1="http://www.w3.org/2001/XMLSchema-
instance" />
      <account>
        <code />
        <segment-1>C1</segment-1>
        <segment-2>100</segment-2>
        <account-type>
          <name>COA-910</name>
        </account-type>
      </account>
      <currency>
        <code>USD</code>
      </currency>
    </invoice-line>
  </invoice-lines>
  <line-level-taxation>false</line-level-taxation>
  <requester-lookup-name />
  <example-header-field-1>Example text</example-header-field-1>
  <example-header-field-2>custom field 01 example data</example-header-field-2>
</invoice-header>
```

Note the results of the output. The value of `example-header-field-1` is directly specified in the XSLT, whereas the value of `example-header-field-2` was determined by using values from the target system settings and the original document XML.

Access purchase order data

The `PurchaseOrders` parameter contains purchase orders referenced by the invoice header or invoice lines. To access purchase order data in your XSLT, add the following parameter declaration.

```
<xsl:param name="PurchaseOrders"/>
```

The purchase order XML structure is similar to the structure returned by the Coupa API.

Example purchase order XML

The XML returned by the `PurchaseOrders` parameter can look like the example below.

```
<?xml version="1.0" encoding="utf-8"?>
<ArrayOfCoupaPurchaseOrder>

  <!-- First purchase order -->
  <CoupaPurchaseOrder>
    <PoNumber>PO-10001</PoNumber>
    <CreatedAt>2026-01-15T10:01:48+01:00</CreatedAt>
```

```
    <Status>issued</Status>

    <!-- Supplier information -->
    <Supplier>
      <number>74</number>
      <name>Example Supplier Ltd</name>
    </Supplier>

    <!-- Purchase order lines -->
    <OrderLines>

      <!-- Line 1 -->
      <CoupaPurchaseOrderLine>
        <LineNum>1</LineNum>
        <Description>Server hardware</Description>
        <Quantity>2.0</Quantity>
        <Price>1000.00</Price>
        <Total>2000.00</Total>
        <Status>created</Status>
        <Type>OrderQuantityLine</Type>
      </CoupaPurchaseOrderLine>

      <!-- Line 2 -->
      <CoupaPurchaseOrderLine>
        <LineNum>2</LineNum>
        <Description>Installation services</Description>
        <Quantity>1.0</Quantity>
        <Price>500.00</Price>
        <Total>500.00</Total>
        <Status>created</Status>
        <Type>OrderQuantityLine</Type>
      </CoupaPurchaseOrderLine>

    </OrderLines>
  </CoupaPurchaseOrder>

  <!-- Second purchase order -->
  <CoupaPurchaseOrder>
    <PoNumber>PO-10002</PoNumber>
    <Status>issued</Status>

    <OrderLines>
      <CoupaPurchaseOrderLine>
        <LineNum>1</LineNum>
        <Description>Consulting services</Description>
        <Price>200.00</Price>
        <Total>200.00</Total>
        <Type>OrderAmountLine</Type>
      </CoupaPurchaseOrderLine>
    </OrderLines>

  </CoupaPurchaseOrder>

</ArrayOfCoupaPurchaseOrder>
```

Return processing errors from XSLT

Your XSLT can return validation errors to AP Essentials by adding a `processing-error` element to the output XML.

If the connector detects a non-empty `processing-error` element after the XSLT transformation:

- The export to Coupa fails.

- The document is returned to AP Essentials.
- The document status is set to `ERROR`.
- The error message becomes visible to users in AP Essentials.
- The document is not sent to Coupa.

The connector prefixes the message automatically with the following text:

the custom XSL transformation failed with the following error:

For example, if your XSLT generates the following element:

```
<processing-error> The following orders contain more than one line: PO-10001</
processing-error>
```

The error shown in AP Essentials becomes:

```
The custom XSL transformation failed with the following error: The following
orders contain more than one line: PO-10001
```

Example XSLT

The following example:

- Copies the original Coupa XML.
- Accesses purchase order information using the `PurchaseOrders` parameter.
- Checks whether any referenced purchase orders contain more than one PO line.
- Returns a processing error if matching purchase orders are found.

```
<?xml version="1.0" encoding="utf-8"?>
<xsl:stylesheet
    version="1.0"
    xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
    xmlns:msxsl="urn:schemas-microsoft-com:xslt"
    exclude-result-prefixes="msxsl">

  <!-- Output formatted XML -->
  <xsl:output method="xml" indent="yes"/>

  <!-- AP Essentials document XML -->
  <xsl:param name="ApsXml"/>

  <!-- Target system configuration -->
  <xsl:param name="Configuration"/>

  <!-- Purchase orders retrieved from Coupa -->
  <xsl:param name="PurchaseOrders"/>

  <!-- Identity template that copies all XML nodes -->
  <xsl:template match="@* | node()">
    <xsl:copy>
      <xsl:apply-templates select="@* | node()"/>
    </xsl:copy>
  </xsl:template>

  <!-- Process the invoice header -->
  <xsl:template match="invoice-header">
    <xsl:copy>
```

```
      <!-- Copy existing invoice header content -->
      <xsl:apply-templates/>

      <!-- Select purchase orders containing more than one PO line -->
      <xsl:variable
          name="badPOs"
          select="$PurchaseOrders/ArrayOfCoupaPurchaseOrder/
CoupaPurchaseOrder[count(OrderLines/CoupaPurchaseOrderLine) &gt; 1]"/>

      <!-- Add processing-error if matching POs were found -->
      <xsl:if test="count($badPOs) &gt; 0">
        <processing-error>
          <xsl:text>The following orders contain more than one line: </xsl:text>

          <!-- Output PO numbers separated by commas -->
          <xsl:for-each select="$badPOs">
            <xsl:value-of select="PoNumber"/>
            <xsl:if test="position() != last()">
              <xsl:text>, </xsl:text>
            </xsl:if>
          </xsl:for-each>
        </processing-error>
      </xsl:if>
    </xsl:copy>
  </xsl:template>
</xsl:stylesheet>
```

Important considerations

- The text inside `processing-error` is visible to users in AP Essentials.
- Do not include confidential information in error messages.
- Purchase orders are retrieved automatically during processing. No additional API calls are required.
- The purchase order XML structure may change if additional fields are added in future releases.
- Purchase orders are retrieved based on PO numbers referenced by the invoice.

Try it yourself

Transforming output is an advanced procedure that requires knowledge of XML. These steps should be performed by a knowledgeable developer.

To transform output to Coupa using XSLT:

1. Create your custom XSLT.
2. Navigate to the **Resources** view and select **Add**.
3. Use the dialog that appears to select the file you created. The file appears in the **Resources** view after it uploads.

   Resources that contain executable code must be approved by Tungsten Automation personnel before they can be used.

4. Select the Coupa AP target system service and select **Configuration**.
5. In the **XSL transformation** setting, select **XSLT resource file**.

6. Specify the XSLT file you created in step 1 in the **XSL transformation file** box and save your settings.
7. Process a document through Tungsten AP Essentials and ensure that your custom output is sent to Coupa properly.
   Before you begin production, test your transformation.

See also

Submit documents to Coupa using custom XSLT

Submit documents to Coupa

By default, afer you process a document in AP Essentials, the Coupa AP integration posts documents to Coupa in the draft state. However, there are two methods you can use to submit documents after being successfully posted in the draft state.

- Target system settings — use this method to submit all processed documents to Coupa.
- Custom XSLT — use this method if you need to submit documents to Coupa conditionally, based on field values or other criteria.

"Submit" refers to a specific document state in Coupa, not to be confused with the generic sense of sending or posting a document.

Submit documents to Coupa using target system settings

If you want to submit all documents to Coupa, after being successfully posted in the draft state, simply enable the **Submit documents** setting in the target system settings. If a document cannot be submitted for any reason, it remains in Coupa in the "On Hold" or "Pending Approval" state, depending on your settings in Coupa.

Submit documents to Coupa using custom XSLT

If you need more control over which documents you submit to Coupa, you can use custom XSLT to determine which documents are submitted. This is helpful, for example, if you only want to submit documents with certain field values. The key to utilizing this feature is a custom XML element called `should-be-submitted`. When you use custom XSLT to add the `should-be-submitted` element to the output XML, and set its value to true, the Coupa AP integration submits the document to Coupa after being successfully posted in the draft state.

Consider the following example XSLT that transforms the final document output that is sent to Coupa.

```
<?xml version="1.0" encoding="utf-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
 xmlns:msxsl="urn:schemas-microsoft-com:xslt" exclude-result-prefixes="msxsl">
  <xsl:output method="xml" indent="yes"/>
  <!-- This parameter includes the original XML output from AP Essentials -->
  <xsl:param name="ApsXml"></xsl:param>
  <xsl:template match="@* | node()">
    <xsl:copy>
      <xsl:apply-templates select="@* | node()"/>
    </xsl:copy>
  </xsl:template>
  <xsl:template match="invoice-header">
```

```
    <xsl:copy>
    <xsl:apply-templates/>
    <!-- Check if the value of the supplier description field contains the text, RDY.
 -->
    <!-- If RDY is present, add the should-be-submitted element, and set it to true. --
>
    <xsl:if test="contains($ApsXml/Batches/Batch/Documents/Document/Parties/
Party[Type='supplier']/Description, 'RDY')">
      <should-be-submitted>true</should-be-submitted>
    </xsl:if>
    </xsl:copy>
  </xsl:template>
</xsl:stylesheet>
```

The XSLT above checks the value of the supplier description field. If the description contains "RDY" in its value, the `should-be-submitted` element is added to the output. This element tells the Coupa AP integration to submit the document to Coupa after the initial posting. The `should-be-submitted` element is ignored by Coupa. Depending on the state of your output, results can vary according to the table below.

Output state	Result
The XML element (`should-be-submitted`) is found and is set to true.	The integration submits the document to Coupa after it has been posted in the draft state. If a document cannot be submitted for any reason, it remains in Coupa in the "On Hold" or "Pending Approval" state, depending on your settings in Coupa.
The XML element (`should-be-submitted`) is found, but the value is not set to true.	The integration posts the document to Coupa in the draft state.
The XML element (`should-be-submitted`) is not found.	The integration posts the document to Coupa in the draft state.
The output XML is invalid or not readable.	The integration posts the original output document, before the custom transformation was applied, to Coupa in the draft state.

Test the output

If you use custom XSLT to transform output, you can test the output, without sending output to Coupa, to make sure your XSLT transform is functioning properly. This is helpful because you can make adjustments to your XSLT without disturbing the production system.

To test the output, you need access to an SFTP server where you can send the output. These files are included in a ZIP file that is sent to the SFTP server:

File name	Description
[*external ID*]_ApsDocument.xml	The original document in AP Essentials XML format.
[*external ID*]_DocumentBeforeXSLTransformation.xml	The Coupa XML document before it is transformed.
[*external ID*]_PostingToCoupaDocument.xml	The Coupa XML document after it is transformed. This is the document that would otherwise be sent to Coupa if you were not in test mode.

File name	Description
[*external ID*]_CoupaPOData.xml	Contains purchase-order data for each purchase order whose PO number appears on the invoice line items. The file contains the same information that is found in the `<xsl:param name="PurchaseOrders"/>` element of standard output (when not in test mode).
[*external ID*]_DocumentConfiguration.xml	A copy of the current target system settings in XML format.

Follow this procedure to test the output without sending output to Coupa.

1. Navigate to the target system settings.
2. Select **Test mode** and use the settings that appear to specify credentials of your SFTP server and the remote path where you want to save transferred files.
3. Select **Buyer-specific settings** and select the buyers you want to test.

   You must select buyers to use this feature. If you do not select any buyers, AP Essentials sends output to Coupa as usual.

4. Process a document.
   After the document is exported, you can download the output form the SFTP server. Check the output to make sure it meets your expectations. If necessary, adjust your XSLT and test again until the output matches your requirements.

Coupa AP: Data templates

You can configure the Coupa target system service to map fields from Tungsten AP Essentials to Coupa.

This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

By default, Tungsten AP Essentials can map fields to these Coupa fields. If your solution has custom fields, however, you can use data templates to map fields from Tungsten AP Essentials to Coupa.

You can specify data templates for header and line-item fields in the **Custom field mapping** and **Custom line-item field mapping** settings, remit-to codes in the **Remit-to code template** settings, and requesters in the **User mapping** settings. See target system settings.

You specify custom field values using the format, `CoupaCustomField="value"`, where `CoupaCustomField` is the target field Coupa, and value is any possible value defined later in this topic. Use a semicolon to separate multiple field specifications. For your convenience, you can select **Test**, which among other things, makes sure the fields you specify exist in Coupa.

Three types of custom fields are supported in Coupa: text, number and date. When mapping to custom fields in Coupa, make sure the field type in Tungsten AP Essentials matches the correct type in Coupa. For example, if the Tungsten AP Essentials field has the type, **Amount**, the corresponding Coupa field must have the type, number. If the field types do not match, the custom field the data will not be transferred, however, the invoice will still be sent to Coupa without causing an error.

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by document data or system data. Variables are enclosed in percent characters (%).

To specify a variable for a document field, enclose the type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.

Examples

A value in a data template can consist of multiple plain-text constants, field variables, system variables, and history variables. For example, suppose you type the following in the **Custom field mapping** setting:

```
CoupaCustomField="Invoice %InvoiceNumber% is due by %InvoiceDueDate%"
```

In this example, the value of the Coupa field could be, for example, "Invoice 0000558 is due by 2023-12-31".

Consider the following example which uses history variables and system variables:

```
CUSTOMFIELDAPPROVER="%@user9%";CUSTOMFIELDAPPROVALDATE="%@date9%";CUSTOMFIELDLINK="%#Permalink
%"
```

In this example:

- `CUSTOMFIELDAPPROVER` is set to a history variable that refers to the name of the user who verified the invoice.
- `CUSTOMFIELDAPPROVALDATE` is set to a history variable that refers to the date and time when the invoice was verified.
- `CUSTOMFIELDLINK` is set a system variable that refers to the permanent image link (URL) in Tungsten AP Essentials storage.

Variables

The Coupa AP integration supports system variables and history variables.

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber
- #buyer.OrganizationNumber

- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm
- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts
- #DocumentTypeSystemName
- #Permalink
- #ProfileName
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id
- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

...where *User* specifies that you want the user associated with the process, *Date* specifies that you want the date the process occurred and *X* specifies the numerical code of the process you want to return. For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	1
DocumentExtractionSucceeded	2
DocumentPendingManualVerification	3
DocumentPendingCorrection	4
DocumentCorrectionFlowStarting	5
DocumentCorrectionFlowInProgress	6
DocumentCorrectionFlowDone	7
DocumentRejectedDuringVerification	8
DocumentManuallyVerified	9
DocumentPendingRegistration	10
DocumentRegistrationInProgress	11
DocumentRegistrationSucceeded	12
DocumentRegistrationFailed	13
DocumentPendingApproval	14
DocumentApprovalInProgress	15
DocumentApproved	16
DocumentApprovalSucceeded	17
DocumentApprovalRejected	18
DocumentRequestForInformation	19
DocumentPendingAllocation	20
DocumentPendingPost	21
DocumentPostInProgress	22
DocumentPostSucceeded	23
DocumentPostFailed	24
DocumentAssignedToUser	25
DocumentApprovalStarting	26
DocumentPendingExport	27
DocumentExportPostponed	28
DocumentExportInProgress	29
DocumentExportFailed	30
DocumentExportSucceeded	31
DocumentSentToStorage	32
DocumentFailed	33

Process status	Numerical code
DocumentDeleted	34
DocumentCommentAdded	35
LineItemExtractionUsed	36
DocumentRequestForInformationDuringVerification	37
DocumentPendingBatchRegistration	38
DocumentPendingBatchPost	39
DocumentValidationFailed	40
DocumentCodingLinesUpdated	41

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

You can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return for example, 2021-02-28.

Additional parameters for history variables

If a history variable has multiple records associated with it, you can append history variables with additional parameters to specify whether you want the first record, last record, or all records. For example, if a document is approved by multiple users, the history variable returns the last approver by default. However, by specifying an additional parameter, you can get the first approver instead. These parameters are available:

- First — Returns the first record in the selected history.
- Last — Returns the last record in the selected history. This parameter is used by default if no parameter is specified.
- All — Returns all of the records in the selected history as a semicolon-separated text sting. When using this parameter, not all target systems accept the default date format, so make sure you know what format your target system expects.

To use a parameter, append the history variable with a dot followed by the parameter. For example, to obtain the first approver:

%@User16.First%

When using additional parameters in combination with custom date history variables, specify the parameter first:

%@Date9.First{yyyy-MM-dd}%

Process invoices with the Coupa integration

When you process invoices using the Coupa integration, you follow the normal procedures for verification with these additional features:

- Processing invoices without line-item tables.
- Handling of tax rates.

ℹ This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

Process invoices without line-item tables

No special action is required to process invoices without line-item tables. Although Coupa does not support invoices without line items, Tungsten AP Essentials automatically creates a line item based on the header fields to work around this issue.

Handle tax rates

The Coupa integration supports the capture of tax data and multiple tax rates in headers and line items. No matter where the tax data is found on the invoice, the integration ensures the tax data is mapped to the invoice summary in Coupa. When multiple tax rates are found on an invoice, each is mapped to a separate tax line (TaxDetail element) in the invoice summary.

When Tungsten AP Essentials sends invoice data to Coupa, the category of the `TaxDetail` element is set to an empty space. More information about how tax fields are mapped between systems is available here.

Filter data import with content groups

In Coupa, you can create content groups, which are assigned to different assets such as supplier records. Tungsten AP Essentials lets you filter the data you import from Coupa according to content groups. You accomplish this by mapping customer accounts in AP Essentials to content groups in Coupa. Then you use the mapping as a filter, so only the data associated with the content groups is imported. You can also map buyers in AP Essentials to content groups in Coupa for more granularity. When you use a content-group mapping to filter supplier data import, for example, only suppliers and supplier data (contracts and purchase orders) that belong to the content groups you specify are imported.

ℹ This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

Filtering data import with content groups consists of two parts:

- Mapping customers and/or buyers in AP Essentials to content groups in Coupa.
- Using the mapping to filter data import.

Map customers in AP Essentials to content groups in Coupa

To map customers and/or buyers in AP Essentials to content groups in Coupa:

1. Note the names of the content groups in Coupa that you want to use to filter data import.
2. In the target system settings (**Content groups** section), type the name of each content group you want to use in the **Content group mapping** box. If you list more than one content group, use commas to separate each name.
   Example: For example, assume you have content groups in Coupa named Group1, Group2, and Group3. However, you only want to import data from Group1 and Group2. In this case, type "Group1, Group2" in the **Content group mapping** box.

   When filtering data import, suppliers that belong to the Everyone group are not imported by default. You must specify "Everyone" in the **Content group mapping** box to import suppliers that belong to the Everyone content group.

3. Optionally, select **Buyer-specific settings** to specify different content groups for each buyer. If you leave a buyer empty, the content group settings at the customer account level are applied.
4. Save your settings.
   The mapping is now complete and ready to be used to filter data import as described in the next section.

Use the mapping to filter data import

Currently, you can filter supplier and user data import. To use the mapping from the previous section to filter data import:

In the target system settings, select **Content group filtering** for each object you want to filter. For example, to filter supplier data import, select **Content group filtering** in the **Suppliers** section. In this case, only suppliers and supplier data (contracts and purchase orders) that belong to the content groups you specified in the previous section are imported.

Manage purchase order prefixes

Coupa can be connected to multiple ERP systems simultaneously. To avoid overlapping purchase order numbers, some Coupa users add prefixes to the purchase orders within Coupa. Typically, the prefix reflects the ERP system of origin. For example, PO numbers from SAP could be prefixed with "SAP". Although PO prefixes are a great tool inside Coupa, they can potentially cause problems during extraction in AP Essentials because the PO on an original document cannot be automatically matched with the imported purchase order. To overcome this issue, you can specify purchase order prefix templates in AP Essentials. This feature removes the PO prefixes during master data import, allowing POs to be matched correctly, and later adds the PO prefixes back to the document during export to Coupa.

You can apply PO prefix templates at the customer account level and to specific buyers.

This topic refers to the Coupa AP integration, which is the most current version of the Coupa integration and uses the latest version of the Coupa API.

To specify prefixes for purchase order numbers:

1. In Admin Center, navigate to the **Target system** view and select **Edit**.
2. Select **Coupa AP** and select **Configuration**.
   The target system settings appear.
3. Select **Use PO prefix templates**.
4. Specify your PO prefix templates in the box that appears. Separate multiple templates with a semicolon.
   You specify a prefix template using the pattern: *prefix*:*po_number_regex*. Where *prefix* is a literal string and *po_number_regex* is a regular expression that matches the beginning of the PO number. See examples below.
5. Optionally, select **Buyer-specific settings** to define templates on the buyer level.
6. Select **OK** to confirm your settings and return to the **Target system** view.
7. Select **Save**.

PO prefix template examples

You specify a prefix template using the pattern: *prefix*:*po_number_regex*. Where *prefix* is a literal string and *po_number_regex* is a regular expression that matches the beginning of the PO number. Separate multiple templates with a semicolon.

For example, assume your Coupa system is integrated with SAP and Oracle Financials Cloud. In Coupa, you prefix the SAP purchase order numbers with "SAP_", and the SAP PO numbers are at least six digits long. The Oracle PO numbers are prefixed with "OFC_" and contain at least 7 digits. To create PO prefix templates for this scenario, you would specify the following in the **PO prefix templates** setting:

SAP_: \d{6};OFC_:\d{7}

You can specify more than one template per organization (customer or buyer). For example, continuing the example above, but assume you use two prefixes for SAP, one with an underscore and one with a dash. In this case, you can make an additional template to handle the extra prefix:

SAP_: \d{6};SAP-: \d{6};OFC_:\d{7}

Examples

Incoming PO number from master data	PO number used in AP Essentials	PO number exported to Coupa
SAP_123456	123456	SAP_123456
OFC_1234567	1234567	OFC_1234567
SAP-482349	482349	SAP-482349
SAP_8675309	8675309	SAP_8675309

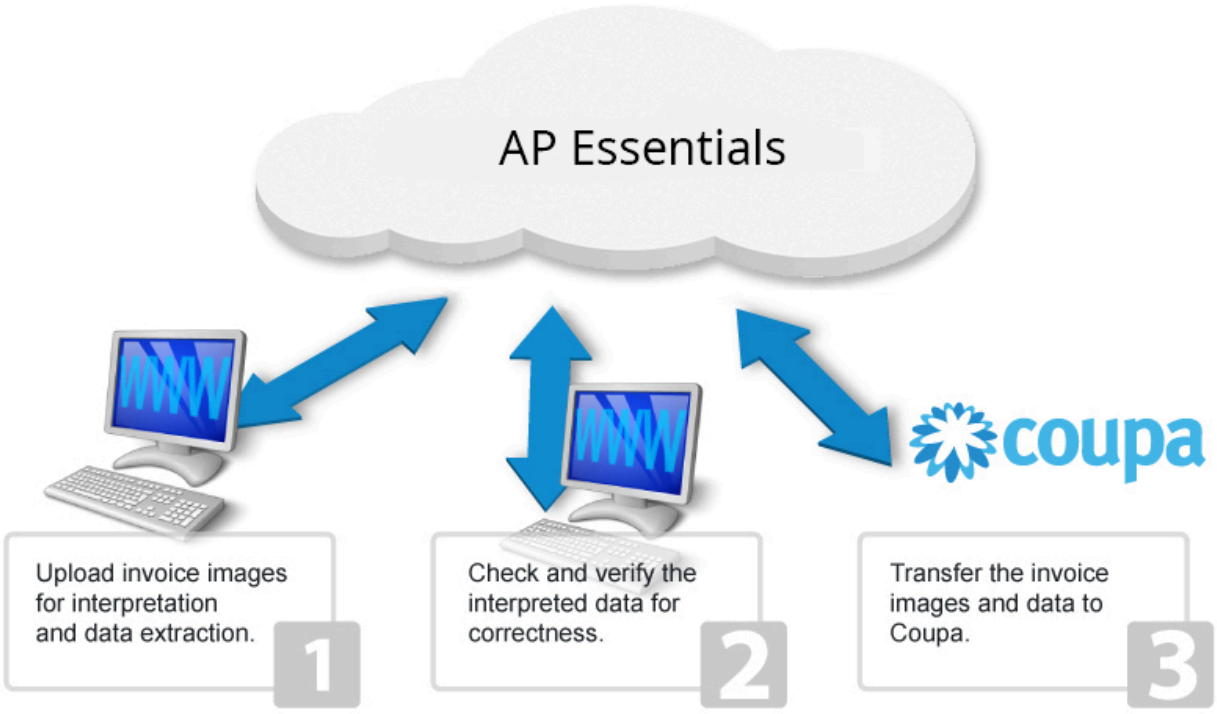
Note the last example in the previous table. Although the regular expression specifies only six digits, seven digits were captured. The regular expression only needs to match the beginning of the purchase order number. Any characters found after the specification are also captured.

Coupa

This topic refers to an older version of the Coupa integration that is being phased out in favor of the latest integration, the Coupa AP integration.

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Likewise, administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money, since there is no need for extensive customization.

This integration consists of these components:

- Tungsten AP Essentials.
- Coupa.

Integration features

The Coupa integration enables cooperation between Tungsten AP Essentials and Coupa. It leverages more power and adds value to your current accounts-payable system by extracting data from supplier invoices without any tedious projects or expensive hardware investments.

The Coupa integration supports these features:

- Processing of purchase order and non-PO invoices, as well as credit notes.
- Export invoice images, attachments, and original emails to Coupa.
- Posting of PO invoices containing one or more purchase orders.
- Manual and automatic line-item pairing.
- The integration synchronizes master data between Coupa and Tungsten AP Essentials. Suppliers, currencies, contracts, units of measure, and PO data are imported, so the data is available for selection during invoice processing in Tungsten AP Essentials.

  To reduce bandwidth when importing suppliers, purchase orders, and lookup names, the Coupa integration supports delta synchronization. This means that when Tungsten AP Essentials imports data, it only imports changes in the data, rather than importing all the data every time. For example, new suppliers and changed suppliers are imported, whereas suppliers that have not changed between synchronizations are not imported.
- Processing invoices without line-item tables.
- Extraction of tax data and multiple tax rates in headers and line items.
- Data templates for mapping custom fields.

Where to go from here

Before you can use Coupa with Tungsten AP Essentials, you must complete these steps:

1. Configure Coupa.
2. Configure Tungsten AP Essentials for use with Coupa.

After you complete the steps above and the rest of the customer setup, you are ready to begin processing invoices using the integration for Coupa.

Configure Coupa for use with Tungsten AP Essentials

Before you can use the Coupa integration with Tungsten AP Essentials, you must:

- Prepare your connection settings.
- Register Tungsten AP Essentials as a third-party cXML sender.
- Check the supplier settings.
- Create an API response filter. Required for purchase order services.

This topic refers to an older version of the Coupa integration that is being phased out in favor of the latest integration, the Coupa AP integration.

Prepare your connection settings

Tungsten AP Essentials connects to Coupa using either token-based authorization or an API key. Whichever method you choose, you specify the settings in the target system settings.

Create token-based credentials

To create token-based credentials in Coupa:

1. Log in to Coupa and navigate to **Setup** > **Oauth2/OpenID Connect Clients** .
2. Select **Create** and use the view that appears to create your credentials.
3. Make sure you select **Client credentials** in the **Grant Type** setting.
4. After you complete the settings, select **Save**.
   Note the client **Identifier** and **Secret**. Later when you configure Tungsten AP Essentials for use with Coupa, you specify these values in the target system settings.

Create an API key

To create an API key in Coupa:

1. Log in to Coupa and navigate to the **Setup** > **API Keys** view.
2. Select **Create** and use the view that appears to specify an API key.
3. The API key must have **Index** and **Show** permissions on these objects:
   - **Api/Account Types**
   - **Api/Accounts**
   - **Api/Contracts**
   - **Api/Currencies**
   - **Api/Lookup Values**
   - **Api/Lookups**
   - **Api/Purchase Orders**
   - **Api/Suppliers**
   - **Api/Uoms**

   Note the API key. Later when you configure Tungsten AP Essentials for use with Coupa, you specify the API key in the target system settings.

Register Tungsten AP Essentials as a third-party cXML sender

To register Tungsten AP Essentials as a third-party cXML sender in Coupa:

1. Log in to Coupa and navigate to the **Setup** view.
2. In the **Invoicing** group, select **cXML Third Party Senders**.
   The **cXML Sender** view appears.
3. Select **Create** and use the view that appears to specify Tungsten AP Essentials as a cXML sender.

4. Select **Buyer Originated**.
   Before you save your settings, note the **Sender Identity** and the **Sender Domain**. The values you specify here are required in the target system settings.

Check the supplier settings

1. In Coupa, make sure all of the suppliers have supplier numbers.
2. Make sure cXML invoicing is enabled for each supplier and specify these settings:
   - **CXML Invoice Supplier Domain**
   - **CXML Invoice Supplier Identity**
   - **CXML Invoice Buyer Domain**
   - **CXML Invoice Buyer Identity**
   - **CXML Invoice Secret**
3. Select these options in the **Invoicing Configuration** settings:
   - **Create Invoices with No Backing Document**
   - **Allow Non-Backed Lines on PO Invoices**

   You can upload Coupa supplier configurations in bulk. See Coupa documentation for more information.

Create an API response filter

If you use Tungsten AP Essentials's Purchase order service, you must create an API response filter in Coupa and specify the name of the filter in the **Coupa API filter** setting. Create the API response filter in Coupa using these settings:

Name	aps_purchaseorder_filter
Description	Retrieves purchase orders for Tungsten AP Essentials
Resource	purchase_orders
Default	No

Filter	[
	  "po_number",
	  "created_at",
	  "updated_at",
	  "status",
	  {
	  "supplier": [
	  "id",
	  "name",
	  "display_name",
	  "number",
	  "updated_at",
	  "status",
	  "send_to_kofax",
	  {
	  "custom_fields": [
	  "send_to_kofax"
	  ]
	  }
	  ]
	  },
	  {
	  "requisition_header": [
	  "requested_by"
	  ]
	  },
	  {
	  "ship_to_user": [
	  "email"
	  ]
	  },
	  {
	  "order_lines": [
	  "id",
	  "created_at",
	  "updated_at",
	  "accounting_total",
	  "description",
	  "invoiced",
	  "received",
	  "line_num",
	  "need_by_date",
	  "price",
	  "quantity",
	  "receipt_required",
	  "source_part_num",
	  "status",
	  "sub_line_num",
	  "supp_aux_part_num",
	  "total",
	  "type",
	  "match_type",
	  "service_type",
	  {
	  "commodity": [
	  "name"
	  ]
	  },
	  {
	  "currency": [
	  "code"
	  ]
	  },
	  {
	  "uom": [
	  "code"
	  ]
	  }
	  ]
	  }
	]

Configure Tungsten AP Essentials for use with Coupa

Before you can use the Coupa integration with Tungsten AP Essentials, you must configure these settings in Tungsten AP Essentials:

- Extraction settings
- Target system
- Master data

This topic refers to an older version of the Coupa integration that is being phased out in favor of the latest integration, the Coupa AP integration.

Extraction settings

You must edit the extraction settings for each document type you use and ensure the required Tungsten AP Essentials fields are specified for the corresponding fields in Coupa. If a document type you use lacks a required field, you must add a custom field using the field type name specified in the tables below. Likewise, the Coupa system must use the required fields specified in the tables below.

Tungsten AP Essentials field type name	Coupa field	Note
Header fields		
SupplierName	Supplier record of the same name	Required. You do not need to specify a supplier name field in the document type. The supplier name is taken from master data.
InvoiceNumber	Invoice number	Required.
InvoiceDate	Invoice Date	
	Invoice due date	The due date is calculated in Coupa based on the net payment terms.
InvoiceCurrency	Currency	

<table>
<tr><th>Tungsten AP Essentials field type name</th><th>Coupa field</th><th>Note</th></tr>
<tr><td>OriginalInvoiceNumber</td><td>Original Invoice Number</td><td rowspan="2">OriginalInvoiceNumber and OriginalInvoiceDate are custom fields that you must add to the document type, if you want to process credit notes. When adding OriginalInvoiceDate, ensure you set the Type to Date.
If you do not add the OriginalInvoiceNumber and OriginalInvoiceDate fields to the document type and an invoice is marked as a credit note, the fields are mapped as noted below:<table><tr><th>Tungsten AP Essentials field</th><th>Coupa field</th></tr><tr><td>InvoiceNumber + "_credit"</td><td>Invoice number</td></tr><tr><td>InvoiceNumber</td><td>Original Invoice Number</td></tr><tr><td>InvoiceDate</td><td>Original Invoice Date</td></tr></table></td></tr>
<tr><td>OriginalInvoiceDate</td><td>Original Invoice Date</td></tr>
<tr><td>Requester</td><td>Requester</td><td>Requester is an optional custom field that you can add to the document type. You can use the Lookup names setting to import invoice requesters from Coupa as master data. Then you can connect the Requester field to the master data to provide autocomplete functionality in Tungsten AP Essentials.</td></tr>
<tr><td>InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3 etc.</td><td>Tax Rate (Summary)</td><td></td></tr>
<tr><td>InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3 etc.</td><td>Tax Amount (Summary)</td><td></td></tr>
<tr><td>InvoiceTotalVatExcludedAmount</td><td>Subtotal amount</td><td></td></tr>
<tr><td>InvoiceTotalVatAmount</td><td>Invoice tax value</td><td></td></tr>
<tr><td>DeliveryCost</td><td>Shipping amount</td><td></td></tr>
<tr><td>ContractNumber</td><td>Contract field (line items)</td><td></td></tr>
<tr><td>ChartOfAccount</td><td>Chart of accounts</td><td>If this field is empty, or does not exist, the value is copied from the Default chart of accounts setting.</td></tr>
</table>

Tungsten AP Essentials field type name	Coupa field	Note
BillingAccount		If `LIT_BillingAccount` is empty in the line-item table, the billing account is taken from this field. If this field is empty, or does not exist, the value is copied from the **Default billing account** setting.
InvoiceOrderNumber		If `LIT_OrderNumber` is empty in the line-item table, PO numbers are copied from this field.
Line-item fields		
LIT_RowIdentifier	Purchase order line number	
LIT_ArticleName	Line description	Required.
LIT_DeliveredQuantity	Quantity	Required for lines whose **Type** is set to **Qty** in Coupa. For header-only invoices, an empty value is submitted.
LIT_UnitPriceAmount	Unit price	Required for lines whose **Type** is set to **Qty** in Coupa. For header-only invoices, an empty value is submitted.
LIT_DeliveredQuantityUnitCode	Unit of measure	Required for lines whose **Type** is set to **Qty** in Coupa.
LIT_VatExcludedAmount	Subtotal amount	Required for lines whose **Type** is set to **Amt** in Coupa.
LIT_VATRate1, LIT_VATRate2, LIT_VATRate3 etc.	Tax Rate (line item)	If multiple tax rates are found on the invoice, they are mapped to separate tax lines in Coupa.
LIT_VATAmount1, LIT_VATAmount2, LIT_VATAmount3 etc.	Tax Amount (line item)	If multiple tax amounts are found on the invoice, they are mapped to separate tax lines in Coupa.
LIT_BillingAccount	Billing account	
LIT_OrderNumber	Purchase order number	

Target system settings

Adjust the target system settings in Tungsten AP Essentials.

1. In Admin Center, navigate to the **Target system** view and select **Edit**.
2. Select **Coupa** and select **Configuration**.
3. Specify the settings in the view that appears.
   If you use the Purchase order service, you must specify a **Coupa API filter**.
4. Select **Test** to test the connection settings.
   Make corrections if necessary.

5. Select **OK** to confirm your settings and return to the **Target system** view.
6. Select **Save**.

Enforce line level taxation

In Coupa, you can disable tax fields on the header level using the **Enforce line level taxation** setting. If you use the **Enforce line level taxation** setting in Coupa, you should also select **Enforce line level taxation** in the target system settings in Tungsten AP Essentials. You can also select **Calculate missing tax rates** to ensure any missing rates are calculated and inserted in the line-item table.

This table depicts various outcomes of enforcing line level taxation:

Invoice field layout	Taxes	Result in Coupa
Header fields only	Single or multiple tax rates and tax amounts are specified in header fields on the invoice.	An invoice with one line item containing the tax information is exported to Coupa.
Header fields and one line item	Single or multiple tax rates and tax amounts are specified in header fields on the invoice.	Tax information from the header is used to set the tax amounts in the line item.
Header fields and multiple line items	Tax information is specified in header fields and line items on the invoice.	Tax information from the header is ignored, and the tax information in the line items is exported as is.
	A single tax rate is specified in the invoice header.	Tax information from the header is used to set the tax amounts in each line item.
	A single tax amount is specified in the invoice header.	An extra line item is created with the tax amount, but no price. The line-item description is set to "Automatic tax line". If **Calculate missing tax rates** is enabled, the tax amount from the header and the calculated tax rate is set on each line item.
	A single tax rate and tax amount is specified in the invoice header.	The tax rate is set in every line item. An extra line item is created with the tax amount, but no price. The line-item description is set to "Automatic tax line". If **Calculate missing tax rates** is enabled, the tax amount is calculated on each line item. If tax rate is missing in the invoice header, but the tax amount and net amount are specified, the tax rate is also calculated.

Invoice field layout	Taxes	Result in Coupa
	Multiple taxes are specified in the invoice header.	An extra line item is created with the tax amount, but no price. The line-item description is set to "Automatic tax line". If **Calculate missing tax rates** is enabled, the tax amount is calculated on each line item. If tax rate is missing in the invoice header, but the tax amount and net amount are specified, the tax rate is also calculated.

Master data

Tungsten AP Essentials automatically imports master data from Coupa and uses the data to suggest and validate field values during verification.

This table shows the correlation between Tungsten AP Essentials master data and Coupa data.

Tungsten AP Essentials field (type name)	Coupa field
Supplier master data	
Name	name name + display-name (optional)
SupplierNumber	number
Street	primary-address.street1
PostalCode	primary-address.postal_code
City	primary-address.city
CountryName	primary-address.Country.Nam
PaymentTerm	payment_term.code
State	primary-address.state
Blocked	Always set to false. Only active suppliers are imported.
TaxRegistrationNumber	taxid
Supplier bank master data	
BankName	name
SupplierNumber	supplier.number
AccountNumber	remit-to-code
Currency master data	
Code	code
Name	code
Contract master data	

Tungsten AP Essentials field (type name)	Coupa field
Name	supplier.number - name Example: 123456 - ACME Inc
Value	number
Description	name
Active	Always set to true. Only published contracts from active suppliers are imported.
Units of measure master data	
Name	name
Value	code
Purchase order master data	
OrderNumber	po-number
SupplierNumber	supplier.number
SupplierName	supplier.name or supplier.displayname
CurrencyCode	The currency code from the first order line is used.
DateCreated	The current date is used.
ContactName	requisition-header.requested-by.email or ship_to_user.email
StatusText	status
Description	n/a

Master data for lookups

In Coupa, "lookups" are similar to field suggestions (autocomplete) in Tungsten AP Essentials. They are used for fields in Coupa that require users to choose from a list of options. A lookup consists of a lookup name and a number of options, each called a lookup value.

Lookup values are grouped into named sets. Each named set that you specify (comma separated) in the **Lookup names** setting is imported as master data with the same name. You can connect fields to master data to provide autocomplete functionality in Tungsten AP Essentials. In this manner, you can use Coupa lookups while processing documents in Tungsten AP Essentials.

When importing master data for lookups, the field mappings differ depending on whether the lookup is for the `Requester` field or general fields.

Lookup values master data: Requester field	
Tungsten AP Essentials field (type name)	**Coupa field**
Name	External Ref Code
Value	Name
Description	Description
Active	Active

Lookup values master data: General fields	
Tungsten AP Essentials field (type name)	**Coupa field**
Name	Name
Value	External Ref Num
Description	Description
Active	Active

Specify a default chart of accounts and default billing account template

Normally, you specify a default chart of accounts and default billing account in their respective settings in the **Target system** view . Then, if the chart of accounts field or billing account field is empty or does not exist on an invoice during verification, the default values are used automatically. There may be cases, however, when you want to use different accounts on the buyer level. In this case, you can select **Buyer-specific settings** and use the view that appears to specify default values for individual buyers. Specifying buyer-specific settings is optional, and you do not have to specify default values for all buyers.

When Tungsten AP Essentials determines the chart of accounts and billing account values, field values entered during verification take the highest precedence. If the fields are missing or empty, Tungsten AP Essentials uses the default values specified on the buyer level. If nothing is specified on the buyer level, Tungsten AP Essentials uses the default values specified in the target system settings. In other words, the order of precedence is: verified field values, default buyer settings, default target system settings.

Use data templates to specify remit-to addresses

Suppliers in Coupa can be associated with multiple remit-to addresses. You can save time by having users specify the remit-to address while verifying invoices in Tungsten AP Essentials, rather than adjusting it later in Coupa. Tungsten AP Essentials lets you accomplish this using a data template in combination with a custom field. During verification, a user can specify an account number, for example, in the custom field which is then mapped to a remit-to address in Coupa. Behind the scenes, Tungsten AP Essentials maps the custom field to the ID reference of an `InvoicePartner` with `remitTo` role in Coupa's cXML (`InvoicePartner\IdReference`).

Note: In Coupa, you must map the Coupa supplier portal remit-to address with the supplier master data remit-to address. You only need to do this once for each supplier. Invoices that are processed without mapping the remit-to address are placed in a booking hold until you perform the mapping in Coupa.

To set up the custom field and data template in Tungsten AP Essentials:

1. Add a custom field to the document type.
   For demonstration purposes, specify "CoupaIDReference" as the **Type name** of the field.
2. Specify a data template in the **Remit-to code template** setting.
   Continuing with the example above, specify "%CoupaIDReference%" in the **Remit-to code template** setting. After you save your settings, you are ready to specify remit-to addresses during verification.

When a user verifies an invoice in Tungsten AP Essentials, the value from the `CoupaIDReference` field is used to designate the appropriate remit-to address in Coupa.

Note: You can use a data template to specify whatever value you need to match the ID reference in Coupa. For example, if your document type already captures a field that corresponds to the ID reference in Coupa, you can specify the existing field, instead of creating a new custom field.

3. Optionally select the **Use default remit-to code** setting if all, or most, of your suppliers only have one remit-to address.
   When **Use default remit-to code** is selected, if you do not specify a remit-to code during invoice verification, and there is only one remit-to code for the current supplier, that remit-to code is used when the invoice is sent to Coupa.

Troubleshooting

- If you encounter problems with delta synchronization of master data, try disabling delta synchronization in the target system settings. After synchronization is complete, you can enable delta synchronization again.
- In Coupa, ensure all of the suppliers have supplier numbers. Also, ensure cXML invoicing is enabled for each supplier.
- If you receive audit trail messages about problems with delta synchronization on purchase orders, enable **Filtered synchronization** to exclude suppliers and purchase orders that are meant to be integrated with Tungsten AP Essentials.
- When invoices are posted to Coupa, the supplier number is validated and checked for uniqueness. If two suppliers are identical, they are counted as one supplier.

Coupa data templates

You can configure the Coupa target system service to map fields and other data from Tungsten AP Essentials to Coupa.

This topic refers to an older version of the Coupa integration that is being phased out in favor of the latest integration, the Coupa AP integration.

By default, Tungsten AP Essentials can map fields to these Coupa fields. If your solution has custom fields, however, you can use data templates to map fields and other data from Tungsten AP Essentials to Coupa.

You can specify data templates in the **Custom field mapping** and **Remit-to code template** settings.

You specify custom field values using the format: `CoupaCustomField="value"`, where `CoupaCustomField` is the target field in Coupa, and value is any possible value defined later in this topic. Use a semicolon to separate multiple field specifications. For your convenience, you can select **Test**, which ensures that the fields you specify exist in Coupa.

Currently, you can only map header fields in Tungsten AP Essentials to custom fields in Coupa. Three types of custom fields are supported in Coupa: text, number, and date. When mapping to custom fields in Coupa, ensure that the field type in Tungsten AP Essentials matches the correct type in Coupa. For example, if the Tungsten AP Essentials field has the type: **Amount**, the

corresponding Coupa field must have the type: number. If the field types do not match, the custom field data will not be transferred; however, the invoice will still be sent to Coupa without causing an error.

Example

If you type the following in the **Custom field mapping** setting:

```
CUSTOMFIELDAPPROVER="%@user60%";CUSTOMFIELDAPPROVALDATE="%@date60%";CUSTOMFIELDLINK="%#Permalink
%"
```

In this example:

- `CUSTOMFIELDAPPROVER` is set to a history variable that refers to the name of the user who checked the invoice.
- `CUSTOMFIELDAPPROVALDATE` is set to a history variable that refers to the date and time when the invoice was verified.
- `CUSTOMFIELDLINK` is set to a system variable that refers to the permanent image link (URL) in Tungsten AP Essentials storage.

A value can consist of multiple constants and variables.

For example:

```
field="Invoice %InvoiceNumber% was approved by %@user60%"
```

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.
- **$** - to indicate that it is a metadata variable.

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber

- #buyer.OrganizationNumber
- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm
- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts
- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2
- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack
- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id
- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68

Process status	Numerical code
DocumentApprovalRejected	69
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95
DocumentExportFailed	99
DocumentExportSucceeded	100
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Additional parameters for history variables

If a history variable has multiple records associated with it, you can append history variables with additional parameters to specify whether you want the first record, last record, or all records. For

example, if a document is approved by multiple users, the history variable returns the last approver by default. However, by specifying an additional parameter, you can get the first approver instead. These parameters are available:

- First – Returns the first record in the selected history.
- Last – Returns the last record in the selected history. This parameter is used by default if no parameter is specified.
- All – Returns all of the records in the selected history as a semicolon-separated text string. When using this parameter, not all target systems accept the default date format, so make sure you know what format your target system expects.

To use a parameter, append the history variable with a dot followed by the parameter. For example, to obtain the first approver:

%@User67.First%

When using additional parameters in combination with custom date history variables, specify the parameter first:

%@Date67.First{yyyy-MM-dd}%

Metadata variables

You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

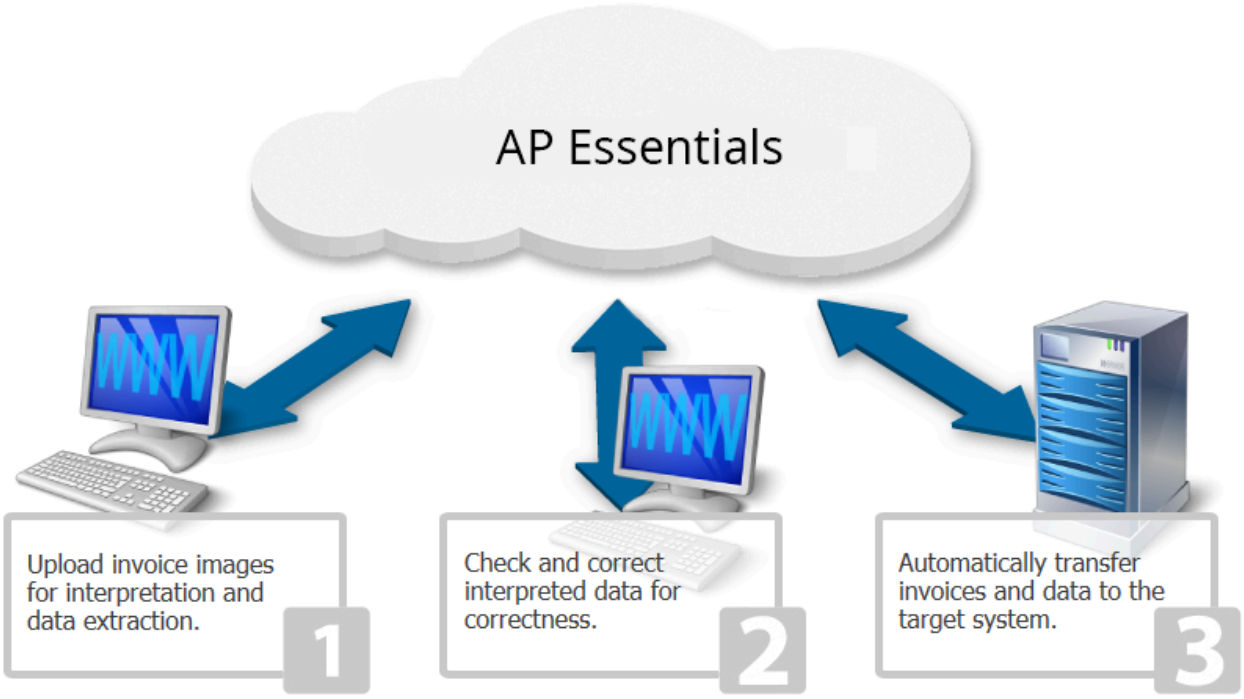
- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

E-conomic

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web

browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

An integration usually consists of three components:

- Tungsten AP Essentials.
- A target system, such as E-conomic.
- Tungsten AP Essentials Connect, a lightweight program that you install locally to enable communication between the systems and synchronize master data. AP Essentials Connect also provides an alternative method to upload documents to AP Essentials.

Key features

The E-conomic integration enables cooperation between AP Essentials and E-conomic. It leverages more power and adds value to your current accounts-payable system by extracting data from supplier invoices without requiring complex projects or expensive hardware.

The E-conomic integration supports these features:

- **Invoice posting** – General ledger and project invoices are supported. Invoices are posted as book entries within a day book in E-conomic. Invoices must be coded correctly to be posted in E-conomic. If an invoice cannot be posted, you must correct the coding in AP Essentials before the invoice can be posted again.
- **Credit note posting** – You can specify whether an invoice is a credit note using a special field during verification.
- **General-ledger invoice handling** – General ledger invoices are standard invoices that are coded using a chart of accounts. AP Essentials supports departments, entry text, and distribution via the VAT account field.
- **Project-invoice handling** – Project invoices are standard invoices that are coded using projects. AP Essentials supports project numbers and employee fields. AP Essentials supports standard entry information such as department, entry text, and VAT accounts. AP Essentials also supports distribution for project invoices when E-conomic does not.
- **Payment-type handling** – The E-conomic integration can determine the supplier payment type from the information printed on the invoice. The supplier reference and invoice reference are used to set the payment type when posting the invoice in E-conomic.
- **Automatic coding suggestions** – AP Essentials provides coding suggestions, which make your job easier by suggesting accounting codes and amounts.
- **Organization mapping** – E-conomic companies are mapped to customers in AP Essentials.
- **Master-data synchronization** – The integration synchronizes master data between E-conomic and AP Essentials. For example, E-conomic suppliers, charts of account, currencies, VAT codes, departments, projects, cost types, and employees are imported, so they are available for selection when performing account coding in AP Essentials. Departments and cost types that are blocked in E-conomic are not imported and do not appear for selection.
- **Currency exchange rates** – When invoices in foreign currencies are posted, AP Essentials posts the currency and the exchange rate. This feature may access and use database information (© European Central Bank) for currency exchange rates. The information may be obtained free of charge through the ECB website.

  The E-conomic integration only supports currencies from the ECB listed here.

  The exchange rate calculated by E-conomic can differ from AP Essentials. The values can differ because AP Essentials is not allowed to post exchange rates to E-conomic. Therefore, if E-conomic uses different rounding than AP Essentials, the calculated rates can differ. Likewise, it is possible that the exchange rate changes between the time AP Essentials makes the calculation and E-conomic makes the calculation.

Where to go from here

Before you can use E-conomic with AP Essentials, you must complete these steps:

1. Configure E-conomic.
2. Configure AP Essentials for use with E-conomic.
3. Configure AP Essentials Connect (optional).

Consider the following:

- If you use master data to add a project coding field to your E-conomic integration, project descriptions over 300 characters are truncated.
- Closed projects, vendors, accounts, departments, and more are not imported.
- Distribution keys in E-conomic are treated as departments in AP Essentials.
- If an error occurs in E-conomic and a document cannot be processed, the document returns to AP Essentials with an error message.

E-conomic technical description

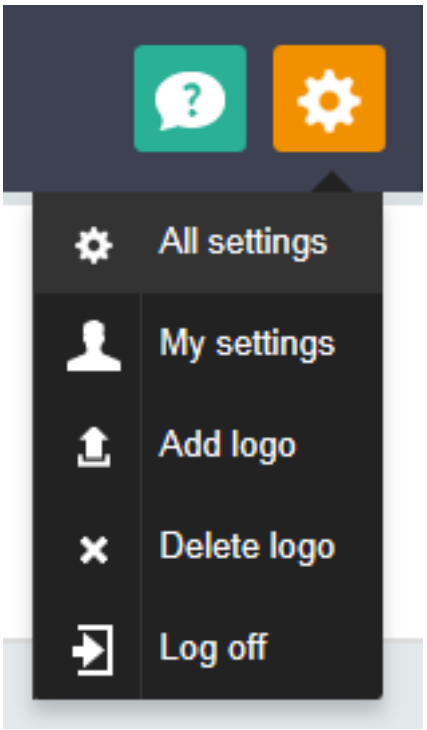
Before you can use E-conomic with Tungsten AP Essentials, you must complete these steps:

1. Configure E-conomic.
2. Configure Tungsten AP Essentials for use with E-conomic.
3. Configure Tungsten AP Essentials Connect (optional).

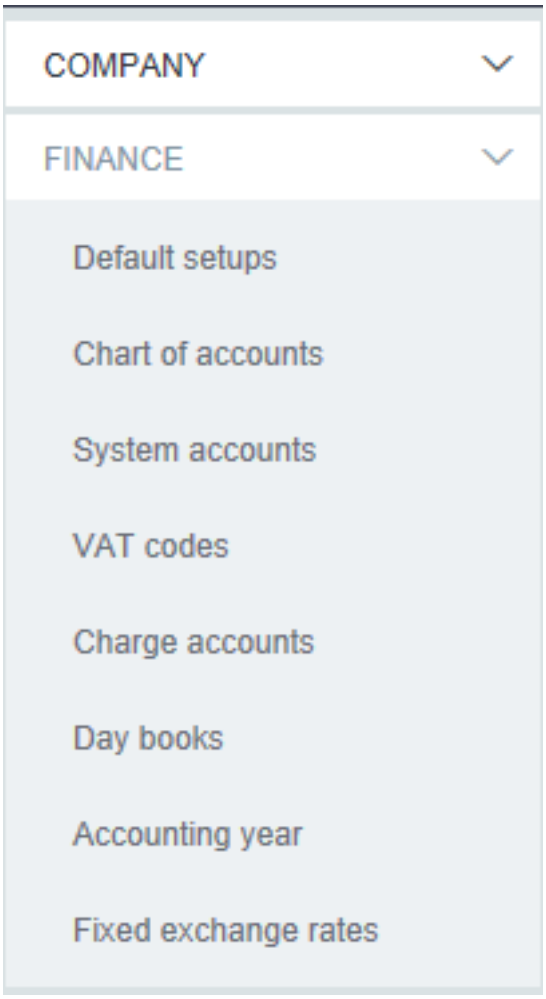
Configure E-conomic

To create a dedicated day book for invoices that come from Tungsten AP Essentials:

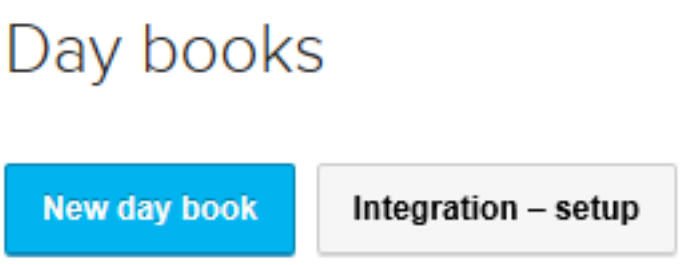
1. In E-conomic, select the **Settings** button and select **All settings**.



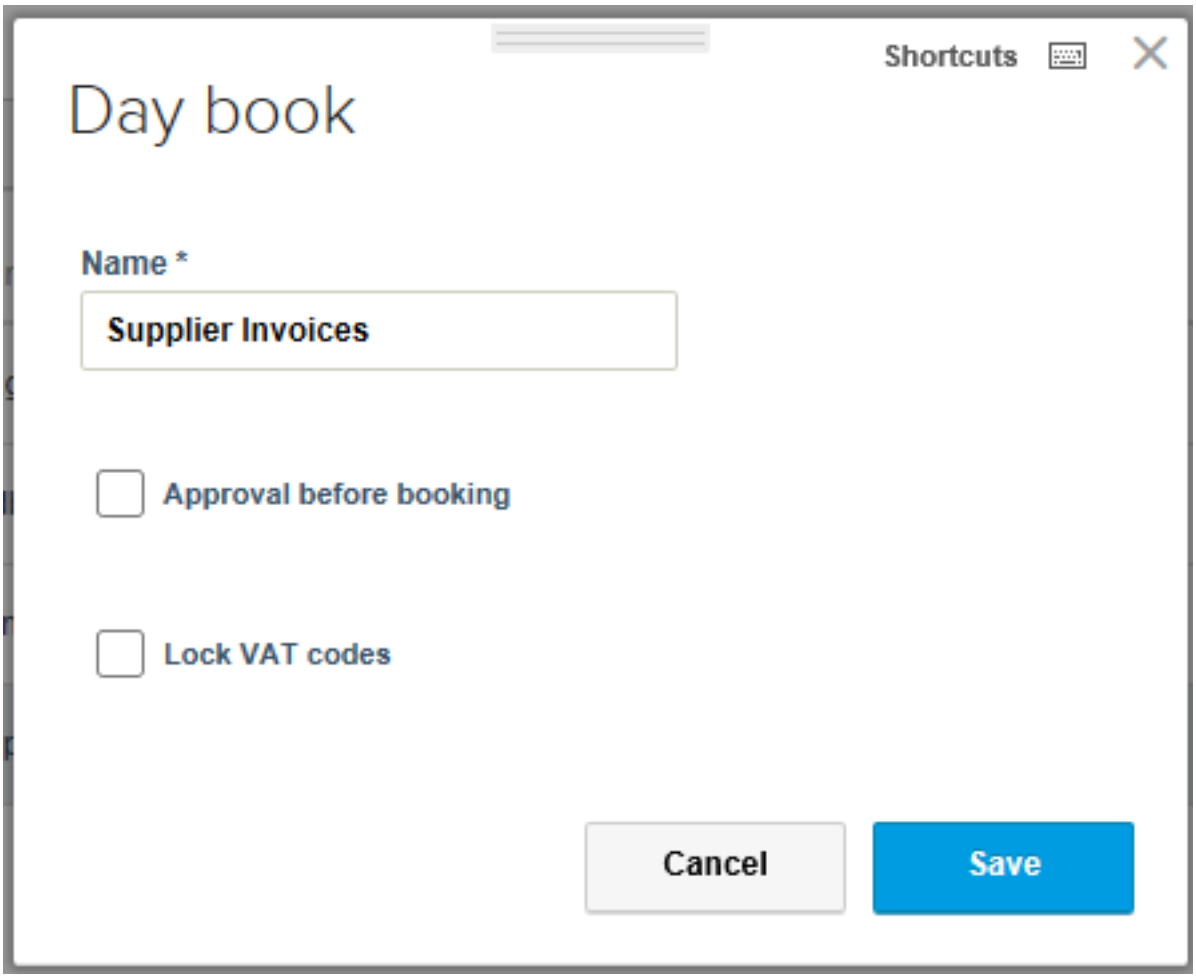
2. Expand the **Finance** tab and select **Day books**.



3. Select **New day book**.



4. Specify the name of the day book and select **Save**.



If you select **Lock VAT codes**, we recommend that you do not use VAT codes in Tungsten AP Essentials for consistency.

Configure Tungsten AP Essentials for use with E-conomic

Each E-conomic company corresponds to a customer in Tungsten AP Essentials.

Company mapping

Each E-conomic company corresponds to a customer in Tungsten AP Essentials. Multiple customers cannot share the same E-conomic account. You can authenticate E-conomic using a company user or an administrator using an administration agreement number.

Email input service settings

Email input settings can be adjusted by an administrator in the Email input service settings.

Extraction service settings

The Extraction service settings determine how invoice information is captured and interpreted. Do not confuse these fields with coding fields, which are used during approval.

These fields can be extracted and sent to E-conomic:

InvoiceCredit	Determines whether the document is an invoice or a credit note.
InvoiceDate	The document date.
InvoiceDueDate	The document due date.
InvoiceNumberr	The document reference.
InvoiceTotalVatAmount	The total VAT amount of the document.
InvoiceTotalVatRatePercent	The total VAT rate (%) of the document.
InvoiceTotalVatExcludedAmount	The net amount of the document.
InvoiceTotalVatIncludedAmount	The gross amount of the document.
InvoiceCurrency	The document currency code.

See also:

- Processing Danish invoices with E-conomic.
- Processing Norwegian invoices with E-conomic.
- Processing Swedish invoices with E-conomic.

Custom fields

You can use Tungsten AP Essentials to create additional custom fields that can be configured to create a tight integration with E-conomic.

The E-conomic integration supports custom fields such as:

- Payment Type
- Cash Account
- Note
- Department
- Project
- Cost Type
- Employee

Payment type

Used for Danish invoices, the Payment Type field specifies the invoice payment type. You can use this field with the Danish payment type rule that enables and disables required fields based on which payment type is selected.

This field uses master data to provide a list of possible values.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	Payment type
Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Not selected
Enforce validation	Selected
Use master data to suggest field values	Selected
UseUse master data to validate the field values	Selected

Cash Account

The Cash Account field is used in conjunction with the Payment Type field. When the Payment Type field is set to Entry Only during verification, the Cash Account field is enabled.

This field uses master data to provide a list of possible values.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	CashAccount
Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Selected
Enforce validation	Not selected
Use master data to suggest field values	Selected
UseUse master data to validate the field values	Selected

Note

The E-conomic integration can automatically specify day book entry text based on a data template that uses one or more dynamic values. For users to add a comment during verification, you can create a custom Note field and reference it in the data template that you specify in the Entry text template setting.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	Note

Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Selected
Enforce validation	Not selected
Use master data to suggest field values	Not selected
UseUse master data to validate the field values	Not selected

Department

The E-conomic integration can automatically specify the Department value of the day book entry. To make this easier, the integration supports a Department field that specifies the default value for the entire invoice.

- When the Workflow service is not used, the value of the Department field is always used on the day book entry.
- When Workflow service is used, the value of the Department field is used by default, but it can be changed when coding the invoice.

This field uses master data to provide a list of possible values.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	Department
Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
UseUse master data to validate the field values	Selected

Project

The E-conomic integration supports processing invoices that are linked to projects, even if you do not use the Workflow service. This custom field is only necessary if the Workflow service is not enabled because when the Workflow service is enabled, you normally specify project information during coding. If the Workflow service is disabled, the integration can automatically specify the Project value of the day book.

This field uses master data to provide a list of possible values.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	Project
Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
UseUse master data to validate the field values	Selected

Cost Type

Cost type information is needed when processing invoices related to projects. You can optionally specify a Default cost type, and you can change the cost type during verification. To make this easier, the integration supports a Cost Type field that specifies the default value for the entire invoice.

- When the Workflow service is not used, the value of the Cost type field is used on the day book entry.
- When Workflow service is used, the value of the Cost type field is used as a default value, but it can be overridden when coding the invoice.

This field uses master data to provide a list of possible values.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	CostType
Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
UseUse master data to validate the field values	Selected

Employee

Employee information is needed when processing invoices related to projects. To make this easier, the integration supports an Employee field that specifies the default value for the entire invoice.

- When the Workflow service is not used, the value of the Employee field is used on the day book entry.

- When Workflow service is used, the value of the Employee field is used as a default value, but it can be overridden when coding the invoice.

This field uses master data to provide a list of possible values.

To use this feature, add a custom field to the document type and use these settings in the **Field** view:

Type name	Employee
Name	The name of the field as it appears in the output that is sent to the target system.
Display name	Any value.
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
UseUse master data to validate the field values	Selected

Image upload service settings

The Image upload service must be enabled.

Master data service settings

In the Master data service settings, ensure that Master data on customer level and Let users update supplier data when verifying invoices are not selected. Closed projects, suppliers/vendors, accounts, departments, and more, and more are not imported.

The E-conomic integration supports master data for:

- **Suppliers**
- **Currencies** - Learn how exchange rates are handled.
- **Payment types**
- **Departments** - Distribution keys are treated as departments in Tungsten AP Essentials.
- **Projects**
- **Cost types**
- **Employees**
- **General-ledger accounts** - Only accounts that are ProfitAndLoss and Status members (in E-conomic) are imported.
- **VAT codes**

Process control service settings

The Keep batch together setting cannot be selected.

If you do not use coding suggestions, you can clear Perform registration step to improve performance. You can also clear Perform registration step if:

- Online coding is selected in the Source setting. In other words, you use the coding suggestions that Tungsten AP Essentials provides instead of the coding suggestions from the integration.
- Performance is more important than coding suggestions.

Storage service settings

Invoice images are stored directly in E-conomic as a voucher attachment. However, you can enable the Storage service to save invoices in Tungsten AP Essentials as well. If you choose to use Storage services, you can adjust the Storage service settings.

Target system service settings

Use the Target system configuration dialog to specify settings that are specific to E-conomic.

Verification service settings

Optionally adjust the Verification settings.

Workflow service settings

This section describes settings you must adjust in the Workflow service.

Account types

The integration supports two types of coding:

- General ledger coding for invoices that require coding for a chart of accounts.
- Project coding for invoices that require a coding on projects.

You must specify different account types to distinguish these two different types of coding. Account types can vary depending on the needs of the customer. Project coding is optional and can be ignored if you do not use project coding.

General Ledger

This account type is used for general-ledger coding. When you perform general-ledger coding, you specify the account number and related information, such as the department, VAT code, and more, and more.

To configure this account type, add an account type and use these settings in the **Account type** view:

Name	Any value.
Internal name	GeneralLedger

Project

This account type is used for project coding. When you perform project coding, you specify the project number and related information, such as the department, VAT code, cost type, employee, and more, and more.

To configure this account type, add an account type and use these settings in the **Account type** view:

Name	Any value.
Internal name	Project

Coding fields

This section describes fields that you use when coding invoices in a workflow. Do not confuse these fields with the fields described earlier in the Extraction service settings section.

The E-conomic integration supports coding fields related to account types such as:

- VAT Code
- Department
- Note
- Cost type
- Employee

VAT Code

The E-conomic integration can determine the VAT code:

- from the contra account when using general ledger coding. Use the **VAT Code from supplier** setting to determine whether the VAT code is taken from the contra account or if it is derived from the `InvoiceTotalVatRatePercent` field.
- from the cost type when using project coding.

The value can be overridden on a specific coding row using a coding field. This way, you can modify the VAT code for a specific coding row during approval.

This coding field can be used for general-ledger coding and project coding.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	VatCode
Available for account types	Ledger or Project
Show coding field as a sub line	Any value (not selected is preferred).
Accept empty value	Selected
Use coding-field master data	Selected

Department

The E-conomic integration can determine the department from the Department field if it is used as a header field. However, if the Department field is not used, or if you want to be able to change the value of the department on a coding row, you can do this using a coding field. This way, you can modify the department of a specific coding row during approval.

This coding field can be used for general-ledger coding and project coding.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	Department
Available for account types	Ledger and/or Project
Show coding field as a sub line	Any value (not selected is preferred)
Accept empty value	Selected
Use coding-field master data	Selected

Note

The E-conomic integration can automatically specify day book entry text based on a data template that uses one or more dynamic values. You can also specify this day book entry when coding a specific row. There are three ways to customize the day book entry text at the coding row level, depending on the Internal name value:

- Text - The day book entry text is set using the Note field value on the coding level. If the coding field is empty, the template value is used. In other words, Text configuration overrides the template value.
- The same internal name as a custom header field - The Note parameter of the day book entry text is set using the template value if the coding field value is not empty or the custom header field value if the coding field value is empty. In other words, using the same Internal name value as the header custom field will override the header custom field value.
- Any other internal name - The custom header field value and the coding field value can be used in the template to set the day book entry text.

This coding field can be used for general-ledger coding and project coding.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	• Text • The same internal name as a custom header field • Any other value
Available for account types	Ledger and/or Project
Show coding field as a sub line	Any value (not selected is preferred)
Accept empty value	Selected
Use coding-field master data	Not selected

Cost type

The E-conomic integration configuration specifies a default cost type value; however, this default value can be overridden on a specific coding row using a coding field. This way, you can modify the cost type of a specific coding row during approval.

This coding field can only be used for project coding.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	CostType
Available for account types	Project
Show coding field as a sub line	Any value (selected is preferred)
Accept empty value	Any value (selected is preferred)
Use coding-field master data	Selected

Employee

The E-conomic integration can determine the employee from the Employee field if it is used as a header field. However, if the Employee field is not used, or if you want to be able to change the value of the employee on a coding row, you can do this using a coding field. This way, you can modify the employee of a specific coding row during approval.

This coding field can only be used for project coding.

To use this feature, add a coding field and use these settings in the **Coding field** view:

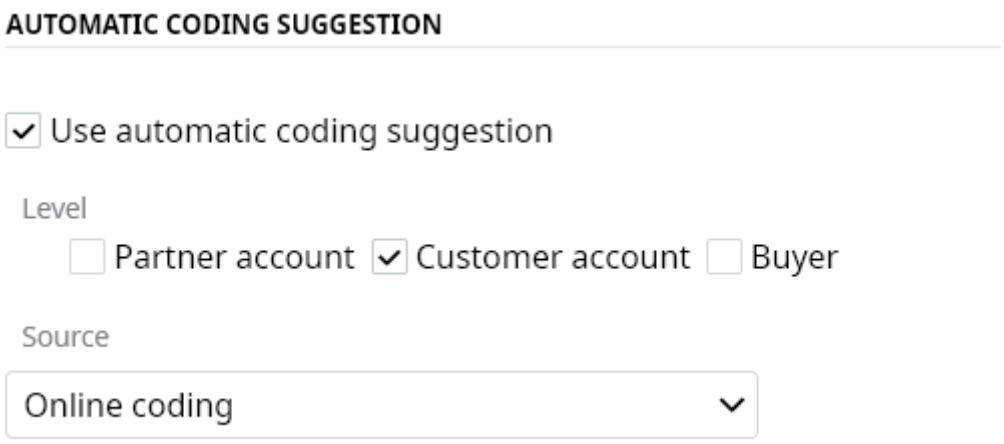
Display name	Any value.
Internal name	Employee
Available for account types	Project
Show coding field as a sub line	Any value (selected is preferred)
Accept empty value	Any value (selected is preferred)
Use coding-field master data	Selected

Coding lines

Select the Coding lines setting according to the customer organization. In most cases, we recommend, we recommend selecting **Warn if no coding lines exist**.

Automatic coding suggestion

Specify the Automatic coding suggestion according to the customer organization. If you use automatic coding suggestions, it must be specified at the customer level.



General

Allow balancing against total amount must be selected to enforce the amount balancing validation and enable amount-split assistance. You can select **Gross amount** or **Net amount** in the **Balancing amount** setting.

When working with the E-conomic integration, the Gross amount minus VAT amount setting works the same as the Net amount setting.

Use token-based authentication with E-conomic

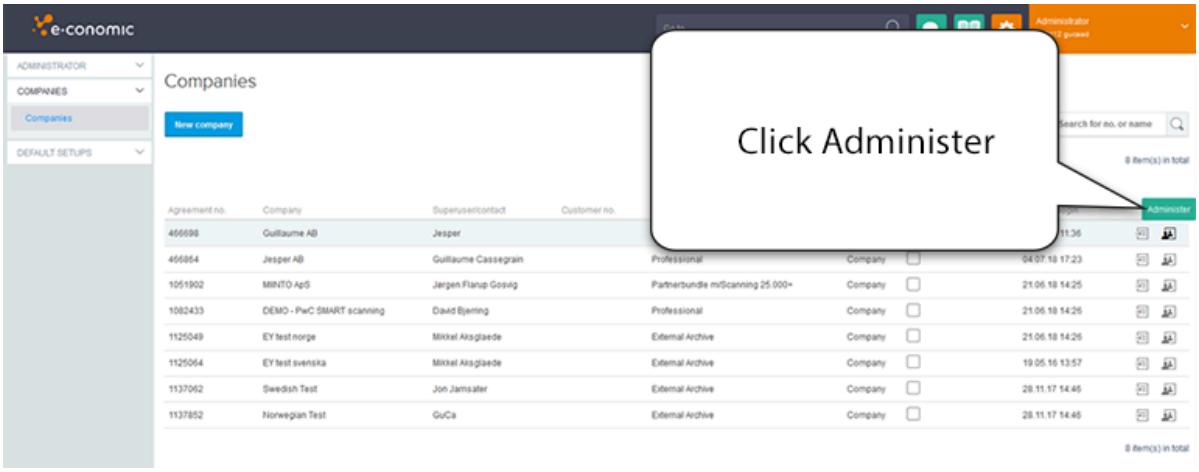
When you specify target system settings for E-conomic, you must use token-based authentication, so Tungsten AP Essentials can communicate securely with E-conomic. This procedure varies, depending on whether you manage multiple companies or a single company within E-conomic.

Multiple companies

To grant Tungsten AP Essentials access to E-conomic and generate the agreement grant token that you need for the target system settings:

1. Log in to E-conomic using your web browser.

2. In the **Companies** view, select **Administer** for a company you want to use with Tungsten AP Essentials.



   You are now working within the context of the selected company.

3. Navigate to this address in your web browser:

   https://secure.e-conomic.com/secure/api1/requestaccess.aspx?appPublicToken=0bDfwTAZA4ADAVu6uxwBxlkO9YApJafDzh3uximhBaI1

   An app, named "Tungsten AP Essentials version 2", is created that allows Tungsten AP Essentials to access data in E-conomic.

4. Copy the agreement token that is displayed, and paste it into the **Agreement Grant Token** setting in Tungsten AP Essentials .

5. Select **Use e-conomic integration version 2** in the target system settings.

6. Repeat the steps above for each company that processes invoices using Tungsten AP Essentials.

Single company

To grant Tungsten AP Essentials access to E-conomic and generate the agreement grant token that you need for the target system settings:

1. Navigate to this address in your web browser:

   https://secure.e-conomic.com/secure/api1/requestaccess.aspx?appPublicToken=0bDfwTAZA4ADAVu6uxwBxlkO9YApJafDzh3uximhBaI1

2. Log in to E-conomic according to the instructions that appear.

   An app, named "Tungsten AP Essentials version 2", is created that allows Tungsten AP Essentials to access data in E-conomic.

3. Copy the agreement token that is displayed, and paste it into the **Agreement Grant Token** setting in Tungsten AP Essentials .

4. Select **Use e-conomic integration version 2** in the target system settings.

E-conomic data templates

When you configure the E-conomic target system service, you use the **Entry text template** and **Payment message template** settings to specify the data from Tungsten AP Essentials that you want to appear in the **Text** setting in E-conomic.

When you configure the E-conomic target system service, you use the Entry text template and Payment message template settings to specify the data from Tungsten AP Essentials that you want to appear in the **Text** setting in E-conomic.

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.
- **$** - to indicate that it is a metadata variable.

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber
- #buyer.OrganizationNumber
- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm
- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts

- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2
- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack
- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id
- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68
DocumentApprovalRejected	69
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81

Process status	Numerical code
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95
DocumentExportFailed	99
DocumentExportSucceeded	100
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Metadata variables

You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

Process Danish invoices with E-conomic

In addition to sending invoice data to the target system, the E-conomic integration offers specialized business logic for customers who process Danish invoices. You can use the Payment type field to automatically send the correct payment information to E-conomic and determine which field validations are performed. To leverage the full potential of E-conomic integration, use these components:

- Danish document type with these fields:
  - PaymentType (Betalningsmetod)
  - PaymentReferenceNumber (Girostreng)
  - SupplierIBAN1 (IBAN)
  - SupplierBankCodeNumber1 (SWIFT)
  - SupplierBankClearingNumber (Regnummer)
  - SupplierAccountNumber1 (Kontonummer)
  - CashAccount (CashAccount)
- E-conomic target system service.
- The Payment type validation must be enabled in the Validation service and in the **Rules** tab in the Document type dialog.
- Master data that defines these values for the payment-type field:
  - +04
  - +71
  - +73
  - +75
  - Bank transfer
  - Entry only
  - IBAN
  - None

  For your convenience, you can upload this XML file that contains the payment-type values. Refer to uploading master data.

How it works

When an invoice is processed by Tungsten AP Essentials, the payment-type field is automatically set according to the Payment type from supplier setting, which specifies whether the value is interpreted from the invoice image or taken from the supplier in E-conomic. If necessary, you can change the payment type when you verify the invoice. Changing the supplier during verification

can also cause the payment type to change, if the Payment type from supplier setting is set to true. Payment fields are validated according to this table.

Payment type	Required fields	Ignored fields	Validation
+04	• PaymentReferenceNumber (Girostreng)	• SupplierIBAN1 (IBAN) • SupplierBankCodeNumber1 (SWIFT) • SupplierBankClearingNumber (Regnummer) • SupplierAccountNumber1 (Kontonummer) • CashAccount (CashAccount)	The Girostreng field must contain: Payment type code – "04" {N(2)} The field is also validated according to the extraction field format.
+71	• PaymentReferenceNumber (Girostreng)	• SupplierIBAN1 (IBAN) • SupplierBankCodeNumber1 (SWIFT) • SupplierBankClearingNumber (Regnummer) • SupplierAccountNumber1 (Kontonummer) • CashAccount	The Girostreng field must contain: Payment type code – "71" {N(2)} The field is also validated according to the extraction field format.
+73	• PaymentReferenceNumber (Girostreng)	• SupplierIBAN1 (IBAN) • SupplierBankCodeNumber1 (SWIFT) • SupplierBankClearingNumber (Regnummer) • SupplierAccountNumber1 (Kontonummer) • CashAccount (CashAccount)	The Girostreng field must contain: Payment type code – "73" {N(2)} The field is also validated according to the extraction field format.
+75	• PaymentReferenceNumber (Girostreng)	• SupplierIBAN1 (IBAN) • SupplierBankCodeNumber1 (SWIFT) • SupplierBankClearingNumber (Regnummer) • SupplierAccountNumber1 (Kontonummer) • CashAccount (CashAccount)	The Girostreng field must contain: Payment type code – "75" {N(2)} The field is also validated according to the extraction field format.
Bank transfer	• SupplierBankClearingNumber (Regnummer) • SupplierAccountNumber1 (Kontonummer)	• PaymentReferenceNumber (Girostreng) • SupplierIBAN1 (IBAN) • SupplierBankCodeNumber1 (SWIFT) • CashAccount (CashAccount)	The combined length of the Regnummer and Kontonummer fields cannot exceed 14 characters. Regnummer must be 4 digits, unless Kontonummer is 14 digits and Regnummer is empty. If Regnummer is 4 digits and Kontonummer is less than 10 digits, then Kontonummer is automatically prefixed

Payment type	Required fields	Ignored fields	Validation
None	No fields required.	All payment-type fields ignored.	No validation.

The payment-type fields must be validated correctly. You cannot force a field to pass validation by pressing Enter.

When the invoice is posted to E-conomic, the validated payment information and other invoice data are set in the "day book" according to this table:

Tungsten AP Essentials value	E-conomic field
+04	
Payment type	Payment type
Giro account in Giro number	Giro account
Payment ID in Giro number	OCR line
+71	
Payment type	Payment type
Creditor ID in Giro number	FI supplier no
Payment ID in Giro number	OCR line
+73	
Payment type	Payment type
Creditor ID in Giro number	FI supplier no
"Fakturanr" + invoice number	Message
+75	
Payment type	Payment type
Creditor ID in Giro number	FI supplier no
Payment ID in Giro number/"Fakturanr" + invoice number	OCR/optional message
Bank transfer	
Payment type	Payment type
Reg Nummer + Konto Nummer	Account no
"Fakturanr" + invoice number	Message
Entry only	
Creates a supplier invoice with Entry only as the payment type and a supplier payment with the cash account.	
IBAN	
Payment type	Payment type
IBAN + SWIFT	IBAN/SWIFT no
"Fakturanr" + invoice number	Message

Tungsten AP Essentials value	E-conomic field
None	
Payment type	Payment type

Process Norwegian invoices with E-conomic

In addition to sending invoice data to the target system, the E-conomic integration offers specialized business logic for customers who process Norwegian invoices. You can use the Payment type field to automatically send the correct payment information to E-conomic and determine which field validations are performed. To leverage the full potential of E-conomic integration, use these components:

- Norwegian document type with these fields:
  - PaymentReferenceNumber (KID)
  - SupplierIBAN1 (IBAN)
  - SupplierBankCodeNumber1 (SWIFT)
  - SupplierAccountNumber1 (Kontonummer)
  - CashAccount (CashAccount)
- E-conomic target system service.
- The Payment type validation must be enabled in the Validation service and in the **Rules** tab in the Document type dialog.
- Master data that defines these values for the payment-type field:
  - KID
  - Bank transfer
  - Entry only
  - IBAN
  - None

How it works

When an invoice is processed by Tungsten AP Essentials, the payment-type field is automatically set according to the Payment type from supplier setting, which specifies whether the value is interpreted from the invoice image or taken from the supplier in E-conomic. If necessary, you can change the payment type when you verify the invoice. Changing the supplier during verification

can also cause the payment type to change, if the Payment type from supplier setting is set to true. Payment fields are validated according to the following table.

Payment type	Enabled fields	Info	Sample value	Validation	E-conomics field mapping
Bank transfer	SupplierAccountNumber1 (Kontonummer)	The field is always 11 characters.	RSO Kontonummer: 15034535210	Validated according to the extraction field format.	• SupplierAccountNumber1 (Kontonummer) >> "Account number" • PaymentTemplate >> "Message"
Entry only	CashAccount		RSO CashAccount: 6800	No validation.	CashAccount >> CashAccount
IBAN	• SupplierIBAN1 (IBAN) • SupplierBankCodeNumber1 (SWIFT)		RSO IBAN: NO5181010795184 RSO SWIFT: DABANO22 E-conomic "IBAN/ SWIFT no": NO5181010795184/ DABANO22	Validated according to the extraction field format. Both fields must be filled in.	• A combination of SupplierIBAN1 (IBAN) and SupplierBankCodeNumber1 (SWIFT), with slash as separator, is put into >> "IBAN/SWIFT no" • PaymentTemplate >> "Message"
KID	• PaymentReferenceNumber (KID) • SupplierAccountNumber1 (Kontonummer)	KID is 5-25 characters. Kontonummer is always 11 characters.	RSO KID: 100102000000160821079166 RSO Kontonummer: 15034535210	Validated according to the extraction field format. Both fields must be filled in.	• SupplierAccountNumber1 (Kontonummer) >> "Giro account" • PaymentReferenceNumber (KID) >> "OCR line"
None	No fields required.			No validation.	

The payment-type fields must be validated correctly. You cannot force a field to pass validation by pressing Enter.

Process Swedish invoices with E-conomic

In addition to sending invoice data to the target system, the E-conomic integration offers specialized business logic for customers who process Swedish invoices. You can use the Payment type field to automatically send the correct payment information to E-conomic and determine which

field validations are performed. To leverage the full potential of E-conomic integration, use these components:

- Swedish document type with these fields:
  - PaymentReferenceNumber (OCR)
  - SupplierIBAN1 (IBAN)
  - SupplierBicSwiftNumber (SWIFT)
  - SupplierBankClearingNumber (Clearingnummer)
  - SupplierBankCodeNumber1 (Kontonummer)
  - SupplierAccountNumber2 (Bankgiro)
  - SupplierAccountNumber1 (Plusgiro)
  - CashAccount (CashAccount)
- E-conomic target system service.
- The Payment type validation must be enabled in the Validation service and in the **Rules** tab in the Document type dialog.
- Master data that defines these values for the payment-type field:
  - Bankgiro
  - Plusgiro
  - Bank transfer
  - Entry only
  - IBAN
  - None

How it works

When an invoice is processed by Tungsten AP Essentials, the payment-type field is automatically set according to the Payment type from supplier setting, which specifies whether the value is interpreted from the invoice image or taken from the supplier in E-conomic. If necessary, you can change the payment type when you verify the invoice. Changing the supplier during verification

can also cause the payment type to change, if the Payment type from supplier setting is set to true. Payment fields are validated according to this table.

Payment type	Enabled fields	Info	Sample value	Validation	E-conomics field mapping
Bankgiro	• SupplierAccountNumber2 (Bankgiro) • PaymentReferenceNumber (OCR)	2	RSO Bankgiro: 991-2346 (normally 7 or 8 numbers with dash in middle) RSO OCR: 1234475 (numbers of various lengths)	Validated according to the extraction field format. OCR field is optional.	• SupplierAccountNumber2 (Bankgiro) >> "BankGiro no" • PaymentReferenceNumber (OCR) >> "OCR Line" • If RSO field OCR is empty, use PaymentTemplate >> "OCR Line"
Plusgiro	• SupplierAccountNumber1 (Plusgiro) • PaymentReferenceNumber (OCR)	1	RSO Plusgiro: 4176503-3 (normally 8 numbers with dash before last number) RSO OCR: 1234475 (numbers of various lengths)	Validated according to the extraction field format. OCR field is optional.	• SupplierAccountNumber1 (Plusgiro) >> "Plusgiro no" • PaymentReferenceNumber (OCR) >> "OCR Line" • If RSO field OCR is empty, use PaymentTemplate >> "OCR Line"
Bank transfer	• SupplierBankClearingNumber (Clearingnummer) • SupplierBankCodeNumber (Kontonummer)	Clearingnummer + fill with zeros + Kontonummer If Clearingnummer is 5 characters long, the last one should be removed. The total number of characters should be 16 (filled with zeros in middle).		Validated according to the extraction field format. ClearingNo + Kontonummer should not exceed 17 characters.	• Combination of (Kontonummer) and (Clearingnummer) >> "Account number" • PaymentTemplate >> "Message"

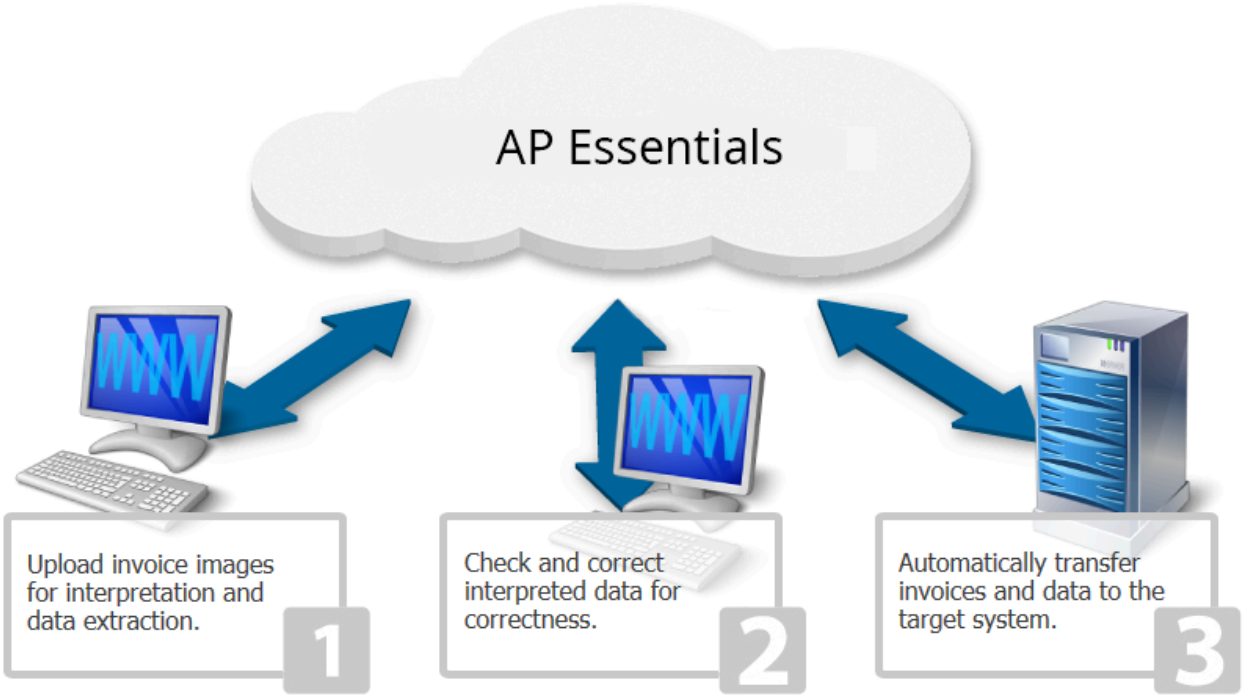
Payment type	Enabled fields	Info	Sample value	Validation	E-conomics field mapping
Entry only	CashAccount			No validation.	CashAccount >> CashAccount
IBAN	• SupplierBicSwiftNumber (SWIFT) • SupplierIBAN1 (IBAN)	The Swedish E-conomic version does not support automatic payments for foreign invoices, so this information is not used.		Validated according to the extraction field format. Both fields must be filled in.	• A combination of SupplierIBAN1 (IBAN) and SupplierBicSwiftNumber (SWIFT), with slash as separator, is put into >> "IBAN/SWIFT no" • PaymentTemplate >> "Message"
None	No fields required.			No validation.	

The payment-type fields must be validated correctly. You cannot force a field to pass validation by pressing Enter.

Hogia

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

Tungsten AP Essentials supports integrations with Hogia through the Hogia target system service. Hogia is a Swedish ERP system that supports the handling of supplier invoices.

Microsoft Dynamics

Tungsten AP Essentials supports integrations with the following Microsoft Dynamics versions:

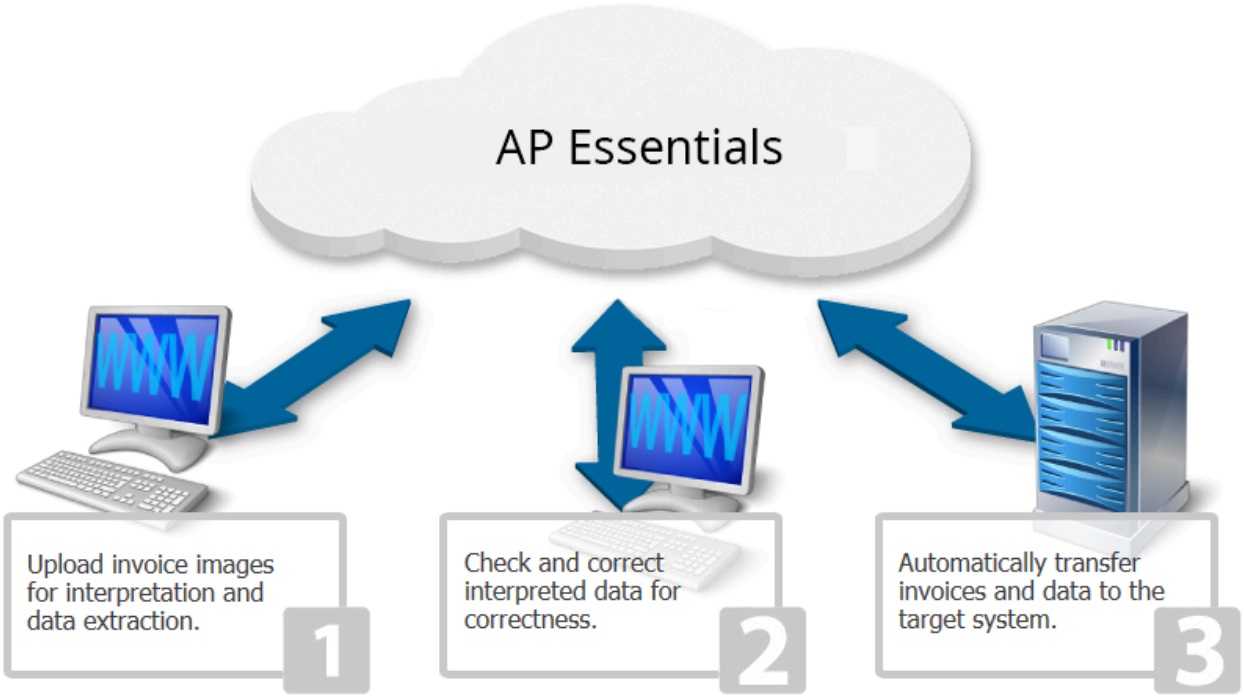
- Dynamics NAV
- Dynamics 365 for Finance and Operations

Dynamics NAV and Dynamics 365 Business Central

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and

complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



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Integration features

The Dynamics NAV and Dynamics 365 Business Central integrations enable cooperation between Tungsten AP Essentials and Microsoft Dynamics NAV or Dynamics 365. It leverages more power and adds value to your current accounts-payable system by extracting data from supplier invoices without any tedious projects or expensive hardware investments.

The Dynamics integrations are maintained by Microsoft. Please contact Microsoft for support issues related to the Dynamics integrations.

Where to go from here

Before you can use Microsoft Dynamics NAV or Dynamics 365 with Tungsten AP Essentials, you must complete these steps:

1. Sign up for an account.
2. Configure Tungsten AP Essentials for use with Microsoft Dynamics NAV or Dynamics 365.

After you complete these steps, you can begin processing invoices using Dynamics.

Sign up for a Tungsten AP Essentials account for Microsoft Dynamics NAV or Dynamics 365

Before you can automate your invoice processing using Tungsten AP Essentials for Microsoft Dynamics, you must sign up for a Tungsten AP Essentials service plan and specify Tungsten AP Essentials as the OCR service in Microsoft Dynamics.

1. In Microsoft Dynamics NAV, or Microsoft Dynamics 365 Business Central, type "OCR Service Setup" in the **Search** box (Ctrl+F3).
2. Select **Set URLs to Default**.
3. Select the icon next to the Signup URL to open the Tungsten AP Essentials store.
4. Select **New customer**.
5. Select the plan that suits your needs.
   - **Trial** - Lets you test up to 75 documents with a Premium account for 2 months.
   - **Basic** - Choose this if you do not want to capture line items.
   - **Premium** - Choose this if you want to capture line items.
6. After you choose a plan, you enter the checkout process, which consists of these pages.
   a. **Service plan** - Select the number of documents per month that you would like to process. Selecting a higher volume will give you a better price per invoice. Note that prices always reflect the number of invoices, not the number of pages. An invoice may contain any number of pages. On this page, you also see the price per extra invoice, also known as overage, which is applied if you exceed the selected volume.
   b. **Register** - Fill in your company details and select a password for your Tungsten AP Essentials store account.
   c. **Payment** - Choose your preferred payment method and enter the required details.
   d. **Summary** - A summary of your order is shown. Confirm the terms and conditions and proceed.

   After your order is processed, a Tungsten AP Essentials service account is automatically created, and you receive a welcome email with login credentials and other details.
7. In the welcome email, there is a link for setting up the password for your Tungsten AP Essentials service account. Follow the link and create a password.

8. Go back to the Microsoft Dynamics NAV, or Dynamics 365 Business Central, **OCR Service Setup** page and provide the username, password, and authorization key for your Tungsten AP Essentials service account.
9. Select **Test Connection** to make sure the credentials are correct. If the connection fails, check your credentials and try again.
10. Select the default OCR document template based on the country you are operating in.
11. If you use Dynamics NAV 2017 or later, or Microsoft Dynamics 365 Business Central, we recommend selecting the **Master Data Sync Enabled** checkbox.
12. Select **Enabled** to turn on the OCR service.

Configure Tungsten AP Essentials for use with Microsoft Dynamics NAV or Dynamics 365

When you sign up for a Tungsten AP Essentials account for Microsoft Dynamics NAV or Dynamics 365, you gain access to AP Essentials Admin Center, which you can use to configure Tungsten AP Essentials to suit your needs. To configure Tungsten AP Essentials for use with Microsoft Dynamics NAV or Dynamics 365.

1. Select the login link in the Tungsten AP Essentials welcome email and log in with the username and password for your Tungsten AP Essentials service account.
2. In Admin Center, follow the welcome guide, which describes additional setup steps, such as enabling Verify and creating additional users with access to invoice verification.
   We strongly recommend using Verify because you can check invoices for correctness before they enter your Microsoft Dynamics system and improve Tungsten AP Essentials performance.
3. To enable Verify in Admin Center, navigate to the **Process control** settings (**Account** > **Services**) and set **Data verification** to **On field error** or **Always**, then select **Save**.
4. If you enabled Verify, you must create users with access to Verify by navigating to **Account** > **Users**, selecting **Add** and creating a user with the **Role** setting set to **User**.
   After you complete these steps, you are ready to begin processing invoices.

Process invoices with Microsoft Dynamics NAV or Dynamics 365

This topic does not apply to Microsoft Dynamics 365 for Finance and Operations.

Invoices can enter Tungsten AP Essentials in two ways: by uploading them inside Dynamics as an "Incoming Document", or by sending them to your unique input email address, which is described in the welcome email.

To upload invoices via Microsoft Dynamics:

1. Open Microsoft Dynamics and navigate to the **Incoming Documents** list.
2. Select **Create from File**, and select an invoice image, such as a PDF file, on your computer.
3. Select **Send to OCR Service** in the dialog that appears.
   After a moment (normally less than one minute), Tungsten AP Essentials begins processing the document.
4. Select **Receive from OCR Service** to check the status of the document.

This action can be automated using Dynamics Job Queues.

- If the Tungsten AP Essentials verification service is enabled, the OCR status of the document is set to "Awaiting Verification". If you select the status link, the document opens in Tungsten AP Essentials Office, so you can verify the correctness of the captured information. You must set up a user account that has access to Tungsten AP Essentials Verify.
- If you are not using Tungsten AP Essentials verification, or if the invoice has been verified, it will be available to be picked up by Dynamics.

5. Select **Receive from OCR Service** to retrieve the result.
   This action can be automated using Dynamics Job Queues.
6. After the invoice data is in the Incoming Document card inside Dynamics, select **Create Document** to create a Dynamics Purchase Invoice from the resulting data.
   To automate the process of creating Purchase Invoices, use the built-in workflows in Microsoft Dynamics NAV or Microsoft Dynamics 365 Business Central. Refer to Dynamics help for information.

Enable line items in Dynamics NAV

If you have enabled line-item capture for your Tungsten AP Essentials account, use the following procedures to enable line items in Microsoft Dynamics NAV.

We strongly recommend using Verify, so you can check invoices for correctness before they enter your Microsoft Dynamics system, as well as to improve Tungsten AP Essentials performance.

To enable Verify in Admin Center, navigate to the **Process control** settings (**Account** > **Services**) and set **Data verification** to **On field error** or **Always**, and select **Save**.

When creating purchase invoices in Dynamics NAV, lines are created either as Item lines or as G/L account lines. When created as G/L account lines, you can choose the accounts to use in the **Map Text to Account** dialog in Dynamics NAV, accessible from the **Actions** tab on the **Incoming Documents** list. In this dialog, you can choose specific G/L accounts for certain texts, and/or select a default G/L account to use when no specific account is available. To set up a default account, select **Set Up Default Accounts**, scroll down to **Data Exchange**, and specify your account. When creating Item lines, the sample exchange file uses vendor cross reference numbers to match Items.

Mapping of fields from Tungsten AP Essentials to Dynamics is done via the Data Exchange Definition inside Dynamics. You can edit this mapping as needed. Refer to the Dynamics documentation for more details.

The included Data Exchange Definition in your Dynamics tenant may or may not include mapping for line items already. If it does not include line-item mapping, you can follow this procedure to import a sample mapping file with line item support:

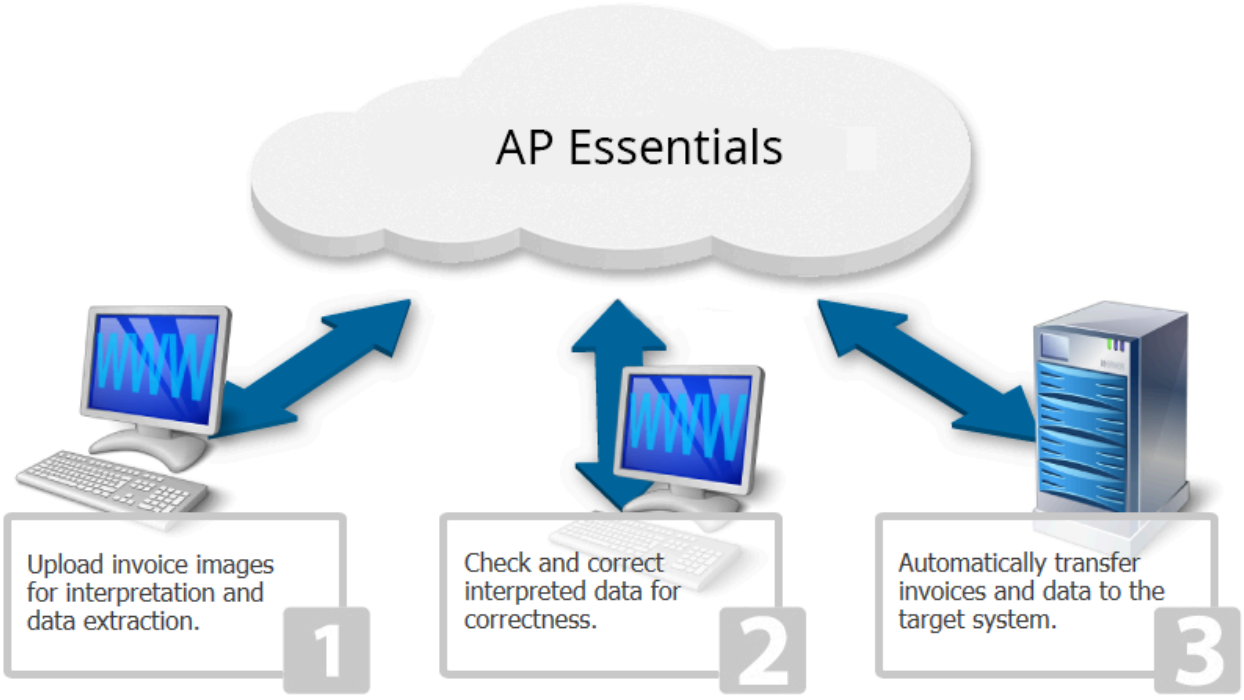
1. In Dynamics NAV 2016, open the **Data Exchange Definitions** page.
2. Select the OCRINVOICE definition, and select **Export Data Exchange Definition** to save a backup of the existing mapping.
3. After you back up the existing mapping, right-click OCRINVOICE and select **Delete** to delete it.
4. Right-click this link and select **Save link as...** to download the new mapping file. The mapping file provided here is to be considered a sample of how mapping item fields can be done. You are welcome to edit the data exchange mapping in a way that fits your scenario best.

5. Import the downloaded mapping file by selecting **Import Data Exchange Definition** and browsing to the downloaded file.
   You are now ready to process invoices with line items.

Dynamics 365 for Finance and Operations

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

This integration consists of these components:

- Tungsten AP Essentials
- Dynamics 365 for Finance and Operations

Integration features

The Dynamics 365 for Finance and Operations integration enables cooperation between Tungsten AP Essentials and Dynamics 365 for Finance and Operations. It leverages more power and adds value to your current accounts-payable system by extracting data from supplier invoices without any tedious projects or expensive hardware investments.

The Dynamics 365 for Finance and Operations integration supports these features:

- **Master data synchronization** – The integration synchronizes master data between Dynamics 365 and Tungsten AP Essentials using ODATA. For example, Dynamics 365 suppliers (vendors), purchase orders, items (articles), procurement categories, currencies, and sales tax groups are imported, so they are available for invoice processing in Tungsten AP Essentials.
- When importing items master data, Tungsten AP Essentials imports items in the language specified in the Dynamics 365 language settings (**System Administration** > **Setup** > **System Parameters**) if translations are available. **Note:** If the item name lacks a translation, the search name is imported instead.
- **Document processing using DIXF** – This includes creating vendor invoice headers, lines, attachments (invoice image), and tracking inside Dynamics 365.
- Automatic field mapping.
- Data templates for mapping custom fields.
- Processing of PO and non-PO invoices, as well as credit notes.
- Support for multiple purchase orders per invoice.
- Lets you consolidate output to the target system at regular intervals, which greatly increases performance for large-volume data transfer by reducing the number of connections to the target system.

Where to go from here

Before you can use Dynamics 365 for Finance and Operations with Tungsten AP Essentials, you must complete these steps:

1. Configure Dynamics 365 for Finance and Operations
2. Configure Tungsten AP Essentials for use with Dynamics 365 for Finance and Operations

After you complete the steps above and the rest of the customer setup, you are ready to begin processing invoices using the integration for Dynamics 365 for Finance and Operations.

Configure Dynamics 365 for Finance and Operations

Before you can use Dynamics 365 for Finance and Operations with Tungsten AP Essentials, you must configure Dynamics 365 by registering Tungsten AP Essentials in Azure AD and Dynamics 365.

Register Tungsten AP Essentials in Azure AD

To register the application in Azure AD:

1. Open Azure portal and navigate to Azure Active Directory.
2. Select **App Registrations**.
3. Select **New registration**.
4. Type a descriptive name for the new app registration, such as "Tungsten AP Essentials Dynamics365" and select **Register**.
5. In the view that appears, copy the **Application Client ID** and **Directory Tenant ID** settings. You will need this information later.
6. Select **API permissions** and add these permissions in the view that appears:

API / Permissions name	Type	Description
Azure Active Directory Graph		
User.Read	Delegated	Sign in and read user profile
Dynamics ERP		
AX.FullAccess	Delegated	Access Dynamics AX online as organization users
CustomService.FullAccess	Delegated	Access Dynamics AX Custom Service
Odata.FullAccess	Delegated	Access Dynamics AX data

7. Select **Certificates and Secrets** and use the view that appears to create a new client secret.
8. Type a descriptive name for the secret, such as "RSOSecret" and specify the expiration date.

> After the secret is generated, make sure you copy it to a safe place because it is never shown again.

> If any of these steps fail, make sure you have sufficient privileges to perform these actions, or contact the person in your organization that is responsible for your Active Directory.

Register Tungsten AP Essentials in Dynamics 365

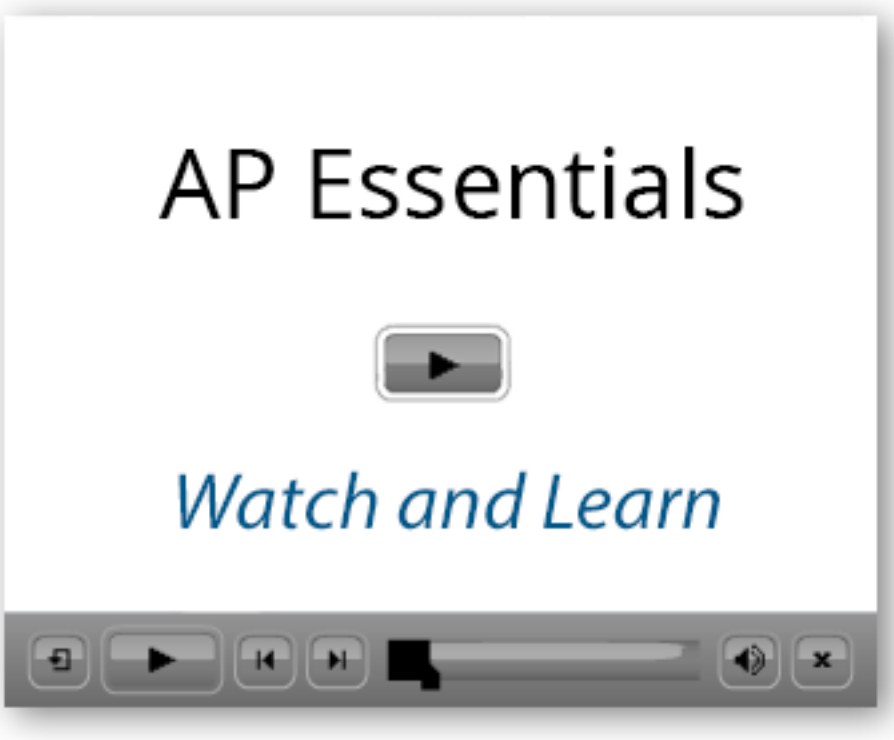
To register the application in Dynamics 365:

1. In Dynamics 365, select the search icon and search for the "Microsoft Entra ID applications" page.
2. On the Microsoft Entra ID applications page, select **New** to create a new application line.
3. Specify a descriptive name, such as Tungsten AP Essentials.
4. In the **Client ID** setting, specify the **Application Client ID** from the Azure AD settings in step 5 above.
5. Specify the Dynamics 365 user that you want to use for this integration.

The user that you specify must belong to the same Azure Active Directory as the Dynamics 365 app registration and have these roles:

- Accounts payable clerk
- Data management administrator
  - Data management migration user
    - Data management operations user
- Process engineering manager
- System user
  - Office integration power user
  - Power Automate administrator

Create a recurring data job



Watch how to create a recurring data job in less than two minutes

To create a recurring data job for importing invoices:

1. In Dynamics 365, navigate to **System administration** > **Data management IT**.
2. Select **Import** to create a new import project.
3. From inside the new project, check the toolbar buttons to make sure you use the **Enhanced view**.

4. Type a descriptive name for the import project, such as "Vendor Invoice Import".
5. Select **Add file**.
   - Use d365-import-data-template.zip if you use Vendor invoice document attachment V1.
   - Use d365-import-data-template-v2.zip if you use Vendor invoice document attachment V2.

     Make sure the **Use Vendor invoice document attachment V1** setting corresponds to your version.

   If you use custom header fields or line fields in Dynamics 365, you must modify the contents of the ZIP file above to include the custom fields and use the modified ZIP file instead.

   If you get a warning about the length of a **Notes** field, you can safely ignore the warning.

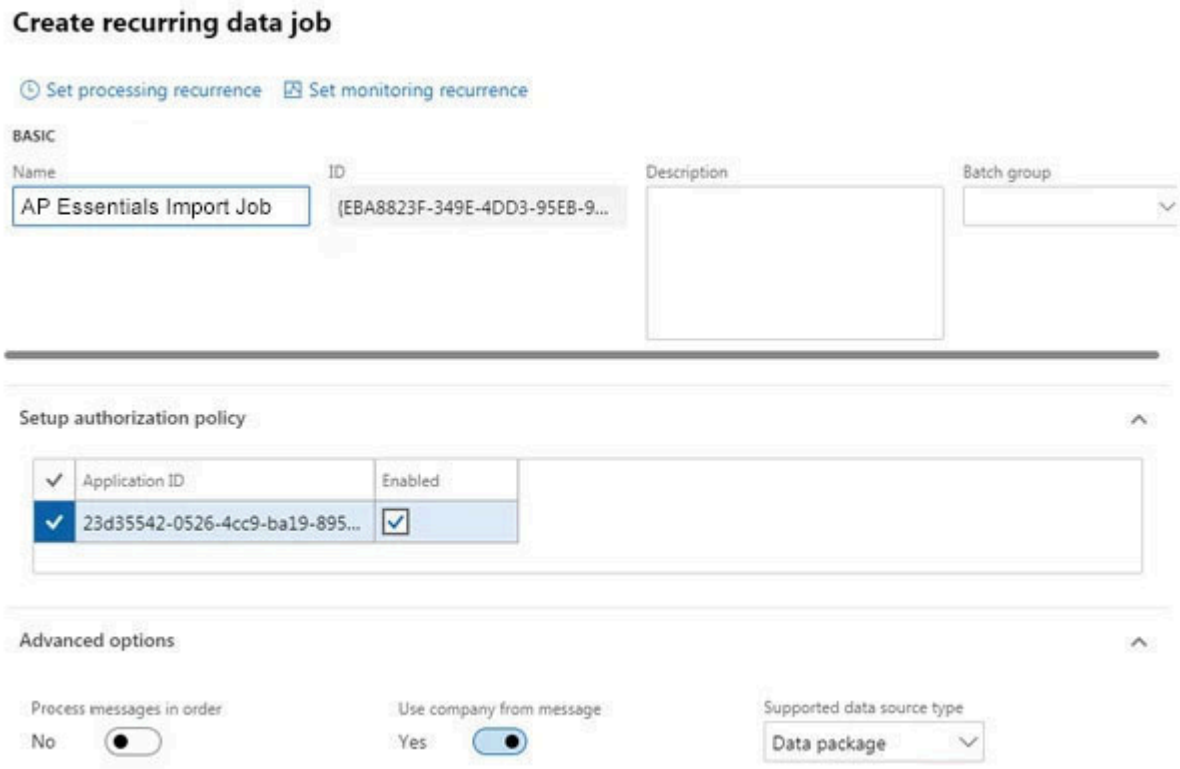
   Adding the default ZIP file adds three entities to the import job.

   Selected entities

   + Add file | + Add template | Remove entity | Open in Excel | Resequence | Sort by | Disable

Entity	View map	Execution unit	Level in executi...	Sequence	Obsolete	Source data format
Vendor invoice header		1	1	1		XML-Element
Vendor invoice line		1	1	2		XML-Element
Vendor invoice document attac...		1	1	3		XML-Element

6. Select **Create recurring data job** in the main menu.
7. Type a descriptive name for the job, such as "Tungsten AP Essentials Import Job".
8. Select **Set processing recurrence**, and set the recurrence to, for example, every fifth minute.
9. Copy the **ID** of the job. Later, you type this ID in the **Recurring data job ID** setting.
10. In the **Setup authorization policy settings**, type the **Application Client ID** that you created in the Azure AD section above, and select the **Enabled** setting.



11. Select **Data package** as the **Supported data source type**.
    After the job is created, the jobs and their history logs can be found under **System Administration** > **Data Management IT**.

After you complete the procedures above, you are ready to configure Tungsten AP Essentials for use with Dynamics 365 for Finance and Operations.

Using custom fields in Dynamics 365 for Finance and Operations

When you configure a recurring data job in Dynamics 365, you import a ZIP file that contains standard fields required by the integration. If your solution uses additional custom header fields or line fields that you have created in Dynamics 365, you must modify the contents of the default ZIP file to include those fields and use the modified ZIP file instead.

Modifying the default ZIP file

To modify the default ZIP file:

1. Download the appropriate ZIP file and extract its contents.
   - Use d365-import-data-template.zip if you use Vendor invoice document attachment V1.
   - Use d365-import-data-template-v2.zip if you use Vendor invoice document attachment V2.
     Make sure the **Use Vendor invoice document attachment V1** setting corresponds to your version.

2. Open `Vendor invoice header.xml` in a text editor to specify any custom header fields your solution required. Similarly, you can open `Vendor invoice line.xml` to specify custom line-item fields.
3. Add your custom header field to the VENDORINVOICEHEADERENTITY element as demonstrated in the example below, where `<MYCUSTOMFIELD/>` represents a custom field that you have already specified in Dynamics 365.

```
<?xml version="1.0" encoding="utf-8"?>
<Document>
 <VENDORINVOICEHEADERENTITY>
  <HEADERREFERENCE/>
  <CURRENCY/>
  <DATE/>
  <DUEDATE/>
  <INVOICEACCOUNT/>
  <INVOICEDATE/>
  <INVOICENUMBER/>
  <VENDORACCOUNT/>
  <SALESTAXGROUP/>
  <MYCUSTOMFIELD/>
 </VENDORINVOICEHEADERENTITY>
</Document>
```

4. Save your changes and complete the procedure for creating a recurring data job.

Importing total amounts and total tax amounts in Dynamics 365 for Finance and Operations

Dynamics 365 Finance and Operations 10.0.16 introduced two new fields on the invoice header that allow AP automation providers to pass along the invoice total amount and the total sales tax amount. However, the standard mapping from Tungsten AP Essentials to Dynamics 365 Finance & Operations does not import any amounts to the vendor invoice header. To import these new fields, you must create a new import job that contains the new fields in the uploaded zipped manifest.

1. Download d365-import-data-template.zip file and extract its contents.
2. Open `Vendor invoice header.xml` in a text editor and add these fields to the `VENDORINVOICEHEADERENTITY` element:

```
<IMPORTEDAMOUNT />
<IMPORTEDSALESTAX />
```

3. Create a new ZIP file containing all the files previously unzipped, including the edited header manifest.
4. Edit the existing import job in Dynamics, or create a new job using the newly created ZIP file.
5. In the AP Essentials Admin Center target system settings, edit the **Custom field mapping** setting to include the new fields. For example:

```
IMPORTEDAMOUNT="%InvoiceTotalVatIncludedAmount
%";IMPORTEDSALESTAX="%InvoiceTotalVATAmount%";INVOICEDescription="Sent
from Tungsten AP Essentials"
```

Setting default sales tax groups in Dynamics 365 for Finance and Operations

When Tungsten AP Essentials creates pending vendor invoices in Dynamics 365 Finance and Operations, it can send the sales tax group and item sales tax group, if those fields have been specified in Tungsten AP Essentials. However, in some cases you may prefer Dynamics to populate

these fields automatically, for example, based on rules set up for the supplier (vendor). To do so, you must first remove the mapping of those fields in the Dynamics import job.

1. In Dynamics 365 Finance and Operations, open the import job created during the initial set up.
2. In the **Selected Entities** list, select the **View Map** icon for the **Vendor invoice header** entity.
3. Select to the **Mapping Details** tab, and delete the mapping for `SALESTAXGROUP`.
4. Select **Save**.
5. Select the **View Map** icon for the **Vendor invoice line**, and delete the `SALESTAXGROUP` and `ITEMSALESTAX` mappings.
6. Select **Save**.

Configure AP Essentials for use with Dynamics 365 for Finance and Operations

Before you can use Dynamics 365 for Finance and Operations with AP Essentials, you must configure these settings in AP Essentials:

- Target system
- Buyers
- Extraction fields

Ensure that you have registered AP Essentials in Azure AD and Dynamics 365 before following the procedures below.

Target system settings

Adjust the target system settings in AP Essentials.

1. In Admin Center, navigate to the **Target system** view and select **Edit**.
2. Select **Dynamics 365 for Finance and Operations** and select **Configuration**.
3. Specify the settings in the view that appears.
   Several settings require information from the previous procedure, Configuring Dynamics 365 for Finance and Operations.
4. Select **Test** to test the connection settings.
   Make corrections if necessary.
5. Select **OK** to confirm your settings and return to the **Target system** view.
6. Select **Save**.

Buyers

Add one buyer in AP Essentials for each company in Dynamics 365. When you add a buyer, set the **ID** of the buyer to a corresponding company ID in Dynamics 365, such as "USMF" or "DAT".

Field setup

1. Add a custom line-item field named "Procurement category" and set the **Type name** to "LIT_ProcurementCategory".
   - For PO document types, select **Accept empty value** to make this field optional.
   - For non-PO document types, if you use the **Default procurement category** setting, select **Accept empty value**. Otherwise, clear **Accept empty value** to make this field required.

2. For PO document types, ensure that these fields are enabled in the document type view:
   - InvoiceCurrency
   - InvoiceCredit
   - InvoiceDate
   - InvoiceDueDate
   - InvoiceNumber
   - InvoiceOrderNumber
   - InvoiceTotalVatExcludedAmount
   - InvoiceTotalVATAmount
   - InvoiceTotalVatIncludedAmount
   - LIT_RowIdentifier
   - LIT_ArticleIdentifier
   - LIT_ArticleName
   - LIT_DeliveredQuantity
   - LIT_UnitPriceAmount
   - LIT_VatExcludedAmount
   - LIT_ProcurementCategory
3. For non-PO document types, ensure that these fields are enabled in the document type view:
   - InvoiceCurrency
   - InvoiceCredit
   - InvoiceDate
   - InvoiceDueDate
   - InvoiceNumber
   - InvoiceTotalVatExcludedAmount
   - InvoiceTotalVATAmount
   - InvoiceTotalVatIncludedAmount

   If you also want to capture line items on non-PO invoices, you can optionally add these fields:
   - LIT_ProcurementCategory
   - LIT_ArticleName
   - LIT_DeliveredQuantity
   - LIT_UnitPriceAmount
   - LIT_VatExcludedAmount
4. If you want to specify a sales tax group before sending the invoice to Dynamics 365 for Finance and Operations, you can add custom fields on header and/or line-item level.
   - For the header tax, optionally add one custom header field named "Sales tax group", with the **Type name** set to **SalesTaxGroup**, and connect this field to "TaxGroup" master data.
   - For the line-item tax, optionally add two custom line-item fields:
     - A line-item field named "Sales tax group" with the **Type name** set to **LIT_SalesTaxGroup**, and connect this field to "TaxGroup" master data.
     - A line-item field named "Item sales tax group" with the **Type name** set to **LIT_ItemSalesTaxGroup**, and connect this field to "ItemTaxGroup" master data.

If you want any of the fields above to be optional, select the **Accept empty value** setting.

If you have already completed the rest of the customer setup, you are ready to begin processing invoices using the integration for Dynamics 365 for Finance and Operations.

Master data

AP Essentials automatically imports master data from Dynamics 365 for Finance and Operations and uses the data to suggest and validate field values during verification. This table shows the correlation between AP Essentials master data and Dynamics 365 data.

AP Essentials field (type name)	Dynamics 365 for Finance and Operations field
Supplier master data	
Name	VendorName
SupplierNumber	VendorAccountNumber
Description	VendorSearchName
OrganizationNunmber	OrganizationNumber
Location	AddressLocationId
Street	AddressStreet
PostalCode	AddressZipCode
City	AddressCity
State	AddressStateId
CountryName	AddressCountryRegionId
PaymentMethod	DefaultVendorPaymentMethodName
PaymentTerm	DefaultPaymentTermsName
Blocked	True if OnHoldStatus = "Invoice" or OnHoldStatus = "All"
TaxCode	SalesTaxGroupCode
TaxRegistrationNumber	By default, `TaxRegistrationNumber` gets its value from `RegistrationNumber` in Dynamics 365. However, you can use the **Tax registration number source** setting to choose any one of these source fields: • **Registration number** (RegistrationNumber) • **Tax exempt number** (TaxExemptNumber) • **Foreign vendor tax registration ID** (ForeignVendorTaxRegistrationId) The value is taken from the primary address of the supplier (vendor). If multiple values exist, none are imported. Expired registration numbers are also ignored.
CurrencyCode	CurrencyCode
TelephoneNumber	PrimaryPhoneNumber

AP Essentials field (type name)	Dynamics 365 for Finance and Operations field
FaxNumber	PrimaryFaxNumber
Currency master data	
Code	CurrencyCode
Name	Name
ExchangeRate	exchangeRate
Purchase order master data	
ContactName	ContactPersonId
CurrencyCode	CurrencyCode
DateCreated	AccountingDate
Description	PurchaseOrderName
OrderNumber	PurchaseOrderNumber
StatusText	PurchaseOrderStatus
SupplierName	PurchaseOrderName
SupplierNumber	InvoiceVendorAccountNumber
Purchase order master data (line items)	
ArticleDescription	LineDescription
ArticleNumber	ItemNumber
CategoryDescription	ProcurementProductCategoryName
CategoryNumber	Always empty.
DeliveredQuantity	Always zero.
InvoicedQuantity	Always zero.
IsDeliveryRequired Set to true if VendorInvoiceMatchingPolicy is set to ThreeWayMatch.	VendorInvoiceMatchingPolicy
OrderLineNumber	LineNumber
PriceUnit	PurchasePriceQuantity
Quantity	OrderedPurchaseQuantity
RowTotalAmountVatExcluded	LineAmount
StatusText	PurchaseOrderLineStatus
SupplierArticleNumber	ExternalItemNumber
Unit	PurchaseUnitSymbol
UnitPrice	PurchasePrice
Item master data	
Name	ProductName
Value	ProductNumber

AP Essentials field (type name)	Dynamics 365 for Finance and Operations field
Description	description
Item tax group master data	
Name	Description
Value	TaxItemGroupCode
Procurement category master data	
Value	CategoryName
Description	description
Tax group master data	
Name	Description
Value	TaxGroupCode

Procurement categories

In Dynamics 365 for Finance and Operations, procurement categories are used to classify goods and services that your organization buys. These categories support purchasing policies, approvals, and financial tracking.

The **Procurement Categories** section of target system settings lets you control which procurement categories are imported from Dynamics 365. These filters help ensure your AP Essentials environment contains only the procurement categories you need, making coding more efficient and reducing unnecessary master data.

Dynamics 365 for Finance and Operations field mapping

This table shows how Tungsten AP Essentials maps invoice fields with Dynamics 365 for Finance and Operations.

If you use custom header fields or line fields in Dynamics 365, when you create a recurring data job, you must modify the contents of the ZIP file to include the custom fields. If your Dynamics 365 for Finance and Operations solution has additional fields that need mapping, you can use data templates to map fields and other data from Tungsten AP Essentials to Dynamics 365.

Tungsten AP Essentials field	Dynamics 365 field	Note
Header fields		
InvoiceCurrency	Currency	
-	Date	Automatically set to current date.
InvoiceDueDate	DueDate	
Supplier	InvoiceAccount and VendorAccount	
InvoiceDate	InvoiceDate	
InvoiceNumber	InvoiceNumber	

Tungsten AP Essentials field	Dynamics 365 field	Note
SalesTaxGroup (custom header field)	SalesTaxGroup	Custom Tungsten AP Essentials field.
Line-item fields		
InvoiceCurrency (header)	Currency	
Supplier (header)	InvoiceAccount and VendorAccount	
LIT_ArticleIdentifier	ItemNumber	Optional for non-PO based invoices.
LIT_RowIdentifier	PurchLineNumber	For PO-based invoices only. This is the line identifier that is the result of line pairing (automatic or manual).
InvoiceOrderNumber (header)	PurchaseOrder	For PO-based invoices only.
LIT_ProcurementCategory or ProcurementCategory (custom line-item/header fields)	ProcurementCategoryName	Custom Tungsten AP Essentials field. Normally blank for PO-based invoices. Can be set on either the header or the line-item level in Tungsten AP Essentials.
LIT_DeliveredQuantity	ReceiveNow	For credit notes, delivered quantities post to Dynamics 365 as negative values.
LIT_UnitPriceAmount	UnitPrice	
LIT_SalesTaxGroup (custom line-item field)	SalesTaxGroup	Custom Tungsten AP Essentials field.
LIT_Item SalesTaxGroup (custom line-item field)	ItemSalesTax	Custom Tungsten AP Essentials field.
Master data		
BankName	BankName	
SupplierNumber	VendorAccountNumber	
AccountNumberType	• IBAN • Empty	The field is empty if the account type is anything other than IBAN.

Tungsten AP Essentials field	Dynamics 365 field	Note
BankNumberType	N/A	Always empty.
AccountNumber	• IBAN • BankAccountNumber	Depending on AccountNumberType, the AccountNumber and BankNumber fields are used together to specify a combination of either IBAN and SWIFTCode or BankAccountNumber and RoutingNumber. For example, if AccountNumberType is set to IBAN, AccountNumber is mapped to IBAN and BankNumber is mapped to SWIFTCode.
BankNumber	• SWIFTCode • RoutingNumber	

Dynamics 365 for Finance and Operations: Data templates

You can configure the Dynamics 365 for Finance and Operations target system service to map fields and other data from Tungsten AP Essentials to Dynamics 365.

By default, Tungsten AP Essentials maps data to these Dynamics 365 fields. If your Dynamics 365 solution uses other fields, you can use data templates to map fields and other data from Tungsten AP Essentials to Dynamics 365. Tungsten AP Essentials can map to two types of entities in Dynamics 365: vendor invoice header and vendor invoice line. Each entity has a corresponding setting in the target system settings that you can use to map custom fields:

- **Custom field mapping** for header fields (vendor invoice header entities).
- **Custom line-item field mapping** for line-item fields (vendor invoice line entities).

You specify custom field values using the format `DynamicsField="value"`, where `DynamicsField` is a **Target field** in Dynamics 365, and the value is any possible value defined later in this topic. Use a semicolon to separate multiple field specifications. For your convenience, you can select **Validate**, which ensures the fields you specify exist in Dynamics 365.

Example

Suppose you type the following in the **Custom field mapping** setting:

```
CUSTOMFIELDAPPROVER="%@user60%";CUSTOMFIELDAPPROVALDATE="%@date60%";CUSTOMFIELDLINK="%#Permalink
%"
```

In this example:

- `CUSTOMFIELDAPPROVER` is set to a history variable that refers to the name of the user who checked the invoice.
- `CUSTOMFIELDAPPROVALDATE` is set to a history variable that refers to the date and time when the invoice was verified.
- `CUSTOMFIELDLINK` is set to a system variable that refers to the permanent image link (URL) in Tungsten AP Essentials storage.

A value can consist of multiple constants and variables:

```
field="Invoice %InvoiceNumber% was approved by %@user60% in AP Essentials."
```

You specify the data using plain-text constants and variables enclosed in percent marks.

- **Constants** fixed values that you specify as text.
- **Variables** dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** to indicate that it is a system variable.
- **@** to indicate that it is a history variable.
- **$** to indicate that it is a metadata variable.

Example

```
Customer: %$WebEye.CustomerID% Document created: %@date0{yyyy-MM-dd}% InvNr:
%InvoiceNumber%
```

You can now create custom date fields for use with the integration. Previously, this was not possible because AP Essentials exported custom date fields in an incompatible format.

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2
- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack
- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68
DocumentApprovalRejected	69

Process status	Numerical code
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95
DocumentExportFailed	99
DocumentExportSucceeded	100
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Additional parameters for history variables

If a history variable has multiple records associated with it, you can append history variables with additional parameters to specify whether you want the first record, last record, or all records. For example, if a document is approved by multiple users, the history variable returns the last approver

by default. However, by specifying an additional parameter, you can get the first approver instead. These parameters are available:

- First – Returns the first record in the selected history.
- Last – Returns the last record in the selected history. This parameter is used by default if no parameter is specified.
- All – Returns all of the records in the selected history as a semicolon-separated text string. When using this parameter, not all target systems accept the default date format, so make sure you know what format your target system expects.

To use a parameter, append the history variable with a dot followed by the parameter. For example, to obtain the first approver:

%@User67.First%

When using additional parameters in combination with custom date history variables, specify the parameter first:

%@Date67.First{yyyy-MM-dd}%

Metadata variables

You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

Troubleshoot Dynamics 365 for Finance and Operations

Use the following information to troubleshoot Dynamics 365 for Finance and Operations integration issues.

Track jobs inside Dynamics 365

When a vendor invoice is posted to Dynamics 365, the **External ID** of the Tungsten AP Essentials invoice is set to the ID of the upload package message ID. This can be useful if you need to track the job inside Dynamics 365.

To track a job inside Dynamics 365:

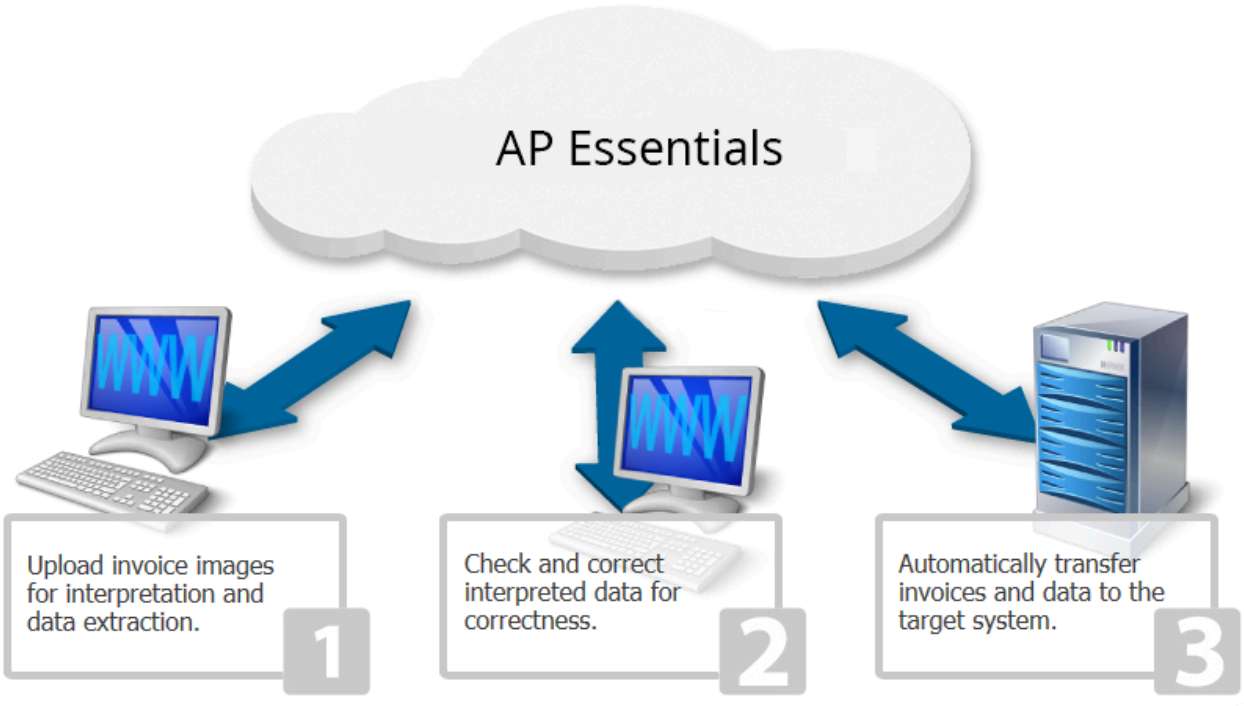
1. Open the invoice in question in Tungsten AP Essentials Office to find the **External ID**.
   The **External ID** is displayed on the information tab of the document view.

2. Log in to Dynamics 365 and navigate to **System Administration** > **Data Management IT** > **Recurring Data Jobs**, and open the import job used for importing Tungsten AP Essentials invoices.
3. In the view that appears, a list of inbound messages is displayed. You can filter this list by selecting the **Message id** column header and typing the message ID within braces, for example "{E03CA8EB-24E8-4E46-8C7D-D89493761AE4}".
4. Select **Execution details** to see the log of that specific import.
   If there are any errors, you can select **View staging data** for each entity to see the details of the error.

Dynamics AX 2012

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

An integration usually consists of three components:

- Tungsten AP Essentials.
- A target system, such as Microsoft Dynamics AX 2012.
- Tungsten AP Essentials Connect, a lightweight program that you install locally to enable communication between the systems and synchronize master data. Tungsten AP Essentials Connect also provides an alternative method to upload documents to Tungsten AP Essentials.

Integration features

The Dynamics AX integration enables cooperation between Tungsten AP Essentials and Microsoft Dynamics AX. It leverages more power and adds value to your current accounts-payable system by extracting data from supplier invoices without any tedious projects or expensive hardware investments.

The Dynamics AX 2012 integrations support these features.

- **Invoice registration**: Purchase order (PO) and non-PO invoices are supported. Invoices are registered as vouchers within a journal in Dynamics AX. A journal can contain multiple vouchers, but the integration only registers one voucher per journal.
- **Invoice posting**: Invoice posting requires correct coding. If posting is not possible, a Tungsten AP Essentials user must correct the coding for an invoice before reposting. An alternative to managing corrections is to place invoice vouchers on hold and process those vouchers in Dynamics AX.
- **Purchase order validation**: Tungsten AP Essentials automatically checks to make sure that the PO number on the invoice is valid for the current company and supplier.
- **Credit note registration**: Tungsten AP Essentials can identify credit notes via a field on the invoice that is set during verification. Negative amounts can also be used do specify a credit note.
- **Sales-tax handling**: Tax codes for sales tax group and item sales tax group are supported.
- **Organization mapping**: Dynamics AX companies and legal entities are easily mapped to customers within Tungsten AP Essentials.
- **Master-data synchronization**: The integration synchronizes master between Dynamics AX and Tungsten AP Essentials. For example, Dynamics AX dimensions are imported, so they are available for selection when performing account coding. Tungsten AP Essentials also imports currency and exchange-rate master data from Dynamics AX.

  To reduce network traffic, Tungsten AP Essentials synchronizes master data selectively, and only downloads master data that is needed. For example, if the Extraction service does not specify an approver field, approver master data is not synchronized.

  Tungsten AP Essentials also automatically synchronizes master data of companies that use master data from virtual companies in Dynamics AX. For virtual companies, master data is supported for suppliers, GL accounts and coding dimensions.
- **Account coding**: Ledger coding can be performed.

- **Multiple account types**: When posting is being made, each coding line has an account type, such as ledger, project, fixed asset, bank, customer and vendor. Users doing coding need to know which account type to use. While in most cases the type ledger is “good enough”, we can foresee situations where more types should be supported.
- **Document parking**: You can enter and store (park) incomplete documents in the target system. Parking does not update accounts in the target system; it merely stores the document, and the document remains open for editing until it is posted.
- **Invoice journal registration**: Invoice journal registration is supported for non-PO invoices that are used with Workflow services.
- **Multiple purchase orders**: The Dynamics AX 2012 integration supports invoices with multiple purchase-order numbers.
- **Three-way item matching**: The Dynamics AX 2012 integration supports three-way item matching, if line-item rows are flagged for three-way item matching.

AP Essentials Connect is not required to configure the Dynamics AX 2012 integration settings. You configure the Dynamics AX 2012 integration by configuring settings in the embedded target system service.

Where to go from here

Before you can use Dynamics AX with Tungsten AP Essentials, you must follow the procedures outlined in the technical description:

- Dynamics AX 2012 Technical Description

Introduction

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

There are two methods for configuring your system for use with Dynamics AX 2012. You must configure your system using one of these methods:

- Using the embedded target system - This is the new method of configuring the integration, where you specify settings in the target-system settings in AP Essentials Admin Center.
- Using AP Essentials Connect - This is the old method of configuring the integration, where you use AP Essentials Connect to specify settings.

ⓘ The Dynamics AX integration requires the Application Integration Framework (AIF).

Using the embedded target system

1. Configure the integration within Dynamics AX.
2. Configure Tungsten AP Essentials for use with Dynamics AX 2012.

Configuring Tungsten AP Essentials for use with Microsoft Dynamics AX 2012

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

This topic describes the settings you must adjust in Tungsten AP Essentials in order to process invoices with Microsoft Dynamics AX 2012.

Company mapping

The organizational hierarchy in Tungsten AP Essentials corresponds to the customer organization. Keep in mind:

- A Dynamics AX company belongs to the lowest Tungsten AP Essentials organization in the hierarchy.
- The lowest Tungsten AP Essentials organization must contain the Dynamics AX company code as an external ID.

In other words, if an Tungsten AP Essentials customer has buyers, the buyers correspond to Dynamics AX companies. If customer does not have buyers then customer is the lowest level and that means the customer belong to the AX company.

Extraction service settings

The Extraction service settings deal with fields that are captured and interpreted on the invoices. Do not confuse these fields with coding fields, which are covered later in this guide. You can specify these custom fields, if you want to give workflow operators more control

Approver field

The integration configuration proposes a default approver that is used for invoice registration and approval; however, you can override this value using a custom field. This way, you can modify the approver during verification.

To use this feature, add a custom field to the document type and use these settings in the **Add header field** view:

Type name	Approver
Name	Approver
Display name	Any value
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
User master data to validate the field values	Selected
Field format	.*

When **Accept empty value** is selected and the field is empty (during verification), the integration uses the value specified in the **Default approver** setting.

Sales tax group field

The integration configuration proposes a default sales-tax group that is used for invoice registration; however, you can override this value using a custom field. This way, you can modify the sales-tax group during verification.

To use this feature, add a custom field to the document type and use these settings in the **Add header field** view:

Type name	SalesTaxGroup
Name	SalesTaxGroup
Display name	Any value
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
User master data to validate the field values	Selected
Field format	.*

When **Accept empty value** is selected and the field is empty (during verification), the integration uses the value specified in the **Default sales tax group** setting.

Item sales tax group field

The integration configuration proposes a default sales-tax group that is used for invoice registration; however, you can override this value using a custom field. This way, you can modify the sales-tax group during verification.

To use this feature, add a custom field to the document type and use these settings in the **Add header field** view:

Type name	ItemSalesTaxGroup
Name	Item Sales Tax Group
Display name	Any value
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Selected
User master data to validate the field values	Selected
Field format	.*

When **Accept empty value** is selected and the field is empty (during verification), the integration uses the value specified in the **Default item sales tax group** setting.

Posting date

By default, the Dynamics AX integration uses the Dynamics AX system date as the posting date; however, you can override this value using a custom field. If you leave the custom field empty, or if you do not create the custom field, the Dynamics AX system date is used as the posting date.

To use this feature, add a custom field to the document type and use these settings in the **Add header field** view:

Type name	PostingDate
Name	PostingDate
Display name	Any value
Type	Date
Accept empty value	Selected
Enforce validation	Not selected
Use master data to suggest field values	Not selected
User master data to validate the field values	Not selected
Field format	n/a

When **Accept empty value** is selected and the field is empty (during verification), the integration uses the value specified by the Posting date custom field. If the Posting date field is missing or not set, the current system date is used.

Voucher description field

The Dynamics AX integration configuration specifies a default voucher description template; however, you can override this value using a custom field. This way, you can modify the voucher description during verification.

To use this feature, add a custom field to the document type and use these settings in the **Add header field** view:

Type name	Text
Name	Text
Display name	Any value
Type	String
Accept empty value	Selected
Enforce validation	Selected
Use master data to suggest field values	Not selected
User master data to validate the field values	Not selected
Field format	.*

When **Accept empty value** is selected and the field is empty (during verification), the integration uses the value specified in the **Journal description template** setting.

Master data service settings

Master data on customer level and Let users update supplier data when verifying invoices cannot be selected in the Master data settings.

Process control service settings

The **Keep batch together setting** cannot be selected.

Storage service settings

You can adjust the Storage service settings to suit your needs.

- If the Storage service is disabled, you can choose to save images to a local folder that you can specify in Tungsten AP Essentials Connect.
- If the Storage service is enabled and the Create image link settings is selected, the integration creates a shortcut in the Dynamics AX archive folder, which links to the storage image.
- If the Storage service is enabled and the "Create image link" setting is not selected, the integration configuration can save the image in a shared folder that you can specify in Tungsten AP Essentials Connect.

Target system service settings

The target system settings for the Dynamics AX target system vary, depending on whether you use the embedded target system or AP Essentials Connect to configure the integration.

- If you use the embedded target system to configure the integration, you can configure these target-system settings.
- If you use AP Essentials Connect to configure the integration, you can configure these target-system settings.

Verification service settings

The **Allow account coding during verification setting** cannot be selected.

Workflow service settings

This topic describes settings that are specific to the Dynamics AX integration.

Account types

The Dynamics AX integration supports invoice coding for these types of invoices:

- General Ledger - for invoices that require account coding.
- General Ledger with projects - for invoices that require account and project coding.

You must specify an **Account type** for each invoice type you want to process. You do not need to specify an account types that you do not use.

General ledger

Use this account type for coding general-ledger invoices. Users who code general-ledger invoices specify the account number and the other information such as the sales tax group, item sales tax group, dimensions etc.

When you add and account type for general-ledger invoices, use these settings in the **Account type** view:

Name	Any value.
Internal name	GeneralLedger

General Ledger with projects

Use this account type for coding general-ledger invoices with projects. Users who code general-ledger invoices specify the project number and the other information such as the sales tax group, item sales tax group, dimensions etc.

When you add and account type for general-ledger invoices, use these settings in the **Account type** view:

Name	Any value.
Internal name	Project

Coding fields

The Workflow service settings described in this section deal with coding fields. Do not confuse these fields with invoice fields.

The Dynamics AX integration supports coding fields such as:

- Sales Tax Group
- Items Sales Tax Group
- Coding dimensions
- Text

Sales Tax Group

The Dynamics AX integration configuration proposes default sales-tax groups. The default value can be overridden for approval on a specific coding row using a coding field. This way, you can modify the sales-tax group for a specific coding row during approval.

This coding field can be used for general-ledger coding and general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	SalesTaxGroup
Available for account types	Ledger and Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Item Sales Tax Group

The Dynamics AX integration configuration proposes default item sales-tax groups. The default value can be overridden for approval on a specific coding row using a coding field. This way, you can modify the item sales-tax group for a specific coding row during approval.

This coding field can be used for general-ledger coding and general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ItemSalesTaxGroup
Available for account types	Ledger and Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Coding dimensions

A standard Dynamics AX integration supports three dimensions: Department, Center and Purpose. If you require additional dimensions that correspond to other dimensions in Dynamics AX, you can add a coding field for each dimension that you require using the settings in the Coding field dialog described below.

This coding field can be used for general-ledger coding and general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	The internal name of the dimension (Department, Center, Purpose etc.)
Available for account types	Ledger and Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Text

The Dynamics AX integration configuration specifies a default voucher description template that is used during invoice registration; however, you can override this value on a specific coding row using a coding field. This way, you can modify the voucher description on a certain coding row for approval during coding.

This coding field can be used for general-ledger coding and general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	Text
Available for account types	Ledger and Project

Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Not selected

When **Accept empty value** is selected and the field is empty (during approval), the integration uses the invoice registration value that is created from the configuration template.

Project Category

The Dynamics AX integration can set the project category for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project category for a specific coding row during approval.

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectCategory
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Project Employee

The Dynamics AX integration can set the project employee for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project employee for a specific coding row during approval.

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectEmployee
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Project Line Property

The Dynamics AX integration can set the project line property for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project line property for a specific coding row during approval.

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectLineProperty
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Project Sales Currency

The Dynamics AX integration can set the project sales currency for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project sales currency for a specific coding row during approval. If you do not specify a value for the project sales currency during approval, the default value from the currency field is used.

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectCurrency
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Project Sales Price

The Dynamics AX integration can set the project sales price for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project sales price for a specific coding row during approval. If you do not specify a value for the project sales price during approval, the default value from the amount field is used.

When coding, the value must be formatted using a period as the decimal separator. For example: 0.00

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectSalesPrice
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected

Use coding-field master data	Not selected

Project Sales Tax Group

The Dynamics AX integration can set the project sales tax group for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project sales tax group for a specific coding row during approval. If you do not specify a value for the project sales tax group during approval, the default value from the sales tax group field is used.

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectTaxGroup
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Project Item Sales Tax Group

The Dynamics AX integration can set the project item sales tax group for a specific row. In Tungsten AP Essentials, the value can be defined on a specific coding row using a coding field. This way, you can specify the project item sales tax group for a specific coding row during approval. If you do not specify a value for the project item sales tax group during approval, the default value from the item sales tax group field is used.

This coding field can only be used for general-ledger coding with projects.

To use this feature, add a coding field and use these settings in the **Coding field** view:

Display name	Any value.
Internal name	ProjectTaxItemGroup
Available for account types	Project
Show coding field as a sub line	Any value (Selected recommended)
Accept empty value	Selected
Use coding-field master data	Selected

Coding lines

Coding lines are required must be selected to make sure the user codes at least one row.

General

Allow balancing against total amount must be selected to enforce coding amount validation and enable amount-split assistance.

The balancing amount field depends on the Approval journal configuration in Dynamics AX. The approval journal setting, **Amount includes sales tax**, in the **Sales tax** section of your coding, determines whether you balance against the net or gross amount:

- If **Amount includes sales tax** is not selected (recommended), you balance against the net amount.
- If **Amount includes sales tax** is selected, you balance against the gross amount.

Configuring Dynamics AX 2012 (embedded)

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

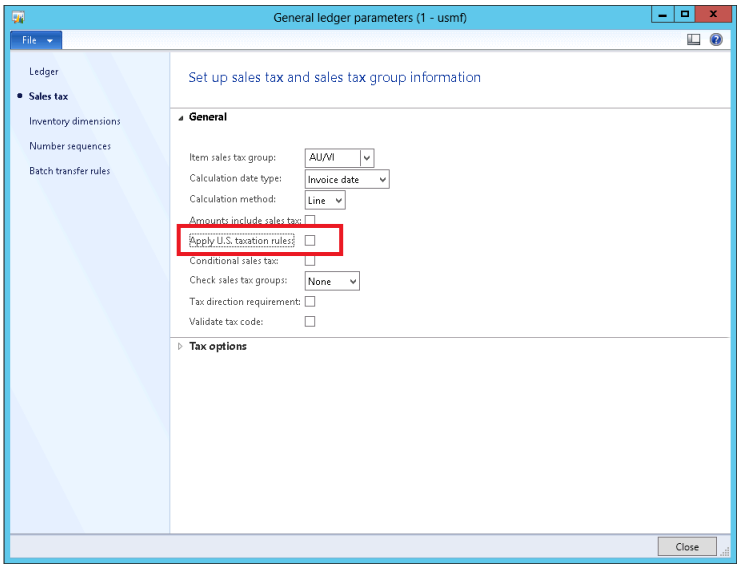
Previously, Tungsten AP Essentials Connect was required to specify Dynamics AX integration settings. Now you can configure Dynamics AX to push the settings to the target system service in Tungsten AP Essentials instead. To configure the Dynamics AX integration without using AP Essentials Connect:

1. Configure legal entities in Dynamics AX 2012.
2. Import the AX model file.
3. Define three batch tasks in Dynamics AX 2012:
   - **RsoOnlineConfigurationTask** - synchronizes settings with Tungsten AP Essentials.
   - **RsoOnlineMasterDataSyncTask** - synchronizes master data with Tungsten AP Essentials.
   - **RsoOnlineDocumentsProcessorTask** - synchronizes documents with Tungsten AP Essentials.
4. Specify the target-system settings in Tungsten AP Essentials.

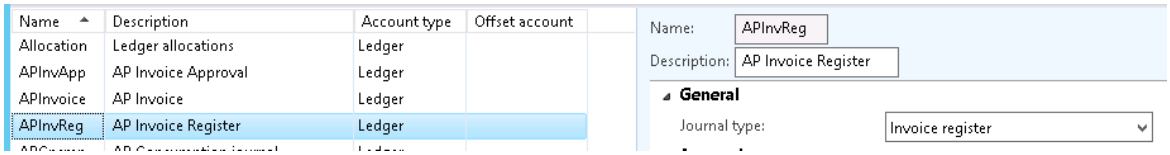
Configure legal entities in Dynamics AX 2012

You must perform these steps on each legal entity in Dynamics AX 2012 that you want to use with Tungsten AP Essentials. To set up Dynamics AX 2012:

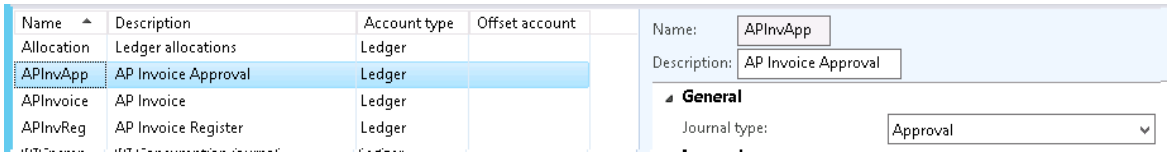
1. If your company does not operate in the United States, disable US taxation rules for non-US companies by deselecting Apply U.S. taxation rules (**General Ledger** > **Setup** > **General ledger parameters** > **Sales tax**).



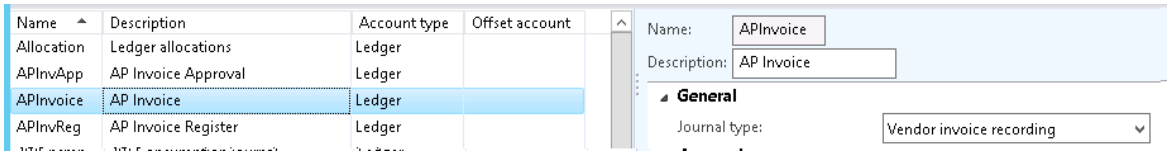
2. Navigate to **General Ledger Setup** > **Journals** > **Journal names** and create journals. For processing non-PO invoices using Invoice Register and Approval journals:
   - Make sure you have a journal with the Journal type set to Invoice register.



   - Make sure you have a journal with the Journal type set to Approval.



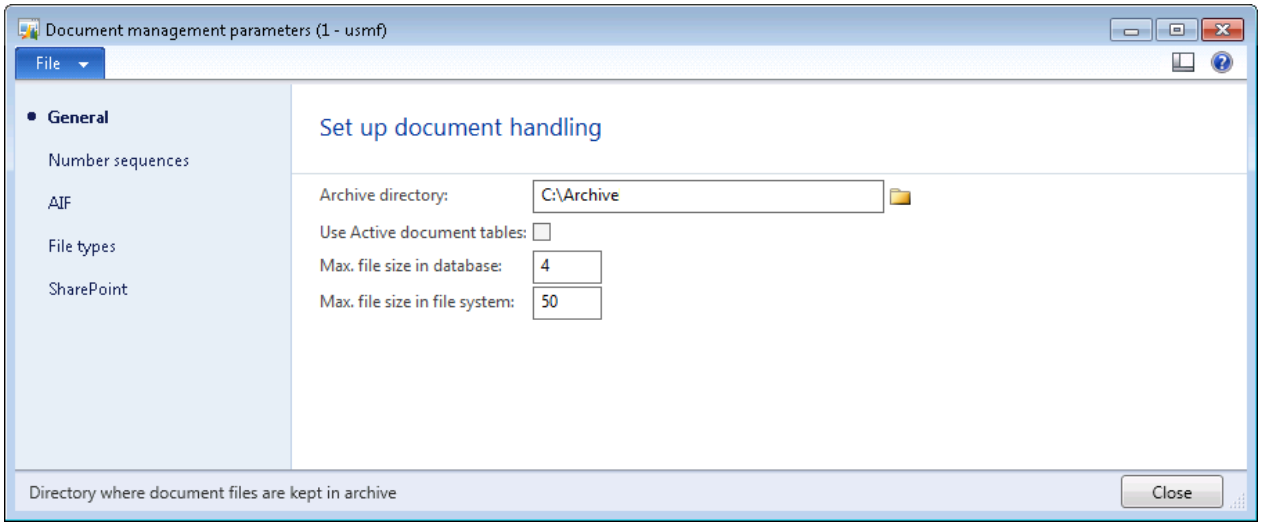
   For processing non-PO invoices using Invoice journals:
   - Make sure you have a journal with the Journal type set to Vendor invoice recording.



3. Create a folder where you want to save invoice images and specify this folder as the Archive directory (**Organization administration** > **Setup** > **Document management** > **Document management parameters** > **General**).

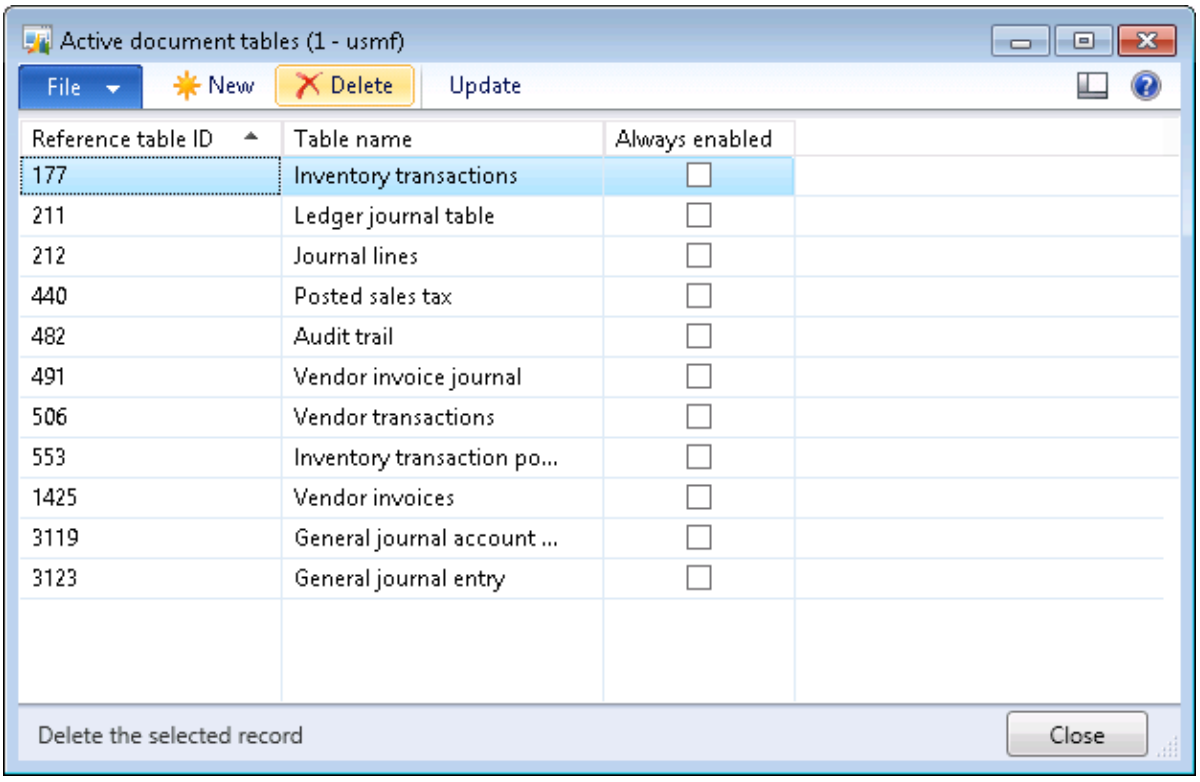
This folder must be shared if it is not on the same computer as the AOS server. For more information, see Troubleshooting: Document management directory does not exist.

The integration user must have read/write access on this folder.

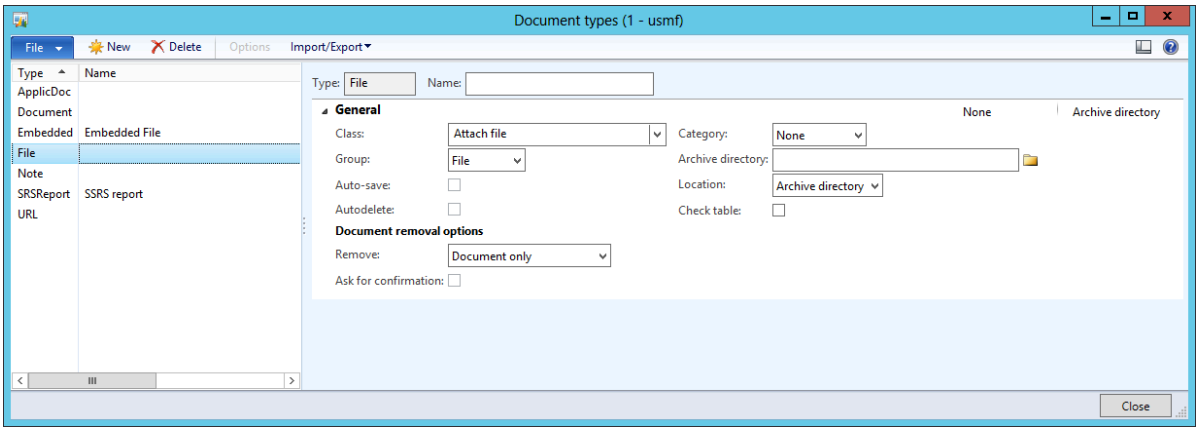


4. If "Use Active document tables" is enabled in Dynamics AX (Document management parameters), make sure that the correct tables are specified in the Active document tables list (**Organization administration** > **Setup** > **Document management** > **Active document tables**).

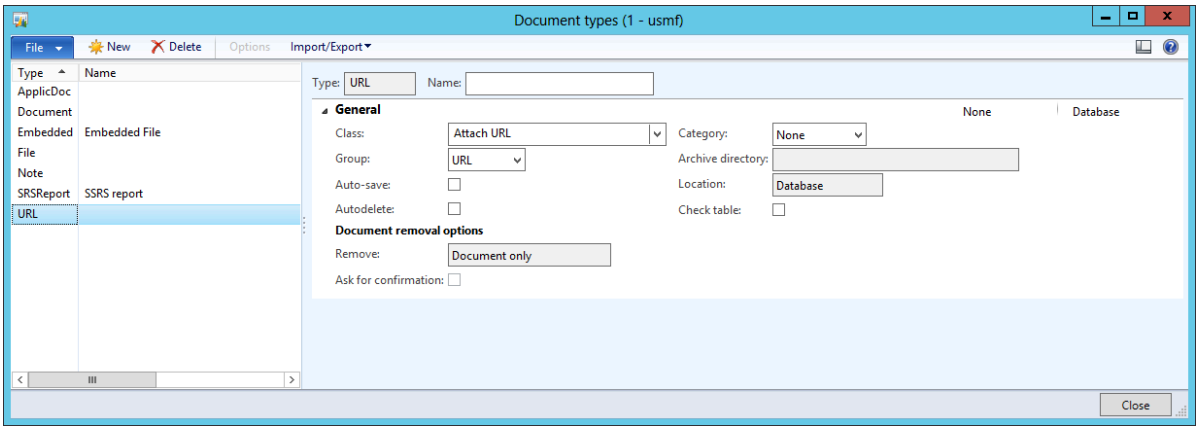
Reference table ID	Table name
177	Inventory transactions
211	Ledger journal table
212	Journal lines
440	Posted sales tax
482	Audit trail
491	Vendor invoice journal
506	Vendor transactions
553	Inventory transaction posting
1425	Vendor invoices
3119	General journal account entry
3123	General journal entry



5. Navigate to **Organization administration** > **Setup** > **Document management** > **Document types** and make sure File and URL document types are specified.



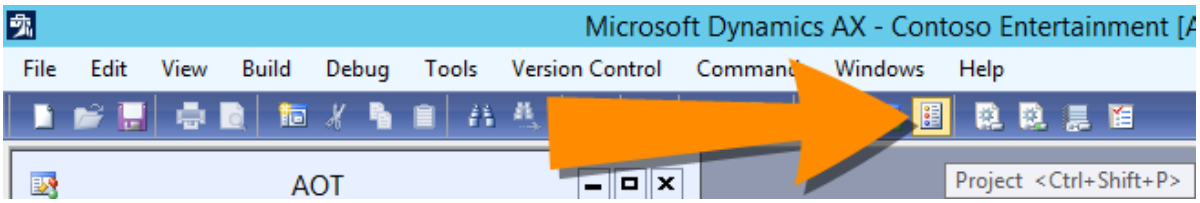
Make sure the File document type is specified.



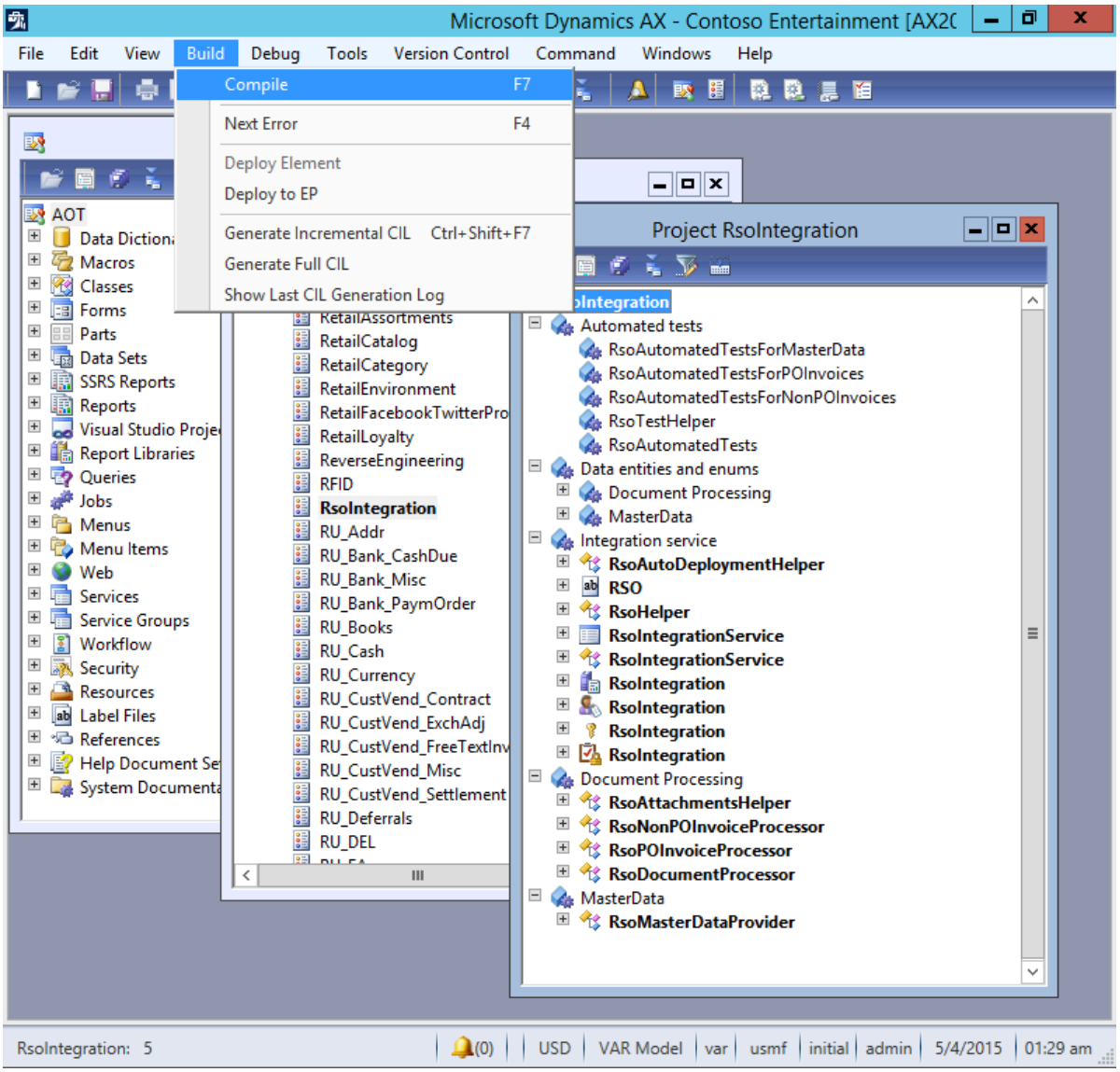
Make sure the URL document type is specified.

Import the AX model file

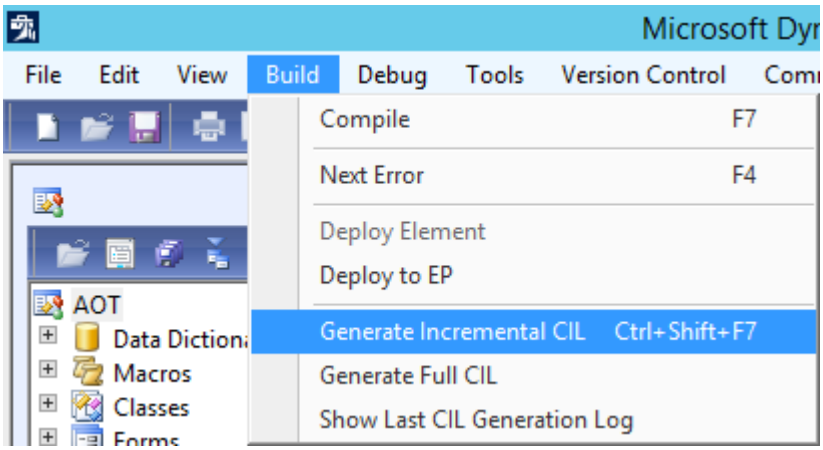
1. Close Microsoft Dynamics AX.
2. Download this ZIP file.
3. Right-click the ZIP file, select **Properties** and select **Unblock**.
4. Extract the ZIP file and run Import 2012 AXModel.bat as administrator by right-clicking the file and selecting Run As Administrator.
5. Restart the Windows Service, Microsoft Dynamics AX Object Server [version]-MicrosoftDynamicsAX.
6. Run Microsoft Dynamics AX.
7. When a dialog states that “The model store has been modified,” select **Skip** and select **OK**.
8. Press Ctrl + D to open AOT and select the Project button.



9. Expand the **Shared** node and double-click **RsoIntegration** to open the project.
10. Select **Compile** (Build menu) to compile the project.



11. Select **Generate Incremental CIL** (Build menu).

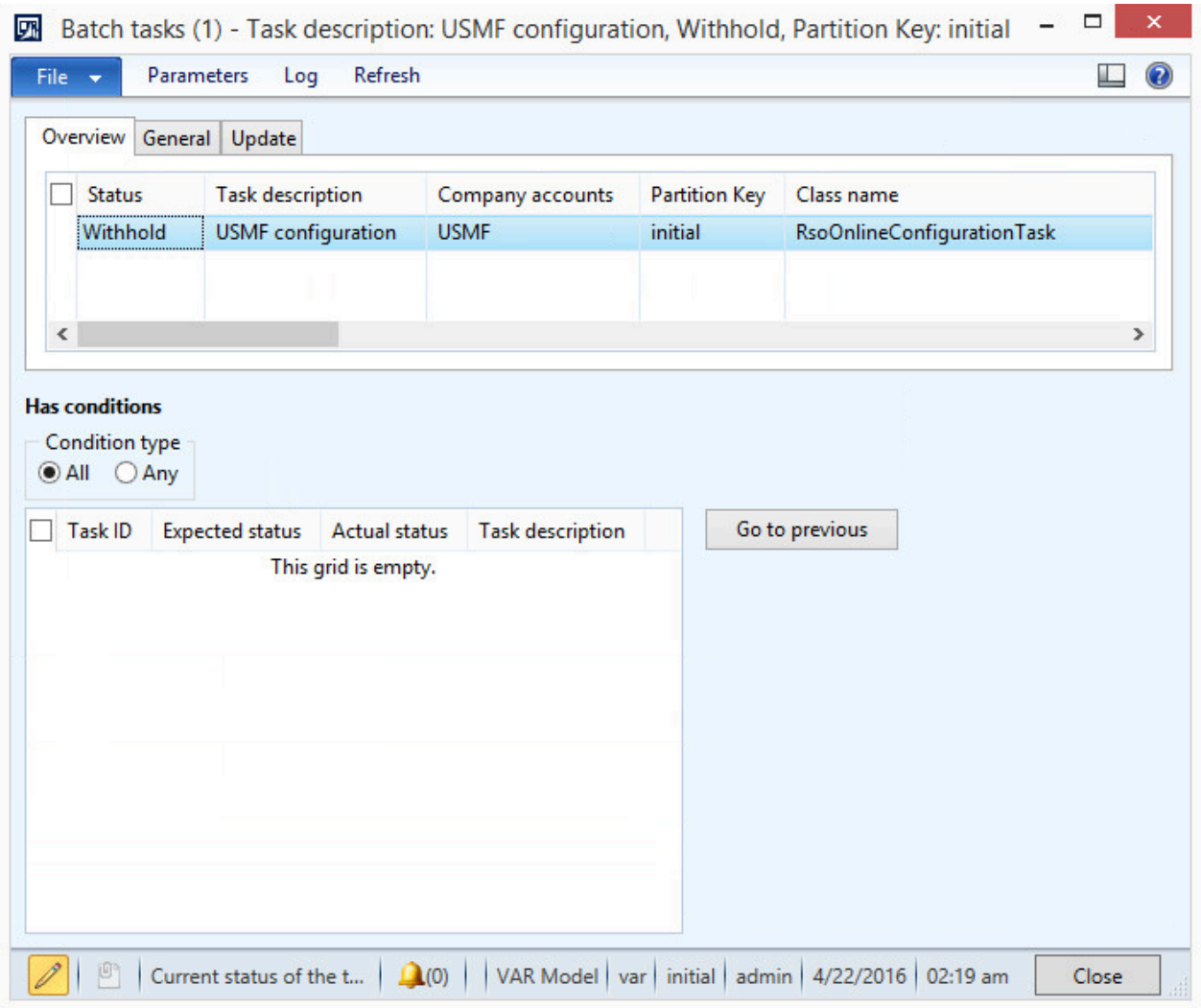


Defining batch tasks

Repeat these steps for each batch task mentioned in step 2 above.

1. Using Dynamics AX, navigate to **System administration** > **Inquiries** > **Batch jobs**.
2. Select **File** > **New** to create a new batch job.
3. Type a **Job description** for the new batch job that appears and save the batch job (Ctrl + S).
4. Select **View tasks** and select **File** > **New** to create a new batch task.
5. In the dialog that appears, type a **Task description** and specify **Company accounts**.

The company account must match the **External ID (External reference)** of your Tungsten AP Essentials customer.



6. Specify the **Class name** that corresponds to the batch task that you want to define: `RsoOnlineConfigurationTask`, `RsoOnlineMasterDataSyncTask` or `RsoOnlineDocumentsProcessorTask`.
7. Save the task and select **Parameters**.
8. Use the dialog that appears to specify Tungsten AP Essentials credentials for an administrator account.
9. Close the **Batch tasks** dialog and return to the **Batch job** dialog.
10. Select **Recurrence**. In the dialog that appears, adjust the settings according to the current task you are specifying:

Task	Recommended recurrence
RsoOnlineConfigurationTask	Run this task once (no recurrence).
RsoOnlineMasterDataSyncTask	Every 4 hours.
RsoOnlineDocumentsProcessorTask	Every 5 minutes.

11. Select **OK** to save the settings.
12. Make sure the newly created batch job is selected in the **Batch job** dialog and select **Functions** > **Change status** and use the dialog that appears to change the status to **Waiting**

    Repeat the procedure above for each batch task that you need to define: `RsoOnlineConfigurationTask`, `RsoOnlineMasterDataSyncTask` or `RsoOnlineDocumentsProcessorTask`. After you run all the batches, you can specify the target-system settings in Tungsten AP Essentials.

Updating an existing integration

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

If you already have a Dynamics AX 2012 integration with Tungsten AP Essentials, and you need to update to the latest version:

1. Import the AX model file. If you use the embedded target system service, you do not need to proceed to steps two and three.
2. Register the service.
3. Update the service operations.

Troubleshooting

Check these issues when troubleshooting the Dynamics AX 2012 integration.

"Error executing code: Insufficient memory to run script."

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

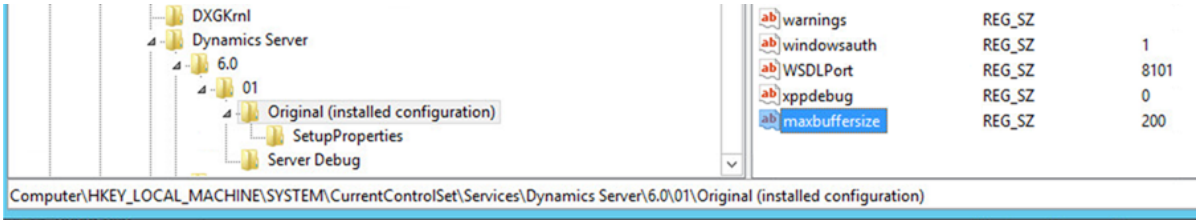
If you receive the message above in Dynamics AX 2012, you can try increasing the Dynamics AX **maxbuffersize** in the Windows registry to solve this issue.

To change the value of **maxbuffersize**:

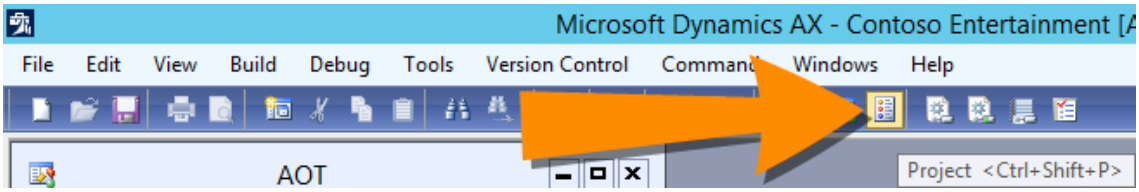
1. In Windows, select **Start**, select **Run**, type "regedit" in the Open box, and then select **OK**.
2. Navigate to maxbuffersize (default location: `\HKEY_LOCAL_MACHINE\SYSTEM \CurrentControlSet\Services\Dynamics Server\6.0\01\Original (installed configuration`)).

   ℹ If you are not running the Original (installed configuration), make the change in the active configuration, which can be for example, `\HKEY_LOCAL_MACHINE\SYSTEM \CurrentControlSet\Services\Dynamics Server\6.0\01\PRODUCTION P1`

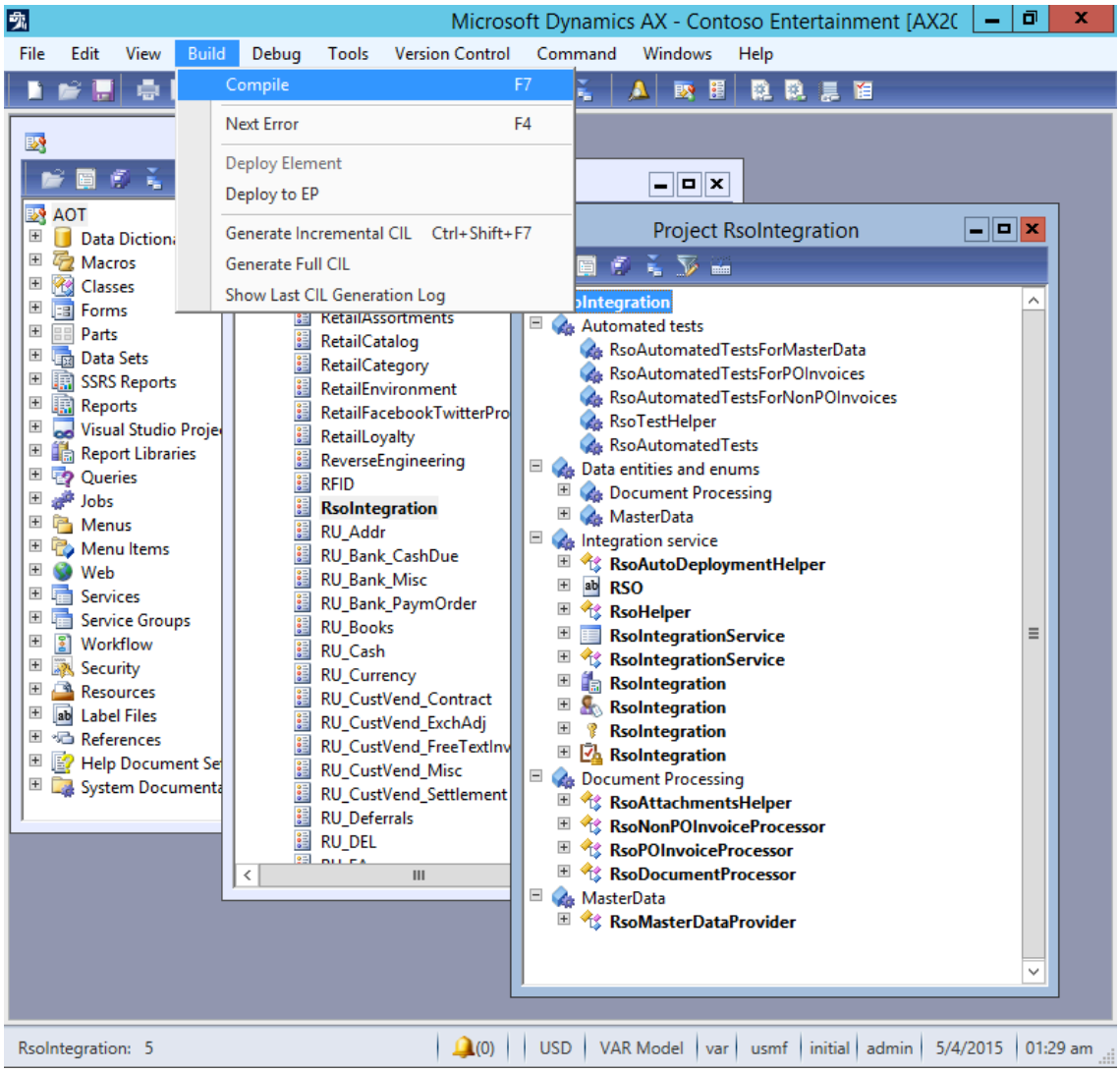
   If maxbuffersize does not exist, create it as a string (REG_SZ).



3. Increase the value of maxbuffersize. We recommend at least 200, which means 200 MB.
4. Restart AOS.
5. Recompile the Tungsten AP Essentials integration project.
    a. Press Ctrl + D to open AOT and select the Project button.

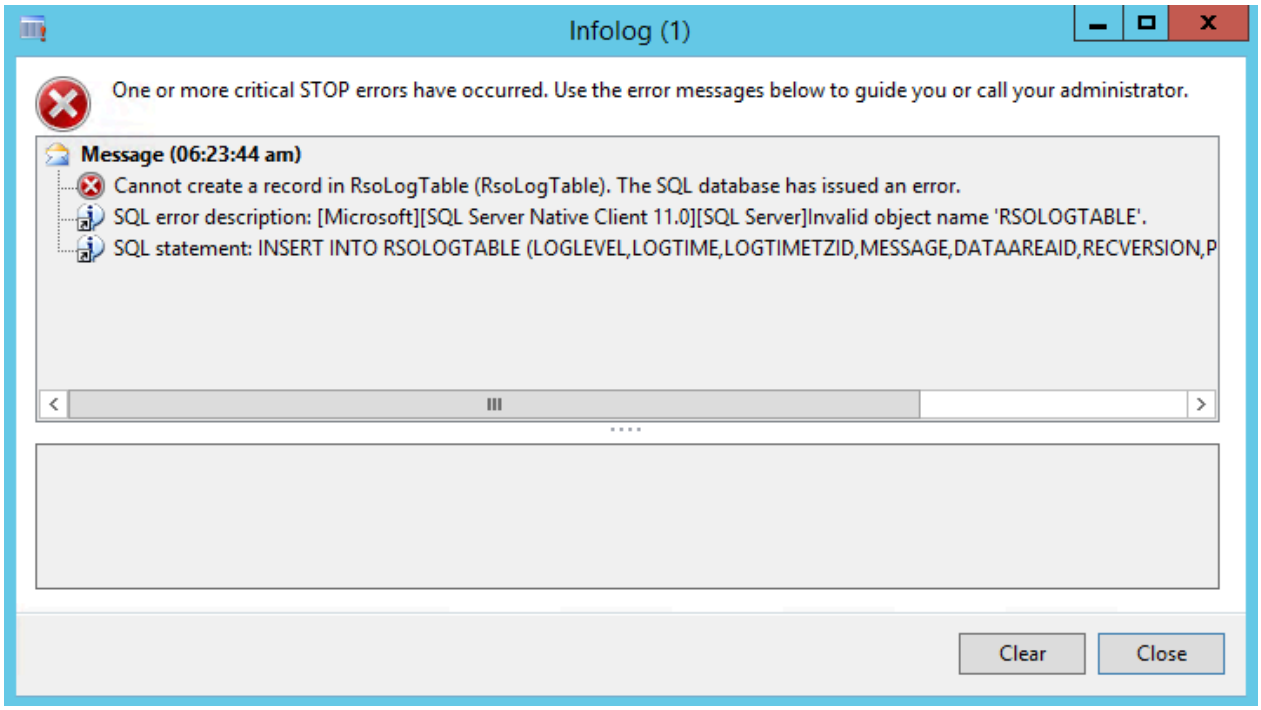


    b. Expand the **Shared** node and double-click **RsoIntegration** to open the project.
    c. Select **Compile** (Build menu) to compile the project.



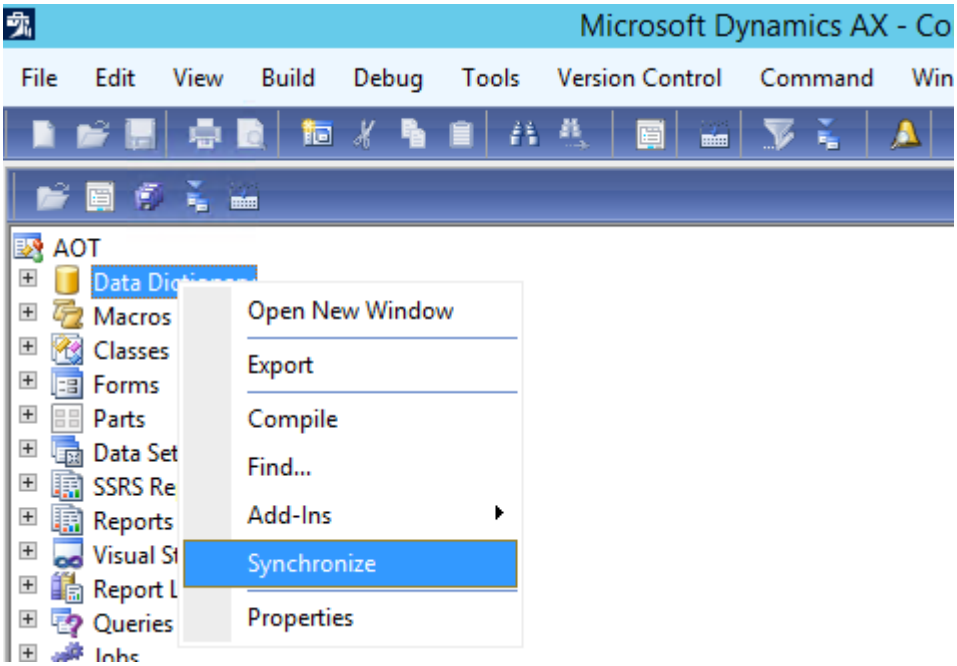
"Cannot create a record in RsoLogTable (RsoLogTable). The SQL database has issued an error."

If you receive the message above in Dynamics AX 2012, you can try synchronizing the data dictionary in Dynamics AX to solve this issue.



To synchronize the data dictionary:

1. Press Ctrl + D to open AOT.
2. Right-click **Data Dictionary** and select **Synchronize**.



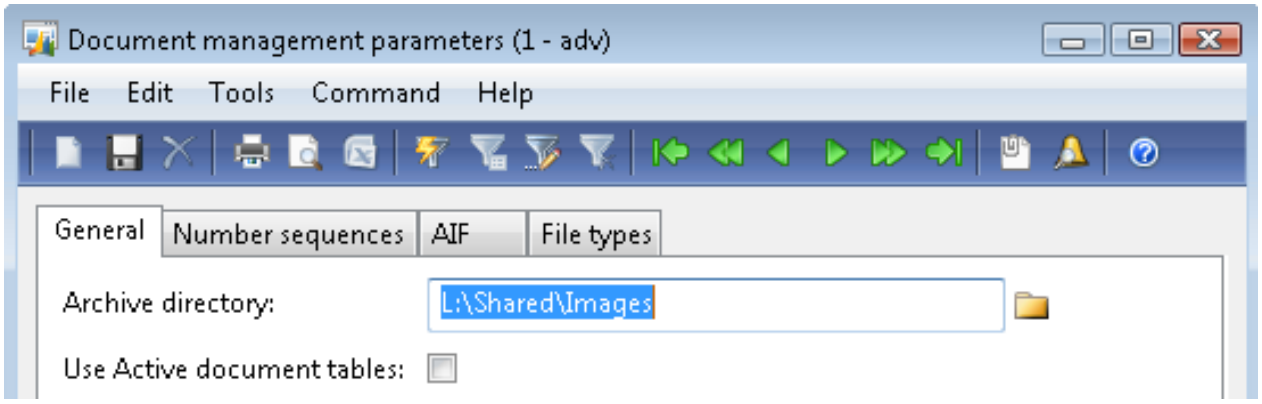
Document management directory does not exist

An error message that the "Document management directory does not exist" can appear in:

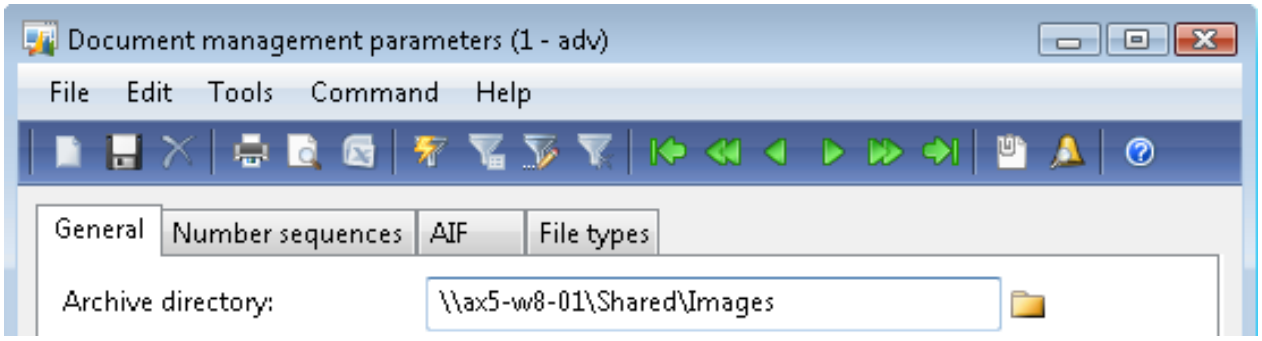
- The Tungsten AP Essentials event log.
- The document view when a document is Pending correction.
- The **Exception** view in Dynamics AX.

Three issues can cause this error message:

- The directory does not exist in Dynamics AX. Make sure that the folder that is specified in the Archive directory setting exists.



- AOS cannot access the directory. If the Archive directory is located on a different computer than the AOS service, you must share the folder and reference its shared path.



- The integration user does not have access to the directory. Make sure that the user that performs the integration has read/write access to the folder that is specified in the Archive directory setting in Dynamics AX (Document management parameters dialog).

You can specify the integration user in two different places:

- The Tungsten AP Essentials configuration wizard.
- The Tungsten AP Essentials Windows service.

Appendix

Document parking

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

Sometimes Tungsten AP Essentials cannot post an invoice properly in Dynamics AX. This can happen, for example, if you receive invoice type that Tungsten AP Essentials does not support, or if some other error occurs during posting. To overcome these situations, you can use the document-parking feature in Tungsten AP Essentials. When you park an invoice while coding in Tungsten AP Essentials, an approval journal is created in Dynamics AX, but it is not posted. This way, you can work with the invoice in Dynamics AX.

This topic describes two scenarios in which it can be useful to park documents in Dynamics AX:

- Unsupported invoices
- Invoices that cannot be posted

Example scenarios

Unsupported invoices

In this scenario, an unsupported invoice type is handled by parking the document:

1. An invoice is verified in Tungsten AP Essentials and registered in Dynamics AX. The registration journal is created and posted.
2. The invoice enters an approval workflow in Tungsten AP Essentials, and the approval user sees that the invoice requires a type of coding that is not supported in Online, so the user selects Park document.
3. The invoice continues through the rest of the approval workflow in Tungsten AP Essentials.

   In this scenario, you might need to send the invoice to a special workflow that focuses on validation, price and quantity check etc., instead of invoice coding. Likewise, personnel that are in charge of coding need to know that the invoice is parked and must be adjusted in Dynamics AX.
4. Since the invoice is parked, Tungsten AP Essentials creates an approval journal and saves it in Dynamics AX without posting it. From the Tungsten AP Essentials's point of view, the invoice is now complete.
5. The user can now continue to work with the invoice (approval journal) in Dynamics AX.

Invoices that cannot be posted

In this scenario, an invoice that fails to post in Dynamics AX is handled by parking the document:

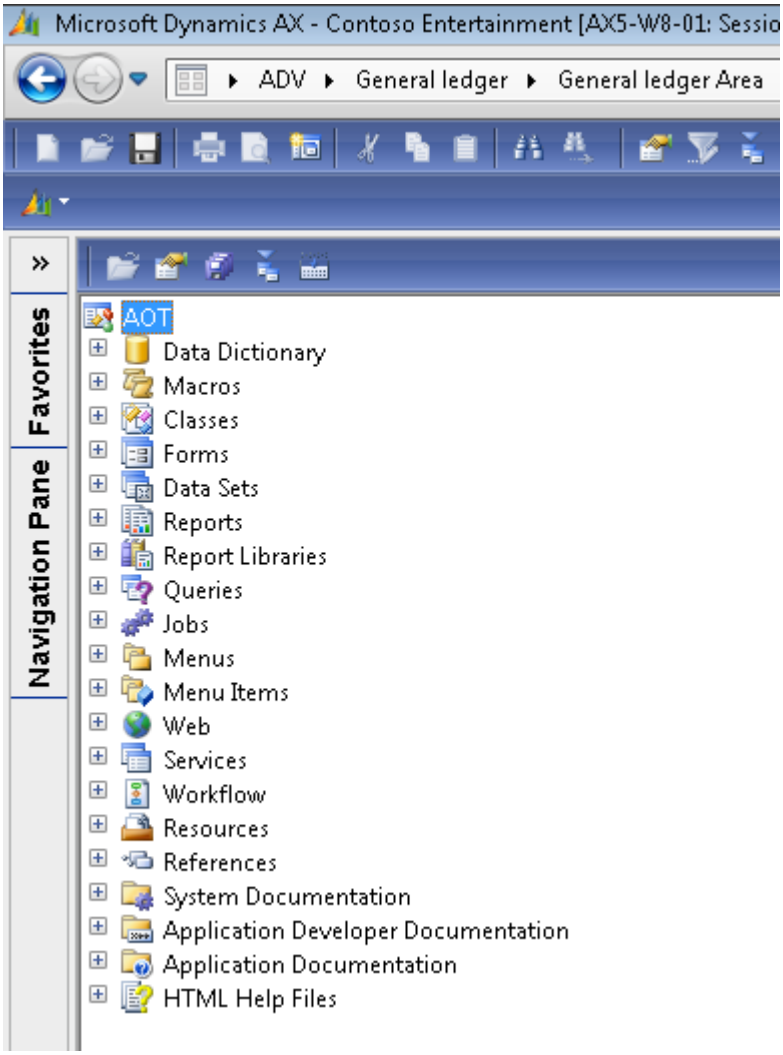
1. An invoice is verified in Tungsten AP Essentials and registered in Dynamics AX. The registration journal is created and posted.
2. The invoice is coded and approved in a workflow in Tungsten AP Essentials.
3. Tungsten AP Essentials tries to create and post the invoice (approval journal), but it fails for some reason that needs to fixed in Dynamics AX
4. The user sees that the invoice reappears in the document list view in Tungsten AP Essentials, with the status, Pending correction.

5. The user approves the invoice again, but this time, selects Park document in Tungsten AP Essentials.
6. Since the invoice is parked, Tungsten AP Essentials creates an approval journal and saves it in Dynamics AX without posting it. From the Tungsten AP Essentials's point of view, the invoice is now complete.
7. The user can now continue to work with the invoice (approval journal) in Dynamics AX.

Manually attaching images

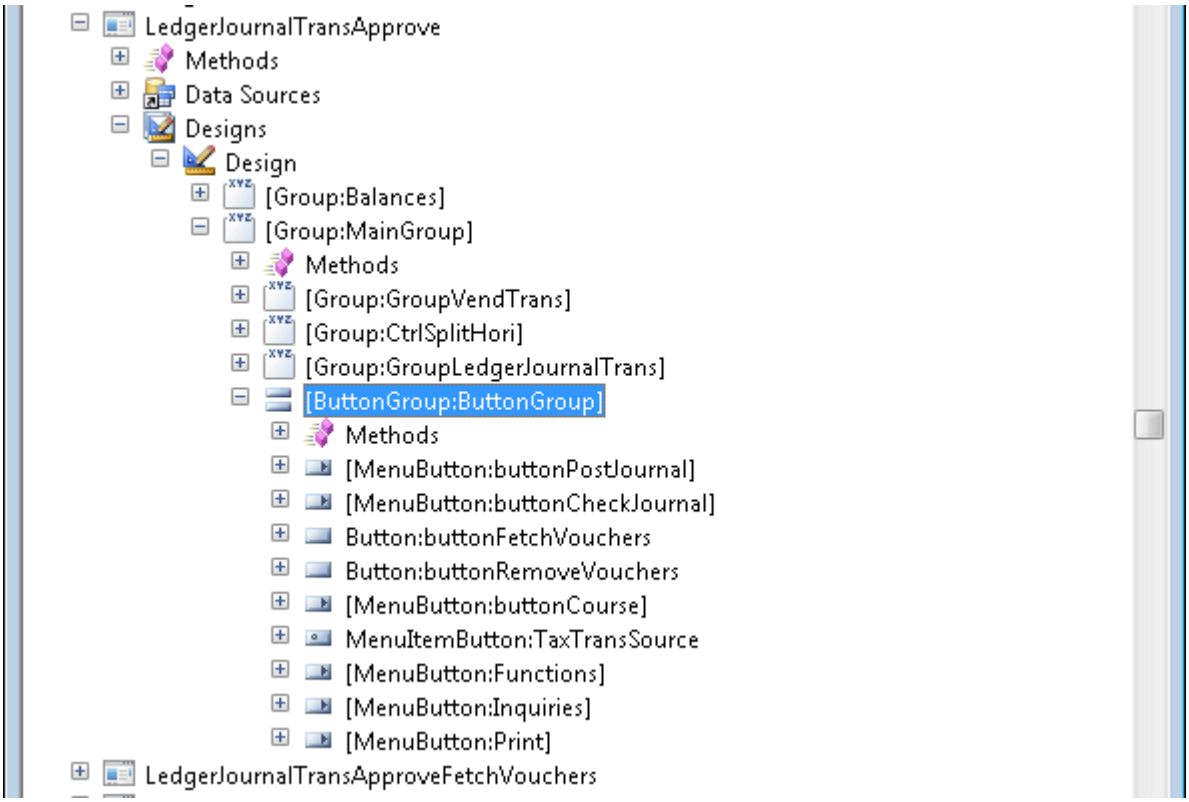
Normally, document images are attached when you commit a registration or an approval journal in Dynamics AX. Since this step is skipped when you park a document, the document image is missing from views like the audit-trail view. To overcome this issue, you can create a custom button in the approval journal form, which you can use to attach the image.

1. In Dynamics AX, press CTRL+D to open the Application Object Tree (AOT).

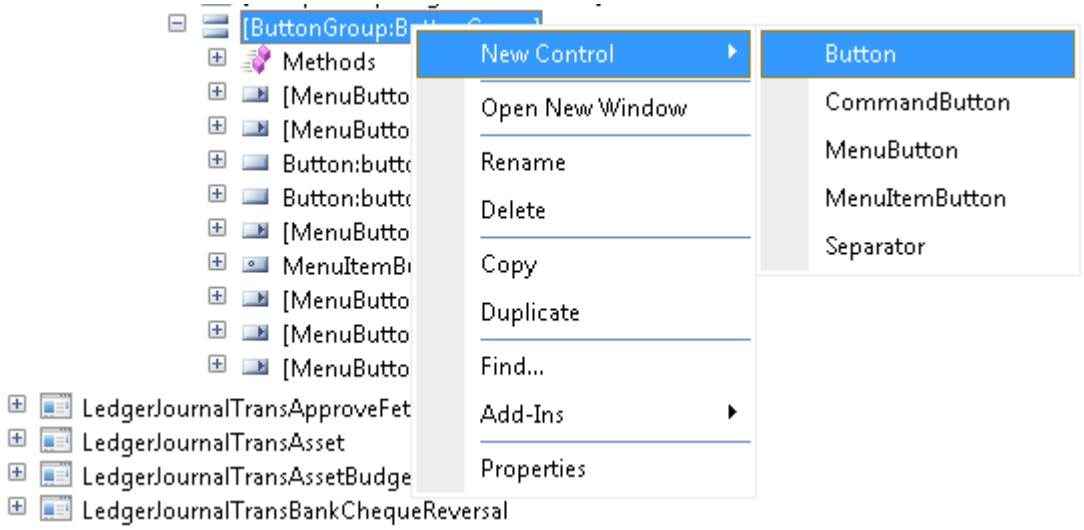


2. Expand the **Forms** node and navigate to LedgerJournalTransApprove.

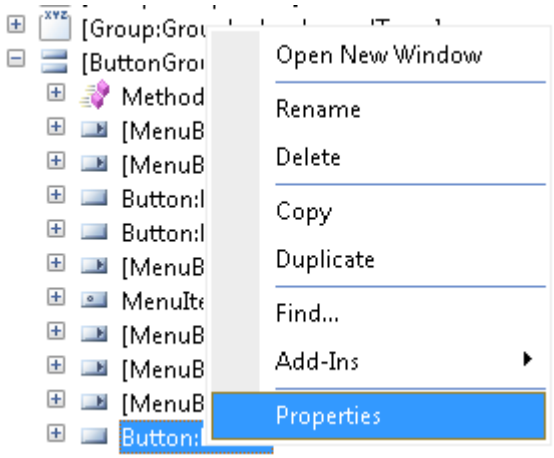
3. Expand the **LedgerJournalTransApprove** node.



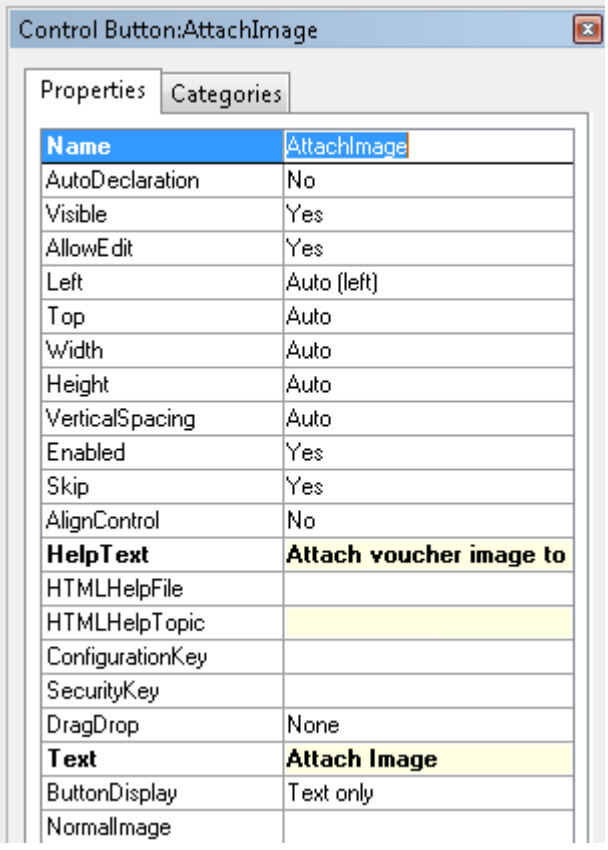
4. Right-click [ButtonGroup:ButtonGroup] and select **New Control** > **Button**.



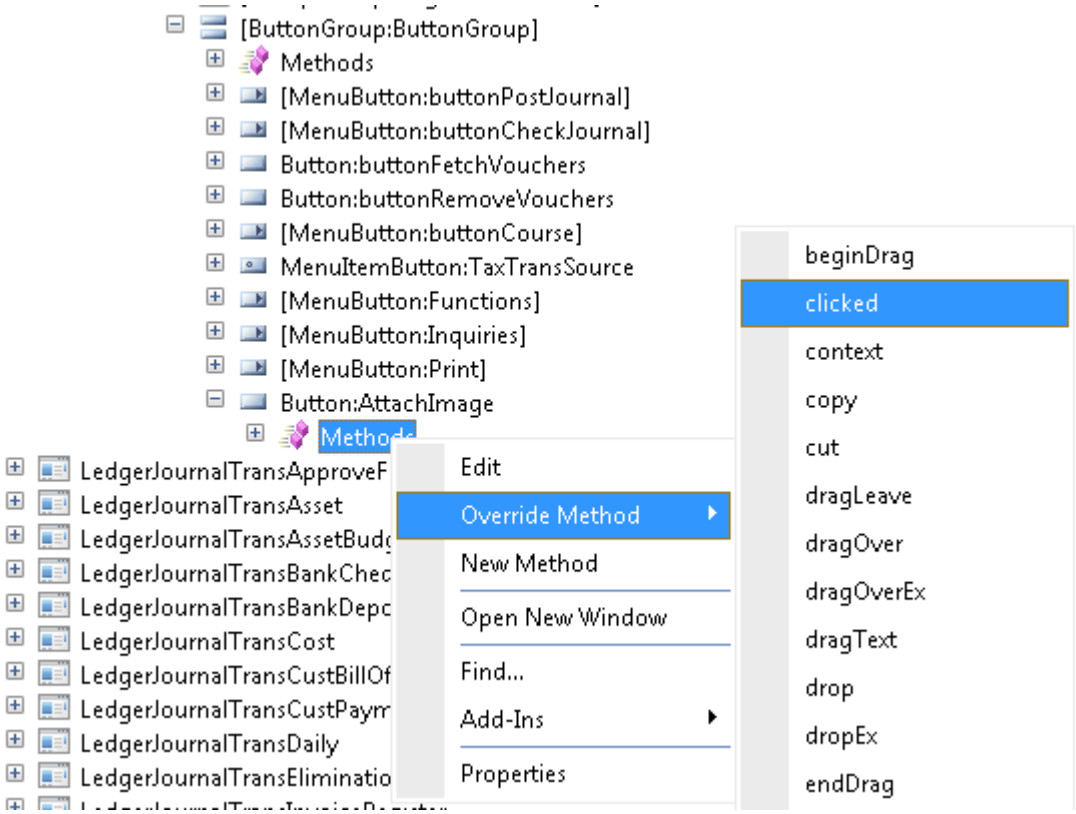
5. Right-click Button:Button and select **Properties**.



6. Specify Name, HelpText and Text for the new button.
   - Name: AttachImage
   - HelpText: Attach voucher image to posted transactions
   - Text: Attach Image

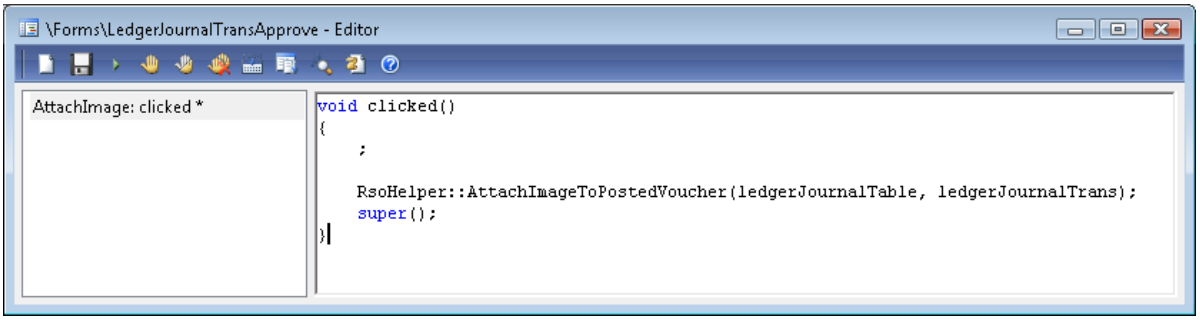


7. Expand the **Button:AttachImage** node, and select **Method** > **Override Method** > **Clicked**.

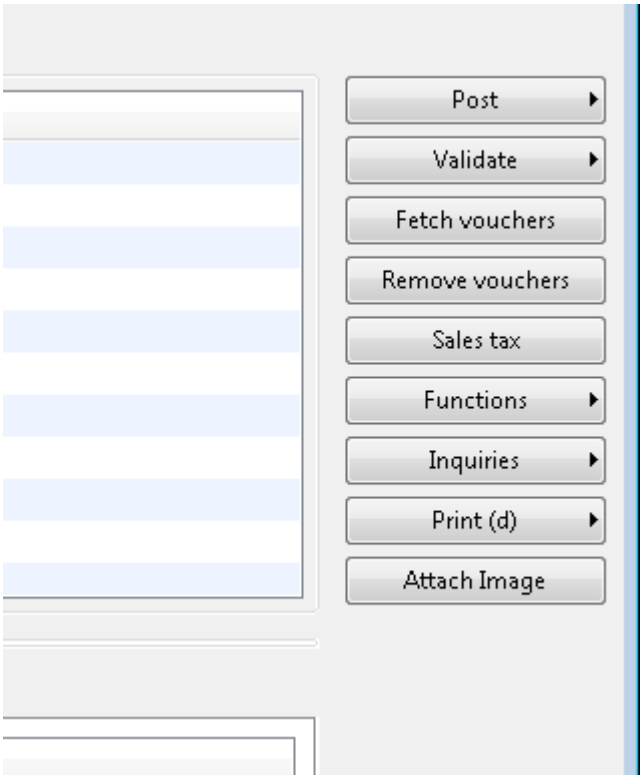


8. Update the Clicked method code with this script:

```
}
```



9. Select **Save** and close the window.
10. The approval journal lines form now has an **Attach Image** button that you can use to attach images after a journal is posted.



Payment fields

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

Entering payment information used to be a time-consuming process for accounting personnel; however, the Dynamics AX integration can automate this process, saving you time and money.

The Dynamics AX integration includes support for additional fields, which can be used to supply Dynamics AX with payment information:

- Payment ID
- Method of payment
- Payment specification

The integration can also synchronize master data for:

- Payment methods
- Payment specifications

Value mapping

Tungsten AP Essentials automates the process by using the value of the PaymentReferenceNumber field for the Payment ID field in Dynamics AX.

- If the value of PaymentReferenceNumber matches the pattern of a bankgiro number, only part of the number is extracted. This occurs in Danish invoices for example.
- If the value of PaymentReferenceNumber does not match the pattern of a bankgiro number, the entire value is used.

ℹ PaymentReferenceNumber is the Type name (internal name) of the field. If you are not sure which field this is, you can find the more familiar display name of the field in the Document type dialog.

Dynamics AX 2012 supported fields

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

This table lists the Dynamics AX 2012 fields that are supported by Tungsten AP Essentials.

- N/A = Not applicable. The field is neither required nor useful in the context of Tungsten AP Essentials.
- N/S = Not supported. The field is not supported by Tungsten AP Essentials.

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registration journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Journal name	N/A (see notes)	Header	Yes	Journal name	Journal name	Journal name	N/A	For registration journals: Taken from AIF settings. For approval and invoice journals: Taken from AP Essentials Connect configuration.
Supplier	Supplier.External	Header	Yes	Account	Vendor account	Account	Invoice Account	

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registratio journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Buyer	Buyer.External Id	Header	Yes	Company	Company	Company	Company	Buyer external ID maps to the Dynamics AX company ID.
Track id	Document.Track Id	Header		Document	Document	Document	N/S	
Invoice number	InvoiceNumber	Header	Yes	Invoice	Invoice	Invoice	Number	
Invoice date	InvoiceDate	Header	Yes	Document date	Document date	Document date	Invoice Date	
Due date	InvoiceDueDate	Header		Due date	Due date	Due date	Due Date	If not sent from Tungsten AP Essentials, calculated from vendor payment terms.
Posting date	PostingDate (custom header field)	Header		Date	Date	Date	Posting Date	If not sent from Tungsten AP Essentials, set to current system date.
Order number	InvoiceOrderNumber	Header		Order number	N/A	N/A	Order number	Also used to determine whether the invoice is PO based. Also used as default order number for lines.

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registration journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Gross amount	InvoiceTotalVatIncluded	Header	See notes	Credit (for invoices), Debit (for credit notes)	N/A	Credit (for invoices), Debit (for credit notes)	N/A	Gross amount is used if the journal type is configured as Amount includes sales tax. Otherwise, the Net amount field is used.
Net amount	InvoiceTotalVatExcluded	Header	See notes	Credit (for invoices), Debit (for credit notes)	N/A	Credit (for invoices), Debit (for credit notes)	N/A	Gross amount is used if the journal type is configured as Amount includes sales tax. Otherwise, the Net amount field is used. The Net amount field is also used to create a coding suggestion row sent back to Tungsten AP Essentials (if the Workflow service is enabled in Tungsten AP Essentials).

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registratio journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Vat amount	InvoiceTotalVATAmount	Header		Sales tax amount (or corrected sales tax amount)	N/A	Sales tax amount (or corrected sales tax amount)	N/A	
Currency	InvoiceCurrency	Header	Yes	Currency	Currency	Currency	Currency	Also used for coding rows.
Sales tax group	SalesTaxGroup (custom header field)	Header		Sales tax group	N/A	Sales tax group	N/A	If not sent from Tungsten AP Essentials, taken from configuration in AP Essentials Connect.
Item sales tax group	ItemSalesTaxGroup (custom header field)	Header		Item sales tax group	N/A	Item sales tax group	N/A	If not sent from Tungsten AP Essentials, taken from configuration in AP Essentials Connect.
Text	Text (custom header field)	Header		Free text	Transaction text	Transaction text	Invoice Description	If not sent from Tungsten AP Essentials, taken from configuration in AP Essentials Connect.

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registration journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Approver	Approver (custom header field)	Header		Approved by	Approved by	N/A	N/A	If not sent from Tungsten AP Essentials, taken from configuration in AP Essentials Connect.
Payment term	N/A (see notes)	Header		Terms of payment	Terms of payment	Terms of payment	Terms of payment	Taken from vendor
Payment method	PaymentMethod	Header		Method of payment	Payment specification	Method of payment	Method of payment	If not sent from Tungsten AP Essentials, taken from vendor.
Payment specification	PaymentSpecification	Header		Payment specification	Payment specification	Payment specification	Payment specification	If not sent from Tungsten AP Essentials, taken from vendor.
Payment id	PaymentReference	Header	Number	Payment ID	Payment ID	Payment ID	Payment ID	
Account type	AccountType	Coding row		N/A	Account type	Account type	N/A	Only Ledger (default) and Project are supported.
Account	AccountCode	Coding row	See notes	N/A	Account	Account	N/A	Mandatory if doing coding in RSO.
Debit or Credit Amount	Amount	Coding row	See notes	N/A	Debit or Credit Amount	Debit or Credit Amount	N/A	Mandatory if doing coding in RSO.

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registratio journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Sales tax group	SalesTaxGroup (custom coding field)	Coding row		N/A	Sales tax group	Sales tax group	N/A	If not sent from RSO, taken from configuration in AP Essentials Connect.
Item sales tax group	ItemSalesTaxGroup (custom coding field)	Coding row		N/A	Item sales tax group	Item sales tax group	N/A	If not sent from RSO, taken from configuration in AP Essentials Connect.
Dimensions (multiple)	(custom coding fields)	Coding row		N/A	Dimensions (multiple)	Dimensions (multiple)	N/A	Multiple fields, depending on customer setup. For example, "Department" and "Segment".
Text	Text (custom coding field)	Coding row		N/A	Free text	Transaction text	N/A	If not sent from RSO, taken from configuration in AP Essentials Connect.
Project number	AccountCode	Project coding row	See notes	N/A	Project number	Project number	N/A	Mandatory if coding is performed in Tungsten AP Essentials.

Document part	Tungsten AP Essentials internal name	Level	Mandatory	Registratio journal field	Approval journal field	Invoice journal field	Vendor invoice field	Notes
Project category	ProjectCategory	Project coding row	See notes	N/A	Project category	Project category	N/A	Mandatory if coding is performed in Tungsten AP Essentials.
Project employee	ProjectEmployee	Project coding row		N/A	Project employee	Project employee	N/A	
Project line property	ProjectLineProperty	Project coding row		N/A	Project line property	Project line property	N/A	
Project sales currency	ProjectCurrency	Project coding row		N/A	Project sales currency	Project sales currency	N/A	
Project sales price	ProjectSalesPrice	Project coding row		N/A	Project sales price	Project sales price	N/A	
Project sales tax group	ProjectTaxGroup	Project coding row		N/A	Project sales tax group	Project sales tax group	N/A	
Project item sales tax group	ProjectTaxItemGroup	Project coding row		N/A	Project item sales tax group	Project item sales tax group	N/A	
Order number	LIT_OrderNumber	Line item		N/A	N/A	N/A	Order number	If not set, taken from header order number
Item code	LIT_ArticleIdentifier	Line item	See notes	N/A	N/A	N/A	Item code	Mandatory for vendor invoices.
Quantity	LIT_DeliveredQuantity	Line item	See notes	N/A	N/A	N/A	Quantity	Mandatory for vendor invoices.
Unit price	LIT_UnitPriceAmount	Line item	See notes	N/A	N/A	N/A	Unit price	Mandatory for vendor invoices.
Row total	LIT_VatExcludedAmount	Line item	See notes	N/A	N/A	N/A	Row total	Mandatory for vendor invoices.

Use procurement categories

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

In some cases, Dynamics AX users need to specify procurement categories on line items instead of individual article numbers. To support these situations, Tungsten AP Essentials can integrate with procurement categories and provide an easy way to assign procurement categories to line items during verification.

To enable this feature:

1. Add a custom line-item field.
2. Specify **LIT_ProcurementCategory** as the Type name.
3. Specify **ProcurementCategory** as the Name.
4. Select **Use master data to suggest field values**, and type **ProcurementCategory** in the drop-down box.

   After you add the custom field, a new line-item column appears during verification. Each field in the column contains a list of procurement categories from Dynamics AX using imported master data, so you can manually select the correct procurement category for each line item.

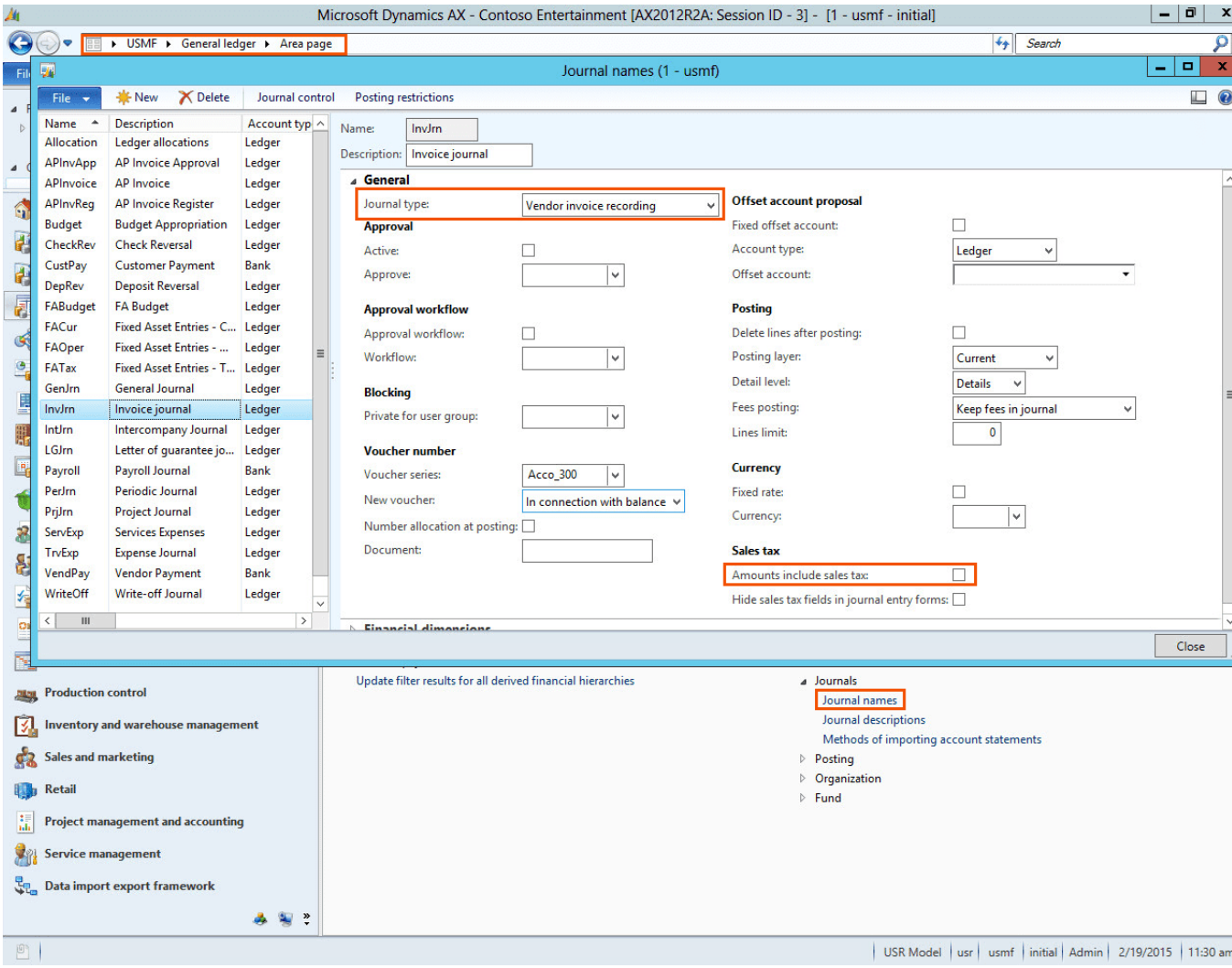
Process non-PO invoices with invoice journals

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

In addition to target system settings, there are settings you must adjust in Dynamics AX to process non-PO invoices with invoice journals. This feature also requires Workflow services in Tungsten AP Essentials.

In Dynamics AX, you must create a journal name with specific settings.

1. In Dynamics AX, navigate to **General ledger** > **Area page** > **Journal names**, and use the dialog box to specify an invoice journal.

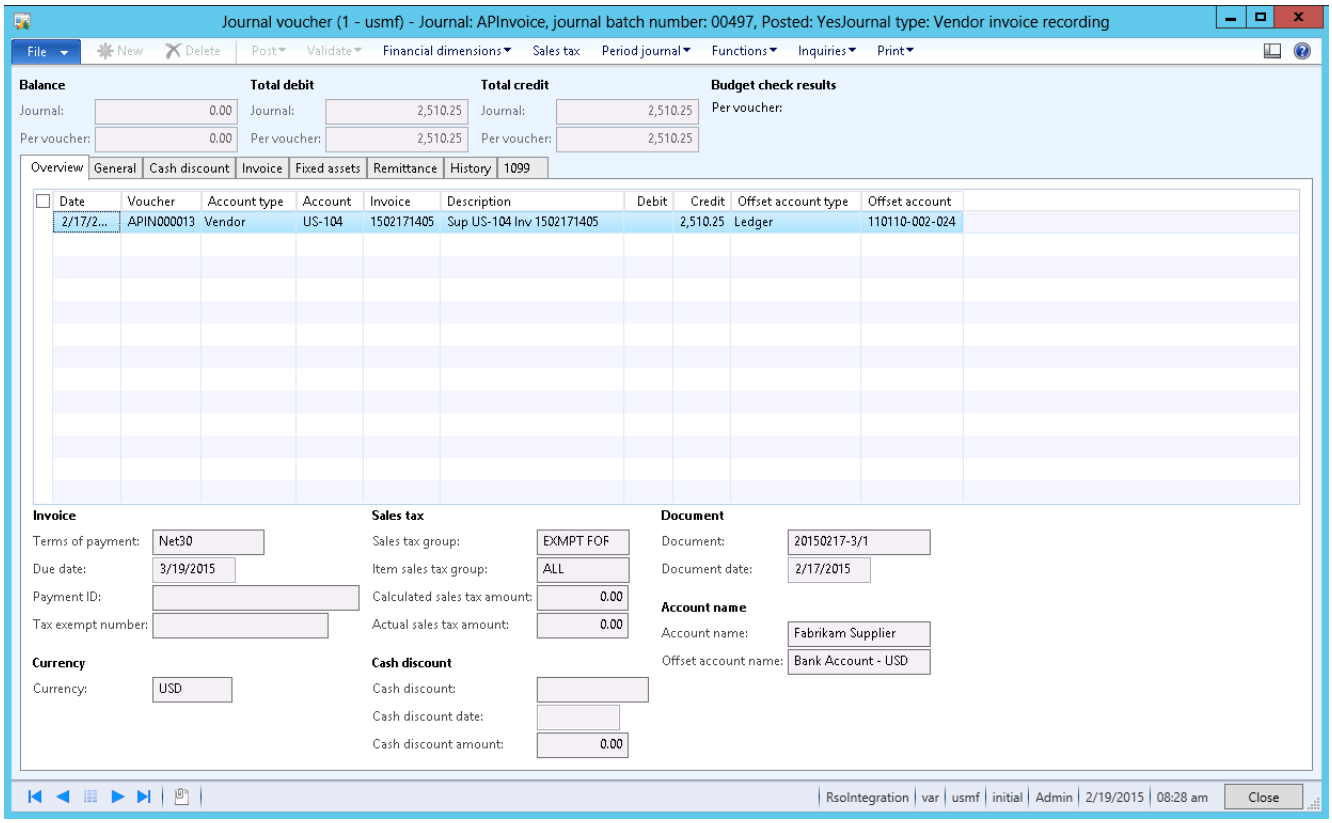


2. Ensure that the journal type is set to **Vendor invoice recording** and ensure that **Amount incl. sales tax** is not selected.

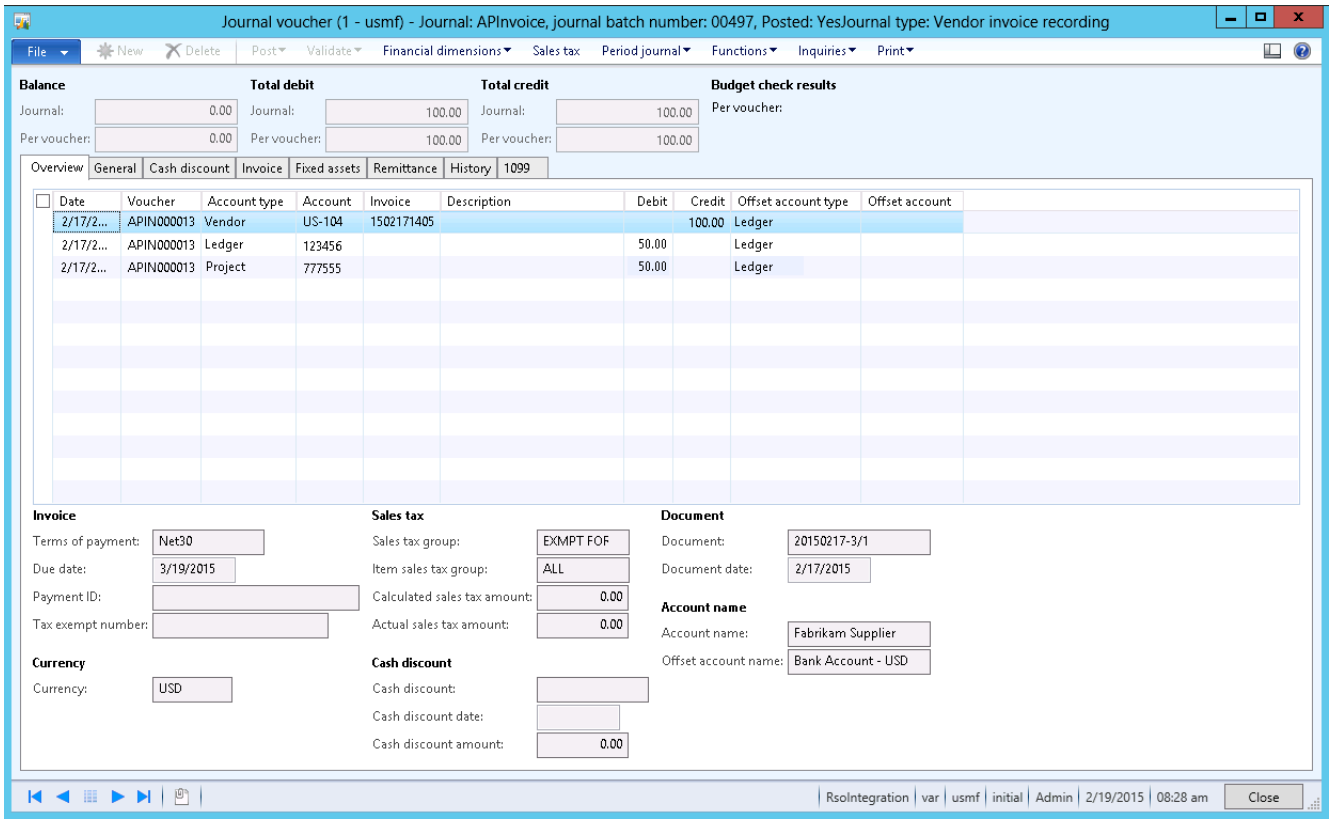
About invoice journals

There are two types of invoice journals:

- Single-line invoice journals, where the cost is not split into different charges. In this case, you can specify the offset account type and value on the vendor row.



- Multi-line invoice journals, where the cost is split into different charges. In this case, the first row contains the credit amount for the vendor, and each additional row specifies a cost as a debit amount. On each row, you also specify the account type and the corresponding value.



Dynamics AX: Data templates

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

When you configure the Dynamics AX target system service, you can use the target system service settings to specify data from Tungsten AP Essentials that you want to send to the transaction text field in Dynamics AX.

The fields mirror the extraction fields in step one, with the exception of the purchase order field (LI_OrderNumer), which is absent. This is because PO number values are set in the account coding field.

How it works

When an invoice is interpreted and extracted by Tungsten AP Essentials, purchase-order numbers in line-item tables are captured using the fields you specified above. After the invoice is verified, it is sent to Dynamics AX. The integration automatically matches PO numbers that are found in line-item tables with PO numbers in Dynamics AX. If there are no PO numbers in the line-item table, the PO number in the header field is used instead.

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.
- **$** - to indicate that it is a metadata variable.

Example

```
Customer: $WebEye.CustomerID Document created: %@date0{yyyy-MM-dd}% Buyer:
%#buyer.Name%
```

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber
- #buyer.OrganizationNumber
- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm
- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts
- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2

- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack
- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id
- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68
DocumentApprovalRejected	69
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95

Process status	Numerical code
DocumentExportFailed	99
DocumentExportSucceeded	100
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Metadata variables

You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

Dynamics AX: Handle invoices with multiple purchase-order numbers

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

The Dynamics AX 2012 integration supports PO matching of invoices that contain multiple purchase-order numbers that appear in line-item tables. To use this feature, complete the following steps.

1. Ensure the following fields are selected in the Document type dialog:
   - LI_OrderNumer
   - LI_OrderLine
   - LI_ProductCode
   - LI_Quantity
   - LI_UnitPrice
2. In the target system settings, ensure **Posting invoice** is selected.
3. If you use the Workflow service, you must add four coding fields to the Coding configuration settings. Each field must have Purchase order specified as the Account type. Add one field for each of the following internal names:
   - LineNum
   - ItemId
   - Quantity
   - PurchPrice

   The fields mirror the extraction fields in step 1, except for the purchase order field (LI_OrderNumer). PO number values are set in the account coding field.

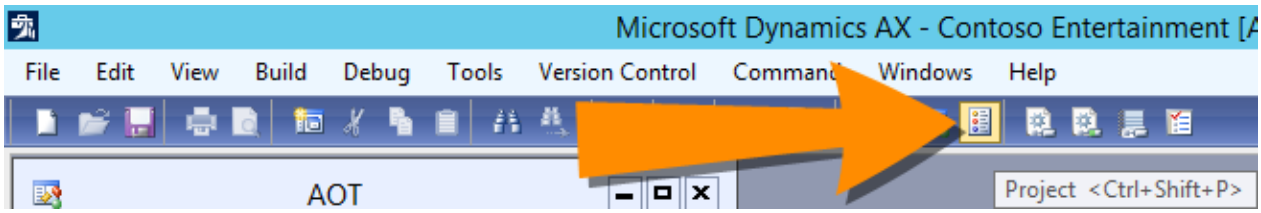
How it works

When an invoice is interpreted and extracted by Tungsten AP Essentials, purchase-order numbers in line-item tables are captured using the fields you specified above. After the invoice is verified, it is sent to Dynamics AX. The integration automatically matches PO numbers that are found in line-item tables with PO numbers in Dynamics AX. If there are no PO numbers in the line-item table, the PO number in the header field is used instead.

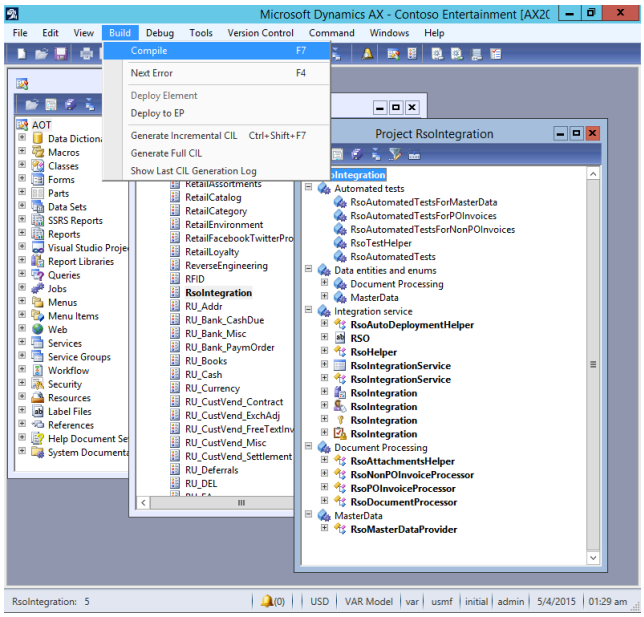
Import the Dynamics AX model file

This procedure shows how to import the Dynamics AX model file.

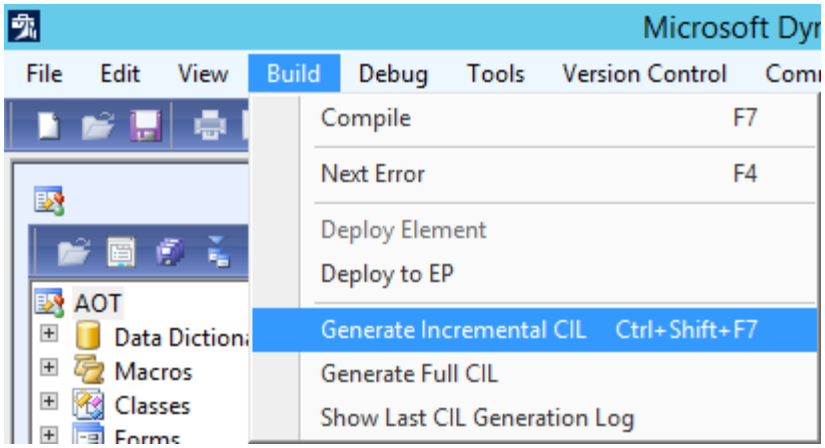
⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.



1. Expand the **Shared** node and double-click **RsoIntegration** to open the project.
2. Select **Compile** (**Build** menu) to compile the project.



1. Select **Generate Incremental CIL** (Build menu).



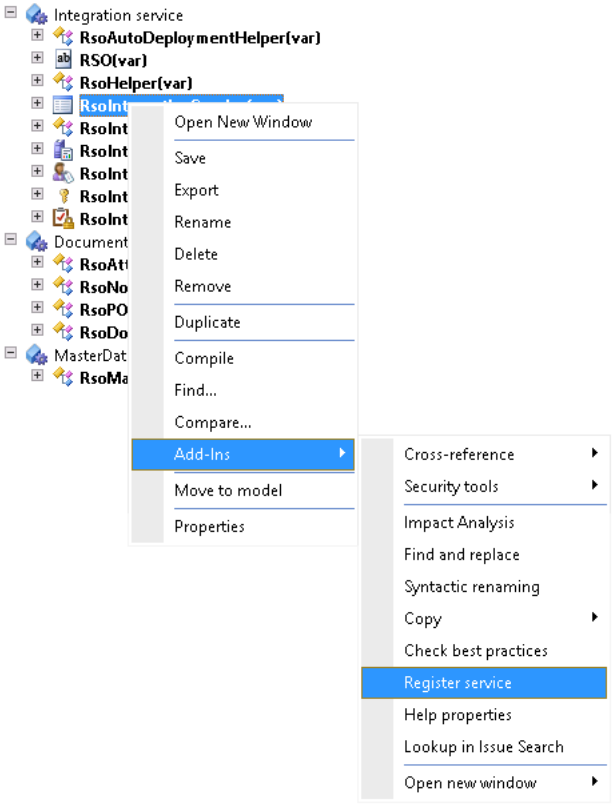
1. Close Microsoft Dynamics AX.

2. Navigate to your Tungsten AP Essentials Connect Bin folder (default location: C:\Program Files (x86)\Tungsten\AP Essentials Connect\bin) and run the Import 2012 AXModel.bat file as administrator by right-clicking the file and selecting **Run As Administrator**.
3. Restart the Windows Service, Microsoft Dynamics AX Object Server [version]-MicrosoftDynamicsAX.
4. Start Microsoft Dynamics AX.
5. When a dialog displays that "The model store has been modified," select **Skip** and select **OK**.
6. Press Ctrl+D to open AOT and select the Project button.

Register the Dynamics AX service

This procedure shows how to register the Dynamics AX service.

⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

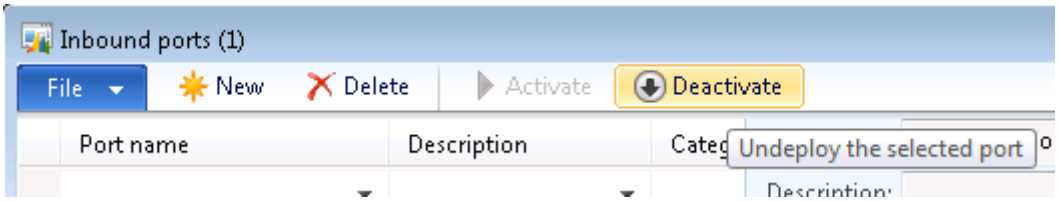


1. Double-click **RsoIntegration** to display the project content.
2. Expand the **Integration service** node, right-click the **RsoIntegrationService** service and select **Add-Ins** > **Register service**.

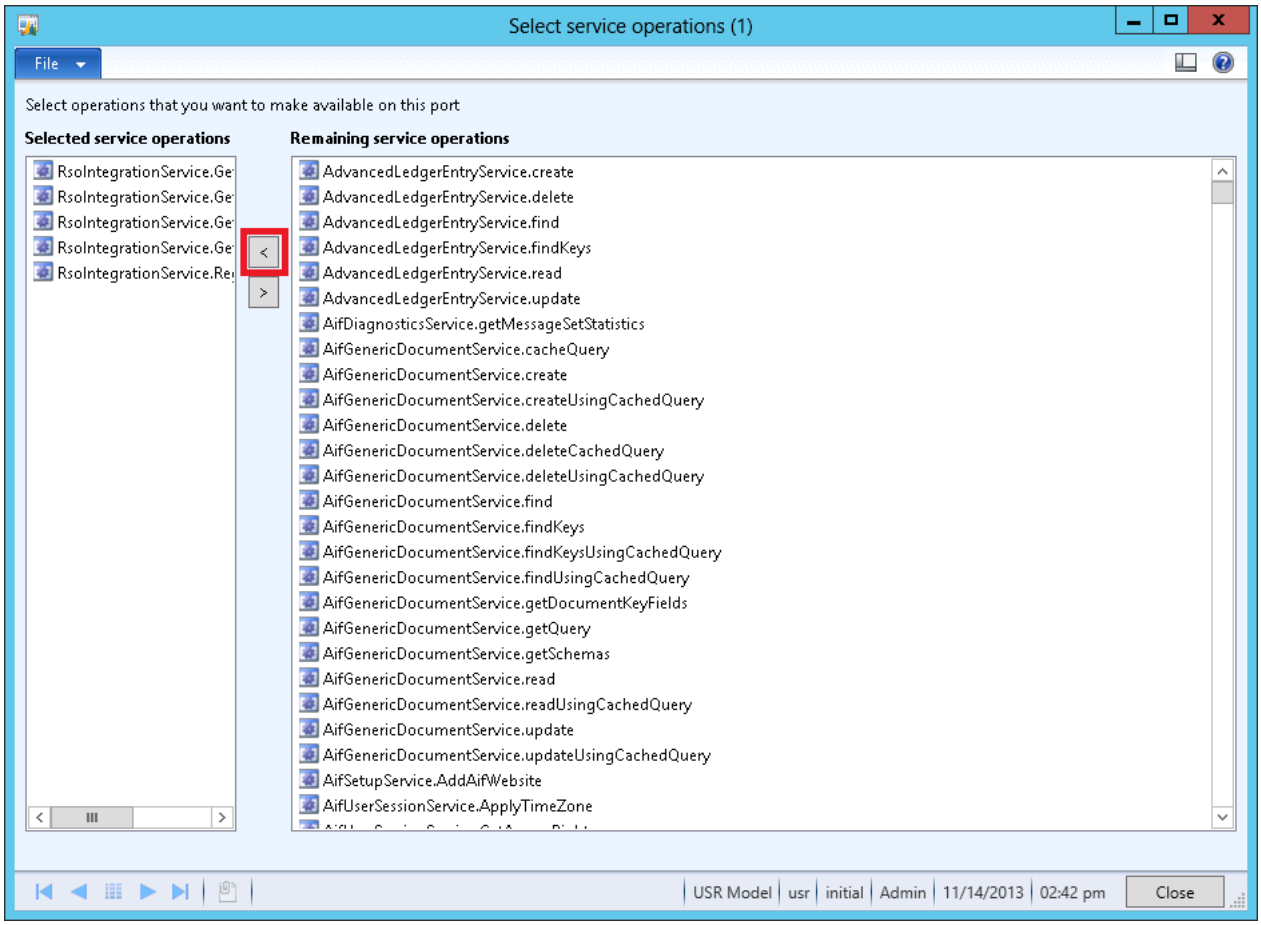
Update Dynamics AX service operations

This procedure shows how to update Dynamics AX service operations.

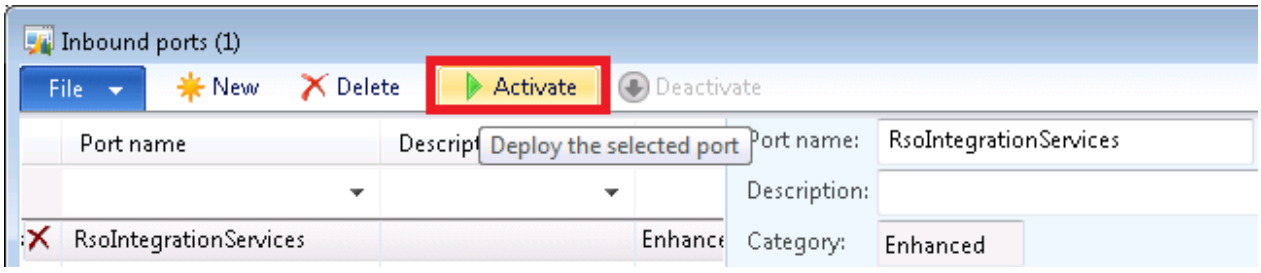
⚠ Since Microsoft no longer supports Dynamics AX, the Dynamics AX 2012 integration is no longer maintained or supported.

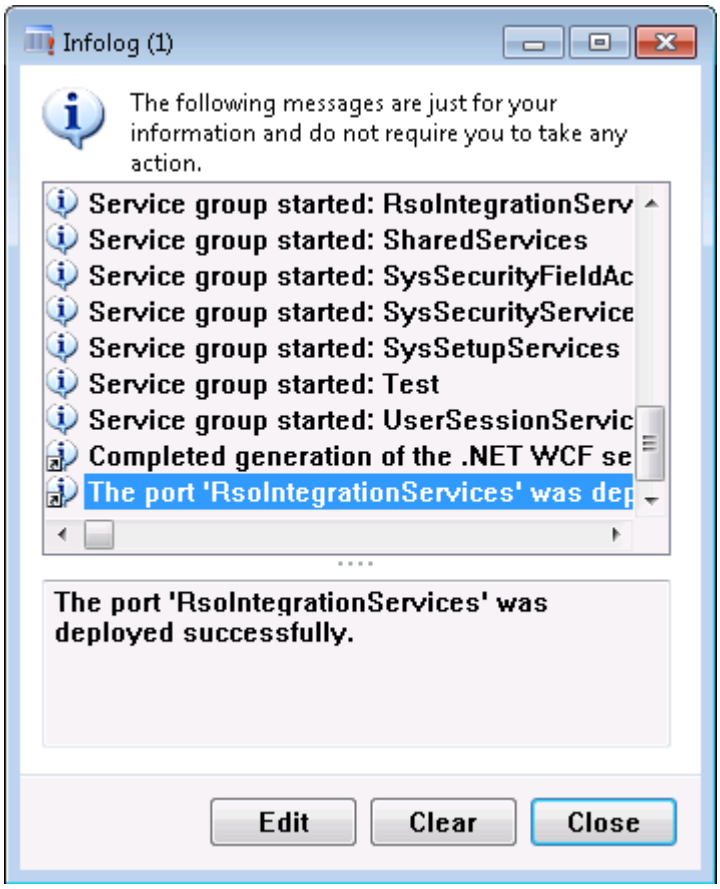


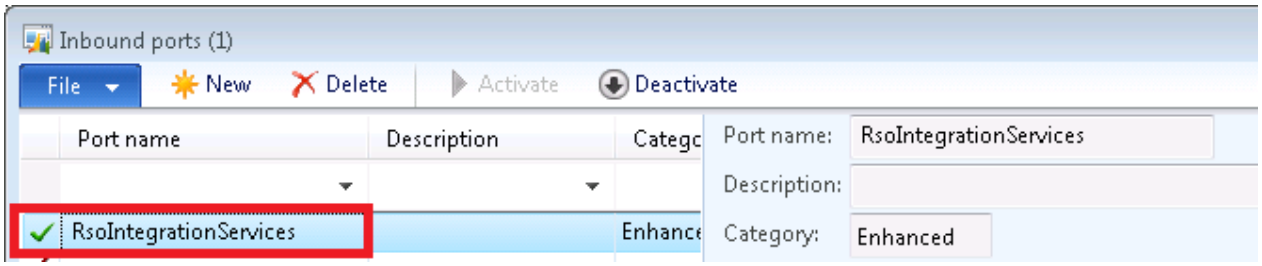
1. Select the **Service operations** button and use the dialog that appears to add all of the RsoIntegrationService operations to the Selected service operations list. Because you are updating an existing integration, it is possible that all of the RsoIntegrationService operations are already listed in the Selected service operations list.



1. Select **Close** to close the dialog.
2. Select **Activate** to activate the inbound port.







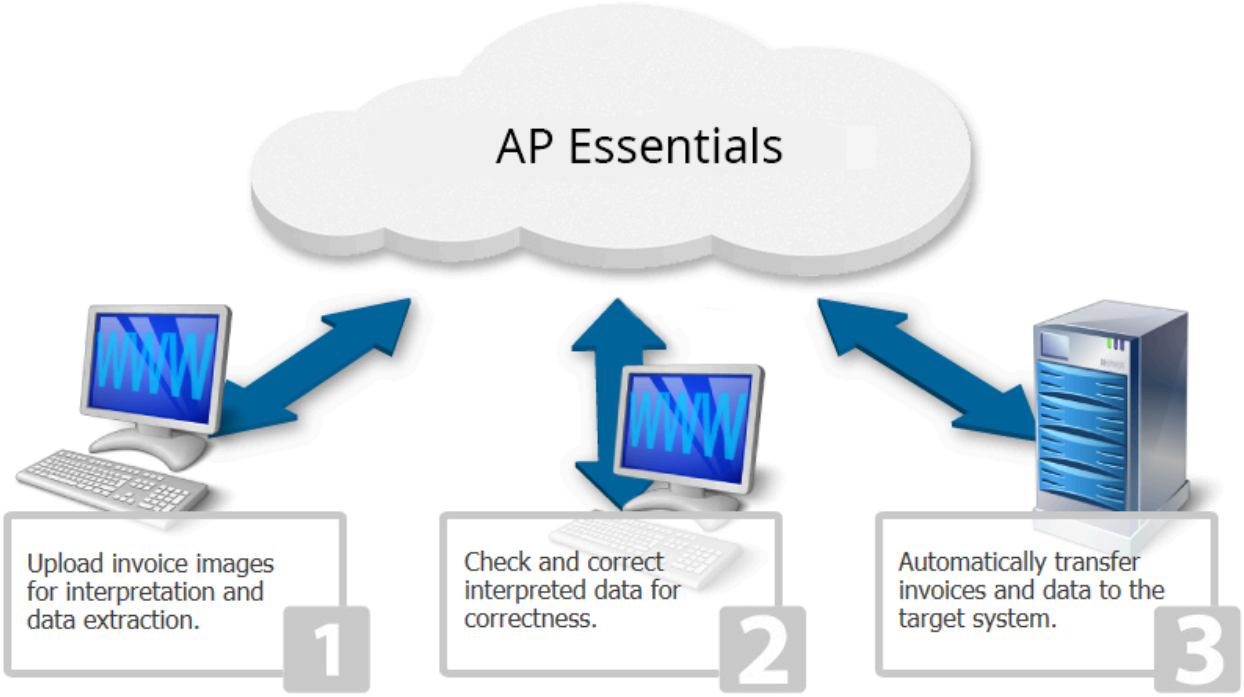
1. In the Dynamics AX client, navigate to **System administration** > **Setup** > **Services and Application Integration Framework** > **Inbound ports**.
2. Select **RsoIntegrationServices**, and then select **Deactivate**.

NetSuite

Tungsten AP Essentials supports integrations with NetSuite and NetSuite OneWorld via the NetSuite target system service.

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

An integration usually consists of three components:

- Tungsten AP Essentials.
- A target system, such as NetSuite.
- Tungsten AP Essentials Connect, a lightweight program that you install locally to enable communication between the systems and synchronize master data. Tungsten AP Essentials Connect also provides an alternative method to upload documents to Tungsten AP Essentials.

The NetSuite integration includes an extra installation package that provides an integration record with a specific role and custom searches that are used by the integration.

Integration features

Tungsten AP Essentials supports integrations with NetSuite and NetSuite OneWorld via the NetSuite target system service. NetSuite is a complete ERP system that includes accounting, CRM, inventory, and e-commerce.

The NetSuite integration supports these features:

- Token-based authentication.
- Data capture.
- Retrieving supplier master data.
- Registration of supplier bills in NetSuite.
- Preliminary registration.
- Multiple purchase orders per invoice.
- Transfer of invoice images.
- Reject handling.
- Approval workflows, including general ledger coding of non-PO invoices. Tungsten AP Essentials makes account coding easy by importing general ledger account codes and NetSuite coding segments.

Where to go from here

Before you can use NetSuite with Tungsten AP Essentials, you must complete these steps:

1. Configure NetSuite.
2. Configure Tungsten AP Essentials for use with NetSuite.
3. Configure Tungsten AP Essentials Connect (optional).

Configure NetSuite

The NetSuite integration includes a bundle that contains features that make the integration more efficient and secure. The bundle is required if you want to use token-based authentication, but is otherwise optional. The bundle contains:

- **Tungsten AP Essentials custom role** that describes the access rights needed by the integration. You can limit the access needed by applying this role to the integration login.
- **Item and Vendor saved searches** that make master-data synchronization faster. You must also specify the search IDs in the target system settings.

Install the bundle

To install the Tungsten AP Essentials bundle for NetSuite:

1. In NetSuite, navigate to **Customization** > **SuiteBundler** > **Search and Install Bundles**.
2. Search for "Kofax" and select **Kofax AP Essentials Integration**.
3. Select **Install** and follow the NetSuite prompts to accept and activate all parts of the bundle.

After you install the bundle:

- Create an integration record.
- Configure custom roles.
- Optionally configure token-based authentication (recommended).
- Configure saved searches.
- Configure Tungsten AP Essentials.

Update the bundle

Sometimes new features require an update to the NetSuite integration bundle. To update an existing bundle in NetSuite:

1. In NetSuite, navigate to **Customization** > **SuiteBundler** > **Search and Install Bundles**.
2. Search for "Tungsten Automation" and select the most recent **Tungsten AP Essentials Integration**.
3. Select **Install** and select **OK** to confirm.
4. Select **Update Bundle**.
   After updating the bundle, ensure the saved search IDs in NetSuite match the saved search IDs in Tungsten AP Essentials. If necessary, configure saved searches with the new search IDs.

Create an integration record for NetSuite

You must create an integration record in NetSuite so that NetSuite can identify Tungsten AP Essentials in the NetSuite system.

Ensure that you install the Tungsten AP Essentials bundle before you perform these steps.

To create an integration record in NetSuite:

1. Optionally, enable token-based authentication in NetSuite by navigating to **Setup** > **Company** > **Enable Features** > **SuiteCloud** > **Manage Authentication** and selecting **Enable Token Based Authentication**.
2. In NetSuite, navigate to **Setup** > **Integration** > **Manage Integrations** > **New**.
3. In the view that appears, specify "Tungsten AP Essentials Connector" as the integration name.
4. Select an authentication method.
   - **User credentials** - If you select password-based authentication, you must update the password settings in Tungsten AP Essentials whenever the password changes in NetSuite.
   - **Token-based authentication (TBA)** - NetSuite recommends that you use token-based authentication.
5. Select **Save**.

The integration record is created.

- If you selected **User credentials** for the authentication method, copy the **Application ID** for use in the next step.
- If you selected **Token-based authentication (TBA)** for the authentication method, copy the **Consumer key**, and **Consumer secret** for use in the next step.

> For security reasons, this is the only time NetSuite displays the consumer key and consumer secret. After you leave this page, they cannot be retrieved from the system. If you lose these credentials, you must reset them to obtain new values.

6. In AP Essentials Admin Center, navigate to the target system settings and specify the application ID or consumer key, and consumer secret in the corresponding settings.

Configure custom roles for NetSuite

You use custom roles to limit access of the user that you want to use for the Tungsten AP Essentials integration. We recommend creating a specific user for this purpose.

You must install the Tungsten AP Essentials bundle before you perform these steps.

To apply the Tungsten AP Essentials role to a user:

1. In NetSuite, navigate to **Setup** > **Users/Roles** > **Manage Users**.
2. Find the user that you want to use for the Tungsten AP Essentials integration.
3. Edit the user and select the **Access** tab.
4. In the **Role** list, select **Tungsten AP Essentials**, and select **Add**.

Configure token-based authentication for NetSuite

NetSuite recommends switching from traditional authentication (email and password) to token-based authentication (TBA). TBA gives you the added benefit of not having to update the password in the Tungsten AP Essentials settings every time the password changes. Read more about TBA in NetSuite Help.

This procedure assumes you have:

- Installed the Kofax AP Essentials bundle.
- Enabled token-based authentication in NetSuite.
- Created an integration record.
- Configured roles.

To activate token-based authentication for the Tungsten AP Essentials integration with NetSuite:

1. Navigate to **Setup** > **Users/Roles** > **Manage Roles**.
2. Make a copy of the "Tungsten AP Essentials" role by selecting **Edit**, changing the name of the role to "Tungsten AP Essentials TBA", selecting the drop-down menu on the **Save** button and selecting **Save As**.

   After you select **Save As**, you return to the list view, where you can find the original "Tungsten AP Essentials" role and the newly created copy, "Tungsten AP Essentials TBA".
3. Select **Edit** to edit the Tungsten AP Essentials TBA role.

4. At the bottom of the view, navigate to **Permissions** > **Setup**.
   - Add the **Log in using Access Tokens** permission and make sure the **Level** setting is set to **Full**.
   - Add the **Accounting Lists** permission with the **Level** setting set to **View**.
5. If you use the Electronic Bank Payments bundle from NetSuite, navigate to **Permissions** > **Custom Record** and add these permissions:
   - **Bank Details**
   - **Electronic Payments Logs**
   - **Electronic Payments Preference**
6. Save the role.

Assign the Tungsten AP Essentials TBA role to a NetSuite user and create an access token

Assign the role

1. Navigate to **Setup** > **Users/Roles** > **Manage Users**.
2. Select the user account you want to use and edit it.
3. Select the **Access** tab.
4. Use the box at the bottom of the **Roles** section to add the **Tungsten AP Essentials TBA** role and select **Save**.

Create an access token

1. Navigate to **Setup** > **Users/Roles** > **Access Tokens** > **New** to create a NetSuite access token.
2. Select **Connector** in the **Application name** box.
3. Choose the user that you want to create the token for in the **User** box.
4. Select **Tungsten AP Essentials TBA** as the **Role**.
5. Specify a name for the token in the **Token Name** box and select **Save**.
6. A confirmation screen displays the new token ID and token secret. Copy these values for use in the next step.

   For security reasons, this is the only time NetSuite displays the token ID and token secret. After you leave this page, they cannot be retrieved from the system. If you lose these credentials, you must reset them to obtain new values.

7. In AP Essentials Admin Center, navigate to the target system settings and specify the token ID and token secret in the corresponding settings.
   Ensure that the **Email** and **Password** settings are empty.

Configure saved searches for NetSuite

Saved searches help Tungsten AP Essentials communicate with NetSuite faster and are required to use the NetSuite integration.

You must install the Tungsten AP Essentials bundle before you perform these steps.

1. In NetSuite, navigate to **Lists** > **Search** > **Saved searches**. Find the Tungsten AP Essentials saved searches and note the ID of each one.

The default IDs provided with the integration are:

- **customsearchapsvendors** - suppliers (vendors) from NetSuite systems that do not use SuiteTax.
- **customsearchapsvendorssuitetax** - suppliers (vendors) from NetSuite systems that use SuiteTax.
- **customsearchapstaxcodes** - tax codes from NetSuite.
- **customsearchapspurchaseorders** - purchase orders from NetSuite.
- **customsearchapsitems** - items from NetSuite.
- **customsearchapsglaccounts** - chart of accounts data from NetSuite.
- **customsearchapsclassifications** - classifications from NetSuite.
- **customsearchapscustomers** - customer coding segments from NetSuite.
- **customsearchapsprojects** - project coding segments from NetSuite.

> You must make a copy of **customsearchapsprojects**, adjust its criteria to fit your solution, and use the copy for the saved-search ID that you specify in the next step. You do not need to do this for the other saved searches.

If you use an older version of the integration, the IDs above are slightly different. All instances of "aps" are instead "rso". For example, if you use an old integration, **customsearchapsvendors** is **customsearchrsovendors**.

2. In AP Essentials Admin Center (target system settings), specify the saved-search IDs from NetSuite that you want to import into AP Essentials as master data.

   Optionally, you can create your own saved searches and use them with AP Essentials. If you choose to do so, simply update the target system settings with the new saved-search IDs.
3. When you are ready to import the NetSuite data to AP Essentials, navigate to the **Master data** service and select **Get master data now**.

Optional buyer-specific saved searches

When you configure saved-search settings, the settings apply to all buyer organizations. However, if you use NetSuite OneWorld, you can also create saved searches per NetSuite subsidiary (buyer). This is helpful if you need custom filtering per subsidiary to allow for shared vendors. To use subsidiary-specific searches, you map buyers in AP Essentials to subsidiaries in NetSuite OneWorld. Then you use **Buyer-specific settings** to specify saved search IDs for individual buyers/subsidiaries.

1. Ensure that each subsidiary in NetSuite OneWorld has a corresponding buyer in AP Essentials, as described here.
2. Navigate to the target system settings and specify each saved search setting that your solution requires.
3. For each saved search that requires buyer-specific settings, select **Buyer-specific settings** and use the view that appears to specify saved searches for individual buyers. You do not have to specify settings for all buyers.

   When AP Essentials determines which saved-search settings to use, buyer-specific settings take the highest precedence. If a buyer-specific setting is empty, AP Essentials uses the setting specified in the main target system settings view.

Configure Tungsten AP Essentials for use with NetSuite

Before you configure Tungsten AP Essentials for use with NetSuite, you must configure NetSuite for use with Tungsten AP Essentials. Complete the following steps to configure Tungsten AP Essentials for use with NetSuite.

1. Add a buyer for each buyer in NetSuite, and use the **External ID** setting to specify the internal ID of the buyer in NetSuite.
2. Using the AP Essentials Admin Center, navigate to a customer account and select the **Services** node.
3. Select the **Target system** service.
4. Select NetSuite as the target system and select **Configuration**. Use the dialog that appears to specify the settings for the NetSuite target system.

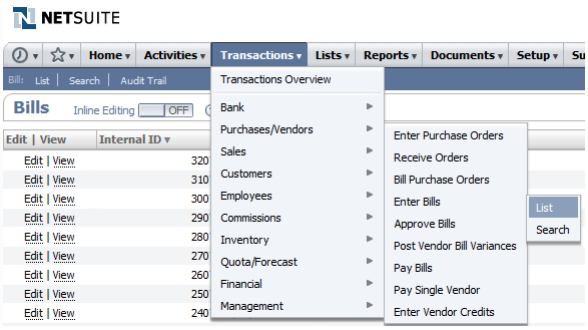
   When specifying the **Connection** settings, you select either a standard connection that uses the **Email** and **Password** settings, or token-based authentication (TBA) that uses the **Token ID** and **Token secret** settings. Both scenarios require the **Account**, **Application ID**, **Consumer Key**, and **Consumer secret** settings. If you select to use TBA, we recommend that you test a standard connection first.
5. Define custom fields (optional).

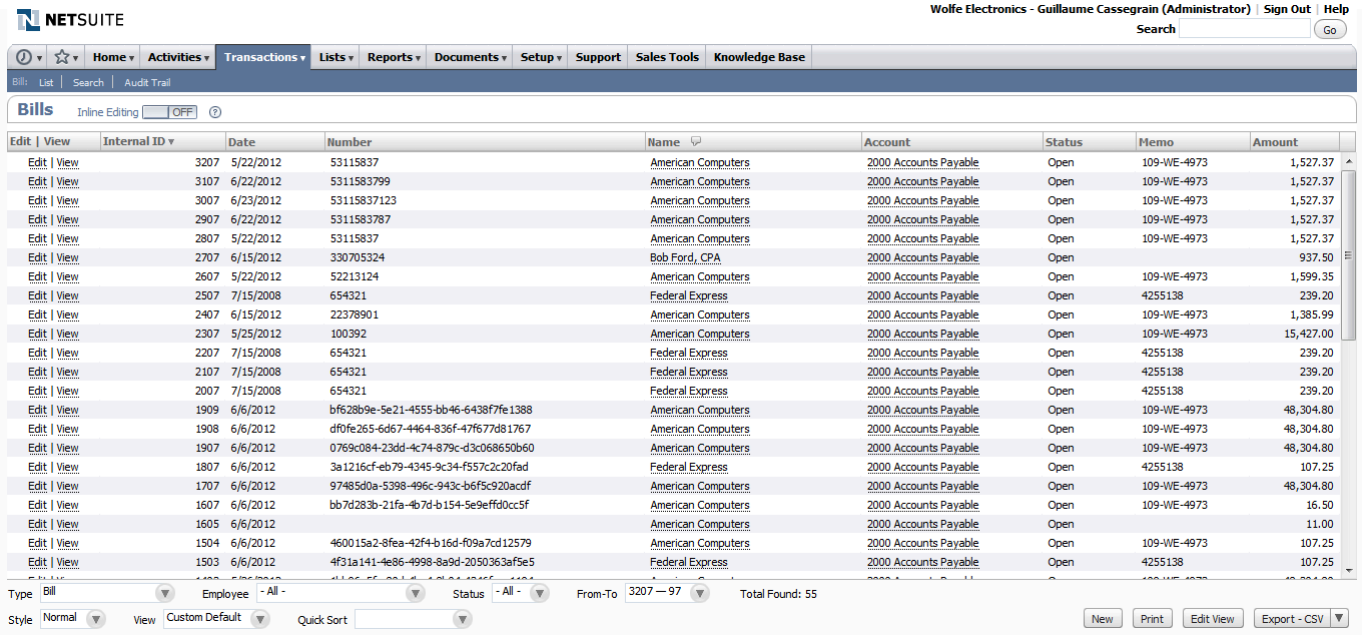
NetSuite: Production usage

When processing invoices, you use Tungsten AP Essentials to handle the following:

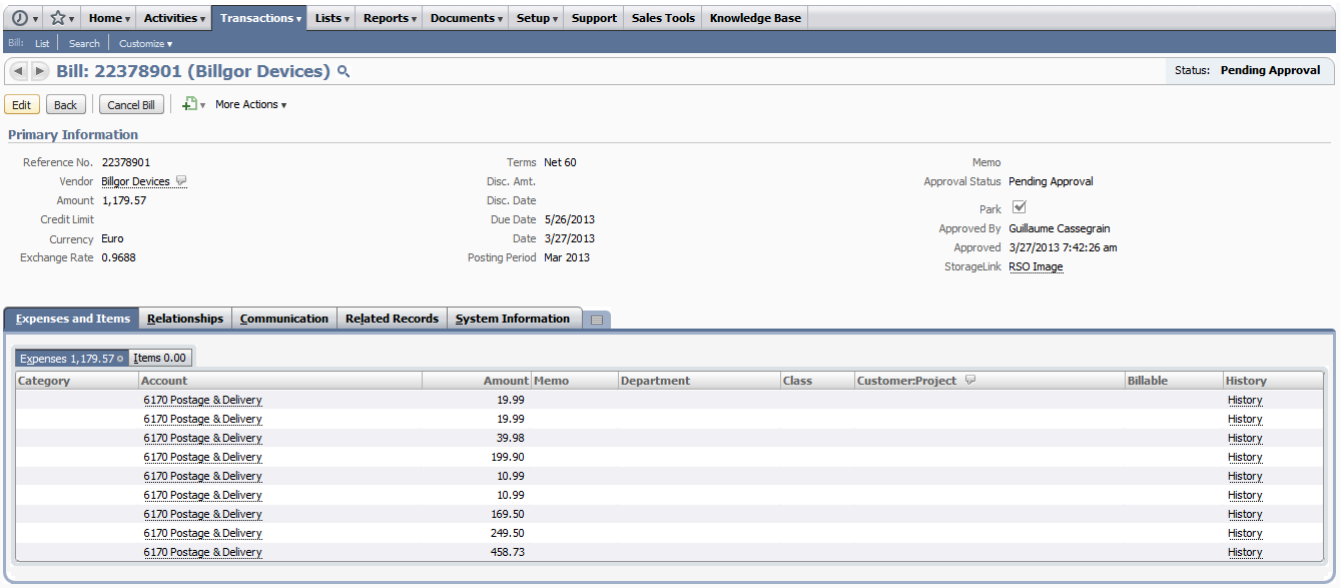
- Receiving (uploading) and extraction.
- Verification.
- Account coding of non-PO invoices.
- Transfer and registration of invoices in NetSuite.

After an invoice is sent from AP Essentials to NetSuite, you can find registered vendor bills in **Transactions** > **Purchases/Vendors** > **Enter Bills** > **List**.

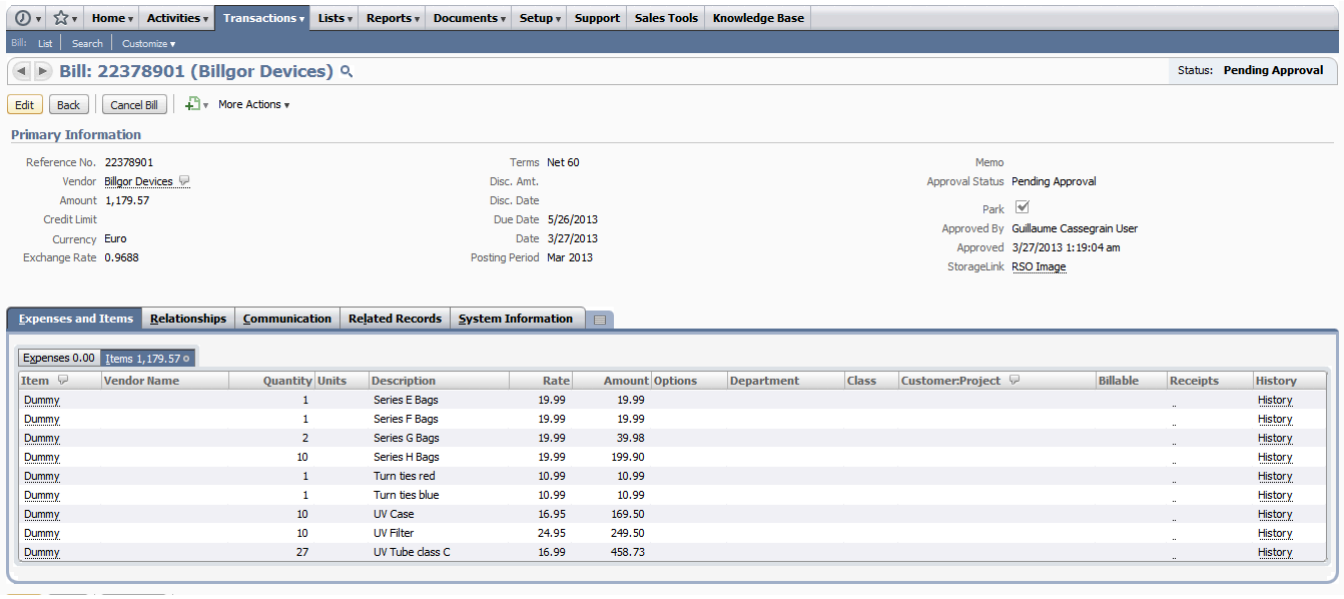




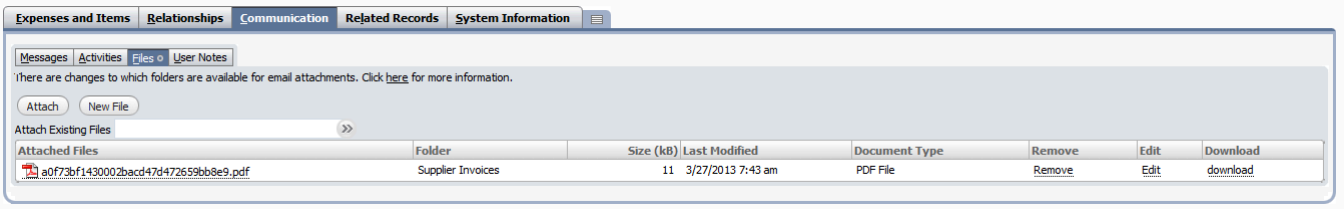
Vendor bills posted with expenses appear as follows:



Vendor bills posted with items appear as follows:



You can view vendor-bill images by selecting **Vendor Bill** > **Communication** > **Files**.



NetSuite: Preliminary registration

The NetSuite integration can perform preliminary registration of invoices in NetSuite. This is helpful, for example, because it lets organizations reclaim VAT more quickly, without having to wait for the workflow to complete.

Preliminary registration occurs automatically if you use workflows. Preliminary registration is performed directly after verification, before starting a workflow. If workflows are not enabled, preliminary registration is not necessary because, in this case, invoice data is posted to NetSuite directly after verification.

Preliminary registration is enabled by default. Administrators can toggle preliminary registration in Admin Center via the Process control service. See the **Perform registration step** setting. Contact support if you need to toggle this feature and the **Perform registration step** setting is not enabled in your solution.

Handle taxes in NetSuite

This topic describes how Tungsten AP Essentials handles taxes for organizations that use NetSuite OneWorld and NetSuite Standard.

To handle taxes:

1. Define four custom fields that use these type names:
   - **TaxCode** - Specifies valid tax codes for the invoice (header field). This field requires corresponding master data, so you must select **Use master data to suggest field values** and **"Use master data to validate the field value"** in the **Field** view. To help you choose the correct tax code during verification, tax rates are displayed with corresponding tax codes when you change the field value. You can also see that the tax rates are automatically appended to the **Name** field in the **TaxCode** master-data view in Admin Center.

     TaxType and TaxCode are not required when using the SuiteTax engine in the United States. Any values assigned to these fields are ignored by NetSuite. For convenience, you can remove TaxType and TaxCode from the document type if you use the SuiteTax engine in the United States.

     If you do not define the TaxCode field in Tungsten AP Essentials, tax-code master data is not retrieved from NetSuite by default. However, you can select **Use tax code from supplier** to get the tax code from the supplier data in NetSuite, if the tax code field is undefined or left blank during verification.

     > You must have a tax code field in the enter bill form in NetSuite. If a tax code field is not defined on the bill form in NetSuite, tax-code master data is not retrieved from NetSuite.

     > If you do not specify the tax code when verifying invoices, and you have a default tax code specified in NetSuite, invoices can be rejected with an error stating that the "transaction does not balance." To avoid this issue with NetSuite, make sure you specify the tax code when verifying invoices.

   - **InvoiceTotalVATRatePercent** - Specifies valid tax rates (percentages) for the invoice.
   - **LI_TaxCode** - Specifies valid tax codes for line items. This field requires corresponding master data, so you must select **Use master data to suggest field values** and "Use master data to validate the field value" in the **Document field** dialog.
   - **LI_TaxRate** - Specifies valid tax rates (percentages) for line items.

     > Type names are case sensitive. You must define the names exactly as shown below.

2. Upload master data that specifies valid tax codes for the **TaxCode** and **LI_TaxCode** fields.

How tax handling is performed

The invoice type determines how tax handling is performed and where the tax information is created in NetSuite. You can use the tables later in this topic to determine how tax codes are handled on a case-by-case basis.

Purchase-order invoices with line items

Invoices are created in NetSuite by using line items captured on the invoice and line items in the purchase-order list in NetSuite. Line items from the NetSuite purchase order always have the tax code applied because it is required by NetSuite during PO creation.

PO item has tax code	Line items exist	Line items have tax code	Header has tax code	VatRate has unique TaxCode	Invoice is created in NetSuite using
Yes	Yes	Yes	No	No	Tax Code from PO item is used
Yes	Yes	No	Yes	No	Tax Code from PO item is used

General-expense invoices

Invoices are created in NetSuite by using line items captured on the invoice. The integration creates one expense row in the NetSuite invoice for each line item that is captured in Tungsten AP Essentials. The **Default expense account** setting determines the account number for each expense row that is created. The line-item row amount is used for the expense amount row in NetSuite.

PO item has tax code	Line items exist	Line items have tax code	Header has tax code	VatRate has unique TaxCode	Invoice is created in NetSuite using
No	No	n/a	Yes	n/a	Header Tax Code is used
No	No	n/a	No	Yes	Tax Code from rate is used
No	No	n/a	No	No	Default TaxCode[1] is used
No	Yes	Yes	n/a	n/a	Line Item Tax Code is used
No	Yes	No	Yes	n/a	Header Tax Code is used
No	Yes	No	No	Yes	Tax Code from rate is used
No	Yes	No	No	No	Default TaxCode[1] is used
Yes	Yes	Yes	No	No	Tax Code from PO item is used
Yes	Yes	No	Yes	No	Tax Code from PO item is used

[1] Currently there is no way to implement this scenario via the NetSuite API, so a document with these properties will be rejected by NetSuite and returned to Tungsten AP Essentials for verification.

General-expense invoices with line items

Invoices are created in NetSuite by using line items captured on the invoice. The integration creates one item row in the NetSuite invoice for each line item that is captured in Tungsten AP Essentials. The **GE Dummy item code** setting determines the item name for each item row that is created. The line-item row amount is used for the item amount row in NetSuite.

Line items exist	Line items have tax code	Header has tax code	VatRate has unique TaxCode	Invoice is created in NetSuite using
No	n/a	Yes	n/a	Header Tax Code is used
No	n/a	No	Yes	Tax Code from rate is used
No	n/a	No	No	Default TaxCode[1] is used
Yes	Yes	n/a	n/a	Line Item Tax Code is used
Yes	No	Yes	n/a	Header Tax Code is used
Yes	No	No	Yes	Tax Code from rate is used
Yes	No	No	No	Default TaxCode[1] is used

[1] Currently there is no way to implement this scenario via the NetSuite API, so a document with these properties will be rejected by NetSuite and returned to Tungsten AP Essentials for verification.

Tax discrepancies

Previously, the integration relied on NetSuite to calculate tax amounts using tax rates, instead of using the captured tax amounts on the invoice. If the supplier used a different rounding method to calculate the tax, NetSuite's calculated amount could differ from the captured tax amount. This discrepancy could prevent invoices from being processed in NetSuite. To overcome this issue, Tungsten AP Essentials now instructs NetSuite to recognize the tax amount values, rather than calculating amounts using tax rates.

To use this feature, simply make sure your document type includes the `invoicetotalvatamount` and `LIT_VatAmount` fields. When these fields are present, the integration maps them to `tax1amt` in NetSuite.

Related links

Learn how to override SuiteTax calculations.

Override SuiteTax calculations

If your NetSuite solution uses SuiteTax engine, you can configure AP Essentials to override tax calculations in SuiteTax engine with data from AP Essentials.

To override tax calculations in SuiteTax engine:

1. In Admin Center, navigate to the document type you want to use and disable the InvoiceTotalVatRatePercent field if it is enabled.
2. Ensure that your document type includes these header and line-item fields:
   - TaxType *
   - TaxCode *

- TaxRate
- InvoiceTotalVATAmount
- LIT_TaxType
- LIT_TaxCode
- LIT_TaxRate
- LIT_VatAmount

  * TaxType and TaxCode are not required when using the SuiteTax engine in the United States. Any values assigned to these fields are ignored by NetSuite. For convenience, you can remove TaxType and TaxCode from the document type if you use the SuiteTax engine in the United States.

In most cases, the VAT amount fields (InvoiceTotalVATAmount and LIT_VatAmount) are already defined by default. If any of the fields above are missing from your document type, add them using this procedure. The field type names must match the fields above.

For TaxCode and LIT_TaxCode, we recommend selecting **Use master data to suggest field values** in the **Field** view. However, master data may not be currently available for these fields.

3. Navigate to the target system settings and select **Override SuiteTax with tax data from AP Essentials**.

   You cannot use **Override SuiteTax with tax data from AP Essentials** and **Calculate use tax automatically** simultaneously.

4. Enter "TaxType" in the **Custom tax type field mapping** setting and "LIT_TaxType" in the **Custom tax type item field mapping** setting.

   Optionally, use the **Buyer-specific settings** to **Enforce tax overriding** for individual buyers. See *How it works* later in this topic for more information.

   After you save your settings, AP Essentials overrides tax calculations in SuiteTax engine.

How it works

When determining taxes, SuiteTax requires five fields for the tax row (taxRate, taxCode, taxType, taxAmount, and taxBasis). Several factors determine how the tax calculation is performed, as shown in the following table.

Invoice type	Enforce tax overriding	NetSuite TaxOverride setting	Description
Purchase order	**Override SuiteTax with tax data from AP Essentials** enabled	Disabled	AP Essentials sends the PO to SuiteTax for automatic calculation.
Purchase order	**Override SuiteTax with tax data from AP Essentials** enabled	Enabled	AP Essentials determines the taxes using information from the purchase order.

Invoice type	Enforce tax overriding	NetSuite TaxOverride setting	Description
Non-PO (vendor bill)	**Override SuiteTax with tax data from AP Essentials** enabled **Enforce tax overriding** enabled	Not applicable	AP Essentials determines the required field values. TaxBasis = NetAmount or UnitPrice * Quantity TaxType is determined by master data. If any tax values are missing, the vendor bill is sent to NetSuite and can result in errors.
Non-PO (vendor bill)	**Override SuiteTax with tax data from AP Essentials** enabled **Enforce tax overriding** disabled	Not applicable	AP Essentials determines the required field values. If any values are missing, values from SuiteTax engine are used instead. TaxBasis = NetAmount or UnitPrice * Quantity TaxType is determined by master data.

NetSuite: Data templates

You can configure the NetSuite target system service to map custom NetSuite fields to Tungsten AP Essentials fields and other values.

By default, Tungsten AP Essentials can map fields to the NetSuite fields listed here. If your NetSuite solution has custom fields, however, you can use data templates to map NetSuite fields to AP Essentials fields and other values. Custom fields in NetSuite fall into three categories: header fields, expense table fields, and item fields. Each category has a corresponding setting in the target system settings that you can use to map custom fields:

- **Custom field mapping** – for header fields.
- **Custom expense field mapping** – for expense table fields.
- **Custom item field mapping** – for item fields.

You specify custom field values using the format: `NetSuiteField="value"`, where `NetSuiteField` is the ID of the field in NetSuite, and *value* is any possible value defined later in this topic. Use a semicolon to separate multiple field specifications. For your convenience, you can select **Validate**, which makes sure the fields you specify exist in NetSuite.

Example:

Suppose you type the following in the **Custom field mapping** setting:

```
custbodypark="true";custbodyapprovedby="%@user60%";custbodyapproved="%@date60%";custbodystorageli
%"
```

In this example:

`custbodypark` is a constant that is always set to true.

`custbodyapprovedby` is set to a history variable that refers to the name of the user who checked the invoice.

`custbodyapproved` is set to a history variable that refers to the date and time when the invoice was verified.

`custbodystoragelink` is set to a system variable that refers to the permanent image link (URL) in Tungsten AP Essentials storage.

A value can consist of multiple constants and variables. For example:

```
field="Invoice %InvoiceNumber% was approved by %@user60%"
```

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.
- **$** - to indicate that it is a metadata variable.

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber
- #buyer.OrganizationNumber
- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm

- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts
- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2
- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack
- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id
- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68
DocumentApprovalRejected	69
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76

Process status	Numerical code
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95
DocumentExportFailed	99
DocumentExportSucceeded	100
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Additional parameters for history variables

If a history variable has multiple records associated with it, you can append history variables with additional parameters to specify whether you want the first record, last record, or all records. For example, if a document is approved by multiple users, the history variable returns the last approver by default. However, by specifying an additional parameter, you can get the first approver instead. These parameters are available:

- First – Returns the first record in the selected history.
- Last – Returns the last record in the selected history. This parameter is used by default if no parameter is specified.

- All – Returns all of the records in the selected history as a semicolon-separated text string. When using this parameter, not all target systems accept the default date format, so make sure you know what format your target system expects.

To use a parameter, append the history variable with a dot followed by the parameter. For example, to obtain the first approver:

%@User67.First%

When using additional parameters in combination with custom date history variables, specify the parameter first:

%@Date67.First{yyyy-MM-dd}%

Metadata variables

You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

Fields containing lists

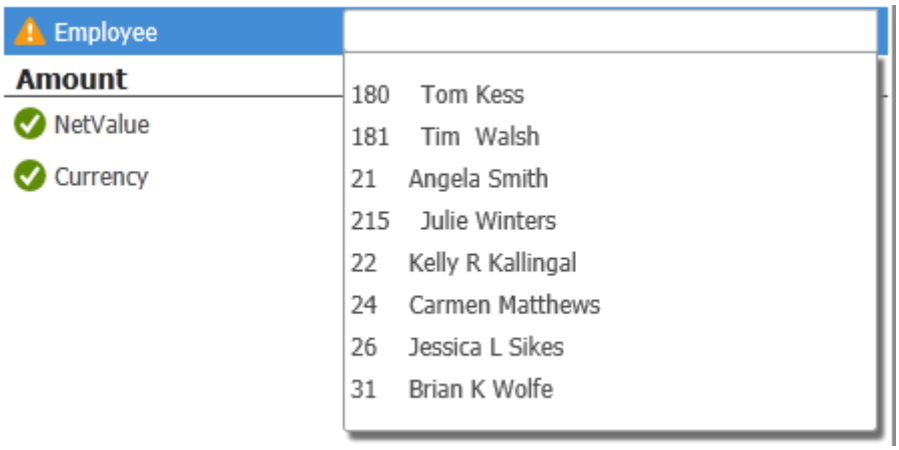
The NetSuite integration supports the use of NetSuite fields that contain lists. In other words, your data template can specify fields of type **List/Record**. This is helpful, for example, if you want to incorporate a list of NetSuite employees and display the list for selection during invoice verification. Read more.

Use field lists from NetSuite in Tungsten AP Essentials

When you configure the NetSuite target system service, you use custom field mapping settings to match NetSuite fields with Tungsten AP Essentials fields. Normally, this is a one-way operation, where you use data templates to specify the field values that you want to send to NetSuite. This topic, however, describes a more interactive approach that lets you import lists from NetSuite, and display the list for selection during verification.

To demonstrate this concept, assume you have a NetSuite **Transaction Body Field** of type **List/Record**. The field contains a list of employees that you want to appear in the "Employee" field during verification along with the other invoice fields. When a verification user selects the

appropriate employee from the list, the value is sent to NetSuite, along with the other field values and invoice data.

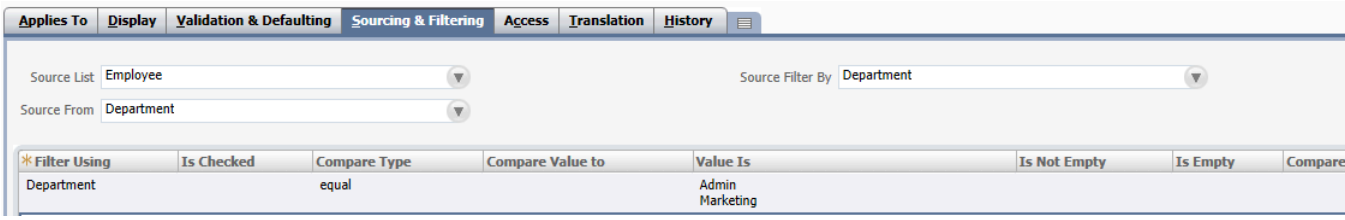


Display a list field in Tungsten AP Essentials and map its value to NetSuite

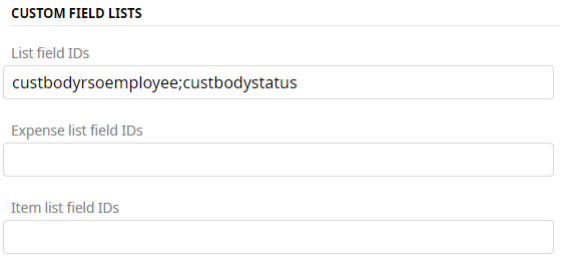
To display a list field in Tungsten AP Essentials and map its value to NetSuite:

1. In NetSuite, create or locate a **Transaction Body Field** of type **List/Record** and make a note of the field ID. You need the field ID for other settings in Tungsten AP Essentials. Although we use a **Transaction Body Field** in this example, **Transaction Column Fields** (expenses and items) are also supported, each with its own setting in the target system settings.

   Note that the field can be a custom field configuration that is filtered to your liking. For example, you can filter the list to include only employees of a particular department.

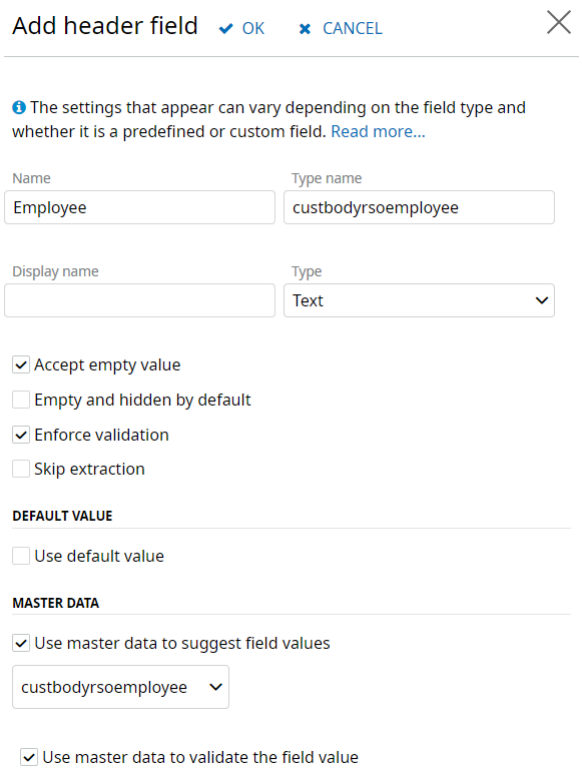
2. In the **Target system configuration** settings, specify the NetSuite field ID from the previous step in the **List field IDs** setting.



In this example, two NetSuite field IDs are specified (separated by a semicolon).

Do not confuse this setting with the **Custom field mapping** setting that is in the same view.

3. Select **OK** and save the target-system settings. The list field is uploaded as master data.
4. In the Extraction service settings, add a custom field and specify the NetSuite field ID from the previous steps as the **Type name**. The **Type name** setting connects the field to the NetSuite field.



5. Specify the **Name** of the field as it should appear in the output data.
6. Select **Use master data to suggest field values** and **Use master data to validate the field value**.
7. Select **OK** and save the document type.

8. Return to the **Target system configuration** settings, and use the NetSuite field ID from the previous steps to create a data template in the **Custom fields** setting under the NetSuite heading.

   In this example, the NetSuite field ID is "custbodyrsoemployee" and its value will be determined by the custom field that you created in the previous step. It is only a part of the data template, which contains other fields:
   In this example, the NetSuite field ID is "custbodyrsoemployee" and its value will be determined by the custom field that you created in the previous step. It is only a part of the data template, which contains other fields:
   custbodyrsoemployee="%custbodyrsoemployee %";custbodypark="true";custbodyapprovedby="%@user60%";custbodyapproved="%@date60%"

9. Select **OK** and save the target-system settings. The list field is now integrated with AP Essentials, and it is available during verification. When a verification user selects a value from the list, it is sent to NetSuite, along with the other field values and invoice data.

NetSuite: Line pairing

You can use Tungsten AP Essentials to perform manual and automatic line pairing with NetSuite purchase orders.

Requirements

To use this feature, you must:

1. Install the Tungsten AP Essentials NetSuite bundle.
2. Enable the Purchase order service and select **Manual line-pairing** and **Automatic line-pairing**.
3. Ensure the following fields are enabled in your document type:

Field name	Type name
Order number	InvoiceOrderNumber
Order line number	LIT_RowIdentifier This field is not captured on the invoice. The value of this field is the result of the line-pairing feature.
Article number	LIT_ArticleIdentifier
Description	LIT_ArticleName
Quantity	LIT_DeliveredQuantity
Unit price	LIT_UnitPriceAmount
Row total	LIT_VatExcludedAmount

4. In the target system settings:
   - Specify the Saved search ID for NetSuite Items. The default search included in the bundle is "customsearchapsitems".
   - Specify the Saved search ID for NetSuite Orders. The default search included in the bundle is "customsearchapspurchaseorders".

   Ensure your master data is synchronized before you begin processing invoices using this feature.

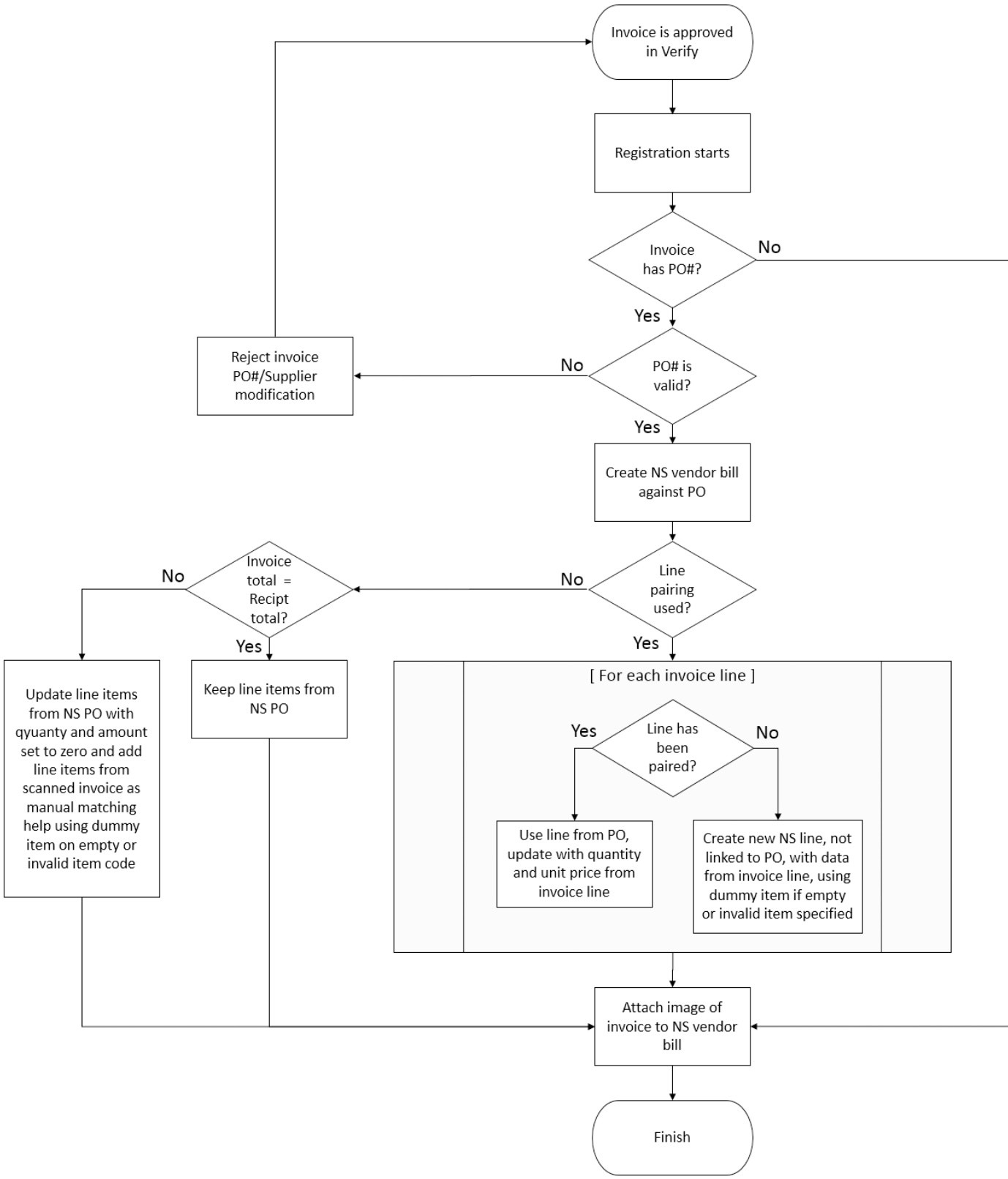
How it works

Line pairing with the NetSuite integration works as described here.

Consider these points when performing line pairing using the NetSuite integration:

- The NetSuite integration supports single and multiple purchase orders per invoice.
  - When verifying invoices with one PO per invoice, if you specify the PO number on the header field and leave all line-item PO fields empty, Tungsten AP Essentials assumes all of the lines belong to the PO number specified in the header field and makes a vendor bill in NetSuite accordingly. Alternatively, you can leave the header field empty and specify the POs on each line-item. If the invoice gross amount is equal to the purchase order amount, Tungsten AP Essentials creates a vendor bill with line-item data that is identical to the purchase order line-item data. If the invoice gross amount is not equal to the purchase order amount, Tungsten AP Essentials creates a vendor bill with all lines from the order and all lines from the invoice. In this case, line pairing can be performed in NetSuite if necessary.
  - When verifying invoices with multiple purchase orders, Tungsten AP Essentials uses the purchase order number from the header field to fill any empty line-item purchase order fields.
- If a line is passed to NetSuite without the order-line number, it is treated as an additional line to bill that is not present on the purchase order.
- If no lines at all are passed to NetSuite, or if all lines are missing line numbers, only the invoice total amount is matched.

  You can see more details about how line pairing interacts with NetSuite in this diagram:


Invoice is approved in Verify
Registration starts
Invoice has PO#?
No
Yes
PO# is valid?
No
Reject invoice PO#/Supplier modification
Yes
Create NS vendor bill against PO
Line pairing used?
No
Yes
Invoice total = Recipt total?
No
Yes
Update line items from NS PO with qyuanty and amount set to zero and add line items from scanned invoice as manual matching help using dummy item on empty or invalid item code
Keep line items from NS PO
[For each invoice line]
Line has been paired?
Yes
No
Use line from PO, update with quantity and unit price from invoice line
Create new NS line, not linked to PO, with data from invoice line, using dummy item if empty or invalid item specified
Attach image of invoice to NS vendor bill
Finish

NetSuite: OneWorld extensions

If you use NetSuite OneWorld, you must use buyers in Tungsten AP Essentials to represent subsidiaries in NetSuite.

Buyers

If you use NetSuite OneWorld, you must use buyers in Tungsten AP Essentials to represent subsidiaries in NetSuite. Each subsidiary must have a corresponding buyer. When you add a buyer, ensure the External ID in Tungsten AP Essentials matches the internal ID of the NetSuite subsidiary.

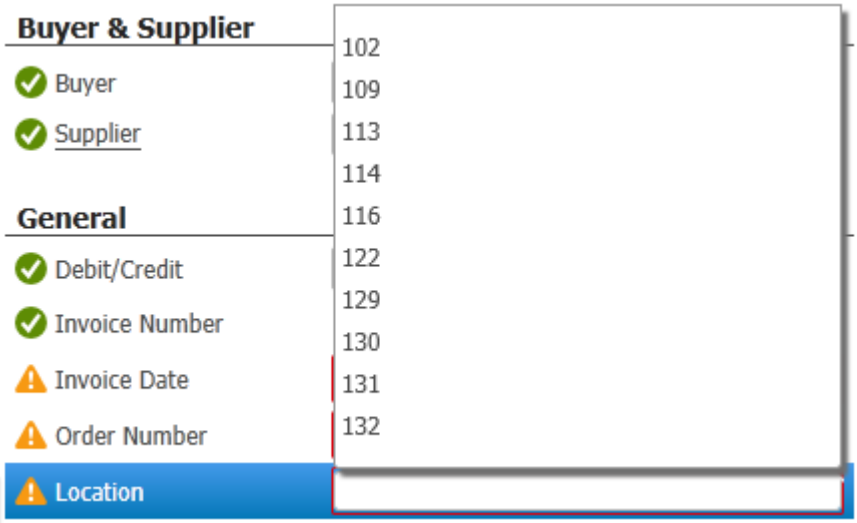
Locations

If your solution requires a location field to register a vendor bill or vendor credit, add a custom field using these settings:

Name	Location
Display name	Location
Type name	location
Type	String
Enforce validation	selected
Use master data to suggest field values	selected
Use master data to validate the field value	selected

Use the settings shown above; however, you can choose your own **Display name**.

After you specify the location field settings, Office users can choose the appropriate location value when verifying invoices.



NetSuite: Supported fields

The NetSuite integration supports the following fields.

Tungsten AP Essentials	NetSuite field	Note
Header fields		
Supplier	vendor	
InvoiceNumber	tranId	
InvoiceOrderNumber	n/a	If InvoiceOrderNumber is set on the invoice, the NetSuite vendor bill is initialized from the purchase order.
InvoiceDate	tranDate	
InvoiceDueDate	dueDate	
InvoiceCurrency	currency	
Customer	customer	In NetSuite, there is only one field for customer and project data. Therefore, the customer and project fields in AP Essentials map to the same "customer" field in NetSuite. In a real-life scenario, organizations that use NetSuite probably have their system configured to use one field or the other. If, however, both fields are used, AP Essentials ensures the project belongs to the customer in NetSuite.
Project	customer	See the note for the "customer" field above.
location	location	
Department	department	
Class	class	
Memo	memo	
TaxCode	taxCode	
Line-item fields		
LIT_ArticleIdentifier	item	Alternatively, this can be a Dummy item code if LIT_ArticleIdentifier is empty or an invalid item in NetSuite
LIT_DeliveredQuantity	quantity	If the value is less than or equal to zero, it is set to 1.

Tungsten AP Essentials	NetSuite field	Note
LIT_UnitPriceAmount	rate	If the value is less than or equal to zero, it is set to the LIT_VatExcludedAmount value.
LIT_ArticleName	description	LIT_ArticleName is used for item descriptions for PO and non-PO invoices. If LIT_ArticleName is not specified during verification, the suggested value from NetSuite is used when the invoice is posted.
LIT_VatExcludedAmount	amount	If the invoice has no line items, a row is created using InvoiceTotalVatExcludedAmount.
LIT_Location	location	
LIT_Department	department	
LIT_Class	class	
LI_TaxCode	taxCode	
LIT_Customer	customer	See the note for the "customer" field above.
LIT_Project	customer	See the note for the "customer" field above.
Line-item expense fields		
LIT_GeneralLedgerAccount	account	Optionally, if you use account coding, the account code you specify is used. Otherwise, the value is determined by the supplier or by the Target system configuration settings if it cannot be determined by the supplier.
LIT_VatExcludedAmount	amount	If the invoice has no line items, a row is created using InvoiceTotalVatExcludedAmount.
LIT_Location	location	
LIT_Department	department	
LIT_Class	class	
LIT_Memo or LIT_ArticleName	memo	If LIT_Memo is defined and has a value, it is used. Otherwise, the value from LIT_ArticleName is used.
LI_TaxCode	taxCode	

Tungsten AP Essentials	NetSuite field	Note
LIT_Customer	customer	In NetSuite, there is only one field for customer and project data. Therefore, the customer and project fields in AP Essentials map to the same "customer" field in NetSuite. In a real-life scenario, organizations that use NetSuite probably have their system configured to use one field or the other. If, however, both fields are used, AP Essentials ensures the project belongs to the customer in NetSuite.
LIT_Project	customer	In NetSuite, there is only one field for customer and project data. Therefore, the customer and project fields in AP Essentials map to the same "customer" field in NetSuite. In a real-life scenario, organizations that use NetSuite probably have their system configured to use one field or the other. If, however, both fields are used, AP Essentials ensures the project belongs to the customer in NetSuite.

Code invoices in NetSuite

The NetSuite integration supports general ledger coding of invoices. This means you can code invoices using Tungsten AP Essentials and send the account-coding data to NetSuite along with the captured invoice data. Tungsten AP Essentials makes coding easy by combining accounting codes and segments from NetSuite with Tungsten AP Essentials automatic coding suggestions.

Before you can code invoices, an administrator must configure NetSuite and AP Essentials.

1. Configure saved searches for **customsearchapsglaccounts** and optionally **customsearchapscustomers** and/or **customsearchapsprojects**, depending on how you code invoices. You can configure additional saved searches, but **customsearchapsglaccounts** is the only one that is required for account coding.
2. Add each coding field and any other supported coding segments (Location, Department, Class, Memo, Project, Customer, Amount) that you require to the Workflow service.
3. Enable automatic coding suggestions in the **Coding configuration** settings.
4. Select **Allow balancing against total amount**, and set the **Balancing amount** to **Net amount**.

Accounting lines are exported to NetSuite as expenses.

Use dummy codes for NetSuite

You can use dummy codes in the target system settings to register all non-PO based invoices as item lines in NetSuite (instead of expense lines). Specify a dummy item code in the **GE dummy item code** setting. You can also specify a **PO dummy item code** for these scenarios:

- When you use line-pairing and process invoices that have additional lines that are not specified on the PO.
- When you do not use line-pairing and process invoices where the invoice total amount differs from the PO total amount.

You can also configure the system to post lines as item lines when a valid item code is specified during verification. See "Post non-PO invoice lines as item lines when an item code is specified" later in this topic.

To create an item in NetSuite that can be used as a dummy item code in the target system settings, complete the following steps:

1. In NetSuite, navigate to **Lists** > **Accounting** > **Item** > **New**.
2. Create an inventory item and note its name.
   When creating the item, follow your company guidelines to set up the item so it can be used on vendor bills. This might include such as assigning an asset account and a tax schedule. You can test if an item is ready to use by manually creating a vendor bill in NetSuite and trying to use the new item on a vendor bill row. Refer to the NetSuite documentation for more information about creating items.
3. Specify the name of the item you created in the previous step in the target system settings in the **GE dummy item code** setting or **PO dummy item code** setting, depending on your needs.

Dummy code treatment in AP Essentials

Document type	Target system setting	Logic
Non-PO invoice	**GE dummy item code** is empty.	For every line on the AP Essentials invoice, an expense line is created on the NetSuite invoice. `LIT_ArticleName` is used for the expense description.
	GE dummy item code specifies an item in NetSuite.	For every line on the AP Essentials invoice, an item line is created on the NetSuite invoice. • If a line is empty or LIT_ArticleIdentifier is incorrect, the dummy code is used and `LIT_ArticleName` is used for the item description in NetSuite. • If `LIT_ArticleIdentifier` matches an item identifier in NetSuite, `LIT_ArticleName` is ignored.

Document type	Target system setting	Logic
PO invoice	**PO dummy item code** is empty.	If the line is not matched to a PO line, an error occurs.
	PO dummy item code specifies an item in NetSuite.	• If a line is matched to a PO line, `LIT_ArticleName` is ignored. • If a line is not matched to a PO line, the dummy code is used and `LIT_ArticleName` is used for the item description in NetSuite.

In all cases in the previous table, `LIT_ArticleName` is used as the description if it is specified during verification.

Post non-PO invoice lines as item lines when an item code is specified

You can configure the system to post lines as item lines on non-PO invoices when a valid item code is specified during verification. You enable this feature on the buyer level using the target system setting, **Post non-PO invoice lines as item lines when an item code is specified**. Optionally, you can use this feature in combination with the **GE dummy item code** setting, so the dummy code is used as a fallback when no item code is specified.

Scenarios

The following scenarios describe how **Post non-PO invoice lines as item lines when an item code is specified** interacts with the **GE dummy item code** setting.

- Setting disabled (default behavior)
  - A dummy item code is required for posting item lines.
  - Even if an item code is provided, lines are still posted as expense lines.
- Setting enabled with **GE dummy item code** specified
  - If an item code is provided on a line item, it is passed to NetSuite as an item line.
  - If the item code is missing, the system uses the **GE dummy item code** specified.
- Setting enabled with no dummy item code specified
  - If an item code is provided on a line item, it is passed to NetSuite as an item line.
  - If the item code is missing, the invoice cannot be posted, and an error is returned.

Define custom fields for use with NetSuite

The NetSuite integration supports these optional fields as header fields and line-item fields:

- Customer
- Project
- Location
- Department
- Class
- Memo

- General ledger account (for credit notes and non-PO invoices)

Use only the fields your solution requires. You can define each field as a header field, line-item field, or both. If you define a field as a header field and a line-item field, Tungsten AP Essentials uses the value from the header field to complete any missing line-item field values.

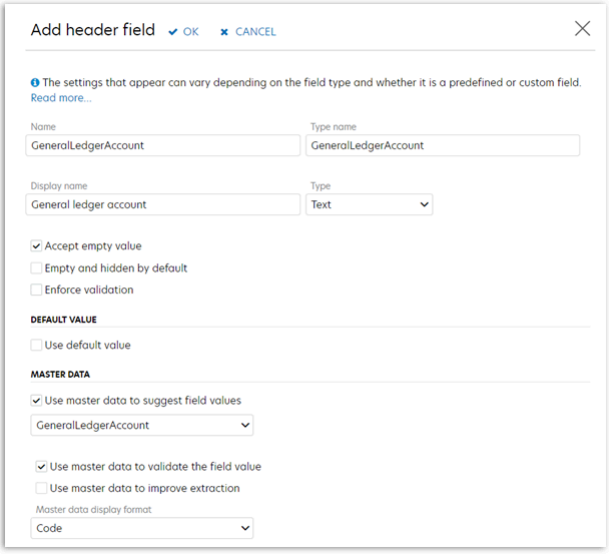
Example

Assume you define a location header field and a location line-item field. If Tungsten AP Essentials finds a value for the Location header field, but cannot find values for location line-item fields, the header field value is used for the missing location line-item field values.

To define these custom fields for use with NetSuite:

1. In the Tungsten AP Essentials Extraction service settings, add a custom field using a **Type name** value that corresponds to the field you require:

Header field type name	Line-item field type name	Coding field
Customer	LIT_Customer	Customer
Project	LIT_Project	Project
Location	LIT_Location	Location
Department	LIT_Department	Department
Class	LIT_Class	Class
Memo	LIT_Memo	Memo
GeneralLedgerAccount	LIT_GeneralLedgerAccount	General ledger account
TaxCode	LIT_TaxCode	TaxCode



2. Make sure you select **Use master data to suggest field values** and **Use master data to validate the field value** when you specify the Customer, Project, Location, Department, General ledger account, and Classification fields.

3. Repeat these steps for each field you need.

Map custom form IDs for NetSuite

By default, when Tungsten AP Essentials sends invoice data to NetSuite, the data is entered using the default form (vendor bill form) in NetSuite. However, you can specify custom form IDs to send document data to NetSuite using custom forms.

You specify custom form IDs in the **Custom Form ID** setting in the target system settings on the customer account level. There are two different ways to use this setting, depending on whether you use one or multiple custom forms in NetSuite.

Map to a single custom form ID

When mapping to a single custom form ID, specify a form ID from NetSuite in the **Custom Form ID** setting on the customer account level in Tungsten AP Essentials. Optionally, you can also use **Buyer-specific settings** to specify custom form IDs for individual buyers.

When mapping to a single custom form ID, credit notes are not supported. Only purchase order and general expense invoices are supported by this method.

Map to multiple custom form IDs

In addition to the method described above, the **Custom Form ID** setting also accepts three semicolon-separated custom form IDs, where each ID correlates to a document subtype (purchase order, general expense, credit note). Using this method, you can route document data from specific document subtypes to specific forms in NetSuite.

You must specify the custom form IDs in the **Custom Form ID** setting in a specific order, which mirrors the document subtypes:

1. The first custom form ID maps to the purchase order document subtype.
2. The second custom form ID maps to the general expense document subtype.
3. The third custom form ID maps to the credit note document subtype.

In this example, each semicolon-separated value represents a custom form ID in NetSuite:

```
PO_FormID; GE_FormID; CreditNote_FormID
```

The order of the custom form IDs is important (purchase order, general expense, credit note).

In the example above, PO_FormID represents the form ID in NetSuite that you use to process PO invoices. GE_FormID represents the form ID that you use to process general-expense (non-PO) invoices, and CreditNote_FormID represents the form ID that you use to process credit notes. Optionally, you can omit a value by leaving it blank with the semicolon still in place. In this example, no custom form ID is specified for general-expense invoices:

```
PO_FormID; ; CreditNote_FormID
```

Optionally, you can also use **Buyer-specific settings** to specify custom form IDs for individual buyers.

NetSuite: Master data

Tungsten AP Essentials automatically imports master data from NetSuite and uses the data to suggest and validate field values during verification.

This table shows the correlation between Tungsten AP Essentials master data and NetSuite data.

Tungsten AP Essentials field (type name)	NetSuite field
Suppliers	
SupplierNumber	Entity ID or Internal ID
Name	Company Name, Alt. Name, Entity ID, or Internal ID
Description	Alt. Name
TaxRegistrationNumber	Tax Reg. Number (vatregnumber). If vatregnumber is not found, Default Tax Reg. (defaulttaxreg) is used.
Street	Address 1
PostalCode	Zip Code
City	City
CountryName	Country
Supplier banks	
AccountNumberType	"IBAN"
AccountNumber	The IBAN number from the primary bank account details of the supplier (vendor) in NetSuite. Importing supplier banks requires the "Electronic Bank Payments" bundle from NetSuite (previously known as "NetSuite Electronic Payments") and the AP Essentials NetSuite bundle version 1.35 or newer. If you have not already installed the Electronic Bank Payments bundle, you must install it before you update the AP EssentialsNetSuite bundle.
Tax codes	
Name	Entity ID (Tax)
Value	Internal ID
Description	Description
TypeName	Always "TaxCode"
Active	Always true
GL accounts	
Name	Name with the number removed
Group	Account Type
Description	Description

Tungsten AP Essentials field (type name)	NetSuite field
Code	Number
Active	Always true
Classifications	
Name	Name or Name (no hierarchy) Name is used if the parent is required in the name. Otherwise, Name (no hierarchy) is used.
Value	Internal ID
Description	Description
Active	Always true
Currencies	
Name	Name
Code	Symbol
ExchangeRate	ExchangeRate
Active	Always true
Custom field values	
Name	CustomFieldId.Name
Value	CustomFieldId.InternalId
TypeName	CustomFieldId
Active	Always true
Departments	
Name	Name Parent name is included if necessary
Value	Internal ID
Description	External ID
Active	Always true
Items	
Name	Display Name or ItemId
Value	ItemId
TypeName	Always "Items"
Active	Always true
Locations	
Name	Name Parent name is included if necessary.
Value	Internal ID
Description	External ID + Address

Tungsten AP Essentials field (type name)	NetSuite field
Active	Always true
Purchase orders (header fields)	
OrderNumber	Document Number
SupplierNumber	Vendor Internal ID or Vendor Entity ID
SupplierName	Vendor Company Name, Vendor Entity ID, or Vendor Internal ID
CurrencyCode	Currency -> Symbol
DateCreated	Transaction Date
ContactName	Created By -> Internal ID
Description	Memo (Main)
StatusText	Status
Purchase orders (line-item fields)	
OrderLineNumber	Line ID
ArticleNumber	Item -> Name
SupplierArticleNumber	Item -> Vendor Name
ArticleDescription	Item -> Memo or Memo (Main)
CategoryNumber	Item -> Parent -> Internal ID
CategoryDescription	Item -> Parent -> Internal ID
Quantity	Quantity
Unit	Units
UnitPrice	(Item Rate / Exchange Rate) or Item Rate
RowTotalAmountVatExcluded	Amount (Net of Tax)
StatusText	(value is always empty)
InvoicedQuantity	Quantity Billed
DeliveredQuantity	Quantity Fulfilled/Received
IsDeliveryRequired	Match Bill To Receipt
PriceUnit	(value is always 1)
Projects	
Name	External ID + Name or Internal ID
Value	Internal ID
Description	Comments
TypeName	Always "Project"
Active	Always true
Customers	

Tungsten AP Essentials field (type name)	NetSuite field
Name	Company Name or Entity ID or Internal ID
Value	Internal ID
Description	Comments
TypeName	Always "Customer"
Active	Always true

Troubleshoot NetSuite issues

Resolve tax code issues

If you do not specify the tax code when verifying invoices, and you have a default tax code specified in NetSuite, invoices can be rejected with an error stating that the "transaction does not balance." To avoid this issue, specify the tax code when verifying invoices.

Resolve location errors

If you receive an error about the location when sending a PO invoice to NetSuite, you can solve this issue by disabling the location validation for line items in NetSuite. Perform the following in NetSuite:

1. Navigate to **Customization** > **Forms** > **Transaction Forms**.
2. Select the form you want to edit.
3. Select **Edit** and navigate to **Screen Fields** > **Items**.
4. Locate the Location field and clear the checkbox in the Show column.

Configure numeric EntityID behavior

If you use a numeric EntityID for your NetSuite vendors instead of names, master data synchronization populates the Tungsten AP Essentials supplier name with the NetSuite vendor number instead of the actual name. You can change this behavior by using the **Use Supplier Entity ID as supplier number** setting.

Configure vendors shared between subsidiaries

If you share vendors between subsidiaries in NetSuite, these are not part of the master data synchronization due to limitations in NetSuite. You can work around this limitation by creating subsidiary-specific saved searches that have criteria for Subsidiary Fields ... > Internal ID set to the specific subsidiary. When using this approach, you need to create one vendor saved search for each subsidiary.

Additional access is needed for a NetSuite user or role to query saved searches that span multiple subsidiaries. To verify functionality, assign the Administrator role to the integration user.

Resolve errors after NetSuite submission

Sometimes a document can be successfully sent to NetSuite but receive an error after the document record is created. When this happens, the error appears in the document history in AP Essentials along with the error from NetSuite.

Example

"The document (internal ID: *XXXX*) was created in NetSuite, but NetSuite replied with an error: *Error message from NetSuite*."

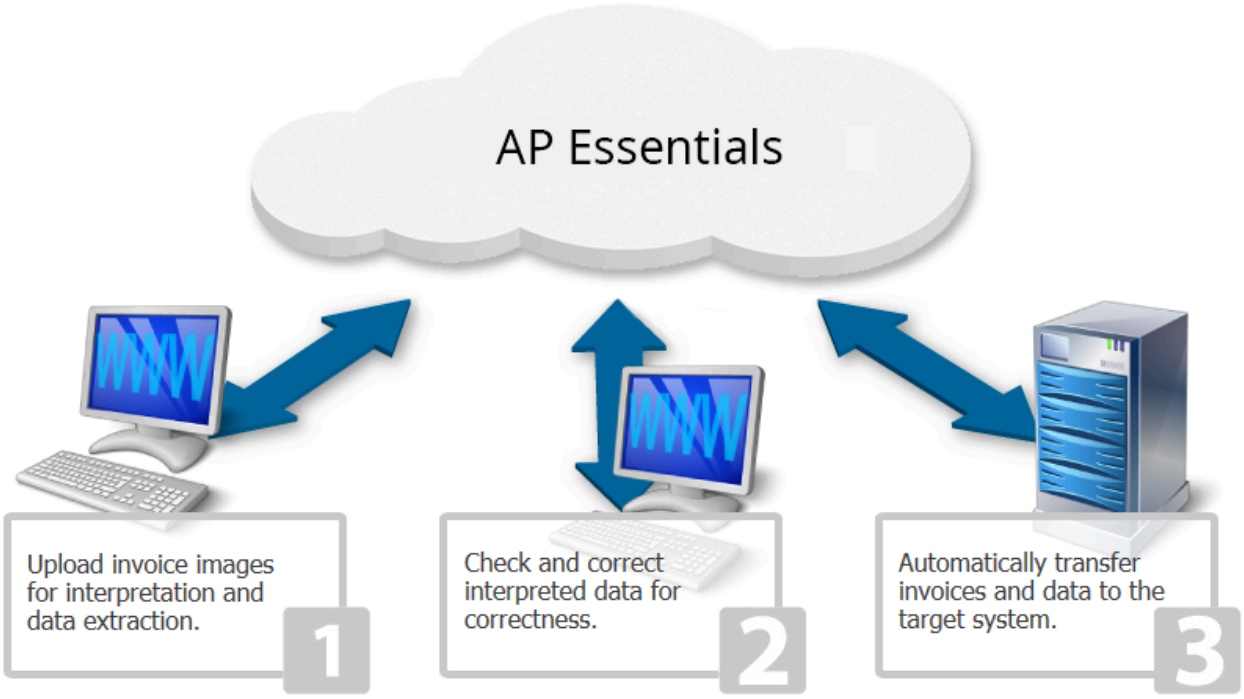
In this case, do not resend the document or correct the issue in AP Essentials. Instead, correct the error in NetSuite because the document has already been successfully created in NetSuite.

When AP Essentials sends documents to NetSuite, the internal ID of the document in NetSuite is used to identify the document and prevent duplicate records in NetSuite in the event of an error as described above.

Oracle Financials Cloud

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

This integration consists of the following components:

- Tungsten AP Essentials.
- Oracle Financials Cloud.

Integration features

The Oracle Financials Cloud integration enables cooperation between Tungsten AP Essentials and Oracle Financials Cloud. It leverages more power and adds value to your current system by extracting data from invoices without expensive hardware investments.

The Oracle Financials Cloud integration supports the following features:

- Processing of purchase order and non-PO invoices and credit notes.
- Manual and automatic line-item pairing.
- Account coding (distribution combinations).

- The integration synchronizes master data between Oracle Financials Cloud and Tungsten AP Essentials. General-ledger accounts, coding segments, currencies, suppliers, and purchase orders are imported, so the data is available for selection during invoice processing in Tungsten AP Essentials. The master data that is available can also be filtered by business unit.
- Split-delivery purchase orders.
- Support for both types of line items (services and goods) in Oracle Financials Cloud.
- Freight lines.
- 3-way matching.
- Credit notes/credit memos.
- Support for automatic and manual selection of payment methods.
- Master data import of tax-classification and ship-to locations provides field suggestions and helps prevent errors that otherwise occur during manual entry.
- Data templates enable you to map data to payables line-item fields in Oracle. This is helpful if you want to override an existing mapping or map to a line-item field that is not mapped by default.

Where to go from here

To use Oracle Financials Cloud with Tungsten AP Essentials, you must:

- Configure Oracle Financials Cloud.
- Configure Tungsten AP Essentials.

After you complete the configuration and the rest of the customer setup, you are ready to begin processing invoices using the integration for Oracle Financials Cloud.

Oracle Financials Cloud for use with Tungsten AP Essentials

Before you can use the Oracle Financial Cloud integration with Tungsten AP Essentials, you must:

- Create a user account that Tungsten AP Essentials will use to access Oracle Financials.
- Set up master-data synchronization using one of these methods:
  - **Oracle REST API** - This is the recommended method that requires the least amount of setup.
  - **Oracle reports** - To use this method, you must create a coding combination report and create a job for the coding combination report in Oracle Financials. This procedure requires knowledge of SQL.

Completing these procedures exposes Oracle's coding combinations to Tungsten AP Essentials, so you can use them for account coding.

Create a user account

Tungsten AP Essentials works inside Oracle Financials Cloud as a user. Therefore, you must create a user account in Oracle Financials Cloud with the appropriate permissions needed to enable cooperation between Tungsten AP Essentials and Oracle Financials Cloud. Tungsten AP Essentials uses these endpoints in Oracle Financials Cloud:

Endpoint	Methods	Purpose
REST API		

Endpoint	Methods	Purpose
currenciesLOV	GET	Testing the connection with Oracle Financials Cloud.
preferredCurrenciesLOV	GET	Synchronizing currency master data.
itemsV2	GET	Synchronizing items master data.
disbursementPaymentMethodsLOV	GET	Synchronizing payment method master data.
suppliers	GET	Synchronizing supplier master data.
paymentsExternalPayees	GET	Retrieving the default payment method of a supplier. This method is used during supplier synchronization and export.
taxClassifications	GET	Synchronizing tax classification master data.
purchaseOrders	GET	Synchronizing purchase orders.
linesToReceive	GET	Retrieving the delivered quantity for purchase order line.
invoices	GET/POST	• GET - Gets the invoiced quantity for purchase order lines. • POST - Creates invoice records in Oracle Financials Cloud.
ERP SOAP Web Service API		
	submitESSJobRequest	Used to start the report job that provides coding segments and general-ledger account values.
	getESSJobStatus	Retrieving the completion status of the job.
	downloadExportOutput	Retrieving the report job results.

The ERP SOAP Web Service API is used to provide general-ledger account and coding segment values that requires a complex setup in Oracle Financials Cloud. Alternatively, you can use Microsoft Excel to import coding data to Tungsten AP Essentials.

The procedures for creating users and roles within Oracle Financials Cloud are provided here as a guide; however, discrepancies can occur. For more complete information, refer to Oracle Financials Cloud documentation. The goal in these procedures is to create a user in Oracle Financials Cloud and add that user to a role that allows Tungsten AP Essentials to work with Oracle Financials Cloud.

Create a user in Oracle Financials Cloud

First, you create a user in Oracle Financials Cloud, which you will add to a role later.

1. Log in to Oracle Financials Cloud as a user with permission to create user accounts and roles.

2. Navigate to **Security Console** and select the **Users** tab.
3. Select **Add user account**, and use the view that appears to specify a new user.
   Use a descriptive name that identifies the user as Tungsten AP Essentials.
4. Select **Save and Close**.

Create a role in Oracle Financials Cloud

Create a role in Oracle Financials Cloud and add the previously created user to it.

1. Log in to Oracle Financials Cloud as a user with permission to create user accounts and roles.
2. Navigate to **Security Console** and select the **Roles** tab.
3. Search for the accounts payable specialist role (ORA_AP_ACCOUNTS_PAYABLE_SPECIALIST_JOB).
4. In the search results, select **Copy Role** from the drop-down menu and select **Copy top role and inherited roles** in the dialog that appears.
5. Select **Copy Role**.
6. Specify the **Role Name**, **Role Code**, and **Description**. Use a descriptive name and code that identifies the role as Tungsten AP Essentials.
7. Select **Next**.
8. Select **Add function Security Policy** and use the dialog that appears to add a custom privilege that runs a report job to import general-ledger accounts master data to Tungsten AP Essentials.
   In practice, you might skip this step and return to it later, after you have added the reports described later in this topic.
9. Select **Next** to navigate to the **Data Security Policy** view.
10. Edit the **Grant to Business Unit** policy.
11. In the **Edit Data Security Policy** dialog, select **All values** in the **Data Set** box and select **OK**.
12. Select **Create Data Security Policy** to specify the rights needed to get delivered quantity values for purchase order lines.
13. In the dialog that appears:
    - Select **Inventory Organization** as the **Database Resource**.
    - Select **Manage Receiving Transactions** in the **Actions** box.
    - Select **All Values** in the **Data Set** box.
14. Select **OK** and select **Next**.
15. Select **Add Role**.
16. Add the warehouse manager role (ORA_INV_WAREHOUSE_MANAGER_JOB), so Tungsten AP Essentials can access the `linesToReceive` REST API endpoint.
17. Select **Add Role Membership** and then select **Cancel** to close the dialog.
18. Select **Next** and select **Add User**.
19. In the dialog that appears, select the user you created in the previous procedure and select **Add User to Role**.
20. Select **Next**.
21. After reviewing your changes, select **Submit and Close**.
22. After your new user and role are created, log in to Oracle Financials Cloud as the new user and make sure you create invoices with the new user account.

Note that it can take up to 10 minutes before the new user is accessible via the API.

Oracle REST API setup

Setting up master-data (coding segment) synchronization using the Oracle REST API is the recommended setup method and does not require any configuration in Oracle, other than user account creation above. Later, in Tungsten AP Essentials, you enable the **Synchronize master data using Oracle REST API** setting in the target system settings, and specify the coding segments you want to synchronize.

After you set up user accounts according to the procedures above, you can configure Tungsten AP Essentials for use with Oracle Financials Cloud. You do not need to perform the Oracle reports setup below.

Oracle reports setup

Setting up master-data (coding segment) synchronization using Oracle reports requires knowledge of SQL. If possible, we recommend using the Oracle REST API method above instead. To use Oracle reports for master data synchronization, you must create a coding combination report and create a job for the coding combination report in Oracle Financials.

Create a coding combination (segment values) report

Create and test a coding combination report.

1. Log in to Oracle Financials Cloud as a user with the *BI Administrator* privilege.
2. Navigate to **Navigator** > **Tools** > **Reports and Analytics**.
3. Select **Browse catalog**.
4. Select **Create** and select **Data model**.
5. Select the **Properties** node and specify a model description, such as "Coding segment values for Tungsten AP Essentials."
6. Select the **Data sets** node.
7. In the view that appears, select and select **SQL Query**.
8. Specify a descriptive name for the query, and set the **Data Source** to **ApplicationDB_FSCM**.
9. Specify an **SQL Query** to extract the segment values you need.
   Example:
   ```
   select ATTRIBUTE_CATEGORY as Type, Value, Description
   from FND_VS_VALUES_VL where ATTRIBUTE_CATEGORY
   in('EXAMPLE_VALUE_1','EXAMPLE_VALUE_2','EXAMPLE_VALUE_3') and
   EnableD_FLAG='Y'
   ```
   Replace "'EXAMPLE_VALUE_1','EXAMPLE_VALUE_2','EXAMPLE_VALUE_3'" with all of the segment value codes you use. You can find the codes in Oracle setup and maintenance. You can add any conditions you need to your SQL query.
10. Select **OK**.
11. Select the top-most settings icon on the data source you created and select **Properties**.

12. Specify "RSO_MD_ENTRY" as the **Group name** in the dialog that appears and select **OK**.
13. Optionally, select **Validate** to validate your query and switch to the **Data** tab to check data returned by the query.
14. Save the model in the `Shared folders/Custom/Financials` folder.
15. Create a report based on this model, with the output set to XML. Make sure there are no other output types.

Test the report

Test the newly created report to make sure it produces the expected output.

1. Navigate to the Oracle Financial Reporting Center.
2. Select the **All** tab and search for your report.
3. Select the report to check its data.

Create a job for the coding combination report

After you create the coding combination report, create a job to run the report.

1. In Oracle Financials Cloud, navigate to **Setup and Maintenance**.
2. In the search field, type "Manage Enterprise Scheduler Job Definitions".
3. In the search results, select **Manage Enterprise Scheduler Job Definitions and Job Sets for Financial, Supply Chain Management, and Related Applications**.
4. In the toolbar, select to create a new job definition.
5. Make sure the job has these settings:

Setting	Value
Display name	**Tungsten AP Essentials coding combinations** or any descriptive value
Name	**rso-coding-segment-values** or any descriptive name
Path	**financials/extract** or any valid value
Application Name	**General Ledger**

Setting	Value
Job Application Name	**FscmEss**
Job Type	**BIPJobType**
Default output format	**XML**
Allow Multiple Pending Submissions	**True**
Report ID	The report ID is the full path and name of the report file. For example: **Custom/Financials/Tungsten AP Essentials GL-Accounts Report.xdo** To find the file name, navigate to the reports catalog and check the **Properties** dialog of the report. The file name is a combination of the report **Name** and the **composite Signature**, which is found in the **Custom Properties** settings.

Test the job

Test the newly created job and make sure it runs the report correctly.

1. Navigate to **Navigator** > **Tools** > **Scheduled Processes**.
2. Select **Schedule new process**.
3. Search for the job you created above.
4. Select **Submit**, wait for the process to complete, and check the result.

Configure AP Essentials for use with Oracle Financials Cloud

Before you can use the Oracle Financials Cloud integration with Tungsten AP Essentials, you must configure these settings in AP Essentials:

- Buyer settings
- Extraction settings
- Target system
- Master data

Buyer settings

Map buyers in Tungsten AP Essentials to business units or legal entities in Oracle Financials Cloud. In both cases, Tungsten AP Essentials filters supplier and purchase order master data, so only relevant information is available to AP Essentials Office users. For example, assume you have a business unit named "Buyer 1" in Oracle Financials Cloud and a matching buyer named "Buyer 1" in Tungsten AP Essentials. In this example, if an AP Essentials Office user verifies an invoice for Buyer 1, only suppliers and purchase orders that are associated with Buyer 1 in Oracle Financials Cloud will be available for selection in the document view. To use this feature, make sure **Master data on buyer level** is selected in the master data service settings.

To limit the inventory items you import from Oracle, specify an **Inventory organization code** in the target system settings. This decreases bandwidth between systems, and narrows the number of items available to users during verification. In other words, item master data that is not used by your organization is not synchronized, and is not shown to Office users during verification. To

increase the specificity even more, specify inventory organization codes on the buyer level. Select **Buyer-specific settings** (located next to the **Inventory organization code** setting) to specify inventory organization codes on the buyer level.

Map to legal entities

Mapping buyers to legal entities is the preferred method that accommodates real-world Oracle configurations. To map legal entities, select **Map buyers to legal entities** in the target system settings, and use the box that appears to specify the business unit name of the legal entity to map to. Optionally, use the **Buyer-specific** settings to specify business units for individual buyers. The external ID of the buyer specifies a legal entity ID or legal entity name in Oracle.

Map to business units

By default, the integration matches buyers in Tungsten AP Essentials to business units in Oracle Financials Cloud. When Tungsten AP Essentials sends invoices to Oracle Financials Cloud, the business unit name and distribution combination segments are taken from the **Buyer** settings. The business unit name is taken from the **Name** setting of the buyer, and the name must match the name of a business unit in Oracle. If perform account coding, distribution combinations are formed using a data template that includes the **External ID** setting. To customize the data template, use the **Distribution combination template** setting.

Extraction settings

Edit the extraction settings for each document type and ensure the required Tungsten AP Essentials fields are specified for the corresponding fields in Oracle Financials Cloud. Document types for general expense invoices (non-PO invoices) have different field requirements than PO invoices. If a document type lacks a required field, add a custom field using the field type name specified in the tables later. Likewise, the Oracle Financials Cloud system must use the required fields specified in the tables later.

General expense field requirements

Adjust document types for general expense invoices according to this table:

Tungsten AP Essentials field type name	Oracle Financials Cloud field	Note
Header fields		
SupplierName	Supplier *	No need to specify a supplier name field in the document type. The supplier name is taken from master data.
SupplierSite	Supplier Site *	Add a custom field with the field type name, `SupplierSite`.
InvoiceNumber	Invoice number *	
	Business Unit *	For this field, the External ID of the buyer is used.
InvoiceCurrency	Invoice Currency	
InvoiceDate	Invoice Date	

Tungsten AP Essentials field type name	Oracle Financials Cloud field	Note
InvoiceDueDate	Terms Date	
	Invoice Type *	Set to **Standard** in Oracle Financials Cloud.
	Payment Method *	See Payment method section later.
InvoiceTotalVatIncludedAmount	Invoice Amount *	
DeliveryCost	Line Amount	`DeliveryCost` is used to create a **Freight** line type in Oracle Financials Cloud.
TaxClassification		If a line-item tax classification field is empty, the value is taken from this header field.
ShipToLocation		If a line-item ship-to location field is empty, the value is taken from this header field.
Line-item fields		
LIT_RowIdentifier	Number *	
LIT_LineType	Type	When add the `LIT_LineType` field to a document type, ensure that you select **Use master data to suggest field values** in the field view, and select **LineType** in the box under the **Use master data to suggest field values** setting.
LIT_VatExcludedAmount	Amount *	For line-item fields, the line amount is taken from `LIT_VatExcludedAmount`. If the `DeliveryCost` header field is found in Tungsten AP Essentials, a **Freight** line type is created in Oracle Financials Cloud, and the line amount is taken from the `DeliveryCost` header field.
LIT_ArticleName	Description	
DistributionCombination at the header level or LIT_DistributionCombination at line-item level and/or specify the **Default distribution combination** setting.	Distribution Combination	This field is not required; however, when it is specified on an invoice, the invoice is considered "Valid" according to Oracle Financials Cloud and can be validated and posted immediately upon entering Oracle Financials Cloud.

Tungsten AP Essentials field type name	Oracle Financials Cloud field	Note
LIT_TaxClassification	Tax classification	If this field is empty, the value is taken from the `TaxClassification` header field, if it exists. To optionally import master data for this field, use the **TAX HANDLING** settings. Connecting fields to master data provides autocomplete functionality and field validation.
LIT_ShipToLocation	Ship-to Location	If this field is empty, the value is taken from the `ShipToLocation` header field, if it exists. To optionally import master data for this field, use the **TAX HANDLING** settings. Connecting fields to master data provides autocomplete functionality and field validation.

* Required.

If additional data must be mapped to payables header fields in Oracle, or if to override a default mapping to a payables header field in Oracle is needed, use data templates to specify a custom mapping in the **Header field mapping** setting.

Purchase order field requirements

Adjust document types for purchase order invoices according to this table:

Tungsten AP Essentials field type name	Oracle Financials Cloud field	Note
Header fields		
InvoiceOrderNumber	Purchase order number *	
SupplierName	Supplier *	No need to specify a supplier name field in the document type. The supplier name is taken from master data.
SupplierSite	Supplier Site *	Add a custom field with the field type name, SupplierSite.
InvoiceNumber	Invoice number *	
	Business Unit *	For this field, the External ID of the buyer is used.
InvoiceCurrency	Invoice Currency	
InvoiceDate	Invoice Date	
InvoiceDueDate	Terms Date	

Tungsten AP Essentials field type name	Oracle Financials Cloud field	Note
	Invoice Type *	Set to **Standard** in Oracle Financials Cloud.
	Payment Method *	See Payment method section later.
InvoiceTotalVatIncludedAmount	Invoice Amount *	
TaxClassification		If a line-item tax classification field is empty, the value is taken from this header field.
ShipToLocation		If a line-item ship-to location field is empty, the value is taken from this header field.
Line-item fields		
	Number *	
LIT_LineType	Type	When add the LIT_LineType field to a document type, ensure that you select **Use master data to suggest field values** in the field view, and select **LineType** in the box under the **Use master data to suggest field values** setting.
LIT_VatExcludedAmount	Amount *	
LIT_ArticleName	Description	
LIT_UnitPriceAmount	Unit Price	Required for "goods" purchase orders. When verifying "service" purchase orders, this field value must be empty.
LIT_DeliveredQuantity	Quantity	Required for "goods" purchase orders. When verifying "service" purchase orders, this field value must be empty.
LIT_OrderNumber	Purchase Order Number *	This value can also be derived from the purchase order header field (InvoiceOrderNumber).
LIT_RowIdentifier	Purchase Order Line Number *	
LIT_OrderLineScheduleNumber	Purchase Order Schedule Line Number	Use this field to handle split deliveries. For example, when verifying the first invoice of a split delivery, specify "1" as the field value. For the second invoice, specify "2" and so on.

Tungsten AP Essentials field type name	Oracle Financials Cloud field	Note
LIT_TaxClassification	Tax classification	If this field is empty, the value is taken from the `TaxClassification` header field, if it exists. To optionally import master data for this field, use the **TAX HANDLING** settings. Connecting fields to master data provides autocomplete functionality and field validation.
LIT_ShipToLocation	Ship-to Location	If this field is empty, the value is taken from the `ShipToLocation` header field, if it exists. To optionally import master data for this field, use the **TAX HANDLING** settings. Connecting fields to master data provides autocomplete functionality and field validation.

* Required.

Context fields

When integrating with Oracle Financials Cloud, use context fields to provide the necessary context for mapping data to descriptive flexfields (DFFs). The integration supports the following flexfield template settings in the target system settings.

- **Descriptive flexfield template** – Maps AP Essentials fields to Oracle invoice header descriptive flexfields (DFF).
- **Line-item descriptive flexfield template** – Maps AP Essentials fields to Oracle invoice line descriptive flexfields.
- **Global descriptive flexfield template** – Maps AP Essentials fields to Oracle global descriptive flexfields (GDF). **Global descriptive flexfield template** is a buyer-specific target system setting. It is used to populate the `invoiceGdf` structure in the Oracle invoice payload.

Example

Context behavior

For DFF templates, the integration supports two special fields that can be added to document types. Use these fields to provide context to descriptive flexfield data templates:

- **DFFContext** - Add this field at the header level to specify the context for dynamic flexfields on the invoice header.
- **LIT_DFFContext** - Add this field at the line-item level to specify the context for dynamic flexfields on each line item. If this field is not added `LIT_DFFContext`, the system uses the value from `DFFContext` for all line items by default. We recommend adding `LIT_DFFContext` for line items if different contexts for each line item are needed.

For global descriptive flexfields:

- The context is defined directly in the template using the Oracle context code.
- Global descriptive flexfields do **not** support global segment syntax as used in DFF templates.
- The template must reference a valid Oracle GDF context (for example, `JAxMYInvoices` or `JExPLInvoices`).

Template syntax

To define descriptive flexfield templates, use the **Descriptive flexfield template**, **Line-item descriptive flexfield template**, and **Global descriptive flexfield template** settings using the following syntax:

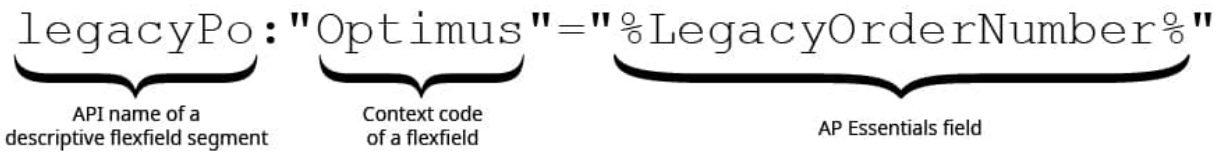
```
SegmentAPIName:"ContextCode"="%APEssentialsField%"
```

Where:

- SegmentAPIName is the API name of the segment in Oracle.
- ContextCode is the context code defined in Oracle.
- APEssentialsField is the AP Essentials field whose value will be inserted into the segment.

The flexfield templates are not used unless specify a field value that matches a context code in the template.

The example later depicts a descriptive flexfield template that can be specified in the **Descriptive flexfield template** setting.



In this example, `legacyPo` is the API name of a descriptive flexfield segment. It is a literal API segment name defined in Oracle Financials Cloud. The context code matches a context value code in Oracle Financials Cloud. Assume added the custom field, `DFFContext`, to the document type. In this example, when Office users verify documents, they can optionally specify a value for `DFFContext`.

- If "Optimus" is specified, the mapping is triggered, and the `legacyPo` segment is set to the value of the `LegacyOrderNumber` field when the document data is sent to Oracle Financials Cloud.
- If the `DFFContext` field is left empty, the mapping above is not triggered, and the `legacyPo` segment is not set when the document data is sent to Oracle Financials Cloud.

In a real-life scenario, have multiple contexts represented by multiple data templates separated by semicolons. In this case, use master data to populate the `DFFContext` field with multiple values for the Office user to choose. See more examples in the following table.

Example templates

Data template	Explanation
`additionalInfo:"Info"="%Description %";additionalInfo:"Optimus"="%LegacyOrderNumber %"`	• The `additionalInfo` segment will be set to the value of the `Description` field if "Info" is specified in the `DFFContext` field. • The `additionalInfo` segment will be set to the value of the `LegacyOrderNumber` field if "Optimus" is specified in the `DFFContext` field.
`additionalInfo:"Info"="%Description %";legacyPo:"Optimus"="%LegacyOrderNumber %"`	• The `additionalInfo` segment will be set to the value of the `Description` field if "Info" is specified in the `DFFContext` field. • The `legacyPo` segment will be set to the value of the `LegacyOrderNumber` field if "Optimus" is specified in the `DFFContext` field.
`additionalInfo:"Info"|"Optimus"="%Description %"`	This example uses the pipe character (|) as an OR operator. If either "Info" or "Optimus" is specified in the `DFFContext` field, the `additionalInfo` segment will be set to the value of the `Description` field.
`additionalInfo="%Description %";legacyPo:"Optimus"="%LegacyOrderNumber %"`	• The global segment, `additionalInfo`, will be set to the value of the `Description` field. • The `legacyPo` segment will be set to the value of the `LegacyOrderNumber` field if "Optimus" is specified in the `DFFContext` field.
`IRBMUniqueIdentifier:"JAxMYInvoices"="%UniversalUniqueIdentifier %"`	Example of a **Global descriptive flexfield template** for Malaysia. Maps the AP Essentials field *UniversalUniqueIdentifier* to the Oracle global descriptive flexfield segment *IRBMUniqueIdentifier* using the context code `JAxMYInvoices` (Invoices for Malaysia).
`KsefNumber:"JExPLInvoices"="%KsefNumber %";correctionReason:"JExPLInvoices"="%correctionReason %";TaxPointDate:"JExPLInvoices"="%TaxPointDate %"`	Example of a **Global descriptive flexfield template** for Poland. Maps multiple AP Essentials fields to global descriptive flexfield segments using the context code `JExPLInvoices`.

Target system settings

Adjust the target system settings in Tungsten AP Essentials.

1. In Admin Center, navigate to the **Target system** view and select **Edit**.
2. Select **Oracle Financials Cloud** and select **Configuration**.
3. Specify the settings in the view that appears.

If synchronize master data for general ledger accounts, choose one of the following. Do not choose both:

- **Synchronize master data using Oracle REST API**
- **Synchronize master data using Oracle reports**

Using the Oracle REST API is the recommended method that requires the least amount of setup.

4. Select **Test** to test the connection settings.
   Make corrections if necessary.
5. Select **OK** to confirm the settings and return to the **Target system** view.
6. Select **Save**.

Master data

Tungsten AP Essentials automatically imports master data from Oracle Financials Cloud and uses the data to suggest and validate field values during verification. When importing purchase order data from Oracle, Tungsten AP Essentials only imports purchase orders with the "open" status. To further ensure only relevant purchase orders are imported, Tungsten AP Essentials synchronizes purchase orders by matching the Bill-to Business Unit (**Bill-to-BU**) in the purchase order to a buyer in Tungsten AP Essentials.

These tables show the correlation between Tungsten AP Essentials master data and Oracle Financials Cloud data.

Tungsten AP Essentials field (type name)	Oracle Financials Cloud field
Supplier master data	
Name	Supplier
SupplierNumber	SupplierNumber If the Site field is populated in Oracle Financials Cloud, the supplier number is appended with the site name. This helps differentiate suppliers with multiple sites.
Description	AlternateName
Location	SupplierSite
TaxRegistrationNumber	TaxRegistrationNumber
TaxCode	FederalIncomeTaxTypeCode
CurrencyCode	PreferredFunctionalCurrencyCode
State	Addresses[site].State
Street	Addresses[site].AddressLine1 + Addresses[site].AddressLine2 + Addresses[site].AddressLine3 + Addresses[site].AddressLine4

Tungsten AP Essentials field (type name)	Oracle Financials Cloud field
PostalCode	Addresses[site].PostalCodeExtension + Addresses[site].PostalCode
City	Addresses[site].City
CountryName	Addresses[site].Country
TelephoneNumber	Addresses[site].PhoneCountryCode + Addresses[site].PhoneAreaCode + Addresses[site].PhoneNumber
FaxNumber	Addresses[site].FaxCountryCode + Addresses[site].FaxAreaCode + Addresses[site].FaxNumber
PaymentMethod	paymentsExternalPayees[site].PaymentMethodCode
PaymentTerm	If **Create a supplier for each supplier site** is enabled, PaymentTerm is mapped to [site].PaymentTerms. Otherwise the field is empty.
Blocked	True if: • The supplier status is *Inactive*. • The supplier site status is not active. In all other cases, the value is false.
RequirePoForInvoices	True if all of the following conditions are met. • **Create a supplier for each supplier site** is enabled. • **Synchronize setting: Invoices require PO** is enabled. • [site].InvoiceMatchOption is set to "Order". In all other cases, the value is false.
Payment method master data	
PaymentMethod See *Payment Method* section later.	Payment Method
Currency master data	
Code	Currency Code
Name	Currency Name
ExchangeRate	Always "0"
Purchase order master data	
OrderNumber	OrderNumber
SupplierNumber	Suppliers.SupplierNumber
CurrencyCode	CurrencyCode
DateCreated	CreationDate
CreatedBy	CreatedBy
SupplierName	Supplier

Tungsten AP Essentials field (type name)	Oracle Financials Cloud field
Description	Description
StatusText	Status
Purchase order line-item master data	
OrderLineNumber	lines.LineNumber
ArticleNumber	lines.Item
SupplierArticleNumber	lines.SupplierItem
ArticleDescription	lines.Description
UnitPrice	lines.Price
CategoryNumber	lines.CategoryId
CategoryDescription	lines.Category
Quantity	lines.Quantity
Unit	lines.UOM
StatusText	lines.Status
VatAmount	lines.TotalTax
RowTotalAmountVatExcluded	lines.Ordered
InvoicedQuantity	Invoices.InvoiceLines.Quantity
DeliveredQuantity	LinesToReceive.AvailableQuantity
DeliveryDate1	lines.RequestedDeliveryDate
DeliveryDate2	lines.PromisedDeliveryDate
Line type master data	
LIT_LineType	Type (Freight, Item, Miscellaneous)

In addition to the master data above, To optionally import tax classification and ship-to location data, use the **TAX HANDLING** settings.

Payment method

Payment method information is required for incoming invoices in Oracle Financials Cloud. Tungsten AP Essentials can determine the payment method from:

- The value the user selects in the payment method field during verification.
- The payment method specified in the master data of the supplier of the invoice.
- The **Default payment method code** specified in the target system settings.
- The primary payment method of the supplier in Oracle Financials Cloud.

The methods above are ordered by precedence. If the payment method field is not specified during verification, the payment method of the supplier master data is used and so on. If the payment method is not specified in any of the points above, the invoice will be rejected by Oracle Financials Cloud.

Several alternatives exist for configuring payment methods in Tungsten AP Essentials, depending on how payment methods are used in Oracle Financials Cloud.

- If the Oracle setup uses only one payment method, simply specify the **Default payment method code** in the target system settings. When using this approach, Tungsten AP Essentials sets the payment method automatically, and Tungsten AP Essentials Office users do not need to concern themselves with the payment method during verification.
- If the Oracle setup uses multiple payment methods, add a custom field to the document type with the **Type name** set to **PaymentMethodCode**. When specifying the custom field settings, ensure that you select **Use master data to suggest field values** and select **PaymentMethodCode** in the box.

  Optionally, we recommend specifying payment methods in the supplier master data and also specifying a **Default payment method code** in target system settings.

  In theory, skip adding the custom field and rely only on the supplier master data is possible, if use supplier master data, and certain the correct payment methods are specified for all suppliers. However, if to do so, think carefully about the consequences. In this scenario, if an invoice indicates that a supplier uses a payment type other than the one specified in the master data, AP Essentials Office users have no way of changing the payment method field.

Process invoices with the Oracle Financials Cloud integration

When you process invoices using the Oracle Financial Cloud integration, you follow the normal procedures for verifying, coding, and approval, with these additional features:

- Support for split deliveries.
- Specifying distribution combinations.
- Support for supplier sites.
- Specifying line types (Freight, Item, Miscellaneous).

Split deliveries

Sometimes the goods from a purchase order are delivered in separate shipments. For example, you may promptly receive some of the goods from a purchase order, whereas other goods from the same purchase order do not arrive until weeks later. This is referred to as a "split delivery" because the fulfillment of the purchase order is split into multiple deliveries. Split deliveries are often scheduled in advance according to a delivery schedule. You can specify which delivery a line item belongs to using the *Purchase Order Schedule Line Number* field.

To specify which delivery a line item belongs to, specify the delivery schedule number in the *Purchase Order Schedule Line Number* field for the line you want to specify. It is not necessary to specify a value if the purchase order delivery is not split.

Specify distribution combinations (account coding)

When you perform account coding (known as *distribution combinations* in Oracle Financials Cloud), Tungsten AP Essentials uses master data from Oracle Financials Cloud to provide automatic coding suggestions. Note the following:

- The Oracle Financials Cloud integration cannot export line items and coding data simultaneously. If an invoice contains line items and account-coding data, the line-item data is excluded, so only the coding data is sent to Oracle Financial Cloud.

- The Oracle Financials Cloud integration cannot export coding data for purchase order invoices. To process a purchase order invoice that contains coding data, you must choose one of the following options:
  - Prioritize account coding by removing the purchase order header field and all line items, so you can code the invoice.
  - Prioritize the purchase order information by removing all coding lines.

Supplier sites

When Tungsten AP Essentials imports suppliers from Oracle Financials Cloud, each supplier site is treated as a separate supplier. For example, assume you have a supplier, ACME Inc, which has three sites: New York, Chicago, and Tokyo. During verification in Tungsten AP Essentials Office, each supplier site would appear as a separate supplier in the **Supplier** box. The suppliers in this example would be listed as "ACME Inc - New York", "ACME Inc - Chicago", and "ACME Inc - Tokyo". The names are created by combining the **Name** and **Location** fields of the supplier master data in Tungsten AP Essentials.

Creating suppliers in this manner does not affect Oracle Financials Cloud in any way. When Tungsten AP Essentials sends processed invoices to Oracle Financials Cloud, the integration posts the data to the correct supplier sites.

Specify line types

In Oracle Financials Cloud, line items have a type such as "freight", "item", or "miscellaneous". If an administrator has added a custom line-item field (LIT_LineType) as described here, you can specify the type of a line item during line-item verification. You specify a line-item type by selecting the appropriate type from the line type field. Note that there can only be one line-item field of type "freight".

If the custom line-item field (LIT_LineType) is not defined in your setup, all line items have the type "item" when sent to Oracle Financials Cloud.

Automatic line classification

In Oracle Financials Cloud, purchase order line items are classified as goods or services. Goods often involve inventory or products that are delivered, stocked, and tracked with quantities and prices. Services typically relate to work done, consulting, maintenance, or labor, and they may be tracked without quantities or physical delivery. Goods lines require quantity and unit price fields in Oracle Financials Cloud. Administrators can enable a setting which automatically classifies matched PO lines as service lines if both quantity and price fields are empty or zero. Otherwise, lines are classified as goods.

An administrator can enable the **Identify service lines by missing quantity and price** setting to use this feature.

Mark an invoice as credit or debit

When verifying invoices, you can change invoices from debit to credit (credit note/credit memo) and vice versa. To change whether an invoice is debit or credit, locate the credit/debit field and make

the appropriate selection in the drop-down box. When you process a credit memo, the integration ensures the invoice amount is negative when the credit memo is sent to Oracle Financials Cloud.

Specify payment methods

Payment method information is required for incoming invoices in Oracle Financials Cloud. If an administrator has added a payment method field as described here, you can specify the payment method during verification. You specify a payment method by selecting the appropriate method from the payment method field.

Specify tax codes

In Oracle Financials Cloud, tax codes are often determined using tax classification fields or ship-to location fields. Tungsten AP Essentials can import tax classification and location (ship-to location) master data from Oracle, which you can use as field suggestions when specifying tax classification and ship-to locations during verification.

Depending on how Oracle Financials Cloud is configured, an administrator can set up tax handling settings in Tungsten AP Essentials to import tax classification data, location data, or both. Then the master data can be connected to fields in Tungsten AP Essentials to provide field suggestions (autocomplete) and validation. This is beneficial because the use of master data prevents errors which otherwise occur during manual entry.

AP Essentials Office users can specify tax classification fields and/or ship-to location fields as header fields or line-item fields. Header fields provide default values for empty line-item fields. For example, if the ship-to location header field has a value, but all or some of the ship-to location line-item fields are empty, the empty fields use the value of the header field when the data is sent to Oracle Financials Cloud. Values in line-item fields take precedence over the default value provided by the header field. In other words, if you specify a value in a tax classification or ship-to location line-item field that differs from the header field, the line-item field value is used.

Oracle Financials Cloud: Data templates

When you configure the Oracle Financials Cloud target system service, you can use data templates to specify values for distribution combinations, header fields, line-item fields, and payables descriptive flexfields for header and line-item fields.

- **Distribution combination template** specifies the data from Tungsten AP Essentials that you want to use for the distribution combinations in Oracle Financials Cloud.
- **Header field mapping** specifies the Tungsten AP Essentials data to use when mapping payables header fields in Oracle Financials Cloud.
- **Line-item field mapping** specifies the Tungsten AP Essentials data to use when mapping line-item fields in Oracle Financials Cloud.
- **Descriptive flexfield template** specifies the Tungsten AP Essentials data to use when mapping payables descriptive flexfields in Oracle Financials Cloud.
- **Line-item descriptive flexfield template** specifies the Tungsten AP Essentials data to use when mapping line-item descriptive flexfields in Oracle Financials Cloud.
- **Global descriptive flexfield template** specifies the Tungsten AP Essentials data to use when mapping global payables descriptive flexfields in Oracle Financials Cloud.

To use flexfield templates, you must add custom fields (`DFFContext` and/or `LIT_DFFContext`) to a document type. During verification, the values you specify in these fields provide context to the flexfield template. The flexfield templates are not used unless you specify a field value that matches a context code in the template. Read more about context fields.

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.
- **$** - to indicate that it is a metadata variable.

The default value for the **Distribution combination template** is:

```
%$BuyerExternalId%-%AccountCode%
```

Field mapping

By default, Tungsten AP Essentials maps many fields to payables fields in Oracle. For default mappings, see extraction settings. However, if you want to override a default mapping or map data to a field that is not mapped by default, you can specify a custom mapping. Use the target system settings described earlier in this topic to specify custom field mapping.

You use data templates to specify a custom mapping using this format:

```
OracleField="DataTemplate"
```

Where `OracleField` is the name of a payables field as designated by the Oracle API, and `DataTemplate` is a data template described in this topic. Separate multiple field mappings using semicolons.

Example

```
InvoiceNumber="000%InvoiceNumber%"
```

In the example, the invoice number field in Oracle (`InvoiceNumber`) is mapped to the invoice number field in Tungsten AP Essentials (`%InvoiceNumber%`), which is preceded by three zeros. Therefore, if you process an invoice with invoice number 123456, the value of the invoice number field in Oracle would be set to:

000123456

For more information and examples, refer to context fields.

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber
- #buyer.OrganizationNumber
- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm
- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts
- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2
- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack
- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id

- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60

Process status	Numerical code
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68
DocumentApprovalRejected	69
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95
DocumentExportFailed	99
DocumentExportSucceeded	100
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Metadata variables

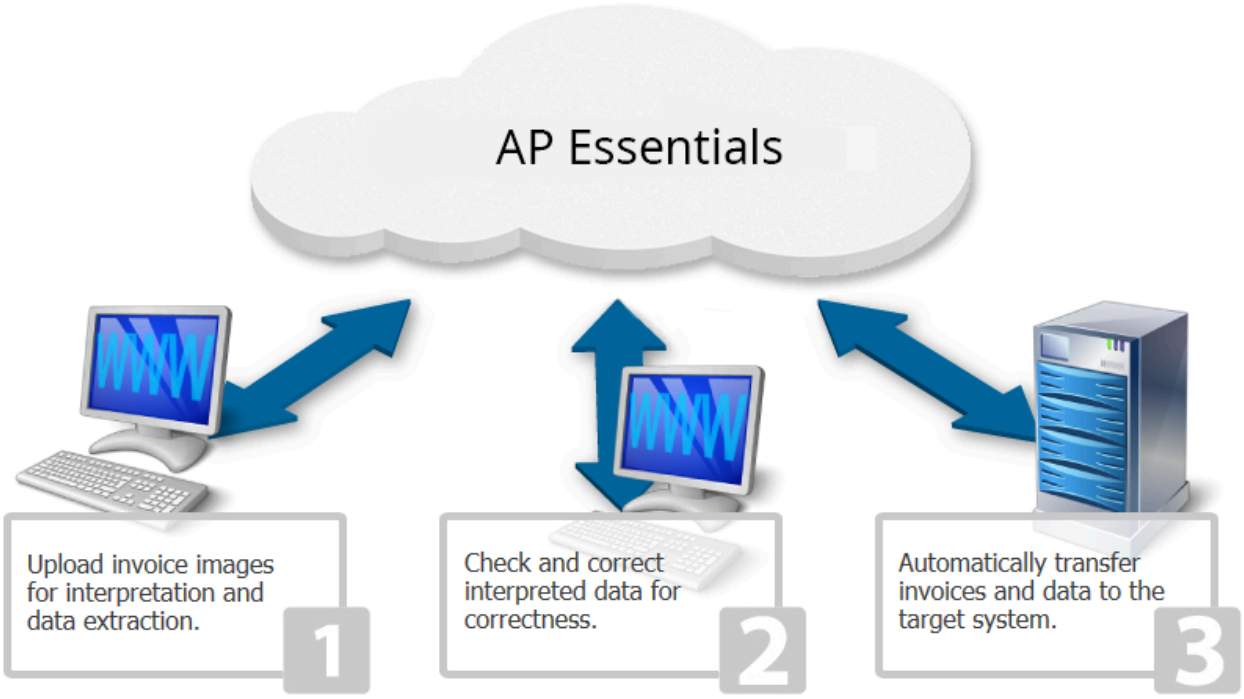
You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

Process Director AP

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

An integration usually consists of three components:

- Tungsten AP Essentials.
- A target system, such as Process Director AP.
- Tungsten AP Essentials Connect, a lightweight program that you install locally to enable communication between the systems and synchronize master data. Tungsten AP Essentials Connect also provides an alternative method to upload documents to Tungsten AP Essentials.

If you use AP Essentials Connect with Process Director AP, you must install the following packages on the same computer that runs AP Essentials Connect:

- Microsoft Visual C++ 2010 Redistributable Package
- Microsoft .NET Framework 4.8 or later
- SAP Connector for Microsoft .NET 3.0 (NCo 3.0)

Microsoft Visual C++ 2010 Redistributables must be installed before installing SAP Connector for Microsoft .NET 3.0. You must install the x86 version of Microsoft Visual C++ 2010 Redistributables. The x64 version is incompatible with the integration.

You must install the latest 32-bit (x86) version of SAP Connector for Microsoft .NET 3.0 (NCo 3.0). The x64 version and the NCo 3.1 version are incompatible with the integration. These are requirements of SAP S/4 Hana 2023.

Key features

The Process Director integration enables cooperation between Tungsten AP Essentials and Process Director. It enhances your current accounts-payable system by extracting data from supplier invoices without complex projects or hardware investments.

Where to go from here

Before you can use Process Director AP with Tungsten AP Essentials, you must complete these steps:

1. Specify Process Director AP as the target system.
2. Add at least one buyer. By default, the **External ID** (**External reference ID**) of the buyer must match a company code in Process Director AP as defined in the XSLT file in the next step.
3. Download the default XSLT file, which is an XSL transformation that maps Tungsten AP Essentials output data with fields in Process Director. Optionally, create your own XSLT file based on the Tungsten AP Essentials XML (2.0) schema.
   - If you use the sample XSLT file as the basis for the XSL transformation, select **Internal** in the **XML version** setting.
   - If you create your own XSLT file, select **Tungsten AP Essentials XML (2.0)** in the **XML version** setting.
4. Upload the XSLT file to the **Resources** view, and specify this file in the **XSL transformation** setting of the target system settings.
5. Configure the remaining target system settings.
6. Configure Tungsten AP Essentials Connect.

AP Essentials Connect for PROCESS DIRECTOR AP

Learn how to set up and use AP Essentials Connect for PROCESS DIRECTOR AP.

Tungsten AP Essentials Connect is a program you can install on a local computer to perform a number of tasks, such as uploading documents to AP Essentials. It is an alternative to uploading documents using the web interface in AP Essentials. Using AP Essentials Connect, you can upload documents automatically, reducing the effort of uploading documents one by one.

AP Essentials Connect runs as a service in the background, so it is not necessary to start a program each time you want to upload documents. Instead, you simply move the files you want to upload to the folders you specify during the installation setup.

AP Essentials Connect can be beneficial if you want to:

- Upload large numbers of documents.
- Automate the process of uploading documents.
- Download output data from AP Essentials.
- Automatically register supplier documents in external systems.

Note that the user interface for AP Essentials Connect is currently only available in English.

Before using AP Essentials Connect with PROCESS DIRECTOR AP, complete the following steps.

1. Verify that you meet the system requirements and install AP Essentials Connect.
2. Create a customer account as described later in this topic.
3. Configure AP Essentials Connect for PROCESS DIRECTOR AP as described later in this topic.

Create a customer account

To use AP Essentials Connect, ensure that your account in Tungsten AP Essentials is set up correctly.

After you create a new customer account, verify the following:

- You cannot specify PROCESS DIRECTOR AP as a target system if Workflow services are enabled.
- To send invoices to PROCESS DIRECTOR AP, ensure PROCESS DIRECTOR AP is specified in the target system service (**Services** > **Target system**) for the account.
- Ensure that you add at least one buyer. The **External ID** (**External reference ID**) of each buyer must match a company code in PROCESS DIRECTOR AP. You can add additional buyers if your organization has more than one buyer.

  If you add a new buyer to the system after you configure Tungsten AP Essentials Connect, you must run the configuration wizard again and specify the new upload locations.

After you create a customer account with appropriate services and buyers, you are ready to install Tungsten AP Essentials Connect.

Configure AP Essentials Connect for PROCESS DIRECTOR AP

Configure optional dialogs that can appear, depending on the services that are enabled in Tungsten AP Essentials:

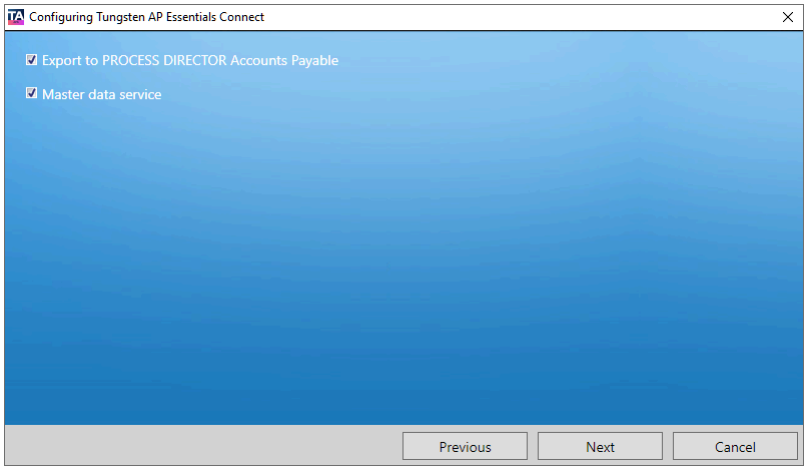
- Configure settings for uploading documents.
- Upload master data. You can only choose one of these methods. Although it is possible to choose both, conflicts will occur.
  - Via local file upload.
  - Via the master data service, which imports master data from PROCESS DIRECTOR Accounts Payable.
- Configure settings for exporting to PROCESS DIRECTOR Accounts Payable.

When a new version of the PROCESS DIRECTOR Accounts Payable integration is released, you must run the configuration wizard again to ensure you have the latest version. Simply select the **Configure** button, select through the wizard until you reach the end, and select **Save**. It is not necessary to change any settings in the wizard.

Latest release date: April 8, 2024

Import master data via the master data service

Importing master data using the master data service differs from uploading master data as described earlier. When you select **Master data service** in the setup wizard, master data is imported directly from PROCESS DIRECTOR AP. When importing the master data, **CorporateGroupID** elements in PROCESS DIRECTOR AP master data are mapped with the external IDs of buyers in Tungsten AP Essentials. Master data is only imported for buyers that match a CorporateGroupID.



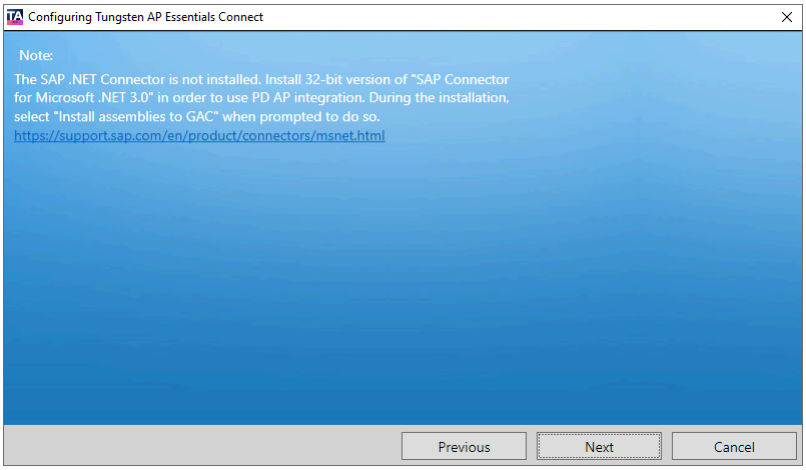
Configure settings for exporting to PROCESS DIRECTOR Accounts Payable

If PROCESS DIRECTOR AP is specified as a target system, you can use Tungsten AP Essentials Connect to automatically export invoices to PROCESS DIRECTOR AP. Be sure to specify the target-system settings correctly before you begin.

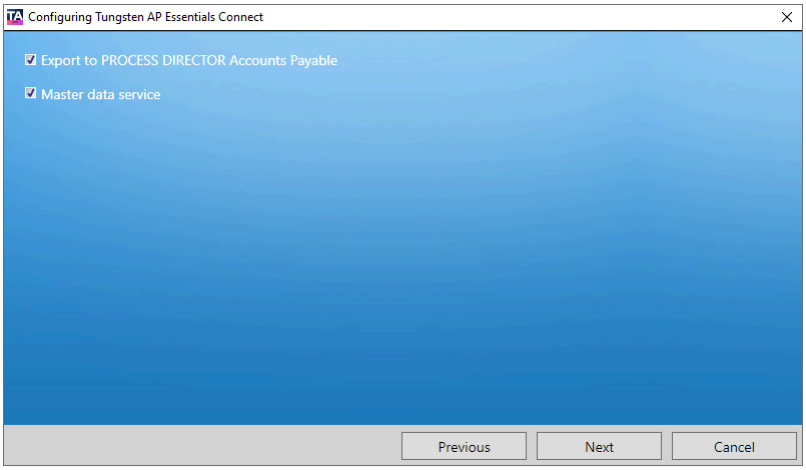
1. If prompted to do so, install the SAP Connector for Microsoft .NET 3.0 (NCo 3.0), and ensure that you select **Install assemblies to GAC** during the installation.

   Microsoft Visual C++ 2010 Redistributables must be installed before installing SAP Connector for Microsoft .NET 3.0. You must install the x86 version of Microsoft Visual C++ 2010 Redistributables. The x64 version is incompatible with the integration.

   You must install the latest 32-bit (x86) version of SAP Connector for Microsoft .NET 3.0 (NCo 3.0). The x64 version and the NCo 3.1 version are incompatible with the integration. These are requirements of SAP S/4 Hana 2023.



2. Select **Export to PROCESS DIRECTOR AP** and optionally select **Master data service** to map the **CorporateGroupID** elements in PROCESS DIRECTOR AP master data with external IDs of buyers in Tungsten AP Essentials.



Export to PROCESS DIRECTOR Accounts Payable	Turns on the integration between Tungsten AP Essentials and PROCESS DIRECTOR AP.
Master data service	Turns on master-data import from PROCESS DIRECTOR AP. If you turn on this setting, you must configure the **Supplier master-data file** setting. Tungsten AP Essentials Connect imports the master data by regularly importing the file you specify in the **Supplier master-data file** setting. Tungsten AP Essentials matches the **CorporateGroupID** elements in PROCESS DIRECTOR AP master data with external IDs of buyers in Tungsten AP Essentials. Master data is only imported for buyers that match a CorporateGroupID.

Setup for multiple customers

If you log in to Tungsten AP Essentials Connect as a partner administrator, you can configure settings for each customer that uses PROCESS DIRECTOR AP as the target system. This feature saves time by eliminating the need to log in to different accounts to configure multiple customers.

Use AP Essentials Connect with PROCESS DIRECTOR AP

After following the procedures, you are ready to use AP Essentials Connect in production.

Troubleshooting AP Essentials Connect for PROCESS DIRECTOR AP

Generic issues

Do not run multiple instances of AP Essentials Connect at the same time for a single customer account. Doing so causes errors because each instance competes to process the same documents.

If you have problems running AP Essentials Connect:

- Ensure that computers that run AP Essentials Connect have access to the URL below that corresponds to your location. AP Essentials Connect uses these URLs to install updates. After the August 2026 release, new URLs take effect.

Current URLs	
Europe	https://webeyeprod.blob.core.windows.net/onlineconnect/install/Deployment.manifest
Asia and Australia	https://webeyeprodasia.blob.core.windows.net/onlineconnect/install/Deployment.manifest
North America	https://webeyeprodna.blob.core.windows.net/onlineconnect/install/Deployment.manifest
New URLs (effective with the August 2026 release)	
Europe	https://connect-updates-prod-eu.readsoftonline.com
Asia and Australia	https://connect-updates-prod-as.readsoftonline.com
North America	https://connect-updates-prod-na.readsoftonline.com

You can select the links above to test if you have access. Select the links using the same computer that runs AP Essentials Connect. If you receive a 404 error, you do not have access.

- Ensure you can download the files that are listed in the page that is displayed when you select one of the links above. To do this, replace "Deployment.manifest" in the URL with one of the file names in the list.
- Log in to AP Essentials using the same computer that runs AP Essentials Connect to ensure you can connect to AP Essentials.
- If you use a proxy connection, ensure the settings are applied to the same user/account that runs AP Essentials Connect. By default, this is a local System account. To test this, access AP Essentials

using a location above, then change the AP Essentials Connect user to the same Windows user you tested with.

Login issues

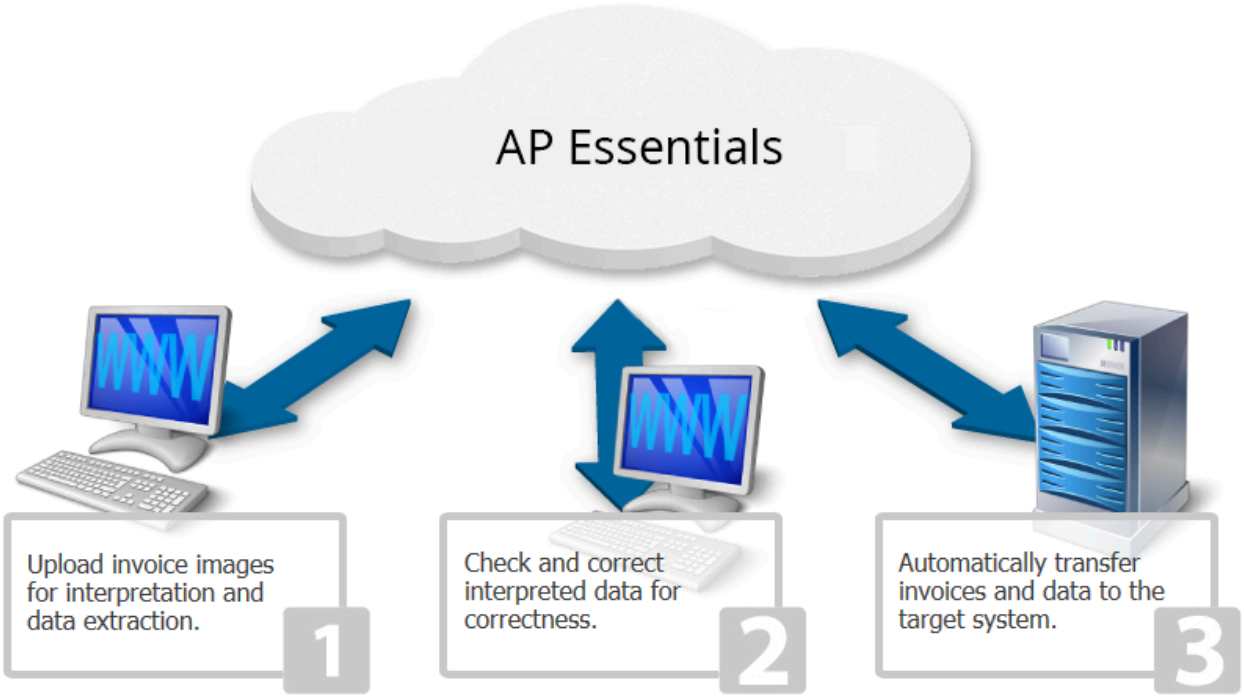
If you receive the message, "Name or password is incorrect (repeat logon)", it can be caused by using an exclamation point (!) in your password. Even if the login information works correctly using "SAP logon", the exclamation point can cause problems when using AP Essentials Connect.

To resolve this issue, try changing your password to a password that does not use exclamation points.

SAP S/4HANA Cloud ES

Tungsten AP Essentials is an automated document-processing system that uses remote cloud computing. This means you no longer have to maintain large, expensive server systems and complex software installations to process documents. Instead, we handle all of that for you, and all you need is a web browser to access a state-of-the-art document-processing system on the cloud.

Tungsten AP Essentials accepts documents in various formats—such as paper, image files, and email—and automatically interprets and validates them. All you have to do is log in using a web browser to upload invoices and check interpreted data for correctness using an intuitive, state-of-the-art interface. Administrative tasks can be easily performed in a web browser.



After an invoice is processed, Tungsten AP Essentials automatically sends the output (document data and images) to a target system. The target system can be one of many popular financial systems, accounting programs, ERP systems, or even a file system. The possibilities are endless.

Tungsten AP Essentials can do more than send output to a target system; it can also perform seamless, two-way communication with the target system, providing additional features and interaction. We call this an integration. Integrations are flexible, easy to configure, and come complete with all the features you need to connect Tungsten AP Essentials with your target system. This saves you time and money.

This integration consists of the following components:

- Tungsten AP Essentials.
- SAP S/4HANA Cloud ES.

Integration features

The SAP S/4HANA Cloud ES integration enables cooperation between Tungsten AP Essentials and SAP S/4HANA Cloud ES. It leverages more power and adds value to your current system by extracting data from invoices without expensive hardware investments.

The SAP S/4HANA Cloud ES integration supports the following features:

- Processing of purchase order and non-PO invoices and credit notes (credit memos). Purchase order invoices containing service lines are also supported.
- Manual and automatic line-item pairing.
- Account coding.
- Automatic multiple-account assignment of purchase order lines.
- The integration synchronizes master data between SAP S/4HANA Cloud ES and Tungsten AP Essentials. Suppliers, purchase orders, general ledger accounts, and tax codes can be imported, so the data is available for selection during document processing in Tungsten AP Essentials.
- Split-delivery purchase orders.
- Document parking.
- 3-way matching.
- Field mapping using data templates.

Where to go from here

Before you can use SAP S/4HANA with Tungsten AP Essentials, you must:

- Configure SAP S/4HANA Cloud ES.
- Configure Tungsten AP Essentials.

> The SAP S/4HANA Cloud ES integration only supports master data on the buyer level. To use the SAP S/4HANA Cloud ES integration, you must select **Master data on buyer level** in the Master data settings.

After you complete the configuration and the rest of the customer setup, you are ready to begin processing invoices using the integration for SAP S/4HANA Cloud ES.

Configure Tungsten AP Essentials for use with SAP S/4HANA Cloud ES

Before you can use the SAP S/4HANA Cloud ES integration with Tungsten AP Essentials, you must configure these settings in Tungsten AP Essentials:

- Buyer settings
- Extraction settings
- Workflow settings
- Target system
- Master data

Buyer settings

For each company in SAP S/4HANA Cloud ES that you want to send invoices to, you must add a corresponding buyer in Tungsten AP Essentials. The external reference ID of each buyer in Tungsten AP Essentials must match a company code in SAP S/4HANA Cloud ES.

The SAP S/4HANA Cloud ES integration only supports master data on the buyer level. To use the SAP S/4HANA Cloud ES integration, you must select **Master data on buyer level** in the Master data settings.

Extraction settings

You must edit the extraction settings for each document type you use and make sure the required Tungsten AP Essentials fields are specified for the corresponding fields in SAP S/4HANA Cloud ES. If a document type you use lacks a required field, you must add a custom field using the field type name specified in the tables below. Likewise, the SAP S/4HANA system must use the required fields specified in the tables below.

General expense field requirements

Tungsten AP Essentials exports non-PO invoices to SAP S/4HANA Cloud ES with the status *Posted*. Non-PO invoices that only contain header fields are exported to SAP S/4HANA Cloud ES with the status *Parked*.

Adjust your document types for general expense invoices according to this table:

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
Header fields		
InvoiceNumber	SupplierInvoiceIDByInvcgParty	
InvoiceCurrency	DocumentCurrency	
	CompanyCode	The value is taken from the External ID of the buyer.
InvoiceDate	DocumentDate	

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
PostingDate	PostingDate	`PostingDate` is a custom field that you must add to the document type.
SupplierNumber	InvoicingParty	
TaxDeterminationDate	TaxDeterminationDate	`TaxDeterminationDate` is a custom field that you must add to the document type.
InvoiceTotalVatIncludedAmount	InvoiceGrossAmount	
InvoiceTotalVATAmount	InvoiceTotalTaxAmount	Optional.
InvoiceTaxAmount1	TaxAmount	
TaxCode1	TaxCode	`TaxCode1` is a custom field that you must add to the document type.
TaxJurisdiction1	TaxJurisdiction	Optional. If you want to use this optional field, you must add `TaxJurisdiction1` to the document type as a custom field.
TaxCountry	TaxCountry	Optional. If you want to use this optional field, you must add `TaxCountry` to the document type as a custom field.
WithholdingTaxType	WithholdingTaxType	Optional. If you want to use this optional field, you must add `WithholdingTaxType` to the document type as a custom field.
WithholdingTaxCode	WithholdingTaxCode	Optional. If you want to use this optional field, you must add `WithholdingTaxCode` to the document type as a custom field.
WithholdingTaxBaseAmount	WithholdingTaxBaseAmount	Optional. If you want to use this optional field, you must add `WithholdingTaxBaseAmount` to the document type as a custom field.
WithholdingTaxAmount	ManuallyEnteredWhldgTaxAmount	Optional. If you want to use this optional field, you must add `WithholdingTaxAmount` to the document type as a custom field.
InvoiceCredit	SupplierInvoiceIsCreditMemo	
DueCalculationBaseDate	DueCalculationBaseDate	`DueCalculationBaseDate` is a custom field that you must add to the document type. If `DueCalculationBaseDate` is empty, the value is calculated using the payment terms of the supplier according to the company code.
	PaymentTerms	Payment terms are retrieved from SAP using the company code and the supplier.
GeneralLedgerAccount	GLAccount	`GeneralLedgerAccount` is a custom field that you must add to the document type. If `GeneralLedgerAccount` is empty the value is copied from the **Default GL account number** setting.

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
Line-item fields		
	SupplierInvoiceItem	This value is automatically set by the integration.
LIT_ArticleName	Description	
BuyerExternalId	CompanyCode	
LIT_GeneralLedgerAccount	GLAccount	`LIT_GeneralLedgerAccount` is a custom field that you must add to the document type. If `LIT_GeneralLedgerAccount` is empty the value is copied from the header field `GeneralLedgerAccount`. If `GeneralLedgerAccount` is empty or does not exist, the value is copied from the **Default GL account number** setting.
InvoiceCurrency	DocumentCurrency	
LIT_VatExcludedAmount	SupplierInvoiceItemAmount	
LIT_VATCode	TaxCode	If `LIT_VATCode` is empty, the value is copied from the header field `TaxCode1`.
LIT_TaxJurisdiction	TaxJurisdiction	`LIT_TaxJurisdiction` is a custom field that you must add to the document type. If `LIT_TaxJurisdiction` is empty, the value is copied from the header field `TaxJurisdiction1`.
	DebitCreditCode	This value is set to: • "S" for debit. • "H" for credit.
LIT_DeliveredQuantityUnitCode	QuantityUnit	
LIT_DeliveredQuantity	Quantity	

Purchase order field requirements

Adjust your document types for purchase order invoices according to this table:

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
Header fields		
InvoiceNumber	SupplierInvoiceIDByInvcgParty	
InvoiceCurrency	DocumentCurrency	
	CompanyCode	The value is taken from the External ID of the buyer.
InvoiceDate	DocumentDate	

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
PostingDate	PostingDate	`PostingDate` is a custom field that you must add to the document type.
InvoiceTotalVatIncludedAmount	InvoiceGrossAmount	
SupplierNumber	InvoicingParty	
InvoiceDate	TaxDeterminationDate	If `InvoiceDate` is not specified during verification, `DocumentDate` is used.
InvoiceCredit	SupplierInvoiceIsCreditMemo	
	PaymentTerms	The value is taken from SAP.
DueCalculationBaseDate	DueCalculationBaseDate	`DueCalculationBaseDate` is a custom field that you must add to the document type. If `DueCalculationBaseDate` is empty the value is calculated using the payment terms of the supplier according to the company code.
InvoiceOrderNumber	PONumber	If the line-item field `LIT_OrderNumber` is not specified during verification, the field value is taken from this header field.
InvoiceTotalVatIncludedAmount	InvoiceGrossAmount	
InvoiceTotalVATAmount	InvoiceTotalTaxAmount	Optional.
InvoiceTaxAmount1	TaxAmount	
TaxCode1	TaxCode	`TaxCode1` is a custom field that you must add to the document type.
TaxJurisdiction1	TaxJurisdiction	Optional. If you want to use this optional field, you must add `TaxJurisdiction1` to the document type as a custom field.
TaxCountry	TaxCountry	Optional. If you want to use this optional field, you must add `TaxCountry` to the document type as a custom field.
WithholdingTaxType	WithholdingTaxType	Optional. If you want to use this optional field, you must add `WithholdingTaxType` to the document type as a custom field.
WithholdingTaxCode	WithholdingTaxCode	Optional. If you want to use this optional field, you must add `WithholdingTaxCode` to the document type as a custom field.
WithholdingTaxBaseAmount	WithholdingTaxBaseAmount	Optional. If you want to use this optional field, you must add `WithholdingTaxBaseAmount` to the document type as a custom field.
WithholdingTaxAmount	ManuallyEnteredWhldgTaxAmount	Optional. If you want to use this optional field, you must add `WithholdingTaxAmount` to the document type as a custom field.
Line-item fields		

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
	SupplierInvoiceItem	This value is automatically set by the integration.
LIT_VatExcludedAmount	SupplierInvoiceItemAmount	Required for posting.
LIT_VATCode	TaxCode	If `LIT_VATCode` is empty, the value is copied from the header field `TaxCode1`.
LIT_TaxJurisdiction	TaxJurisdiction	`LIT_TaxJurisdiction` is a custom field that you must add to the document type. If `LIT_TaxJurisdiction` is empty, the value is copied from the header field `TaxJurisdiction1`.
InvoiceCurrency	DocumentCurrency	Required for parking and posting.
LIT_OrderNumber	PurchaseOrder	Required for parking and posting. If the field value is not specified during verification, the value is taken from the header field `InvoiceOrderNumber`.
LIT_RowIdentifier	PurchaseOrderItem	Required for parking and posting.
LIT_DeliveredQuantity	QuantityInPurchaseOrderUnit	Required for posting.
LIT_DeliveredQuantityUnitCode	PurchaseOrderQuantityUnit	Required for posting.
LIT_ArticleName	Description	Optional.

Workflow settings

Account coding requires the Workflow service. Specify the coding fields in the **Coding** settings according to this table:

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
Header fields		
AccountCode	Account	Add `GeneralLedger` to the **Account types** settings if it does not already exist. The `GeneralLedger` account type enables the `AccountCode` and `Amount` fields in Tungsten AP Essentials.
Amount	Amount	
TaxCode	TaxCode	`TaxCode` is a custom field that you must add to the **Coding fields** settings. If `TaxCode` is empty, the value is copied from the header field `TaxCode1`.

Tungsten AP Essentials field type name	SAP S/4HANA Cloud ES field	Note
TaxJurisdiction	TaxJurisdiction	`TaxJurisdiction` is a custom field that you must add to the **Coding fields** settings. If `TaxJurisdiction` is empty, the value is copied from the header field `TaxJurisdiction1`.
CompanyCode	CompanyCode	`CompanyCode` is a custom field that you must add to the **Coding fields** settings.
CostCenter	CostCenter	`CostCenter` is a custom field that you must add to the **Coding fields** settings.
ProfitCenter	ProfitCenter	`ProfitCenter` is a custom field that you must add to the **Coding fields** settings.
FunctionalArea	FunctionalArea	`FunctionalArea` is a custom field that you must add to the **Coding fields** settings.
FinancialTransactionType	FinancialTransactionType	`FinancialTransactionType` is a custom field that you must add to the **Coding fields** settings.

If the target SAP system supports document parking, you can optionally select **Allow document parking** in the **Coding** settings. This enables a setting that allows Office users to park documents during coding and approval. Parked documents retain the *Parked* status when exported to SAP S/4HANA Cloud ES.

Target system settings

Adjust the target system settings in Tungsten AP Essentials.

1. In Admin Center, navigate to the **Target system** view and select **Edit**.
2. Select **SAP S/4HANA Cloud ES** and select **Configuration**.
3. Specify the settings in the view that appears.
4. Select **Test** to test the connection settings.
   Make corrections if necessary.
5. Select **OK** to confirm your settings and return to the **Target system** view.
6. Select **Save**.

Master data

Tungsten AP Essentials automatically imports master data from SAP S/4HANA Cloud ES and uses the data to suggest and validate field values during verification. Master data is synchronized on the buyer level. Therefore, the external reference ID of the buyer in Tungsten AP Essentials must match the company code in SAP S/4HANA Cloud ES.

The SAP S/4HANA Cloud ES integration only supports master data on the buyer level. To use the SAP S/4HANA Cloud ES integration, you must select **Master data on buyer level** in the Master data settings.

Supplier master data

This table shows the correlation between Tungsten AP Essentials master data and SAP S/4HANA Cloud ES data.

Tungsten AP Essentials field (type name)	SAP S/4HANA Cloud ES field
Name	SupplierName
Blocked	BusinessPartnerIsBlocked
to_Supplier	
SupplierNumber	Supplier
Description	The description is taken from the **Long Text** supplier description in SAP and is filtered according to the buyer language.
TaxRegistrationNumber	The first `BPTaxNumber` field of the business partner is used.
TaxCode	n/a
to_BusinessPartnerAddress	
Location	AddressID
City	CityName
PostalCode	CompanyPostalCode
CountryName	Country
Street	StreetName
State	Region
to_BusinessPartnerAddress/to_PhoneNumber	
TelephoneNumber	PhoneNo
to_BusinessPartnerAddress/to_FaxNumber	
FaxNumber	FaxNumber
to_Supplier/to_SupplierCompany	
PaymentTerm	PaymentTerms
PaymentMethod	PaymentMethodsList
to_Supplier/to_SupplierPurchasingOrg	
CurrencyCode	PurchaseOrderCurrency

Purchase order master data

Only purchase orders with the *Release completed* status are imported. Optionally, you can also choose to exclude fully invoiced purchase orders in the target system settings. This table shows the correlation between Tungsten AP Essentials master data and SAP S/4HANA Cloud ES data.

<table>
<tr><th>Tungsten AP Essentials field (type name)</th><th>SAP S/4HANA Cloud ES field</th></tr>
<tr><td>OrderNumber</td><td>PurchaseOrder</td></tr>
<tr><td>SupplierNumber</td><td>Supplier</td></tr>
<tr><td>CurrencyCode</td><td>DocumentCurrency</td></tr>
<tr><td>DateCreated</td><td>DocumentDate (Doc. Date)</td></tr>
<tr><td>ContactName</td><td>SupplierRespSalesPersonName
ContactName is the full name of a person in the supplier (vendor) organization.</td></tr>
<tr><td>Description</td><td></td></tr>
<tr><td>SupplierName</td><td>Supplier.BusinessPartnerName</td></tr>
<tr><td>StatusText</td><td>PurchasingProcessingStatus
The StatusText value is taken from the value of PurchasingProcessingStatus.
<table>
<tr><th>PurchasingProcessingSta value</th><th>Description</th></tr>
<tr><td>01</td><td>Version in process - Indicates version management is enabled and in process.</td></tr>
<tr><td>02</td><td>Active - Indicates the PO has been created or is on hold.</td></tr>
<tr><td>03</td><td>In release - Indicates the PO is pending release.</td></tr>
<tr><td>04</td><td>Partially released - Indicates the PO is partially released.</td></tr>
<tr><td>05</td><td>Release completed - Indicates the release is completed and can be processed further.</td></tr>
<tr><td>08</td><td>Release rejected - Indicates the release of PO is rejected or cancelled.</td></tr>
</table></td></tr>
<tr><td colspan="2">Purchase order line items</td></tr>
<tr><td>OrderLineNumber</td><td>PurchaseOrderItem</td></tr>
<tr><td>ArticleNumber</td><td>Material</td></tr>
<tr><td>ArticleDescription</td><td>PurchaseOrderItemText</td></tr>
<tr><td>CategoryDescription</td><td>PurchaseOrderItemCategory</td></tr>
<tr><td>Quantity</td><td>OrderQuantity</td></tr>
</table>

Tungsten AP Essentials field (type name)	SAP S/4HANA Cloud ES field
Unit	PurchaseOrderQuantityUnit
UnitPrice	NetPriceAmount
PriceUnit	NetPriceQuantity
SupplierArticleNumber	SupplierMaterialNumber
RowTotalAmountVatExcluded	This value is calculated from the PO. OrderQuantity x NetPriceAmount / NetPriceQuantity
StatusText	This value remains empty until the item is fully invoiced, at which point the value is set to "Fully invoiced".
InvoicedQuantity	This value is calculated from the sum of QtyInPurchaseOrderPriceUnit in purchase order history table for records where PurchasingHistoryDocument = 2.
DeliveredQuantity	This value is calculated from the sum of QtyInPurchaseOrderPriceUnit in purchase order history table for records where PurchasingHistoryDocument = 1.
IsDeliveryRequired	The value is the converse of the IsCompletelyDelivered field value.

For credit notes (credit memos), invoice quantities and amounts are negated.

General ledger accounts master data

This table shows the correlation between Tungsten AP Essentials master data and SAP S/4HANA Cloud ES data.

Tungsten AP Essentials field	SAP S/4HANA Cloud ES field (table)
Code	GLAccount
Group	GLAccountGroup

Active	The field is set to true if:
	• All of these GLAccount properties are false:
	  • AccountIsBlockedForCreation
	  • AccountIsBlockedForPosting
	  • AccountIsBlockedForPlanning
	  • AccountIsMarkedForDeletion
	• All of these GLAccount._GLAccountInCompanyCode properties are false:
	  • AccountIsBlockedForPosting
	  • AccountIsMarkedForDeletion

Name	GLAccountName
Description	GLAccountLongName

Tax code master data

This table shows the correlation between Tungsten AP Essentials master data and SAP S/4HANA Cloud ES data.

Tungsten AP Essentials field	SAP S/4HANA Cloud ES field (table)
Value	TaxCode
Description	TaxTypeName
Name	TaxCodeName
Active	n/a

The **Value** field is unique. **Active** is always set to true.

Work breakdown structure (WBS) master data

In SAP S/4HANA ERP, WBS elements are part of the Project System (PS) module. WBS elements represent the hierarchical structure used to plan, monitor, and control the various tasks and costs in a project. The SAP S/4HANA Cloud ES integration supports the import of WBS master data, which you can connect to fields for field value suggestions, validation, and export to SAP. You enable WBS import in the target system settings, where you can also specify buyer selection, which WBS statuses to synchronize, and which WBS statuses are considered active.

This table shows the correlation between Tungsten AP Essentials master data and SAP S/4HANA Cloud ES data.

Tungsten AP Essentials field	SAP S/4HANA Cloud ES field
Value	WBS element ID.
Name	WBS element name.
Description	Project name, WBS element name, WBS element status.
Active	• By default, the value is true if the WBS status is *Created Released*, or *Partially Released*. You can use the **Active WBS statuses** setting to determine which WBS statuses are considered active. • By default, the value is false if the WBS status is *Locked Completed*, or *Closed*.

Configure SAP S/4HANA Cloud ES for use with Tungsten AP Essentials

Before you can use the SAP S/4HANA Cloud ES integration with Tungsten AP Essentials, perform these steps:

- Enable OData services.
- Configure custom CDS views.
- Define a communication system.

- Adjust the **Maintain Trusted Network Zone** settings in SAP S/4HANA Cloud ES (optional).
- Adjust settings for creating purchase orders for 3-way matching (optional)

These procedures serve as a basic guide for configuring SAP S/4HANA Cloud ES for use with Tungsten AP Essentials and require knowledge of SAP S/4HANA Cloud ES. Refer to SAP S/4HANA Cloud ES documentation for more information concerning SAP S/4HANA Cloud ES.

Enable OData services

For AP Essentials to communicate with SAP, you must enable the following OData services in SAP S/4HANA:

- API_SUPPLIERINVOICE_PROCESS_SRV
- API_CV_ATTACHMENT_SRV
- API_BUSINESS_PARTNER
- API_COMPANYCODE_SRV
- API_ENTERPRISE_PROJECT_SRV
- API_MATERIAL_DOCUMENT_SRV
- API_SERVICE_ENTRY_SHEET_SRV
- API_PURCHASEORDER_2

Configure custom CDS views

Custom CDS views are required to import master data from SAP S/4HANA Cloud ES. Creating a CDS view combines information from different tables and reduces the number of data transfers. To configure a custom CDS, you must first create the CDS view, and then make it available to the integration via a communication scenario and a communication arrangement. After you complete these procedures, you specify the CDS APIs and resources in the target system settings.

1. Create CDS views for purchase orders, company tax procedures, country tax codes, tax types, and company general ledger accounts.
2. Create a communication scenario for each CDS view.
3. Create a communication arrangement for the CDS views.
4. Specify the CDS view APIs and resources in the target system settings

Note: Records in the CDS views can contain data in different languages. To determine the language, the integration uses the buyer language of the company code (CompanyCode field) in SAP. If the company code language is not specified for a particular tax code, English is used.

Create a CDS view for purchase orders

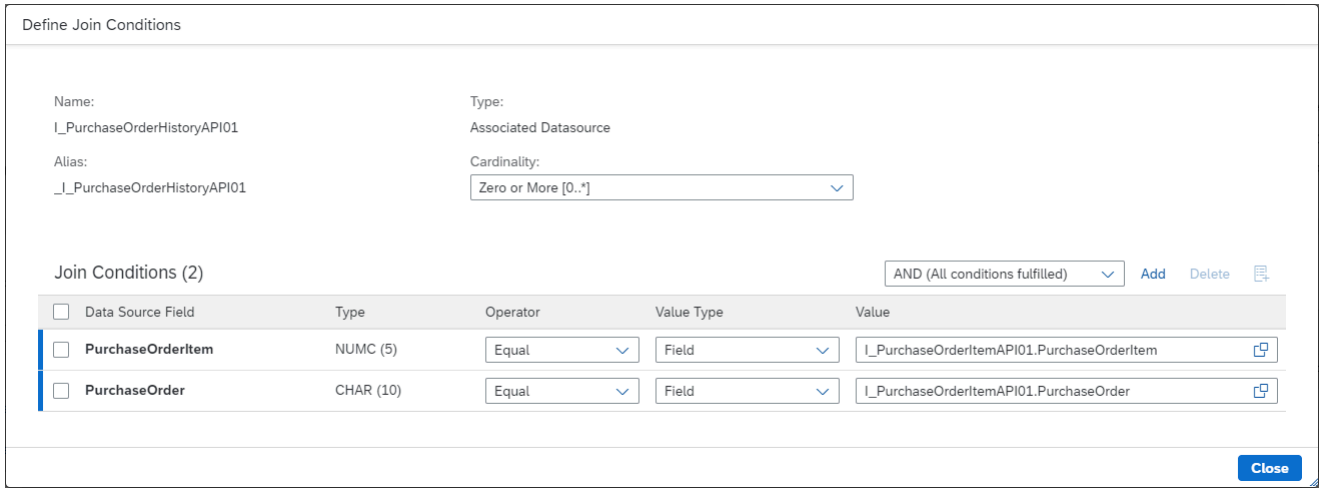
When you create the CDS view for purchase orders, you add these data sources and join them:

- I_PurchaseOrderItemAPI01
- I_PurchaseOrderHistoryAPI01

1. In SAP, navigate to **Custom CDS Views** and select **Create**.
2. Use the dialog that appears to specify a **Label** and **Name**.
   The **Name** must start with "YY1_". For example: `YY1_POWithHistory`

You cannot modify the name later.

3. Select **External API** in the **Scenario** setting.
4. Select **Create**.
5. In the view that appears, select **I_PurchaseOrderItemAPI01** to include the PO history as a data source.
   The data source appears in the **Custom CDS View Details** view.
6. Select **Add** > **Associated Data Source** and use the dialog that appears to add **I_PurchaseOrderHistoryAPI01** as a data source.
   Both data sources now appear in the **Custom CDS View Details** view.
7. Select **Join Condition** and use the dialog that appears to join **PurchaseOrderItem** with `I_PurchaseOrderItemAPI01.PurchaseOrderItem`. Likewise, join **PurchaseOrder** with `I_PurchaseOrderItemAPI01.PurchaseOrder`.



   Ensure that **Zero or More [0..*]** is selected in the **Cardinality** setting.
8. Select **Close** to return to the **Custom CDS View Details**, and select the **Elements** tab.
9. Select **Add** > **Elements**.
10. In the dialog that appears, expand the aliases you created previously, and enable these fields:

Table	Field
I_PurchaseOrderItemAPI01	PurchaseOrder
I_PurchaseOrderItemAPI01	PurchaseOrderItem
I_PurchaseOrderItemAPI01	OrderQuantity
I_PurchaseOrderItemAPI01	PurchaseOrderItemText
I_PurchaseOrderItemAPI01	OrderPriceUnit
I_PurchaseOrderItemAPI01	PurchaseOrderQuantityUnit
I_PurchaseOrderItemAPI01	IsCompletelyDelivered
I_PurchaseOrderItemAPI01	PurchaseOrderItemCategory

Table	Field
I_PurchaseOrderItemAPI01	NetPriceAmount
I_PurchaseOrderItemAPI01	NetPriceQuantity
I_PurchaseOrderItemAPI01	SupplierMaterialNumber
I_PurchaseOrderItemAPI01	Material
I_PurchaseOrderItemAPI01	PurchasingDocumentDeletionCode
I_PurchaseOrderItemAPI01._PurchaseOrder	CompanyCode
I_PurchaseOrderItemAPI01._PurchaseOrder	Supplier
I_PurchaseOrderItemAPI01._PurchaseOrder	PurchaseOrderDate
I_PurchaseOrderItemAPI01._PurchaseOrder	PurchasingProcessingStatus
I_PurchaseOrderItemAPI01._PurchaseOrder	CreationDate
I_PurchaseOrderItemAPI01._PurchaseOrder	DocumentCurrency
I_PurchaseOrderItemAPI01._PurchaseOrder	SupplierRespSalesPersonName
I_PurchaseOrderHistoryAPI01	AccountAssignmentNumber
I_PurchaseOrderHistoryAPI01	PurchasingHistoryDocumentType
I_PurchaseOrderHistoryAPI01	PurchasingHistoryDocumentYear
I_PurchaseOrderHistoryAPI01	PurchasingHistoryDocument
I_PurchaseOrderHistoryAPI01	PurchasingHistoryDocumentItem
I_PurchaseOrderHistoryAPI01	QtyInPurchaseOrderPriceUnit
I_PurchaseOrderHistoryAPI01	DebitCreditCode

11. Use the **Filter** tab in the **Custom CDS View Details** to create the filters below. Note that value of the second field is empty.

Field	Value
I_PurchaseOrderItemAPI01._PurchaseOrder.PurchasingProcessingStatus	05
I_PurchaseOrderItemAPI01.PurchasingDocumentDeletionCode	

12. Select **Publish** to finish creating your CDS view.

Create a CDS view for company tax procedures

When you create the CDS view for company tax procedures, you add this data source:

- I_CompanyCode

1. In SAP, navigate to **Custom CDS Views** and select **Create**.
2. Use the dialog that appears to specify a **Label** and **Name**.
   The **Name** must start with "YY1_". For example: `YY1_CompanyTaxProcedures`
   Note: You cannot modify the name later.
3. Select **External API** in the **Scenario** setting.
4. Select **Create**.

5. In the view that appears, select **I_CompanyCode** to include the company tax procedures as a data source.
   The data source appears in the **Custom CDS View Details** view.
6. Select **Close** to return to the **Custom CDS View Details**, and select the **Elements** tab.
7. Select **Add** > **Elements**.
8. In the dialog that appears, expand the aliases you created previously, and enable these fields:

Table	Field
I_CompanyCode	CompanyCode
I_CompanyCode._Country	Country
I_CompanyCode	CompanyCodeName
I_CompanyCode._Country	TaxCalculationProcedure
I_CompanyCode	CityName
I_CompanyCode	Language

9. Select **Publish** to finish creating your CDS view.

Create a CDS view for country tax codes

When you create the CDS view for country tax codes, you add these data sources and join them:

- I_Country
- I_TaxCode

1. In SAP, navigate to **Custom CDS Views** and select **Create**.
2. Use the dialog that appears to specify a **Label** and **Name**.
   The **Name** must start with "YY1_". For example: `YY1_CountryTaxCodes`
   Note: You cannot modify the name later.
3. Select **External API** in the **Scenario** setting.
4. Select **Create**.
5. In the view that appears, select **I_Country** to include the country tax codes as a data source.
   The data source appears in the **Custom CDS View Details** view.
6. Select **Add** > **Associated Data Source** and use the dialog that appears to add **I_TaxCode** as a data source.
   Both data sources now appear in the **Custom CDS View Details** view.
7. Select **Join Condition** and use the dialog that appears to join **TaxCalculationProcedure** with `I_Country.TaxCalculationProcedure`.
   Ensure that **Zero or More [0..*]** is selected in the **Cardinality** setting.
8. Select **Close** to return to the **Custom CDS View Details**, and select the **Elements** tab.
9. Select **Add** > **Elements**.
10. In the dialog that appears, expand the aliases you created previously, and enable these fields:

Table	Field
I_Country	Country
I_Country	TaxCalculationProcedure

Table	Field
_I_TaxCode	TaxCode
_I_TaxCode	TaxType
_I_TaxCode._Text	Language
_I_TaxCode._Text	TaxCodeName

11. Select **Publish** to finish creating your CDS view.

Create a CDS view for tax types

When you create the CDS view for tax types, you add this data source:

- I_TaxTypeText

1. In SAP, navigate to **Custom CDS Views** and select **Create**.
2. Use the dialog that appears to specify a **Label** and **Name**.
   The **Name** must start with "YY1_". For example: `YY1_TaxTypes`
   Note: You cannot modify the name later.
3. Select **External API** in the **Scenario** setting.
4. Select **Create**.
5. In the view that appears, select **I_TaxTypeText** to include the company tax types as a data source.
   The data source appears in the **Custom CDS View Details** view.
6. Select the **Elements** tab.
7. Select **Add** > **Elements**.
8. In the dialog that appears, expand the aliases you created previously, and enable these fields:

Table	Field
I_TaxTypeText	TaxType
I_TaxTypeText	Language
I_TaxTypeText	TaxTypeName

9. Select **Publish** to finish creating your CDS view.

Create a CDS view for company general ledger accounts

When you create the CDS view for company general ledger accounts, you add this data source:

- I_GLAccount

1. In SAP, navigate to **Custom CDS Views** and select **Create**.
2. Use the dialog that appears to specify a **Label** and **Name**.
   The **Name** must start with "YY1_". For example: `YY1_CompanyGLAccounts`
   Note: You cannot modify the name later.
3. Select **External API** in the **Scenario** setting.
4. Select **Create**.
5. In the view that appears, select **I_GLAccount** to include the company general ledger accounts as a data source.

The data source appears in the **Custom CDS View Details** view.

6. Select **Close** to return to the **Custom CDS View Details**, and select the **Elements** tab.
7. Select **Add** > **Elements**.
8. In the dialog that appears, expand the aliases you created previously, and enable these fields:

Table	Field
I_GLAccount	GLAccount
I_GLAccount	CompanyCode
I_GLAccount	AccountIsMarkedForDeletion
I_GLAccount	AccountIsBlockedForCreation
I_GLAccount	AccountIsBlockedForPosting
I_GLAccount	AccountIsBlockedForPlanning
I_GLAccount	GLAccountGroup
I_GLAccount._Text	GLAccountName
I_GLAccount._Text	GLAccountLongName
I_GLAccount._Text	Language
I_GLAccount._GLAccountInCompanyCode	AccountIsBlockedForPosting Alias: AccountIsBlockedForPostingInCo
I_GLAccount._GLAccountInCompanyCode	AccountIsMarkedForDeletion Alias: AccountIsMarkedForDeletionInCo

9. Select **Publish** to finish creating your CDS view.

Create a communication scenario for each CDS view

To relay the CDS view results to Postman or other programming tools, you must create a communication scenario.

1. Navigate to the **Custom Communication Scenarios** view.
2. Select **New**.
3. Specify the settings in the **New Communication Scenario** dialog and select **New**.
4. Select the communication scenario you created in the previous step.
5. In the right pane, select the **Add** button (**+**).
   The **Add Services** dialog appears.
6. Select a custom CDS view that you created in the previous procedures and select **OK**.
7. Select **Publish**.
8. Repeat the steps above for the other CDS views.

Create a communication arrangement for the CDS views

1. Navigate to the **Communication Arrangements** view and select **New**.
   The **New Communication Arrangement** dialog appears.
2. Select the **Scenario** you created in the previous procedure and select **Create**.
3. Enter "TENANTACCESS" in the **Communication System** setting and select **Display**.

The **User Name** setting is specified automatically.

4. Select **Save**.
   Use Postman to ensure that your custom CDS view is configured correctly. For example, to get available resource for the PO history, use this endpoint:

   ```
   {{TENANT_ENDPOINT}}:{{PORT}}/sap/opu/odata/sap/YY1_POHISTORY_CDS/
   ```

   For example, to get the CDS view for the PO history, use this endpoint:

   ```
   {{TENANT_ENDPOINT}}:{{PORT}}/sap/opu/odata/sap/YY1_POHISTORY_CDS/
   YY1_POHistory
   ```

Specify the CDS view APIs and resources in the target system settings

After you have created communication scenarios and arrangements for each of the CDS views you created above, you specify them in the corresponding settings in the target system settings. If you used the example names for the CDS views from the procedures above, your settings look like this:

Tungsten AP Essentials target system setting	CDS API and resource
Purchase order history CDS API	YY1_POWithHistory_CDS/YY1_POWithHistory
Company tax procedures CDS API	YY1_CompanyTaxProcedures_CDS/ YY1_CompanyTaxProcedures
Country tax codes CDS API	YY1_CountryTaxCode_CDS/YY1_CountryTaxCodes
Tax types CDS API	YY1_TAXTYPES_CDS/YY1_TaxTypes
Company GL accounts CDS API	YY1_COMPANYGLACCOUNTS_CDS/ YY1_CompanyGLAccounts

Define a communication system

To make the SAP S/4HANA Cloud ES data service available to your integration services, you must define a communication system. When you define the communication system, you perform these steps:

1. Create a communication system.
2. Create a communication user.
3. Add the user to the inbound connection.
4. Add the user to the outbound connection.
5. Create communication arrangements for the communication system.

Create a communication system

To make the SAP S/4HANA Cloud ES data service available to your integration services, you must create a communication system.

1. Navigate to the **Communication Systems** view and select **New**.
2. Use the view that appears to specify the system ID and name of the new communication system and select **Create**.
3. In the view that appears, specify these settings:
   - **Host Name** - The remote system for outgoing API service calls.

- **Logical System** - The logical system ID that is required for IDoc communication.
- **Business System** - The business system ID that identifies the communication system in your system landscape.
- **Port** - The default value is 443.
- **Is Hub System** - Select this setting if you send all B2B messages to a central hub, such as SAP Ariba.
- **Inbound Only** - If you want your communication system to be used for a communication arrangement, based on a communication scenario that only contains inbound services, we recommend selecting this setting. If this setting is selected, settings relating to outbound communication are hidden.
- **UI Host Name** - The host name of the remote system for outgoing API service calls.

4. Select **Save** to save the new communication system settings.

Create a communication user

To make the SAP S/4HANA Cloud ES data service available to your integration services, you must create a communication user.

1. Navigate to the **Define Communication Users** view (**Maintain Communication Users** app) and select **New**.
2. Use the view that appears to specify the new user.
3. Select **Create** to create the new user.

Add the user to the inbound connection

To make the SAP S/4HANA Cloud ES data service available to your integration services, you must add a user to an inbound connection.

1. Navigate to the **Communication Systems** view and select the communication system you created above.
2. Select **Edit** and select the **Users for Inbound Communication** tab.
3. Select the **Add** button (**+**).
4. In the view that appears, enter the user you created above in the **User Name** box and select **OK**.
5. Select **Save** to save your settings.

Add the user to the outbound connection

When making the SAP S/4HANA Cloud ES data service available to your integration services, you can optionally add a user to an outbound connection.

1. Navigate to the **Communication Systems** view and select the communication system you created above.
2. Select **Edit** and select the **Users for Outbound Communication** tab.
3. Select the **Add** button (**+**).
4. In the view that appears, enter the user you created above in the **User Name** box and select **Create**.
5. Select **Save** to save your changes.

Create communication arrangements for the communication system

You must bind all of these communication scenarios to your communication system:

Arrangement Name	Scenario
SAP_COM_0008	Business Partner, Customer and Supplier Integration
SAP_COM_0441	Employee Central Financial Master Data Integration
SAP_COM_0108	Material Document Integration
SAP_COM_0009	Product Integration
SAP_COM_0053	Purchase Order Integration
SAP_COM_0087	SAP Analytics Cloud for Planning Integration
SAP_COM_0146	Service Entry Sheet Integration
SAP_COM_0057	Supplier Invoice Integration

1. Navigate to the **Communication Arrangements** view and select **New**.
   The **New Communication Arrangement** dialog appears.
2. Select one of the scenarios from the table above and select **Create**.
3. Enter the communication system you created above in the **Communication System** setting.
   Ensure that the user you created above is specified in the **User Name** setting. Depending on your setup, that user can appear in the **Inbound Communication** settings, **Outbound Communication** settings, or both
4. In the **Outbound Communication** settings, clear all of the **Service Status** boxes.
   If your solution requires the service status, you can leave the boxes selected. However, then you must specify the replication models.
5. Select **Save**.
6. Repeat the steps above for each scenario in the table.

Adjust the Maintain Trusted Network Zone settings

If you want to link to invoice images in Tungsten AP Essentials storage from SAP, you must specify readsoftonline.com as a trusted host in the **Maintain Trusted Network Zone** settings in SAP:

1. Log in to SAP S/4HANA Cloud ES and navigate to the **Maintain Trusted Network Zone** view.
2. Select **+** in the **Trusted Hosts** settings.
3. Enter these settings:

Setting	Value
Trusted Host Name	*.readsoftonline.com
Schema	HTTPS
Port	443
Type	Managed by customer

Create purchase orders for 3-way matching

Three-way matching, if enabled, is performed according to the quantities of goods received on the purchase order. In SAP S/4HANA, purchase order lines can have a setting called **Goods-Receipt-Based Invoice Verification**. When this setting is enabled, an invoice must reference a specific **Goods Receipt** related to the purchase order and invoice. To simplify this process, AP Essentials automatically determines the correct goods receipt reference, ensuring invoices can be sent to SAP without requiring manual selection.

When an invoice is posted for a purchase order with goods-receipt-based invoice verification, the connector checks for available goods receipts and determines whether the invoice can be created.

For each purchase order line that requires a goods receipt reference, the connector evaluates three possible scenarios:

- No goods receipt exists – The invoice is rejected.
- A goods receipt exists but has already been fully or partially invoiced – If the available (uninvoiced) quantity is less than what the invoice requires, the invoice is rejected.
- A goods receipt exists with enough quantity for the invoice – The invoice is created with a reference to that goods receipt.

If there is only one suitable goods receipt for a purchase order line, the invoice is created. If there are multiple suitable goods receipts or none at all, the invoice is rejected and returned to AP Essentials with an error.

Note:

- Each invoice line is processed independently.
- The connector does not attempt to split an invoice line across multiple goods receipts.
- The decision process ensures invoices are only created when there is complete certainty about the correct goods receipt reference.

Process invoices with the SAP S/4HANA Cloud ES integration

When you process invoices using the SAP S/4HANA Cloud ES, you follow the normal procedures for verifying, coding, and approval, with these additional features:

- Purchase order support.
- Document parking.

Purchase order support

Purchase orders are imported from SAP S/4HANA Cloud ES to Tungsten AP Essentials, so the data is available for selection during invoice processing in Tungsten AP Essentials. When specifying line items during verification, if you do not specify a purchase order number, the purchase order number from the header field is used. Purchase orders are exported to SAP S/4HANA Cloud ES with the status *Posted*.

Purchase orders that contain service lines

The integration supports posting purchase order invoices that contain service lines. Invoices can be parked automatically when service entry sheets (SES) are missing, unapproved, or ambiguous. This ensures smoother invoice processing by reducing rejection rates and enabling manual resolution of SES-related issues. When parking invoices with service lines, problematic service lines are removed. In the target system settings, you can choose to **Park invoices with too many service entry sheets** and/or **Park invoices that do not have service entry sheets** .

3-way matching

Three-way matching, if enabled, is performed according to the quantities of goods received on the purchase order. In SAP S/4HANA, purchase order lines can have a setting called **Goods-Receipt-Based Invoice Verification**. When this setting is enabled, an invoice must reference a specific **Goods Receipt** related to the purchase order and invoice. To simplify this process, AP Essentials automatically determines the correct goods receipt reference, ensuring invoices can be sent to SAP without requiring manual selection.

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If there is only one suitable goods receipt for a purchase order line, the invoice is created. If there are multiple suitable goods receipts or none at all, the invoice is rejected and returned to AP Essentials with an error.

Note:

- Each invoice line is processed independently.
- The connector does not attempt to split an invoice line across multiple goods receipts.
- The decision process ensures invoices are only created when there is complete certainty about the correct goods receipt reference.

Document parking

If the target SAP system supports document parking, and an administrator has enabled document parking in Tungsten AP Essentials, Office users can park documents during coding and approval. Parked documents retain the *Parked* status when exported to SAP S/4HANA Cloud ES.

Credit notes (credit memos)

The integration supports processing these types of credit notes:

- Credit notes containing only header fields.

- Credit notes with general-ledger items.
- Credit notes with purchase-order references.
- Credit notes with coding lines.

Credit notes without purchase order lines are mapped to general-ledger items in SAP. The `DebitCreditCode` field for each line is set to "H" in SAP.

Automatic multiple-account assignment of purchase order lines

SAP S/4HANA lets you create purchase orders with multiple account assignments. Each account assignment distributes portions of the costs of the purchase order to multiple cost centers. For example, 60% of the cost can be assigned to one account, and 40% of the cost can be assigned to another account. The integration performs account assignment of purchase order lines automatically. When the integration posts a PO invoice to SAP, it checks the purchase order information in SAP and automatically assigns each amount to the correct account.

SAP S/4HANA Cloud ES: Data templates

When you configure the SAP S/4HANA Cloud ES target system service, you can use data templates to specify values for header fields and line-item fields.

- **Header field mapping** specifies the Tungsten AP Essentials data to use when mapping to header fields in SAP S/4HANA Cloud ES.
- **Line-item field mapping** specifies the Tungsten AP Essentials data to use when mapping to line-item fields in SAP S/4HANA Cloud ES.

You specify the data templates using plain-text constants and variables enclosed in percent marks.

- **Constants** - fixed values that you specify as text.
- **Variables** - dynamic values that are determined by invoice data or system data. Variables are enclosed in percent characters (%).

To specify a variable for an invoice field, enclose the Type name of the field in percent characters (%).

A variable can also be preceded by:

- **#** - to indicate that it is a system variable.
- **@** - to indicate that it is a history variable.
- **$** - to indicate that it is a metadata variable.

You cannot map line-item fields to **Purchasing Document References** fields in SAP.

Field mapping

By default, Tungsten AP Essentials maps many fields to fields in SAP . See defaults. However, if you want to override a default mapping or map data to a field that is not mapped by default, you can specify a custom mapping. Use the target system settings described earlier to specify custom field mapping.

You use data templates to specify a custom mapping using this format:

```
SAPField="DataTemplate"
```

Where `SAPField` is the name of a SAP field as designated by the SAP API, and `DataTemplate` is a data template described in this topic. Separate multiple field mappings using semicolons.

Example

```
SupplierInvoiceIDByInvcgParty ="000%InvoiceNumber%"
```

In the example above, the invoice number field in SAP (`SupplierInvoiceIDByInvcgParty`) is mapped to the invoice number field in Tungsten AP Essentials (`%InvoiceNumber%`), which is preceded by three zeros. Therefore, if you process an invoice with invoice number 123456, the value of the invoice number field in SAP would be set to:

000123456

System variables

You can specify system variables to obtain the values of system variables in Tungsten AP Essentials.

- #Appendices
- #CreditInvoice
- #BatchPrefix
- #buyer.Type
- #buyer.Name
- #buyer.Id
- #buyer.ExternalId
- #buyer.Description
- #buyer.TaxRegistrationNumber
- #buyer.OrganizationNumber
- #buyer.Street
- #buyer.PostalCode
- #buyer.City
- #buyer.CountryName
- #buyer.PaymentTerm
- #buyer.PaymentMethod
- #buyer.CurrencyCode
- #buyer.BankAccounts
- #Currency
- #DateTime
- #Description
- #DocumentTypeSystemName
- #ImageFile2
- #NumberOfPagesFrontAndBack
- #NumberOfInvoicePages
- #NumberOfInvoicePagesFrontAndBack

- #NumberOfAppendixPages
- #NumberOfAppendixPagesFrontAndBack
- #Pages
- #Permalink
- #ProfileName
- #EndorserNumber
- #Supplier
- #Supplier.Description
- #supplier.Type
- #supplier.Name
- #supplier.Id
- #supplier.ExternalId
- #supplier.TaxRegistrationNumber
- #supplier.OrganizationNumber
- #supplier.Street
- #supplier.PostalCode
- #supplier.City
- #supplier.CountryName
- #supplier.PaymentTerm
- #supplier.PaymentMethod
- #supplier.CurrencyCode
- #supplier.BankAccounts

History variables

You can specify history variables to obtain the user or the date and time of a specific process. You construct a history variable using one of these formats:

- @UserX
- @DateX

Where:

- *User* specifies that you want the user associated with the process.
- *Date* specifies that you want the date the process occurred.
- *X* specifies the numerical code of the process you want to return.

For example, %@Date0% returns the date a document was created. %@User0% returns the user name that created the document.

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

Process status	Numerical code
DocumentCreated	0
DocumentExtractionInProgress	30

Process status	Numerical code
DocumentExtractionSucceeded	40
DocumentPendingManualVerification	45
DocumentPendingCorrection	46
DocumentCorrectionFlowStarting	47
DocumentCorrectionFlowInProgress	48
DocumentCorrectionFlowDone	49
DocumentRejectedDuringVerification	50
DocumentRequestForInformationDuringVerification	55
DocumentManuallyVerified	60
DocumentPendingRegistration	61
DocumentRegistrationInProgress	62
DocumentRegistrationSucceeded	63
DocumentRegistrationFailed	64
DocumentPendingApproval	65
DocumentApprovalStarting	79
DocumentApprovalInProgress	66
DocumentApproved	67
DocumentApprovalSucceeded	68
DocumentApprovalRejected	69
DocumentRequestForInformation	70
DocumentPendingAllocation	71
DocumentPendingPost	74
DocumentPostInProgress	75
DocumentPostSucceeded	76
DocumentPostFailed	77
DocumentAssignedToUser	78
DocumentPendingBatchRegistration	80
DocumentPendingBatchPost	81
DocumentValidationFailed	82
DocumentPendingExport	90
DocumentExportPostponed	91
DocumentExportInProgress	95
DocumentExportFailed	99
DocumentExportSucceeded	100

Process status	Numerical code
DocumentSentToStorage	200
DocumentCommentAdded	201
LineItemExtractionUsed	202
DocumentFailed	900
DocumentDeleted	1000

Custom date formats

The default date format returned by the date variable is YYY-MM-ddTHH:mm:ss.FFFFFFFZ. For example: 2021-02-28T14:46:21.1265774Z.

If you use the Oracle Financials Cloud integration or the SAP S/4HANA Cloud ES integration, you can control the format of the date variable using standard date and time formats as well as custom formats. You specify the format of your choice by enclosing it in braces after the date variable, like this:

%@date0{yyyy-MM-dd}%

The date variable above would return 2021-02-28.

Metadata variables

You can specify these variables to obtain additional metadata from Tungsten AP Essentials that is not available in the variables above:

- $WebEye.CustomerID
- $WebEye.BatchID
- $WebEye.OutputImageFormat
- $WebEye.DocumentID
- $ExternalId
- $UploaderUserName
- $OriginalFileName
- $BatchTrackId
- $ReceiveTime
- $DocumentId
- $VerifierUserName

Chapter 10

Reference

The following reference topics provide detailed information about system requirements, keyboard shortcuts, supported file formats, and other technical specifications. For the complete list, browse the table of contents.

- Data retention
- Keyboard shortcuts
- Sample documents
- Supported input file formats
- System requirements
- Getting help with Tungsten Automation products

Copyright Notices

```
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Tungsten AP Essentials 2026.4 Notices
-------------------------------------
=======
SUMMARY
=======
Note: missing copyright references are marked with (*)

"Item #","Product","Library Name","Library Version","Library Group","Notice
 Type","Notice Name","Notice Status","Notice Link","Notice Details","Author"
"1","Tungsten AP Essentials 2026.4","angular-split-20.0.0.tgz","20.0.0","angular-
split","OTHER","                                 Apache License
                           Version 2.0, January 2004
                        http://www.apache.org/licenses/

   TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

   1. Definitions.

      "License" shall mean the terms and conditions for use, reproduction,
      and distribution as defined by Sections 1 through 9 of this document.

      "Licensor" shall mean the copyright owner or entity authorized by
      the copyright owner that is granting the License.

      "Legal Entity" shall mean the union of the acting entity and all
      other entities that control, are controlled by, or are under common
      control with that entity. For the purposes of this definition,
      "control" means (i) the power, direct or indirect, to cause the
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Reference:https://www.npmjs.com/package/rxjs/v/7.8.2

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Data retention

This topic explains how long Tungsten AP Essentials stores your data.

Account information

When an account is deleted, all associated settings, users, documents (including storage documents), and master data are simultaneously deleted. You cannot recover an account or its data after it has been deleted.

Documents

Document information is stored only on AP Essentials servers. While you can view documents in your web browser when logged in, no documents or related data are stored locally in the browser.

The amount of time documents remain available in AP Essentials depends on whether you use Storage services.

- *Exported* and *Deleted* documents that are not in storage are automatically deleted from Tungsten AP Essentials after three months. For exported documents, the entire batch must be successfully processed before deletion can occur.
- Documents that are not in storage and are still in the system, but have not been fully processed, are automatically deleted one year after the last user interaction.
- Copies of documents in storage remain indefinitely unless you manually delete them, discontinue the Storage service, or delete the customer account.

Storage service	Document status	Expiration (deleted)
No	*Exported*, *Deleted*	3 months after export/ deletion After three months, the document is deleted from the system without warning.
No	In progress (all statuses except *Exported*)	One year after the last user interaction After one year, the document is deleted from the system without warning.
Yes	Exported	Never. Documents remain in the system until you manually delete them, discontinue the Storage service, or delete the customer account. Deleting a buyer does not remove documents from storage.

Analytics reports

The retention period for Analytics reports varies for each report.

Category	Report	Metric / Record	Retention period
Workload	Overview	In-progress documents	Data remains as long as the documents are in progress.
	Accrual	In-progress documents	
	Pending user action	In-progress documents	
	On hold	In-progress documents	
	Workflow queue	In-progress documents	

Category	Report	Metric / Record	Retention period
	By due date	Invoice due	
	By user	In-progress documents	
	Rejected	Reject codes	
	Request for information	Request For Information	
Volume	Overview	Successfully processed Deleted	2 years
	Billing	Deleted Successfully processed Added to Storage Storage total	Current year and the previous year
	By organization	Successfully processed	2 years
	By user	Volumes - By user	2 years
	By sender	Volumes - Successfully processed	2 years
	Annual comparison	Volumes - Successfully processed	Current year and the previous 3 years
	Document processing	Document processing	Retained indefinitely
Performance	Total process time	Volumes - Successfully processed	2 years
	Process time by sender	Volumes - Successfully processed	2 years
	Total verification time by user	Verification duration	2 years
	Verification time by sender	Verification duration	2 years
	Verification velocity	Verification duration	2 years
	Verification touch rate	Volumes - Successfully processed	2 years
	Supplier identification	Document extraction	6 months
	Buyer classification	Document extraction	
	Field extraction	Field extraction	

Email

Incoming email

AP Essentials accepts documents for processing via the Email input service. Incoming email is stored for three months.

Outgoing email

AP Essentials sends email notifications to users. For example, emails from the Notification service and approval notifications from the Workflow service. Outgoing email messages are immediately deleted from the mail server after the email is sent.

Audit trail

These logs are kept as long as the account exists:

- Organizations (created, updated, deleted, activated, deactivated)
- Service plan information (all changes)
- User, user groups, identity providers (created, updated, deleted)
- Services (all changes including services added, deleted, updated)
- Resources (all changes including added, deleted, set to trusted)
- Authentication (successful and failed attempts)

To keep data manageable and relevant, all other audit trail entries not mentioned in the list above are retained for one year from the time of creation.

How to access your data

At Tungsten Automation, we are committed to giving you clear, practical access to the data you generate and manage through our service. This topic explains what data is available and how you can export it.

The most important data, documents in progress, is readily accessible at any time by processing them through the system using your configured target system service. Other data, such as configuration data, is specific to AP Essentials and typically not portable to other systems. However, it can still be accessed through the user interface or the API.

Export options

- **Documents**: Complete processing for all documents to export them to the target system.
- **Storage files**: In AP Essentials Office, select any or all files in the **Files** view and select **Download**.
- **Resources**: Navigate to the **Resources** view and select **Download**.
- **Analytics data**: Navigate to any report in Analytics and select **Export to Excel**.
- **User accounts**: Navigate to the **Users** view and select **Export**.
- **Storage documents**: Please contact Professional Services to obtain documents in Storage.

API Access

Although configuration settings are not readily exportable from the user interface, you can use the following API endpoints to access them.

- **Buyers**: customers/{customerid}/buyers
- **Customer accounts**: /accounts/rest/currentcustomer, /accounts/rest/customers
- **Email templates**: /accounts/rest/emailtemplate/{organizationId}

- **Master data**: /documentation/rest#masterdata
- **Partner accounts**: /accounts/rest/currentaccount
- **Service plans**: /accounts/rest/serviceplans/{organizationId}
- **User groups**: /accounts/rest/organization/{organizationId}/allgroups

Service settings

- **Classification service settings**: /accounts/rest/{accountId}/services/classification
- **Email Input service settings**: /accounts/rest/accounts/{accountId}/services/emailinputoptions
- **Extraction service settings**: /accounts/rest/customers/{customerId}/services/extraction, /accounts/rest/customers/buyers/{buyerId}/services/extraction, /accounts/rest/{accountId}/services/extraction
- **Master data service settings**: /accounts/rest/{accountId}/services/masterdata
- **Notifications service settings**: /accounts/rest/organizations/{organizationId}/services/notification
- **Storage service settings**: /accounts/rest/organizations/{organizationId}/services/storage
- **Target system service settings**: /accounts/rest/customers/{customerId}/services/output3
- **Validation service settings**: /accounts/rest/{accountId}/services/validations
- **Verification service settings**: /accounts/rest/{accountId}/services/verify

For assistance or further details on services engagements related to exporting data, please contact Professional Services at pseudataenquiries@tungstenautomation.com.

Email attachment validation

When you use Email input services, email attachments are validated in this order:

1. Email attachment validation - First a simple check is made to ensure the attachment is a supported file format. Valid attachments move to the next step. Invalid attachments are not handled.
2. Batch input validation - Valid batches are processed. Invalid batches will be stuck with Input validation failure status.

Email attachment validation

Email attachment validation can have one of these outcomes:

- Valid attachment - A file type that AP Essentials can process—such as a PDF, TIF, or XML—which is readable.
- Invalid attachment - A file type that AP Essentials should be able to process, but cannot because it is corrupt.
- Unsupported attachment - A file type that AP Essentials cannot process, such as a DOC or XLS file, or an image that is too small (height or width less than 1,000 pixels).

Example

You use the **Email forwarding** view to specify the conditions that trigger email forwarding. Email can be forwarded when the input mail is accepted or rejected. For the purposes of this table, assume that Accepted and Discarded are selected in the Email forwarding dialog.

Input: One email with one or more attachments	Result
Valid attachment	The attachment is processed and a single accepted email is sent.
Unsupported attachment	The attachment is discarded and a single discarded email is sent.
Invalid attachment	The attachment is discarded and a single discarded email is sent.
Valid attachment + Unsupported attachment	One attachment is processed and a single accepted email is sent. The unsupported attachment is silently ignored.
Valid attachment + Invalid attachment	Both attachments are discarded and a single discarded email is sent.
Invalid attachment + Unsupported attachment	Both attachments are discarded and a single discarded email is sent.
Unsupported XML format	The invoice appears in the **All documents** view in Batches mode with the status: Input failed.

Batch input validation

Batches are displayed in the **All documents** view in Batches mode with the status: Input failed, if:

- It is a well-formed XML file, but the XML format is not supported.
- The batch contains only blank pages.
- The batch contains two leading blank pages and an odd number of total pages.
- Multiple document types or buyers are defined, but neither the Email input service settings nor the email subject specify which to use.

Field status

When you verify invoices, each field displays a symbol that shows its status.

	The field was interpreted correctly. Fields with this icon have the Complete status.
	The field needs your attention. When you select a field that requires adjustment, a tooltip appears that describes the problem.

Fields

This topic describes many of the fields Tungsten AP Essentials uses.

Field types

Fields are categorized into one of the following types:

- Amount
- Date
- Text

Field names

Fields have three names, each with a different purpose.

- Name — The name of the field as it appears in the output sent to the target system.
- Type name — The unique, internal name that AP Essentials uses to identify a field and connect it to specific business logic. This is also the name you use to specify fields in master data and API integrations.
- Display name — The name that appears in AP Essentials Office. This is also the name AP Essentials sends to the target system.

Administrators can view all field properties in the **Field** view.

Common fields

The most common fields AP Essentials supports are listed here.

Field type name	Description
AddressName	The name of a person or business in an address.
AddressPostalCode	The postal code of an address.
AmountRounding	The amount an invoice has been rounded up or down.
Barcode	Supported barcodes.
BSBBankAccount	Bank state branch account number. A BSB code is a number used to identify the individual branch of an Australian financial institution.
BuyerContactPersonName	The name of the buyer's contact person.
BuyerContactReference	An identifier provided by the buyer's contact person.
BuyerTaxNumber1	The tax number of the buyer.
BuyerVATRegistrationNumber	The VAT registration number of the buyer.
ChargeAmount1, ChargeAmount2, ChargeAmount3, ChargeAmount4	Additional charges such as delivery costs or related costs.

Field type name	Description
ContractNo	A contract number.
DeliveryAddressLocationId	The location ID of a delivery address. For example, a global location number (GLN).
DeliveryCost	The delivery cost.
DeliveryCostEnvironmental	An environmental delivery cost.
DeliveryCostFuel	A fuel cost related to delivery.
DeliveryCostInsurance	Delivery insurance cost.
DeliveryCostPackaging	A packaging cost related to delivery.
DeliveryCostPostage	A postage cost related to delivery.
DeliveryCostShipping	A shipping cost related to delivery.
DeliveryCostToll	A toll cost related to delivery.
DeliveryDate	The date of delivery for the invoiced items.
DeliveryNote	Special notes about the delivery.
DeliveryTerms	The terms related to delivery of the invoiced items.
DiscountAmount1, DiscountAmount2, DiscountAmount3, DiscountAmount4	Discount amounts. These fields are specific to the XML document type.
ElectricityMeterID	A unique code associated with an electric meter. This field is specific to Norwegian document types.
EsrAmount	Amount field for Swiss ESR invoices. This field is specific to Swiss document types.
EsrNumber	Payment slip reference number for Swiss ESR invoices. This field is specific to Swiss document types.
EsrReference	Reference field for Swiss ESR invoices. This field is specific to Swiss document types.
FormNumber	The form number. This field is specific to Vietnamese document types.
Header_Text	Header text.
InvoiceBaseAmount2	The base amount. This field is specific to Brazilian document types.
InvoiceBaselineDate	The sale date. This field is specific to Czech document types.
InvoiceChargeAmount	The invoice charge amount. This field is specific to Italian document types.
InvoiceCode	The invoice code. Primarily used in Chinese invoices.
InvoiceCredit	Determines whether a document is a credit or invoice.
InvoiceCurrency	The currency of the document.

Field type name	Description
InvoiceDate	The date the document was created.
InvoiceDiscountAmount	The discount amount.
InvoiceDiscountPercent	The discount percentage.
InvoiceDueDate	The date the document is due.
InvoiceNetAmount1, InvoiceNetAmount2, InvoiceNetAmount3, InvoiceNetAmount4	The net amounts that correspond to the InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3, and InvoiceTaxAmount4 fields. The sum of these fields must be equal to the InvoiceTotalVATExcluded field.
InvoiceNumber	The invoice number.
InvoiceOrderNumber	The order number.
InvoicesSerialIndicator	The serial indicator of an invoice.
InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3, InvoiceTaxAmount4	The individual tax amounts. The sum of these fields must be equal to the InvoiceTotalVATAmount value.
InvoiceTaxCode1, InvoiceTaxCode2, InvoiceTaxCode3, InvoiceTaxCode4	Individual tax codes.
InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3, InvoiceTaxRate4	The tax rates that correspond to the InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3, and InvoiceTaxAmount4 fields.
InvoiceTotalVATAmount	The total tax amount of the document.
InvoiceTotalVatExcludedAmount	The net amount of the document.
InvoiceTotalVatIncludedAmount	The gross amount of the document.
InvoiceTotalVatRatePercent	The total tax of the document as a percentage.
InvoiceType1, InvoiceType2	The invoice type. These fields are specific to Argentinian document types.
InvoicingPeriodEnd	The end of the invoicing period. This field is only available in the XML document type.
InvoicingPeriodStart	The beginning of the invoicing period. This field is only available in the XML document type.
LIT_ArticleIdentifier	The article identifier or article number of a line item.
LIT_ArticleName	The article name of a line item.
LIT_DeliveredQuantity	The delivered quantity of a line item.
LIT_DeliveredQuantityUnitCode	The delivered quantity unit code of a line item.
LIT_DeliveryNote, LIT_Delivernote	The delivery note of a line item.
LIT_DeliveryCost	The delivery cost of a line item.
LIT_DeliveryCostPackaging	The packaging delivery cost of a line item.
LIT_DeliveryNoteNumber	The delivery note number of a line item.
LIT_DeliveryReference	The delivery reference of a line item.

Field type name	Description
LIT_DiscountAmount	The discount amount of a line item.
LIT_DiscountPercent	The discount of a line item in percent.
LIT_OrderNumber	The order number of a line item.
LIT_ProjectID	The project ID associated with a line item.
LIT_RowIdentifier	The row identifier of a line item. Rows are typically identified by a sequential list of numbers.
LIT_UnitPriceAmount	The unit price of a line item.
LIT_VatAmount	The VAT amount of a line item.
LIT_VATCode	The VAT code of a line item.
LIT_VatExcludedAmount	The net amount of a line item.
LIT_VatIncludedAmount	The gross amount of a line item.
LIT_VatRate	The VAT rate (percentage) of a line item.
PaymentAmount2	The payment amount. This field is specific to Dutch document types.
PaymentReferenceNumber	The payment reference number. This field has different uses in various integrations and XML-input mappings.
PaymentReferenceNumberAuthorization	A universally unique payment identifier. This field is specific to Mexican document types.
PaymentTermsInterest	A percentage that is charged for overdue invoices.
PaymentType	Typically a numerical value that represents a payment type.
Projectnumber	The project number.
QrReference	A QR reference from a QR-IBAN. This field is specific to Swiss QR-bills.
ReferenceNumber	A document reference number. This field is specific to Indian document types.
SeriesNumber	A document series number. This field is specific to Vietnamese document types.
SubcontractAgreementNumber	The agreement number of a subcontract. This field is specific to Australian document types.
SupplierAccountNumber1, SupplierAccountNumber2, SupplierAccountNumber3, SupplierAccountNumber4	Supplier account numbers. Up to four fields can be captured. These fields have specific meanings when processing Danish, Norwegian, or Swedish invoices with E-conomic.
SupplierAddressPostalCode	The postal code for a remit-to address.
SupplierBankClearingNumber	The clearing number of the supplier bank.

Field type name	Description
SupplierBankCodeNumber1, SupplierBankCodeNumber2, SupplierBankCodeNumber3, SupplierBankCodeNumber4	Supplier bank account numbers. Up to four fields can be captured. These fields have specific meanings when processing Danish, Norwegian, or Swedish invoices with E-conomic.
SupplierBankDetails1	Details of the supplier bank. This field is specific to the XML document type.
SupplierBicSwiftNumber	The BIC/SWIFT account number. This field is specific to Swiss document types.
SupplierIBAN1, SupplierIBAN2, SupplierIBAN3, SupplierIBAN4	The supplier IBAN number. Up to four IBAN fields can be captured.
SupplierPcAccountNumber	The PC account number. This field is specific to Swiss document types.
SupplierSWIFT1	The supplier SWIFT number.
SupplierTaxNumber1	The supplier tax number.
SupplierTaxNumber2	The supplier tax number. In some cases, this field might map to another field, such as an organization number. Read more about XML field mapping.
SupplierTaxNumberExpirationDate1	The expiration date of the tax number. This field is specific to Argentinian document types.
SupplierTelephoneNumber	The phone number of the supplier.
SupplierVATRegistrationNumber	The VAT registration number of the supplier.
TaxCompliant	Extra field for tax-compliant invoices. This field is specific to Australian document types.
VehicleIdentificationNumber	A vehicle identification number (VIN) that identifies a specific automobile. This field is specific to US document types.
WithholdingTaxAmount	A withholding tax amount.
WithholdingTaxAmount2	A withholding tax amount.
WithholdingTaxRate	The withholding tax percentage.

Glossary

A glossary of terms.

- 2-way matching
- 3-way matching
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- approve
- batch

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- storage
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- user name
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2-way matching

A field validation that ensures that invoiced prices and quantities match purchase order prices and quantities.

3-way matching

A field validation that ensures that invoiced quantities match the quantities of goods received on the purchase order.

absolute value

A non-negative number that is equal to a given number with any negative sign removed.

account coding

Account coding refers to a step in the invoice-approval process where invoiced items are assigned to account identification numbers.

API key

An API key is a GUID that you can use to identify your account when accessing the API using custom integrations or applications such as Tungsten AP Essentials Connect. Administrators can find the API key in the **Target system** view.

approve

When you approve an invoice, you authorize a step in a workflow.

Approving an invoice usually involves one or more of the following tasks:

- Confirming that you ordered the goods or services specified on the invoice.
- Checking that the quantity of goods received matches the invoice.
- Confirming that the prices are correct.
- Account coding.
- Correcting invoices.
- Authorizing payment.

batch

A batch is a group of documents that are processed together as one unit. A batch usually contains several documents, but can consist of only one document.

buyer

A buyer, also called a purchaser or procurement department, is an organizational unit responsible for acquiring goods or services from suppliers, vendors, or sellers. The role of the buyer encompasses various activities, including sourcing suppliers, negotiating contracts, placing purchase orders, receiving goods or services, and processing invoices for payment. A small company might have only one buyer, which is the company itself, whereas larger companies might have multiple buyers that represent subsidiaries or other sub-organizations.

coding fields

Coding fields provide accounting information – such as account and cost center information – to accounting lines. Coding fields can be text fields or list boxes that are populated using master data. In other systems, coding fields are also known as dimensions (Microsoft Dynamics AX) or segments.

coding suggestion

When you code an invoice in a workflow, Tungsten AP Essentials can automatically recommend account codes and amounts based on the choices you made previously. The recommended values are called coding suggestions.

cookies

Cookies are small files that your web browser saves on your computer, so websites can store information about your visit.

How does Tungsten AP Essentials use cookies?

No personal information is saved in cookies from Tungsten AP Essentials. Tungsten AP Essentials uses the following cookies:

- **x-rs-sessioncookies** – Used to determine whether the web browser supports session cookies.
- **x-rs-auth-v1** – Contains user-authorization information.
- **x-rs-host** – Contains the host name for the domain for which the cookie was created.
- **x-rs-csrftoken** – Improves user security by preventing cross-site request forgery.

complete

When the status of each field on an invoice is complete, the invoice is also complete. Invoices that are ready to be sent to the target system are often referred to as complete invoices.

correction workflow

Correction workflows handle problem invoices that cannot be processed through normal workflows. Unlike standard workflows, correction workflows provide specialized processing for invoices that require manual intervention or additional review.

document

In the context of Tungsten AP Essentials, a document is an electronic file that contains invoice, credit note, or remittance advice information.

Tungsten AP Essentials can process documents in many formats.

document type

A document type is a collection of settings that describe the language and regional business logic you want to use to extract and interpret incoming documents. For example, the Swedish document type interprets Swedish invoices, and it contains business logic and fields specific to Sweden. You select the document type in the Extraction service.

document parking

To enter and store (park) incomplete documents in the target system. Parking does not update accounts in the target system. It merely stores the document, and the document remains open for editing until it is posted.

ERP system

Enterprise resource planning (ERP) systems manage accounting, manufacturing, sales and service, customer relationship management, and other information across an entire organization. Tungsten AP Essentials can be integrated with ERP systems.

field

An area on an invoice that contains information to be interpreted and processed by Tungsten AP Essentials.

For example, an invoice date.

general expense (GE) invoice

An invoice that is typically used to bill individual business expenses.

gross amount

The total invoice amount, including tax.

Globally Unique Identifier (GUID)

A randomly generated 128-bit number that is almost certain to be unique. GUIDs are Used to identify a particular component, application, file, database entry, and more.

Although there is no absolute guarantee that each GUID is unique, the total number of unique keys (3.4028×1038) is so large that the probability of the same number being generated twice is very small. GUIDs are written using a four-byte word, three two-byte words, and a six-byte word. For example:

{3F2504E0-4F89-11D3-9A0C-0305E82C3301}

header field

A field on an invoice that is not in a table or part of a list of items.

For example, an invoice number.

hold

To freeze a document, so it cannot move through the system. You can hold a document during any process. When a document is on hold, it is considered held. You "unhold" a document to release it from the hold state, so it can continue processing.

identifier

Unique text or a unique image on an invoice that Tungsten AP Essentials uses to identify a supplier. Invoices with the same identifier are from the same supplier.

An example of an identifier is a bank account number. If invoices from a supplier always contain the same unique bank account number, you can use this to identify the supplier.

Another example is a logo. If invoices from a supplier always include the same unique logo, you can use this to identify the supplier.

image link

A link (URL) that points to a document image in Tungsten AP Essentials Storage or an external system. Image links are enabled in the Storage service settings and are included in the invoice

output data (XML). Image links can be used to display document images in external systems or view documents externally.

integration

An integration is a two-way communication with a target system that provides additional features and interaction beyond the basic sending of output to the target system. Tungsten AP Essentials integrates with many target systems.

interpretation

The overall process of finding information on an invoice.

Interpretation also refers to the technical process of recognizing characters, for example, differentiating between the letter O and the number 0, or between the letter I and the number 1.

invoice

A document from a supplier that contains billing and payment information. Some invoices are single-page, others are multi-page.

invoice approval

The process of authorizing an invoice for payment.

invoice definition

An invoice definition specifies the exact positions and descriptions of fields on a unique invoice from a particular supplier. The invoice definition tells Tungsten AP Essentials where to find the fields to be captured and how to capture them.

invoice verification

The process of checking an invoice to ensure that the interpreted field values are correct and match the invoice image.

line item

One item in a series of items in a list. A line item can contain several line item fields to be captured.

For example, an invoice contains a list of items to be paid for. The list is divided into columns such as part number, quantity, and price. A line item would consist of the information from all three columns for one item on the list.

line item field

An area on an invoice containing information to be interpreted, where the information appears in a list of items.

For example, an invoice contains a list of items to be paid for. The list is divided into columns, such as part number, quantity, and price. You can define three line item fields to capture the part number, quantity, and price for each item.

linear approval

A workflow method that routes invoices according to a managerial hierarchy and monetary limits that you set on user accounts.

master data

Business information – such as supplier and buyer address information or other identifying information – that is used by multiple systems and applications.

multi-page invoice

An invoice that has more than one front page. The invoice can also have back pages and appendices.

net amount

The invoice total before tax is added.

node

A selectable element in a tree view. Each node represents a view that displays when selected.

OCR (Optical Character Recognition)

The OCR (Optical Character Recognition) engine interprets invoices. Tungsten AP Essentials uses multiple engines to get the best result.

parallel approval

- **Parallel approval - first action**

  With first-action parallel approval, after the initial approval is performed, the invoice is simultaneously sent to all managers whose monetary limit is equal to or exceeds the invoice amount.
- **Parallel approval - unanimous**

  Unanimous parallel approval is a variation of linear approval. With unanimous parallel approval, after the initial approval is performed, the invoice is simultaneously sent to all managers up to the manager whose monetary limit exceeds the invoice amount. Unlike first-action approval, however, all of the mangers must approve the invoice for unanimous approval.

post

To post an invoice, enter a transaction in a target system to update the appropriate accounts.

preliminary registration

Preliminary registration refers to the initial stage of invoice processing, where essential data from an invoice is sent to the target system before it enters a workflow for further processing and approval. This stage occurs after the invoice has been verified but before it is approved in a workflow and posted to the target system.

pretty good privacy (PGP)

An encryption program that provides cryptographic privacy and authentication for data communication.

privileges

Privileges are user settings that determine what actions users can perform and what areas they have access to.

public key

A public key is a cryptographic key that anyone can use to encrypt data. Only the recipient can decipher the data by using a second key (the private key). A typical public key looks like this:

```
-----BEGIN PGP PUBLIC KEY BLOCK-----
Version: Example v1.0.0

mQENBFwY/dIBCAC7nKVgSGAr7zzgkIbsLBap8AcAXalYRENB+EtjPT7wIJ7PUwm7
NhIx+YHSMiD9MZS7WUxWP+VY7h3bBnnC6rfkuDQ7PibSGpPkGIRmTQxEuM024PVM
EdvdEqUJI+LViD5C266g7jdH9wWLbywLXGWLRlhtc7Y3kb6pGwcD7CM0HJePaw6c
lH665FgVqlTrYMVCJBm5Idgf0VKV/U8lPH/Z9q/bzHyeW2/vQ9yNvXuABxgLEOkk
GiOGnswALdzDLnrk7Tx2hMQklivrx55r4jjU42xg0Q0sCT0ZH7INuk5ISx7023gb
KFQ/2Tc23sp7Ek/VwlLmcknvxm+0SHf+3+UBABEBAAG0AIkBHAQQAQIABgUCXBj9
0gAKCRCehagx5BCKhS0ECACtuWon6uqWva/7DHz16xGEiJsW8wbUM63TCfDlQOGX
r2/FWBdYVksthndqHoelPlurRJH+Dx7xY/wX8BkmDtDyg9cU3U0JueBJqCKon/jf
Icd/UyfEnF2VQ68N6Bs1IRJQjL7ynjI5GBBYFY3TA5UeR8qtQiBuHpcOPrYTl5W1
Vo7ena7w4Y/bTOpuZqY2Ll4e4KKQaygs0tHOuB2h3zlqKWqtz1CRmojzbPG1/+J4
btM8rQG5wFTf7yGwknn5A7X6r56OwYKRZrE6wt1t5XNtNQ+5hvDl1tmiFM+VV+bQ
uydlNTSSBKpopSehD3ZKnAy1JU3VZp+1YlffTvtBcnc9
=D0D8
-----END PGP PUBLIC KEY BLOCK-----
```

purchase order

A document issued by a buyer to a seller that indicates types, quantities, and agreed prices for products or services.

purchase order (PO) invoice

An invoice that typically includes tables of line items for purchased goods. A purchase order invoice must include the printed PO number.

registration

Invoice registration records the arrival of invoices received by your organization. This process lets you approve an invoice before it becomes an official accounts payable. Invoice registration is a process in target systems such as Microsoft Dynamics AX.

seller

A seller, also referred to as a supplier or vendor, is an organization or entity that provides goods or services to a buyer organization. The seller issues invoices to the buyer for the goods or services rendered. The role of a seller in accounts receivable processes involves tracking outstanding invoices, following up on payments, and reconciling accounts receivable records with payments received from buyers.

sender

A person or organization that sends documents to AP Essentials. For accounts-payable processes, the sender is typically a seller or supplier that sends invoices to a buyer. For accounts-receivable processes, the sender is typically a buyer that sends purchase orders to a seller.

service

A service is a group of related features provided by Tungsten AP Essentials. Enabling a service gives you access to the features of that service.

single-page document

A document that has only one front page.

single-point approval

A workflow method that is a variation of linear approval. With single-point approval, invoices skip the middle tiers in a hierarchy, so only the initial tier and the highest tier necessary are required.

skew and deskew

Skew is the slanting of a scanned image caused when an invoice is not aligned properly as it passes through the scanner. Tungsten AP Essentials can normally deskew (straighten) and identify images of invoices that are skewed up to 10 degrees, which handles most situations.

SSL/TLS encryption

SSL (Secure Sockets Layer) and TLS (Transport Layer Security) are cryptographic protocols that provide communications security over a computer network. These protocols encrypt data transmitted between systems to protect sensitive information from unauthorized access during transmission.

starts-with matching

Also known as begins-with matching, starts-with matching is a search pattern used to find text. The search returns results where the text starts with the search phrase. For example, searching for "Spring" returns Spring, Springfield, and Springdale.

See also: whole-word matching

status

When processing documents in Tungsten AP Essentials, batches, documents, and fields have statuses. Batches and documents have statuses that indicate which processes a batch or document has gone through and its error level or lack of errors. Fields also have statuses that determine the correctness of the field.

storage

Storage services provide long-term archiving of invoice images and data in the cloud.

sub-header

A line item field that can signify the beginning of a new table within a table—part of a complex line item structure.

supplier

A company or organization that supplies goods or services to your organization. Also called a vendor. You receive invoices from suppliers.

trigger

An event that causes a workflow to start.

trigger

An event that causes a workflow to start.

username

A username is the name you use to log in.

validate

To validate a field means to check its value for correctness, usually by comparing the value to other fields in a calculation.

Example

Subtotal + Tax = Total

There are many routines that perform validation automatically.

verify

To verify an invoice means to check its field values for correctness by comparing the interpreted field values with the values on the invoice image.

voucher

A voucher is an internal document used in an accounts payable department to collect and organize the necessary documentation and approvals before paying an invoice. A voucher acts as a cover page to which the following are attached: vendor invoice, the purchase order and receiving report of the company, and other information needed to process the invoice for payment.

whole-word matching

Also known as entire-word matching, a search pattern used to find text, where the text being searched must match the whole word of the search phrase. For example, searching for "Spring" returns Spring, but it does not return Springfield or Springdale.

See also: starts-with matching

workflow

A workflow is a chain of sequential steps that a document or process follows. Typically, each step is performed by different personnel. For example, a workflow can contain the following steps:

- Arrival control
- Accounting
- Approval

Extensible stylesheet language transformations (XSLT)

XSLT is a language for transforming XML documents into other formats, such as XHTML or other XML documents.

Tungsten AP Essentials supports XSLT version 1.0. Other versions are not supported.

Keyboard shortcuts

This topic lists the keyboard shortcuts that you can use in Tungsten AP Essentials.

Note: Mac users substitute the Ctrl key with the Command key.

Keyboard shortcuts for Office

Use these keyboard shortcuts when using Office to process documents.

Shortcut Key	Description
Alt + +	Zooms in.
Alt + -	Zooms out.
Alt + 0	Best fit.
Alt + 1	100% zoom.
Alt + 2	Fit to width.
Alt + 3	Fit to height.
Alt + Shift + ←	Rotates the image 90 degrees counterclockwise.
Alt + Shift + →	Rotates the image 90 degrees clockwise.
Alt + Shift + D	Opens the invoice image view in a new window.
Alt + Shift + F	Closes the detached invoice image view.
Page Up	Next page.
Page Down	Previous page.
Shift + Alt + A	Adds a new line-item row or accounting row. The new row is inserted after the row that is in focus. If no row is in focus, the new row is inserted at the top of the table.
Shift + Alt + C	Inserts a copy of the current accounting line on the **Accounting** tab. The copy is inserted after the current row.
Shift + Alt + L	Displays the **Copy purchase order lines** dialog when viewing the **Line items** tab.
Shift + Alt + R	Removes the selected line-item row or accounting row.
Tab	Overrides the current validation error and moves to the next field.
Enter	Overrides the current validation error and moves to the next field that needs your attention.
Ctrl + Enter	Verifies or approves the document.
Escape	Closes the dialog.
↑	Moves to the previous field.
↓	Moves to the next field. This key also displays field suggestions for coding suggestions and fields that are connected to master data.
→	Moves to the next line-item or accounting cell.
←	Moves to the previous line-item or accounting cell.

Shortcut Key	Description
Ctrl + Alt + S	Displays the **Edit supplier** dialog.
F2	Displays the **Search suppliers** dialog.

Keyboard shortcuts for document separation

Use these keyboard shortcuts when separating documents.

Separation	
→	Navigates right.
←	Navigates left.
Space	Splits or joins documents.
Delete	Deletes the selected page.
Ctrl + X	Cuts the selected page.
Ctrl + V	Inserts a previously cut page.
Ctrl + Enter	Completes the current batch separation.
Escape	Cancels the current batch separation.
↑	Hides the thumbnail view.
↓	Displays the thumbnail view.
Ctrl + ↑	Displays a full-size image of the current page.
Ctrl + ↓	Returns to the separation view (after pressing Ctrl + ↑).

Privileges

These are all of the privileges available in Tungsten AP Essentials.

To access these settings, navigate to the **Users** view, select a user name, and select the **Privileges** tab.

You must have the **Manage accounts** or **Manage user accounts** privilege to edit user privileges in Admin Center. However, you can grant any privilege you have yourself via the API.

These are all of the privileges available in Tungsten AP Essentials. The settings that appear can vary depending on which services and document processes you use.

Admin privileges

These privileges are available for user accounts with the **Admin** role.

APPS	
Access Analytics	Grants access to Analytics reports in Admin Center.

Access e-Invoice Connect	Lets admin users on the customer level open e-Invoice Connect from a link that appears on the landing page in Admin Center. The link uses single sign-on, so login credentials are not required to access e-Invoice Connect via the link. This setting is only visible if the e-Invoice Connect service is enabled.
ACCOUNT MANAGEMENT	
Manage accounts	This privilege gives the user permission to manage accounts, users, and settings in Admin Center. The **Manage accounts** privilege also lets you grant the **Manage services** privilege, even if you do not have the **Manage services** privilege yourself. This privilege is required to: • Enable and disable preview features. Subsidiary administrators with this privilege can: • Add/delete services for partners and customers. • Choose the active target system for partners and customers. • Edit the target system settings of partners and customers. • Add, delete, and download resources from the **Resources** view. Partner and Partner group administrators with this privilege can: • Choose the active target system for customers. • Edit the target system settings of partners and customers. • Add, delete, and download resources from the **Resources** view. Customer administrators with this privilege can only view target system settings. Customer administrators need the **Manage target system settings** privilege to edit target system settings. Partner administrators can modify all service settings with this privilege. Customer administrators with this privilege can edit all service settings except for Extraction services, Target system services, and Storage services.

Manage suborganizations	Grants administrators the ability to create, update, delete, activate/deactivate, group/ungroup, pause/resume, and move organizations. Administrators with this privilege can also grant this privilege to other administrators, but cannot remove the privilege from themselves. During customer creation, if a user has the **Manage suborganizations** privilege, but does not have the **Manage services** privilege, only these services are available: • Extraction • Process control • Target system
SERVICE PLAN	
Manage service plans	Grants permission to edit service plans.
SERVICE MANAGEMENT	
Manage services	Grants permission to add, remove, and edit services. Administrators with this privilege can edit the settings of all services. Therefore, they do not need more specific service-management privileges below, such as **Manage extraction settings** or **Manage target system settings**.
Manage classification settings	Grants permission to edit Classification service settings.
Manage Copilot settings	Grants permission to edit Tungsten Copilot service settings.
Manage email input settings	Grants permission to edit Email input service settings.
Manage e-Invoice Connect settings	Grants permission to edit e-Invoice Connect service settings. This setting is only visible if the e-Invoice Connect service is enabled.
Manage extraction settings	Grants permission to edit Extraction service settings.
Manage master data settings	Grants permission to edit Master data service settings.
Manage notifications settings	Grants permission to edit Notifications service settings.
Manage process control settings	Grants permission to edit Process control service settings.
Manage purchase order settings	Grants permission to edit Purchase order service settings.
Manage storage settings	Grants permission to edit Storage service settings. This privilege is only available to partner administrators.
Manage target system settings	Grants permission to edit Target-system settings.

Manage validation settings	Grants permission to edit Validation service settings. This privilege is only available to partner administrators and customer administrators. Customer administrators can edit rules in the document types via the Extraction service if they have the **Manage extraction settings** privilege.
Manage verification settings	Grants permission to edit Verification service settings.
Manage workflow settings	Grants permission to edit Workflow service settings.
USER MANAGEMENT	
Manage user accounts	Grants permission to add, delete, enable/disable, and edit users. This privilege also grants the ability to reset passwords and import/export users. You must have the **Manage accounts** or **Manage user accounts** privilege to grant this privilege to another user. You cannot remove this privilege from your own account unless you have the **Manage accounts** privilege.
Manage user groups	Grants permission to add, delete, and edit user groups. When copying customers, this privilege also lets user groups be copied too. If you copy a customer with workflows that reference user groups, and you do not have this privilege, or the **Manage accounts** privilege, the workflows that reference user groups are not copied. You must have the **Manage accounts** or **Manage user groups** privilege to grant this privilege to another user. You cannot remove this privilege from your own account unless you have the **Manage accounts** privilege.
Manage identity providers	Grants administrators the right to add, edit, and delete identity providers in the **Identity providers** view. This privilege also grants the ability to edit the **SINGLE SIGN-ON** settings in the **User management** view. In other words, you can enable/disable single sign-on at the account level. Likewise, you can change the **Identity provider** setting and the **Tenant ID** setting (if available). This privilege is available to subsidiary and partner administrators.
DOCUMENT MANAGEMENT	

Process documents	Grants administrators the right to view, edit, and process documents. Among other things, this privilege lets you open documents via the **Documents** view in Admin Center and process them in AP Essentials Office. Admin users must have this privilege to: • Upload documents using Tungsten AP Essentials Connect. • Download output data using Tungsten AP Essentials Connect.
View documents	Grants administrators the right to view documents and document data via Admin Center. You must have this privilege to access, for example, the **Documents** view. This privilege also lets you open documents in read-only mode in AP Essentials Office.
RESOURCE MANAGEMENT	
Manage resources	Grants administrators the right to add, delete, download, trust, and untrust resources in the **Resources** view. This privilege is available to subsidiary and partner administrators.
MASTER DATA	
View supplier bank account numbers	Grants administrators the right to view and edit supplier bank account numbers. Without this privilege, account numbers are masked to **Admin** users. This privilege is included in the default administrator privileges when an admin user is created via the API. However, it is not included by default when an admin user is created via Admin Center.

User privileges

These privileges are available for user accounts with the **User** role.

Access approve	Gives the user permission to approve invoices in a workflow. Also gives exception handlers permission to send rejected invoices to manual separation.
Access Copilot	Grants access to the Tungsten Copilot service. To use Tungsten Copilot, AP Essentials Office users must have the Access Copilot and Access EXPLORE privileges, as well as access to all buyers in the organization. Note: This privilege is not available to partner users.
Access EXPLORE	Grants access to the **Processed** view on the document list view.

Access manage	Gives the user permission to: • Start workflows (correction and approval). • Approve documents in correction and approval workflows. • Reject documents. • Request info for documents. • Send documents back to verification.
Access RECEIVED	This privilege is required, in combination with **Manual document separation (Split)**, to perform document separation.
Access Storage - My documents	Grants access to the **STORAGE** view, but only displays documents the user has processed.
Access Storage	Grants access to the **STORAGE** view on the document list view. Original emails containing invoices can be viewed on the **Attachments** tab by Office users with this privilege.
Access Upload	Grants access to the **Upload** view.
Access verify	Grants access to the **Verify** view.
Access verify - Reply	Grants access to the **Verify** view, but restricts access to documents with the status Request for information. If you want to restrict access using this status, you must also disable the Access verify privilege, which supersedes Access verify - Reply.
Start workflow from Verification	Lets you select which workflow you want to send an invoice to from the document view by adding a menu to the **OK** button in the document view. This is helpful if you want to override the default rules for a particular invoice.
Change bypass verification setting	Lets users change the bypass verification setting for suppliers.
Change field visibility per supplier/Change field visibility per customer	Lets users toggle field visibility during verification.
Change lock online learning setting	Lets users change the **Lock online learning** setting for suppliers or customers. For accounts payable processes, the setting is in the **Add/Edit supplier** dialog. For accounts receivable processes, the setting is in the **Add/Edit customer** dialog.
Delete documents	Gives users permission to delete documents. This applies to all views and instances where it is possible to delete documents, such as the document view. This privilege is also required to delete files from the **Documents** and **Files** views. Users with this privilege can also delete documents that are on hold.

Edit approval documents	Gives users permission to approve documents and change invoice field values in a workflow. Normally, you can only change invoice field values during verification, or when an invoice has the status *Pending correction*, because it was rejected by the target system. This privilege, however, gives the user the ability to change field values at any time during the approval process. Users with this privilege can also code documents in a workflow, even if the **Coding** setting is not selected in the workflow step.
Manual document separation (Split)	Grants access to the **Document separation** view. The **Access RECEIVED** privilege is required to perform document separation. Without the **Access RECEIVED** privilege, users can send documents for manual separation, but cannot perform separation themselves.
Reroute approval documents	Gives users permission to reroute approval documents.
Unhold documents	Gives users permission to unhold documents. You do not need this permission to unhold documents that you have put on hold yourself.
Update online learning	Determines whether user interactions during verification affect online learning. Disable this privilege to prevent new or inexperienced users from having a detrimental effect on documents that have high identification and extraction rates. This privilege does not override the **Lock online learning** setting.

Sample documents

You can download this ZIP file that contains sample documents for testing and demonstration purposes. The ZIP file contains PDF documents that are grouped into two folders: invoices with no tax, and invoices with 20% tax. The ZIP file also contains sample supplier master data that matches the suppliers in the sample invoices. You can upload the master data for testing purposes. The ZIP file also includes Purchase order documents, credit notes, and a Swiss QR invoice.

Sample masterdata generators

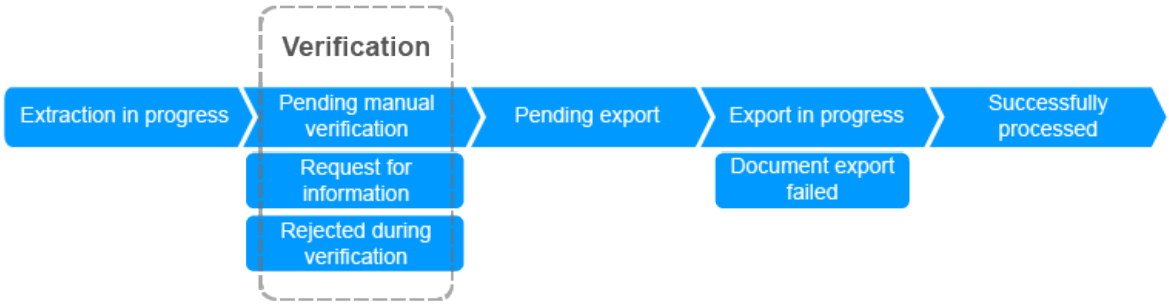
Use these pages to generate sample master data that can be helpful when testing:

- Supplier master data generator
- Purchase order master data generator

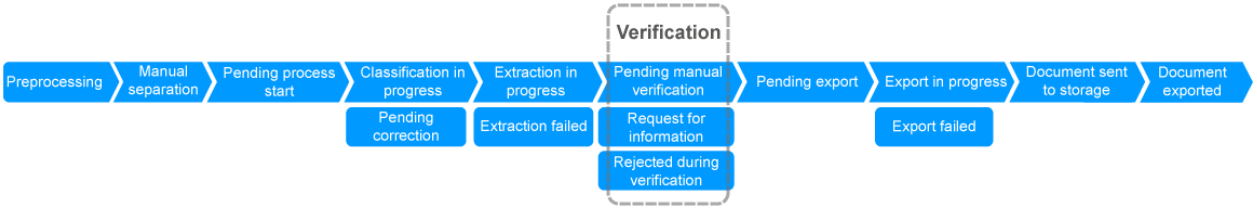
Statuses and events for batches and documents

As batches and documents move through the system, they are assigned statuses. Generally, the status indicates which processes a batch has gone through and its error level or lack of errors.

Batch statuses



Document statuses



Batch status	Document status	Event	Description
Preprocessing in progress			The image was received and a batch was created in the repository. Before the batch is ready to to be processed, it passes, it passes a validation step.
		Input validation failed	The input validation failed. This can be caused by a corrupt file, such as a corrupt file.
		Created	The batch has passed the validation steps, been split intointo documents. The batch is ready to be sent to thebe sent to the next step.

Batch status	Document status	Event	Description
Manual separation			The batch is waiting to be separated manually. This status is only available if Separation services are enabled.
	Document pending manual separation		The document is waiting to be separated manually. This status is only available if Separation services are enabled.
Pending process start			The batch successfully passed the input validation and is ready to be processed.
Classification in progress			Classification of the batch has started.
Extraction in progress			The extraction service is currently processing the batch.
		Document created	A document has been created by Tungsten AP Essentials.
	Extraction in progress		The extraction service is currently processing the document.
		Document extracted	The document has been extracted successfully. This event causes the document to change itsits status to Pending manual validation.
		Document extraction failed	Tungsten AP Essentials failed to interpret the document.
Extraction failed			The extraction process failed. When an extraction fails, you can remove problem invoices from the batch or delete the entire batch and resubmit it.When an extraction fails, you can remove problem invoices from the batch or delete the entire batch and resubmit it.

Batch status	Document status	Event	Description
Pending manual verification			The batch was extracted and is ready for manual correction if necessary.
	Pending manual verification		The document was extracted and is ready for manual correction if necessary.
		Document verifiedDocument verified	The document has been verified and is complete and will go to the next statusstatus.
		Document deleted	The document has been deleted by a user.
Validation in progress			The batch contains one or more documents with the **Document validation in progress** status.
	Document validation in progress		Automatic validation retries are being performed on the document. This can happen, for example, if a document fails the 3-way matching validation, and it is on hold.
Rejected during verification	**Rejected during verification**		The document has been rejected by the user.
Request for information	**Request for information**		Someone posted a question to the document.
Pending resume output	**Document pending resume output**		All batches and documents receive this status when an account is paused.
Pending export			The batch was verified and is ready for export to the target system.

Batch status	Document status	Event	Description
	Ready for export		The document is waiting to be exported to the target system. If you keep batches together, documents are not sent to the target system until all documentsdocuments in the batch are completely verified or approved.
Export in progress			The batch is currently being exported.
	Export in progress		The export of the document started. Documents stay in this status until the document is sent to the target system. The amount of time a document stays in this status can vary depending on your settings and internal procedures. For example, if you use AP Essentials Connect to download documents locally, and it is not running as a service, documents remain in this status until you manually run AP Essentials Connect. Additionally, if you keep batches together, documents are notdocuments are not sent to the target system until all documents in the batch are completely verified. In this case, one document could delay the export of the entire batch.
		Document exported	The export succeeded.

Batch status	Document status	Event	Description
		Document export postponed	A document receives this status if the export of other documents in the same batch failed, and the user does not want to export partial batches.
	Document sent to storage		This status is only available when the Storage service is enabled.
	Document export failed		The document export failed.
Export failed			The export activity failed. This status is triggered, for example, if the target system does not respond. If this happens, you can open the batch in the document list view to see details about what went wrong.
Approval in progress			Documents in the batch are in approval workflow activities. During this step, documents in the batch are processed as separate entities.
	Document validationvalidation in progress		Automatic validation retries are being performed on the document. This can happen, for example, if a document fails the 3-way matching validation, and it is on hold.
	Ready for registration		The document is ready to enter the approval workflow process.
	Pending batch registration		The document is waiting for other documents in the same batch to be registered in the target system.

Batch status	Document status	Event	Description
Pending batch registration			The batch is ready for registration. All documents in the batch have the *Pending batch registration* status and are waiting to be registered in the target system. Documents can only wait in this statusstatus when Keep batch together is selected.
Registration in progress	**Registration in progress**		The registration phase in the approval workflow started.
Registration check succeeded		**Registration check succeeded**	The registration check was successful.
		Document validation failed	One or more Tungsten AP Essentials validation rules failed.
		ERP registration called	Tungsten AP Essentials sent a registration request to the target system.
		ERP registration result received	Tungsten AP Essentials received the result of the registration request from the target system.
		Registration succeeded	The registration of the invoice succeeded.
		Registration failed	The registration failed. The automatic workflow stops until the problem is corrected.
		Document registration failed	Registration in the target system failed
		Ready for approval	The document is ready for the approval workflow and has the Ready for approval status.
		Document registration callback failed	The registration callback from Tungsten AP Essentials to the target system failed failed.
	Document pending approval		The documentdocument is ready for approval.
	Approval in progress		The document is in the approval process .

Batch status	Document status	Event	Description
		Waiting for user action	The document is assigned to a user and is waiting for an action by the user.
		Document approved	The document has been approved by a user.
		Approval succeeded	The document has been approved by all users in the workflow.
		Rejected in approval	The document was rejected during approval.
		Request for information	Someone posted a question to the document.
	Ready for post		The documentdocument is ready for final posting.
		Posting started	The posting process started.
	Pending batch posting		The document is waiting for other documents in the same batch. Documents can only wait in this statusstatus when **Keep batch together** is selected.
Pending batch posting			The batch is ready for postingposting. All documents in the batch have the Pending batch posting status. Documents can only wait in this statusstatus when **Keep batch together** is selected.
Post in progress	**Post in progress**		The final posting started. This status is set when the Posting started event is received.
		Post succeeded	The document has been posted successfully.
		Post failed	The post failed. This event changes the document status to Pending correction.

Batch status	Document status	Event	Description
	Pending correction		The document must be manually corrected for various reasons:various reasons: • Document registration fails in the target system. • The target system rejects the document. • Document post fails in the target system. • The document fails validation rules. • The next approver in the workflow was removed or cannot be determined. • Optionally, when a new supplier is created during verification.
		Correction started	The correction process started.
	Correction in progress		Document correction is in progress. This happens when a correction trigger assigns a document to a workflow.
		Correction succeeded	The document correction succeeded.
		Correction failed	The document correction failed.
Successfully processed			The final positive status of the batch. If Workflow services are enabled, the batch gets this status after the last document passes the final approval workflow stage.
Rejected			The batch was rejected by a user.
Batch delete in progress			The batch deletion process has begun.
Delete in progress	**Document delete in progress**		The document deletion process has begun.

Batch status	Document status	Event	Description
Delete in progress	**Document delete failed**		The document was not deleted from the target system. Users with the **Access manage** and **Delete documents** privileges can try to delete the document again in the document list view.
Batch deleted			The batch was deleted by a user.
	Document deleted		The document was deleted.

Supported input file formats

Tungsten AP Essentials processes documents in many file formats and languages.

Image formats

The following image file formats are supported when you send invoices to AP Essentials:

- **JPEG**, **JPG**
- **PDF** version 1.3 to 2.0. Encrypted PDFs are not supported. XFA documents and PDF portfolios are not supported.
- **PNG**
- **TIFF**, **TIF**

Image quality

- All document images must have a height of at least 1,000 pixels and a width of at least 1,000 pixels. However, images cannot exceed 10,000 x 10,000 pixels.
- Recommended resolution: 300 DPI.

  For Chinese document types, we recommend a minimum resolution of 400 DPI.

- Color mode: Color, grayscale, and bitonal images are supported.
- Scanning mode: Simplex and duplex scanning are supported. Blank pages that are used for page separation are automatically removed from batches.

XML formats

In addition to the image formats above, Tungsten AP Essentials accepts XML input in these formats:

- Cross Industry Invoice (CII) standard (ZUGFeRD, Factur-X, XRechnung)

- E2B
- ESXML
- FatturaPA
- Finvoice
- OFD
- OIO
- UBL (OIOUBL) / EHF
- Svefaktura

Tungsten AP Essentials also supports XML input from Tungsten e-Invoice Connect.

When you verify an XML document, the document image is generated from the XML to make verification easier. For CII formats, the system generates an image from the XML data, even when the document includes an embedded image or PDF attachment. This ensures the displayed image matches the authoritative document data. However, if you process ESXML, FatturaPA, or ZUGFeRD 1.0 documents that contain embedded PDFs, the embedded PDF is used as the invoice image.

When viewing document images that are generated from XML, a disclaimer appears at the top of the document image to indicate that it is a visual representation of the XML data.

Tungsten AP Essentials supports electronically signed XML invoices (P7M files); however, encrypted P7M files are not supported.

File size limitations

Description	Limit	Note
Maximum file size for input files	100 MB	This is the maximum size allowed for documents that are uploaded through AP Essentials Office, AP Essentials Connect, or the API. If the limit is exceeded, the document receives the status "input failed."
Maximum file size for storage upload	25 MB	If the limit is exceeded, you receive a notification that the upload failed.
Maximum file size for master data upload	200 MB	If the limit is exceeded, you receive a notification that the upload failed.

Document limitations

Description	Limit	Note
Maximum number of pages in a document	2,000 pages	If the limit is exceeded, the document receives the status "input failed."

Description	Limit	Note
Maximum number of pages in an invoice containing line items from a new supplier where all pages are interpreted	100 pages on the first invoice from a new supplier. 2,000 pages on subsequent invoices from the same supplier.	If the document has more than 100 pages, only the first page is interpreted on the first invoice received from a new supplier. The next time an invoice is received from the same supplier, and the supplier is properly identified, up to 2,000 pages can be interpreted.
Maximum number of pages in a remittance advice	2,000 pages	

Invoice languages

The Extraction service extracts and interprets invoice information in the languages shown in the following table. Accounts payable document types support purchase order invoices, expense invoices, and credit notes. Accounts receivable document types support purchase order documents and remittance advices.

— The document type is supported.

— The document type is available on a preview basis.

Document type (locale)	Supported invoice languages	Accounts payable			Accounts receivable	
		PO invoice	Expense invoice	Credit note	Purchase order	Remittance advice
Australia	English					
Austria	German, English					
Argentina	Spanish, English					
Belgium	Belgian Dutch, French, German, English					
Brazil	Brazilian Portuguese, English					
Britain	English					
Bulgaria	Bulgarian, English					
Canada	English, French					
Colombia	Spanish, English					
Chile	Spanish, English					
Czech Republic	Czech, English					
China	Simplified Chinese, English					
Denmark	Danish, English					

Document type (locale)	Supported invoice languages	Accounts payable			Accounts receivable	
		PO invoice	Expense invoice	Credit note	Purchase order	Remittance advice
Estonia	Estonian, English. Latvian and Lithuanian months are also interpreted.					
Finland	Finnish, Swedish, English					
France	French, English					
Germany	German, English					
Greece	Greek, English					
Hong Kong	Traditional Chinese, English					
Hungary	Hungarian, English					
Iceland	Icelandic, English					
India	English					
Indonesia	Bahasa Indonesia, English					
Ireland	Irish, English					
Israel	Hebraic, English					
Italy	Italian, English					
Japan	Japanese, English					
Korea	Korean, English					
Latvia	Latvian, English. Estonian and Lithuanian months are also interpreted.					
Lithuania	Lithuanian, English. Estonian and Latvian months are also interpreted.					
Malaysia	English, Malay					
Mexico	Spanish, English					
Netherlands	Dutch, English					
New Zealand	English					
Norway	Norwegian, English					
Philippines	English, Filipino (limited support)					
Poland	Polish, English					
Portugal	Standard Portuguese, English					
Romania	Romanian, English					
Russia	Russian, English					

Document type (locale)	Supported invoice languages	Accounts payable			Accounts receivable	
		PO invoice	Expense invoice	Credit note	Purchase order	Remittance advice
Singapore	English					
Slovakia	Slovak, English					
South Africa	Zulu, Xhosa, English, Afrikaans					
Spain	Spanish, English. Catalan months are also interpreted.					
Sweden	Swedish, English					
Switzerland	German, French, Italian, English					
Taiwan	Traditional Chinese, English					
Thailand	Thai, English					
Turkey	Turkish, English					
United States	English					
Vietnamese	Vietnamese, English					
XML (subdocument)	Supports most European languages.					
Other types						
XML (generic document type)	Supports most European languages. This is a generic document type that you can use to extract data from XML invoices from Europe. The XML document type includes many more fields than the other document types. We recommend using this document type if you use Tungsten e-Invoice Connect.					

E2B field mapping

This table shows how Tungsten AP Essentials maps internal fields to E2B.

This input format is deprecated. To stay up-to-date with e-invoicing and maximize connectivity, consider adding InvoiceAgility components to your solution.

Tungsten AP Essentials internal field name	E2B
Buyer fields	
Name	/InvoiceHeader/Invoicee/Name
Street	/InvoiceHeader/Buyer/PostalAddress/Address1
StreetSupplement	/InvoiceHeader/Buyer/PostalAddress/Address2
City	/InvoiceHeader/Buyer/PostalAddress/PostalDistrict
CountryCode	/InvoiceHeader/Buyer/PostalAddress/CountryCode
Country	/InvoiceHeader/Buyer/PostalAddress/CountryName

Tungsten AP Essentials internal field name	E2B
Supplier fields	
Name	/InvoiceHeader/Supplier/Name
Street	/InvoiceHeader/Supplier/PostalAddress/Address1
StreetSupplement	/InvoiceHeader/Supplier/PostalAddress/Address2
City	/InvoiceHeader/Supplier/PostalAddress/PostalDistrict
CountryCode	/InvoiceHeader/Supplier/PostalAddress/CountryCode
Country	/InvoiceHeader/Supplier/PostalAddress/ CountryName
Standard fields	
AddressName	
AddressOptionalName	
AddressPostalCity	
AddressPostalCode	
AddressStreet	
Barcode	
BuyerAddressPostalCode	/Invoice/InvoiceHeader/Buyer/PostalAddress/ PostalCode
BuyerContactPersonName	/Invoice/InvoiceHeader/Buyer/ContactPerson/Name
BuyerContactReference	
BuyerTaxNumber1	/Invoice/InvoiceHeader/Buyer/VatId
BuyerTaxNumber2	/Invoice/InvoiceHeader/Buyer/OrgNumber
BuyerVATRegistrationNumber	/Invoice/InvoiceHeader/Buyer/VatId If this element does not exist, use this alternative location: /Invoice/InvoiceHeader/Buyer/OrgNumber
DeliveryCost	/invoice/InvoiceDiscountChargesAndTax/ InvoiceCharges/Amount
DeliveryCostInsurance	
DeliveryCostPackaging	
DeliveryCostPostage	
DeliveryCostToll	
DeliveryDate	/Invoice/InvoiceHeader/InvoiceReferences/ DeliveryDate
DeliveryNote	/Invoice/InvoiceHeader/InvoiceReferences/ DeliveryNoteNum
DeliveryTerms	/Invoice/InvoiceHeader/InvoiceReferences/ DeliveryTerms
EsrAmount	

Tungsten AP Essentials internal field name	E2B
EsrNumber	
EsrReference	
InvoiceBaselineDate	/Invoice/InvoiceHeader/InvoiceDate
InvoiceCredit	/Invoice/InvoiceHeader/InvoiceType Extracted value '380' is translated into 0 (Debit). Any other extracted value is translated into 1 (Credit).
InvoiceCurrency	/Invoice/InvoiceHeader/Payment/Currency
InvoiceDate	/Invoice/InvoiceHeader/InvoiceDate
InvoiceDiscountAmount	/Invoice/InvoiceDiscountChargesAndTax/InvoiceDiscount/Amount Or, if missing: /Invoice/InvoiceSummary/DiscountTotals/Amount
InvoiceDiscountPercent	/Invoice/InvoiceSummary/DiscountTotals/Percent
InvoiceDueDate	/Invoice/InvoiceHeader/Payment/DueDate
InvoiceNumber	/Invoice/InvoiceHeader/InvoiceNumber
InvoiceOrderNumber	/Invoice/InvoiceHeader/InvoiceReferences/BuyersOrderNumber
InvoicePostingDate	
InvoiceTaxAmount1	/Invoice/InvoiceSummary/VatTotalsInfo/VatAmount
InvoiceTaxAmount2	
InvoiceTaxAmount3	
InvoiceTaxAmount4	
InvoiceTotalVATAmount	/Invoice/InvoiceSummary/InvoiceTotals/VatTotalsAmount
InvoiceTotalVatExcludedAmount	/Invoice/InvoiceSummary/InvoiceTotals/NetAmount
InvoiceTotalVatIncludedAmount	/Invoice/InvoiceSummary/InvoiceTotals/GrossAmount
InvoiceTotalVatIncludedAmountSpelled	
InvoiceTotalVatRatePercent	/Invoice/InvoiceSummary/VatTotalsInfo/VatPercent
InvoicingPeriodEnd	
InvoicingPeriodStart	
PaymentReferenceNumber	/Invoice/InvoiceHeader/Payment/KidNumber
PaymentTerms	/Invoice/InvoiceHeader/Payment/PaymentTerms
PaymentTermsInterest	/Invoice/InvoiceHeader/Payment/OverDuePercent
PaymentType	
SupplierAccountNumber1	/Invoice/InvoiceHeader/Supplier/AccountInformation/AccountNumber
SupplierAccountNumber2	

Tungsten AP Essentials internal field name	E2B
SupplierAccountNumber3	
SupplierAccountNumber4	
SupplierAddressPostalCode	/Invoice/InvoiceHeader/Supplier/PostalAddress/PostalCode
SupplierBankClearingNumber	
SupplierBankCodeNumber1	
SupplierBankCodeNumber2	
SupplierBankCodeNumber3	
SupplierBankCodeNumber4	
SupplierIBAN1	/Invoice/InvoiceHeader/Supplier/AccountInformation/IbanNumber
SupplierIBAN2	
SupplierIBAN3	
SupplierIBAN4	
SupplierTaxNumber1	/Invoice/InvoiceHeader/Supplier/VatId
SupplierTaxNumber2	/Invoice/InvoiceHeader/Supplier/OrgNumber
SupplierVATRegistrationNumber	/Invoice/InvoiceHeader/Supplier/VatId If this element does not exist, use this alternative location: /Invoice/InvoiceHeader/Supplier/OrgNumber
Line-item fields	
LIT_ArticleIdentifier	/Invoice/InvoiceDetails/BaseItemDetails/SuppliersProductId
LIT_ArticleName	/Invoice/InvoiceDetails/BaseItemDetails/Description
LIT_DeliveredQuantity	/Invoice/InvoiceDetails/BaseItemDetails/QuantityInvoiced
LIT_DeliveredQuantityUnitCode	/Invoice/InvoiceDetails/BaseItemDetails/UnitOfMeasure
LIT_DiscountAmount	
LIT_DiscountPercent	
LIT_OrderNumber	
LIT_RowIdentifier	/Invoice/InvoiceDetails/BaseItemDetails/LineItemNum
LIT_UnitPriceAmount	/Invoice/InvoiceDetails/BaseItemDetails/UnitPrice
LIT_VatAmount	/Invoice/InvoiceDetails/BaseItemDetails/VatInfo/VatAmount
LIT_VatExcludedAmount	/Invoice/InvoiceDetails/BaseItemDetails/LineItemAmount

Tungsten AP Essentials internal field name	E2B
LIT_VatIncludedAmount	/Invoice/InvoiceDetails/BaseItemDetails/LineItemGrossAmount
LIT_VatRate	/Invoice/InvoiceDetails/BaseItemDetails/VatInfo/VatPercent
Attachment fields	
ID	/MessageHeader/Attachment/AttachmentName
FileName	
EmbeddedValue	
EmbeddedInfo	
DataURI	/MessageHeader/Attachment/AttachmentLocation
SchemeURI	
DataType	/MessageHeader/Attachment/AttachmentType
LinkType	/MessageHeader/Attachment/@type
AdditionalInfo	/MessageHeader/Attachment/AttachmentNumber

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

ESXML field mapping

This table shows how Tungsten AP Essentials maps internal fields to ESXML.

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

Fields marked with a single asterisk (*) are new or updated in the June 2026 release. Fields marked with a double asterisk (**) are new or updated in the August 2026 release.

Tungsten AP Essentials internal field name	ESXML
Buyer fields	
CorporateGroupNumber	/invoiceFile/invoice/buyerParty/buyerAddress/internalReference
Name	/invoiceFile/invoice/buyerParty/buyerAddress/addressName
Street	/invoiceFile/invoice/buyerParty/buyerAddress/streetAddress
City	/invoiceFile/invoice/buyerParty/buyerAddress/cityAddress

Tungsten AP Essentials internal field name	ESXML
CountryCode	/invoiceFile/invoice/buyerParty/buyerAddress/countryId
DeliveryAddressLocationId	/invoiceFile/invoice/deliveryAddress/location/locationId
TelephoneNumber	/invoiceFile/invoice/buyerParty/buyerAddress/contact/phone
FaxNumber	/invoiceFile/invoice/buyerParty/buyerAddress/contact/fax
Email	/invoiceFile/invoice/buyerParty/buyerAddress/contact/emailAddress
BuyerVATRegistrationCountry	When /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType = VAT, BuyerVATRegistrationCountry is mapped to: /invoiceFile/invoice/buyerParty/partyIdentifier[1]/countryId
BuyerTaxNumberCountry1	When /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType = org, BuyerTaxNumberCountry1 is mapped to: /invoiceFile/invoice/buyerParty/partyIdentifier[1]/countryId
Supplier fields	
Identifier	/invoiceFile/invoice/supplierParty/partyIdentifier
Name	/invoiceFile/invoice/supplierParty/supplierAddress/addressName or if it is empty /invoiceFile/invoice/supplierParty/legalName
Street	/invoiceFile/invoice/supplierParty/supplierAddress/streetAddress
City	/invoiceFile/invoice/supplierParty/supplierAddress/cityAddress
CountryCode	/invoiceFile/invoice/supplierParty/supplierAddress/countryId
CountryName	/invoiceFile/invoice/supplierParty/supplierAddress/country
CorporateGroupNumber	/invoiceFile/invoice/supplierParty/supplierAddress/internalReference
TelephoneNumber	/invoiceFile/invoice/supplierParty/supplierAddress/contact/phone
FaxNumber	/invoiceFile/invoice/supplierParty/supplierAddress/contact/fax
Email	/invoiceFile/invoice/supplierParty/supplierAddress/contact/emailAddress

Tungsten AP Essentials internal field name	ESXML
SupplierVATRegistrationCountry	When /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = VAT, SupplierVATRegistrationCountry is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/countryId
SupplierTaxNumberCountry1	When /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = org, SupplierTaxNumberCountry1 is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/countryId
Header fields	
AdditionalReference1, AdditionalReference2	/invoiceFile/invoice/attachments/externalReference[1]/id /invoiceFile/invoice/attachments/externalReference[2]/id
AdditionalReference1URL, AdditionalReference2URL	/invoiceFile/invoice/attachments/externalReference[1]/URL /invoiceFile/invoice/attachments/externalReference[2]/URL
AmountRounding	/invoiceFile/invoice/invoiceTrailer/roundOffAmount
AttributeName1	/invoiceFile/invoice/additionalAttribute[1]/attributeName
AttributeName2	/invoiceFile/invoice/additionalAttribute[2]/attributeName
AttributeValue1	/invoiceFile/invoice/additionalAttribute[1]/attributeValue
AttributeValue2	/invoiceFile/invoice/additionalAttribute[2]/attributeValue
BuyerAddressPostalCode	/invoiceFile/invoice/buyerParty/buyerAddress/zipCode
BuyerContactPersonName	/invoiceFile/invoice/buyerParty/buyerAddress/contact/contactName
BuyerContactReference	/invoiceFile/invoice/customerProfitCentre
BuyerDUNSNumber	/invoiceFile/invoice/buyerParty/partyIdentifier[1]/identifier (when /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType =DUNS)
BuyerEndpointID *	/invoiceFile/invoice/recipientEndpointId/identifier
BusinessProcessTypeId **	/invoiceFile/invoice/businessProcessTypeId

Tungsten AP Essentials internal field name	ESXML
BuyerTaxNumber1 *	When /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType = org and /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierDetailedType = FR:SIRENE BuyerTaxNumber1 is mapped to: /invoiceFile/invoice/buyerParty/partyIdentifier[1]/identifier If FR:SIRENE is not specified and /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType = org, BuyerTaxNumber1 is mapped to: /invoiceFile/invoice/buyerParty/partyIdentifier[1]/identifier
BuyerTaxNumber2 *	When /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType = org and /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierDetailedType = FR:SIRET BuyerTaxNumber2 is mapped to: /invoiceFile/invoice/buyerParty/partyIdentifier[1]/identifier
BuyerTaxSchemeID *	/invoiceFile/invoice/buyerParty/partyTaxScheme/taxSchemeID
BuyerVATRegistrationNumber	When /invoiceFile/invoice/buyerParty/partyIdentifier[1]/partyIdentifierType = VAT, BuyerVATRegistrationNumber is mapped to: /invoiceFile/invoice/buyerParty/partyIdentifier[1]/identifier
ChargeAmount1, ChargeAmount2, ChargeAmount3, ChargeAmount4	Each of the four charge amount fields is mapped by iterating through each `invoiceFile/invoice/allowanceAndCharge` element whose child element, `alcType`, equals C. The field value is then taken from `/invoiceFile/invoice/allowanceAndCharge/alcAmount`. The first matching element is mapped to ChargeAmount1. The second matching element is mapped to ChargeAmount2, and so forth. Charge amount fields are designated by `alcType` elements with a value of "C", whereas discount amount fields are designated by `alcType` elements with a value of "A".

Tungsten AP Essentials internal field name	ESXML
ChargeCode1, ChargeCode2, ChargeCode3, ChargeCode4	When /invoiceFile/invoice/allowanceAndCharge/ alcType = "C": /invoiceFile/invoice/allowanceAndCharge[1]/ alcReasonCode /invoiceFile/invoice/allowanceAndCharge[2]/ alcReasonCode /invoiceFile/invoice/allowanceAndCharge[3]/ alcReasonCode /invoiceFile/invoice/allowanceAndCharge[4]/ alcReasonCode
ChargeReason1, ChargeReason2, ChargeReason3, ChargeReason4	When /invoiceFile/invoice/allowanceAndCharge/ alcType = "C": /invoiceFile/invoice/allowanceAndCharge[1]/ alcReasonText /invoiceFile/invoice/allowanceAndCharge[2]/ alcReasonText /invoiceFile/invoice/allowanceAndCharge[3]/ alcReasonText /invoiceFile/invoice/allowanceAndCharge[4]/ alcReasonText
ContractNumber	/invoiceFile/invoice/agreementReference/ referenceNumber
CreditedInvoiceNumber	If the document type in AP Essentials is a credit note, CreditedInvoiceNumber is mapped to: /invoiceFile/invoice/creditedInvoiceReference/ referenceNumber If referenceNumber is empty, then CreditedInvoiceNumber is mapped to: invoiceFile/ invoice/preceedingInvoice/preceedingInvoiceId
CurrencyExchangeRate *	/invoiceFile/invoice/currencyExchange/exchangeRate
DeliveryAddressName	/invoiceFile/invoice/deliveryAddress/addressName
DiscountAmount1, DiscountAmount2, DiscountAmount3, DiscountAmount4	Each of the four discount amount fields is mapped by iterating through each `invoiceFile/invoice/allowanceAndCharge` element whose child element, `alcType`, equals A. The field value is then taken from `/invoiceFile/invoice/allowanceAndCharge/alcAmount`. The first matching element is mapped to DiscountAmount1. The second matching element is mapped to DiscountAmount2, and so forth. Charge amount fields are designated by `alcType` elements with a value of "C", whereas discount amount fields are designated by `alcType` elements with a value of "A".

Tungsten AP Essentials internal field name	ESXML
DeliveryAddressStreet	/invoiceFile/invoice/deliveryAddress/streetAddress
DeliveryAddressCity	/invoiceFile/invoice/deliveryAddress/cityAddress
DeliveryAddressState	/invoiceFile/invoice/deliveryAddress/countrySubentity
DeliveryAddressCountry	/invoiceFile/invoice/deliveryAddress/country
DeliveryAddressZIP	/invoiceFile/invoice/deliveryAddress/zipCode
DeliveryCost	/invoiceFile/invoice/invoiceTrailer/totalCharge
DeliveryDate	/invoiceFile/invoice/deliveryDate
DeliveryNote	/invoiceFile/invoice/deliveryNoteReference/referenceNumber
DeliveryTerms	/invoiceFile/invoice/deliveryTerms/deliveryTermsText
DispatchAdviceNumber	/invoiceFile/invoice/desadvReference/referenceNumber
InvoiceCode	/invoiceFile/invoice/clearanceOperatorNumber
InvoiceNoteCode1 **	/invoiceFile/invoice/invoiceNote[1]/noteCode InvoiceNoteText[n] and InvoiceNoteCode[n] are mapped from the same invoiceNote parent. If either sibling element is missing, the corresponding output field is empty, and no further lookups are performed. However, if both noteText and noteCode are empty or missing in the current invoiceNote element, the next invoiceNote element is used.
InvoiceNoteCode2 **	/invoiceFile/invoice/invoiceNote[2]/noteCode InvoiceNoteText[n] and InvoiceNoteCode[n] are mapped from the same invoiceNote parent. If either sibling element is missing, the corresponding output field is empty, and no further lookups are performed. However, if both noteText and noteCode are empty or missing in the current invoiceNote element, the next invoiceNote element is used.
InvoiceNoteText1 **	/invoiceFile/invoice/invoiceNote[1]/noteText InvoiceNoteText[n] and InvoiceNoteCode[n] are mapped from the same invoiceNote parent. If either sibling element is missing, the corresponding output field is empty, and no further lookups are performed. However, if both noteText and noteCode are empty or missing in the current invoiceNote element, the next invoiceNote element is used.

Tungsten AP Essentials internal field name	ESXML
InvoiceNoteText2 **	/invoiceFile/invoice/invoiceNote[2]/noteText InvoiceNoteText[n] and InvoiceNoteCode[n] are mapped from the same invoiceNote parent. If either sibling element is missing, the corresponding output field is empty, and no further lookups are performed. However, if both noteText and noteCode are empty or missing in the current invoiceNote element, the next invoiceNote element is used.
InvoiceCredit	/invoiceFile/invoice/invoiceTypeId If =CR then 1, else 0
InvoiceCurrency	/invoiceFile/invoice/invoiceCurrencyCode
InvoiceDate	/invoiceFile/invoice/invoiceDate
InvoiceDiscountAmount	/invoiceFile/invoice/invoiceTrailer/totalAllowance
InvoiceDueDate	/invoiceFile/invoice/dueDate
InvoiceFactoring *	/invoiceFile/invoice/factoring
InvoiceMode	/invoiceFile/invoice/invoicingMode
InvoiceNumber	/invoiceFile/invoice/invoiceId
InvoiceObject	/invoiceFile/invoice/invoiceObject
InvoiceNetAmount1, InvoiceNetAmount2, InvoiceNetAmount3, InvoiceNetAmount4	/invoiceFile/invoice/invoiceTrailer/invoiceVat[1]/taxableAmount /invoiceFile/invoice/invoiceTrailer/invoiceVat[2]/taxableAmount /invoiceFile/invoice/invoiceTrailer/invoiceVat[3]/taxableAmount /invoiceFile/invoice/invoiceTrailer/invoiceVat[4]/taxableAmount
InvoiceOrderNumber	If /invoiceFile/invoice/orderInformation/orderType = ORDERER Then InvoiceOrderNumber is mapped to /invoiceFile/invoice/orderInformation/orderNumber Otherwise, InvoiceOrderNumber is mapped to /invoiceFile/invoice/customersOrder
InvoicingPeriodEnd	/invoiceFile/invoice/invoicePeriodTo
InvoicingPeriodStart	/invoiceFile/invoice/invoicePeriodFrom
InvoicePrepaidAmount	/invoiceFile/invoice/invoiceTrailer/prepaidAmount

Tungsten AP Essentials internal field name	ESXML
InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3, InvoiceTaxAmount4	/invoiceFile/invoice/invoiceTrailer/invoiceVat[1]/vatAmount /invoiceFile/invoice/invoiceTrailer/invoiceVat[2]/vatAmount /invoiceFile/invoice/invoiceTrailer/invoiceVat[3]/vatAmount /invoiceFile/invoice/invoiceTrailer/invoiceVat[4]/vatAmount
InvoiceTaxRate1, InvoiceTaxRate2, InvoiceTaxRate3, InvoiceTaxRate4	/invoiceFile/invoice/invoiceTrailer/invoiceVat[1]/vatPercentage /invoiceFile/invoice/invoiceTrailer/invoiceVat[2]/vatPercentage /invoiceFile/invoice/invoiceTrailer/invoiceVat[3]/vatPercentage /invoiceFile/invoice/invoiceTrailer/invoiceVat[4]/vatPercentage
InvoiceTaxCode1, InvoiceTaxCode2, InvoiceTaxCode3, InvoiceTaxCode4	/invoiceFile/invoice/invoiceTrailer/invoiceVat[1]/taxTypeCode /invoiceFile/invoice/invoiceTrailer/invoiceVat[2]/taxTypeCode /invoiceFile/invoice/invoiceTrailer/invoiceVat[3]/taxTypeCode /invoiceFile/invoice/invoiceTrailer/invoiceVat[4]/taxTypeCode
InvoiceTaxCurrency	/invoiceFile/invoice/taxCurrencyCode
InvoiceTaxDescription1, InvoiceTaxDescription2, InvoiceTaxDescription3, InvoiceTaxDescription4	/invoiceFile/invoice/invoiceTrailer/invoiceVat[1]/lawText /invoiceFile/invoice/invoiceTrailer/invoiceVat[2]/lawText /invoiceFile/invoice/invoiceTrailer/invoiceVat[3]/lawText /invoiceFile/invoice/invoiceTrailer/invoiceVat[4]/lawText
InvoiceTotalAmountDue *	/invoiceFile/invoice/invoiceTrailer/invoiceTotalAmount
InvoiceTotalLineAmount	/invoiceFile/invoice/invoiceTrailer/lineSumAmount
InvoiceTotalVATAmount	/invoiceFile/invoice/invoiceTrailer/invoiceVatTotalAmount
InvoiceTotalVatExcludedAmount	/invoiceFile/invoice/invoiceTrailer/taxableAmount
InvoiceTotalVatIncludedAmount *	/invoiceFile/invoice/invoiceTrailer/vatInclusiveAmount If the path above is empty or missing, InvoiceTotalVatIncludedAmount is mapped to /invoiceFile/invoice/invoiceTrailer/invoiceTotalAmount
InvoiceTotalVatRatePercent	/invoiceFile/invoice/invoiceTrailer/invoiceVat/vatPercentage

Tungsten AP Essentials internal field name	ESXML
InvoiceTypeId	/invoiceFile/invoice/invoiceTypeId
PaymentCardAccountNumber **	/invoiceFile/invoice/paymentMeans/paymentCardInformation/cardAccountNumber
PaymentCardHolderName **	/invoiceFile/invoice/paymentMeans/paymentCardInformation/cardHolderName
PaymentNote *	/invoiceFile/invoice/paymentMeans/paymentNote
PaymentReferenceNumber	<xsl:template match="/"> <xsl:choose> <xsl:when test="string-length(/invoiceFile/invoice/paymentMeans[paymentMeansType='DK_FIK']/accountNo/text())>0"> <!-- Danish GiroStreng --> <xsl:text>+</xsl:text> <xsl:value-of select="/invoiceFile/invoice/paymentMeans[paymentMeansType='DK_FIK']/paymentMeansSubType"/> <xsl:text><</xsl:text> <xsl:value-of select="/invoiceFile/invoice/paymentMeans[paymentMeansType='DK_FIK']/paymentRef"/> <xsl:text>+</xsl:text> <xsl:value-of select="/invoiceFile/invoice/paymentMeans[paymentMeansType='DK_FIK']/accountNo"/> <xsl:text><</xsl:text> </xsl:when> <xsl:otherwise> <xsl:value-of select="/invoiceFile/invoice/paymentMeans[1]/paymentRef"/> <!-- Default - the first listed paymentRef --> </xsl:otherwise> </xsl:choose> </xsl:template>
PaymentTerms	/invoiceFile/invoice/paymentTerms
PaymentTermsInterest	/invoiceFile/invoice/delayTerms/penaltyInterestRate
PrecedingInvoiceAmount	/invoiceFile/invoice/preceedingInvoice/preceedingInvoiceTotalAmount
PrecedingInvoiceDate	/invoiceFile/invoice/preceedingInvoice/preceedingInvoiceIssueDate
PrecedingInvoiceNumber	/invoiceFile/invoice/preceedingInvoice/preceedingInvoiceId
PrecedingInvoiceReference	/invoiceFile/invoice/preceedingInvoice/preceedingInvoiceReference
PrecedingInvoiceTypeCode **	/invoiceFile/invoice/preceedingInvoice/preceedingInvoiceTypeCode

Tungsten AP Essentials internal field name	ESXML
ProjectNumber	/invoiceFile/invoice/projectReference
PrepaidPaymentAmount1 *	The first instance of: /invoiceFile/invoice/prepaidPayment/paymentAmount PrepaidPaymentAmount1 and PrepaidPaymentDate1 correspond to each other.
PrepaidPaymentDate1 *	The first instance of: /invoiceFile/invoice/prepaidPayment/paymentDate
SupplierAccountNumber1	When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType = "SE_PlusGiro", SupplierAccountNumber1 is mapped to: /invoiceFile/invoice/paymentMeans[paymentMeansType='SE_PlusGiro']/accountNo Otherwise, if paymentMeansType is not IBAN, SE_PlusGiro, SE_BankGiro, DK_FIK, or DK_Giro, SupplierAccountNumber1 is mapped to: /invoiceFile/invoice/paymentMeans[1]/accountNo
SupplierAccountNumber2	When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType = "SE_BankGiro", SupplierAccountNumber2 is mapped to: /invoiceFile/invoice/paymentMeans[paymentMeansType='SE_BankGiro']/accountNo When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType = "DK_FIK", SupplierAccountNumber2 is mapped to: /invoiceFile/invoice/paymentMeans[paymentMeansType='DK_FIK']/accountNo If none of the above conditions are met, the field is populated with the next available free element based on the first account field (SupplierAccountNumber1). This free element should not have a paymentMeansType equal to IBAN, SE_PlusGiro, SE_BankGiro, DK_FIK, or DK_Giro.

Tungsten AP Essentials internal field name	ESXML
SupplierAccountNumber3	When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType = "DK_Giro", SupplierAccountNumber3 is mapped to: /invoiceFile/invoice/paymentMeans[paymentMeansType='DK_Giro']/accountNo If the condition above is not met, the field is populated with the next available free element based on the first two account fields (SupplierAccountNumber1, SupplierAccountNumber2). This free element should not have paymentMeansType equal to IBAN, SE_PlusGiro, SE_BankGiro, DK_FIK, or DK_Giro.
SupplierAccountNumber4	When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType is not IBAN, SE_PlusGiro, SE_BankGiro, DK_FIK, or DK_Giro, SupplierAccountNumber4 is mapped to: /invoiceFile/invoice/paymentMeans[1]/accountNo The field is populated with the next available free element based on the first three account fields (SupplierAccountNumber1, SupplierAccountNumber2, SupplierAccountNumber3). This free element should not have a paymentMeansType equal to IBAN, SE_PlusGiro, SE_BankGiro, DK_FIK, or DK_Giro.
SupplierAddressPostalCode	/invoiceFile/invoice/supplierParty/supplierAddress/zipCode
SupplierBankCodeNumber1, SupplierBankCodeNumber2, SupplierBankCodeNumber3, SupplierBankCodeNumber4	/invoiceFile/invoice/paymentMeans[paymentMeansType='BANK'][1]/accountNo /invoiceFile/invoice/paymentMeans[paymentMeansType='BANK'][2]/accountNo /invoiceFile/invoice/paymentMeans[paymentMeansType='BANK'][3]/accountNo /invoiceFile/invoice/paymentMeans[paymentMeansType='BANK'][4]/accountNo
SupplierBankClearingNumber	//invoiceFile/invoice/paymentMeans[paymentMeansType='BANK']/branchCode
SupplierBankDetails1	If the first instance (if any) of: /invoiceFile/invoice/paymentMeans/paymentMeansType = BANK Then SupplierBankDetails1 is set to the value of: /invoiceFile/invoice/paymentMeans/institutionName

Tungsten AP Essentials internal field name	ESXML
SupplierDUNSNumber	When /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = DUNS, SupplierDUNSNumber is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/identifier
SupplierEndpointID *	/invoiceFile/invoice/supplierParty/supplierEndpointId/identifier
SupplierIBAN1, SupplierIBAN2, SupplierIBAN3, SupplierIBAN4	/invoiceFile/invoice/paymentMeans[1]/accountNo When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType = "IBAN" /invoiceFile/invoice/paymentMeans[2]/accountNo When /invoiceFile/invoice/paymentMeans[2]/paymentMeansType = "IBAN" /invoiceFile/invoice/paymentMeans[3]/accountNo When /invoiceFile/invoice/paymentMeans[3]/paymentMeansType = "IBAN" /invoiceFile/invoice/paymentMeans[4]/accountNo When /invoiceFile/invoice/paymentMeans[4]/paymentMeansType = "IBAN"
SupplierSWIFT1, SupplierSWIFT2, SupplierSWIFT3, SupplierSWIFT4	/invoiceFile/invoice/paymentMeans[1]/swiftCode When /invoiceFile/invoice/paymentMeans[1]/paymentMeansType = "IBAN" /invoiceFile/invoice/paymentMeans[2]/swiftCode When /invoiceFile/invoice/paymentMeans[2]/paymentMeansType = "IBAN" /invoiceFile/invoice/paymentMeans[3]/swiftCode When /invoiceFile/invoice/paymentMeans[3]/paymentMeansType = "IBAN" /invoiceFile/invoice/paymentMeans[4]/swiftCode When /invoiceFile/invoice/paymentMeans[4]/paymentMeansType = "IBAN"
SupplierTaxNumber1 *	When /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = org and /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierDetailedType = FR:SIRENE SupplierTaxNumber1 is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/identifier If FR:SIRENE is not specified and /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = org, SupplierTaxNumber1 is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/identifier

Tungsten AP Essentials internal field name	ESXML
SupplierTaxNumber2 *	When /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = org and /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierDetailedType = FR:SIRET SupplierTaxNumber2 is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/identifier should be mapped to field type SupplierTaxNumber2
SupplierTaxRepresentativeName	/invoiceFile/invoice/taxRepresentativeParty/partyAddress/addressname
SupplierTaxRepresentativeTaxID *	First priority: /invoiceFile/invoice/taxRepresentativeParty/partyTaxScheme/taxSchemeID Otherwise: /invoiceFile/invoice/taxRepresentativeParty/partyIdentifier/identifier
SupplierTaxRepresentativeTaxIDCountry *	If SupplierTaxRepresentativeTaxID is taken from the first priority, SupplierTaxRepresentativeTaxIDCountry is mapped to: /invoiceFile/invoice/taxRepresentativeParty/partyAddress/countryId Otherwise: /invoiceFile/invoice/taxRepresentativeParty/partyIdentifier/countryId
SupplierTaxSchemeID *	/invoiceFile/invoice/supplierParty/partyTaxScheme/taxSchemeID
SupplierVATRegistrationNumber	When /invoiceFile/invoice/supplierParty/partyIdentifier[1]/partyIdentifierType = VAT, SupplierVATRegistrationNumber is mapped to: /invoiceFile/invoice/supplierParty/partyIdentifier[1]/identifier
TaxAmountInTaxCurrency1, TaxAmountInTaxCurrency2, TaxAmountInTaxCurrency3, TaxAmountInTaxCurrency4 **	/invoiceFile/invoice/invoiceTrailer/invoiceVat[1]/vatAmountInOtherCurrency /invoiceFile/invoice/invoiceTrailer/invoiceVat[2]/vatAmountInOtherCurrency /invoiceFile/invoice/invoiceTrailer/invoiceVat[3]/vatAmountInOtherCurrency /invoiceFile/invoice/invoiceTrailer/invoiceVat[4]/vatAmountInOtherCurrency
TaxPointDate	invoiceFile/invoice/taxPointDate
TaxPointDateCode **	/invoiceFile/invoice/taxPointDateCode
TotalTaxAmountInTaxCurrency	/invoiceFile/invoice/invoiceTrailer/vatTotalAmountInOtherCurrency

Tungsten AP Essentials internal field name	ESXML
WithholdingTaxAmount	/invoiceFile/invoice/invoiceTrailer/withholdingTax/withholdingAmount
WithholdingTaxCode	/invoiceFile/invoice/invoiceTrailer/withholdingTax/withholdingReasonCode
WithholdingTaxType	/invoiceFile/invoice/invoiceTrailer/withholdingTax/withholdingType
Line-item fields	
LIT_AdditionalReference	If the schemeID attribute is anything other than "ON" or "OP", LIT_AdditionalReference is mapped to: /invoiceFile/invoice/invoiceLine/documentReferenceId Additionally, LIT_AdditionalReferenceType is set to the value of the schemeID attribute.
LIT_AdditionalReference1 **	/invoiceFile/invoice/invoiceLine/additionalDocumentReference[1]/additionalDocumentId If the additionalDocumentId element is missing in the first occurrence, LIT_AdditionalReference1 remains empty.
LIT_AdditionalReference2 **	/invoiceFile/invoice/invoiceLine/additionalDocumentReference[2]/additionalDocumentId If the additionalDocumentId element is missing in the first occurrence, LIT_AdditionalReference2 remains empty.
LIT_AdditionalReferenceLineId1 **	/invoiceFile/invoice/invoiceLine/additionalDocumentReference[1]/additionalDocumentLineId If the additionalDocumentLineId element is missing in the first occurrence, LIT_AdditionalReferenceLineId1 remains empty.
LIT_AdditionalReferenceLineId2 **	/invoiceFile/invoice/invoiceLine/additionalDocumentReference[2]/additionalDocumentLineId If the additionalDocumentLineId element is missing in the first occurrence, LIT_AdditionalReferenceLineId2 remains empty.
LIT_AdditionalReferenceType	If LIT_AdditionalReference is specified as noted above, LIT_AdditionalReferenceType is set to the value of the schemeID attribute.
LIT_AdditionalReferenceType1 **	/invoiceFile/invoice/invoiceLine/additionalDocumentReference[1]/documentSchemeId If the documentSchemeId element is missing in the first occurrence, LIT_AdditionalReferenceType1 remains empty.

Tungsten AP Essentials internal field name	ESXML
LIT_AdditionalReferenceType2 **	/invoiceFile/invoice/invoiceLine/additionalDocumentReference[2]/documentSchemeId If the documentSchemeId element is missing in the first occurrence, LIT_AdditionalReferenceType2 remains empty.
LIT_ArticleAttributeType1	/invoiceFile/invoice/invoiceLine/additionalItemAttribute[1]/attributeName
LIT_ArticleAttribute1	/invoiceFile/invoice/invoiceLine/additionalItemAttribute[1]/attributeValue
LIT_ArticleClassificationCode	The first instance of: /invoiceFile/invoice/invoiceLine/itemClassificationCode
LIT_ArticleCountryOrigin	/invoiceFile/invoice/invoiceLine/countryOfOrigin
LIT_ArticleDescription	
LIT_ArticleIdentifier	/invoiceFile/invoice/invoiceLine/supplierArticleId
LIT_ArticleManufactureDate	/invoiceFile/invoice/invoiceLine[2]/itemInstance/manufactureDate
LIT_ArticleName	/invoiceFile/invoice/invoiceLine/articleDescription
LIT_ArticleRegNo	/invoiceFile/invoice/invoiceLine[2]/itemInstance/registrationNo
LIT_ArticleSerialNo	/invoiceFile/invoice/invoiceLine[2]/itemInstance/serialNo
LIT_ArticleTraceNo	/invoiceFile/invoice/invoiceLine[2]/itemInstance/productTraceNo
LIT_BuyerArticleNumber	/invoiceFile/invoice/invoiceLine/buyerArticleId
LIT_BuyerContactReference	/invoiceFile/invoice/invoiceLine/customerProfitCentre
LIT_DeliveryDate1, LIT_DeliveryDate2	LIT_DeliveryDate1 is set to: /invoiceFile/invoice/invoiceLine[1]/deliveryDate Alternatively, LIT_DeliveryDate1 is set to: /invoiceFile/invoice/invoiceLine[1]/invoicePeriodFrom And LIT_DeliveryDate2 is set to: /invoiceFile/invoice/invoiceLine[1]/invoicePeriodTo
LIT_DeliveryNote	/invoiceFile/invoice/invoiceLine[1]/deliveryNoteReference
LIT_DeliveredQuantity	/invoiceFile/invoice/invoiceLine/invoiceQuantity/quantity
LIT_DeliveredQuantityUnitCode	/invoiceFile/invoice/invoiceLine/price/unit/value

Tungsten AP Essentials internal field name	ESXML
LIT_DiscountAmount	If `allowanceAndCharge/alcType` = A, `allowanceAndCharge/alcType/alcAmount` is used. Otherwise, `/invoiceFile/invoice/invoiceLine/discountAmount` is used.
LIT_DiscountPercent	If `allowanceAndCharge/alcType` = A, `allowanceAndCharge/alcType/alcPercentage` is used. Otherwise, `/invoiceFile/invoice/invoiceLine/discountPercent` is used.
LIT_ExchangeRate *	/invoiceFile/invoice/invoiceLine/exchangeRate
LIT_ManufacturerArticleNumber	/invoiceFile/invoice/invoiceLine/manufacturerArticleId
LIT_Note	/invoiceFile/invoice/invoiceLine/invoiceLineText
LIT_OrderNumber	If the schemeID attribute is "ON" or "OP", LIT_OrderNumber is mapped to the first instance of: /invoiceFile/invoice/invoiceLine/documentReferenceId Otherwise, LIT_OrderNumber is mapped to: /invoiceFile/invoice/invoiceLine/orderReference/referenceNumber
LIT_ParentRowIdentifier **	/invoiceFile/invoice/invoiceLine/parentLineId
LIT_PrecedingInvoiceLineId **	/invoiceFile/invoice/invoiceLine/preceedingInvoice/preceedingInvoiceLineId
LIT_PrecedingInvoiceNumber **	/invoiceFile/invoice/invoiceLine/preceedingInvoice/preceedingInvoiceId
LIT_PrecedingInvoiceTypeCode **	/invoiceFile/invoice/invoiceLine/preceedingInvoice/preceedingInvoiceTypeCode
LIT_PO_RowIdentifier	/invoiceFile/invoice/invoiceLine/orderLineReference/referenceNumber
LIT_RowIdentifier	/invoiceFile/invoice/invoiceLine/invoiceLineId
LIT_RowIdentifierType **	/invoiceFile/invoice/invoiceLine/invoiceLineTypeId
LIT_TaxAmountInTaxCurrency **	/invoiceFile/invoice/invoiceLine/vatInfo/vatAmountInOtherCurrency
LIT_TaxPointDateCode **	/invoiceFile/invoice/invoiceLine/vatInfo/taxPointDateCode
LIT_UnitPriceAmount	/invoiceFile/invoice/invoiceLine/price/contractPrice
LIT_UnitPriceBasis	/invoiceFile/invoice/invoiceLine[1]/price/unitPriceBasis
LIT_UniqueArticleNumber	/invoiceFile/invoice/invoiceLine/articleGTIN If /invoiceFile/invoice/invoiceLine/articleGTIN is empty or missing, LIT_UniqueArticleNumber is mapped to: /invoiceFile/invoice/invoiceLine/standardItemIdentification

Tungsten AP Essentials internal field name	ESXML
LIT_VatAmount	/invoiceFile/invoice/invoiceLine/vatInfo/taxAmount
LIT_VATCode	/invoiceFile/invoice/invoiceLine[1]/vatInfo/taxTypeCode
LIT_VATDescription	/invoiceFile/invoice/invoiceLine[1]/vatInfo/lawText
LIT_VatExcludedAmount	/invoiceFile/invoice/invoiceLine/invoiceLineAmount
LIT_VatIncludedAmount **	/invoiceFile/invoice/invoiceLine/invoiceLineGrossAmount
LIT_VatRate	/invoiceFile/invoice/invoiceLine/vatInfo/taxPercentage
Invoice note field	
InvoiceNote	/invoiceFile/invoice/invoiceFreeText
Attachment fields	
ID	/invoiceFile/invoice/attachments/attachment/objectId
FileName	/invoiceFile/invoice/attachments/attachment/encodedData/filename
EmbeddedValue	/invoiceFile/invoice/attachments/attachment/encodedData
DataType	/invoiceFile/invoice/attachments/attachment/encodedData/format
AdditionalInfo	/invoiceFile/invoice/attachments/attachment/encodedData/mimeCode

Embedded attachments

ESXML files can contain other files, such as images and PDFs, that are encoded and embedded in the XML. AP Essentials handles embedded attachments differently depending on how the attachment is specified and whether you use the Storage service.

- If an ESXML file contains embedded attachments and `/invoiceFile/invoice/attachments/attachment/documentType` = `LEGAL` or `ORIGINAL`, and the Storage service is enabled, the attachment is decoded and available for export when **Export original document** or **Export attachments** is selected in the target system settings.
- If an ESXML file contains embedded attachments, but `/invoiceFile/invoice/attachments/attachment/documentType` is *not specified* as `LEGAL` or `ORIGINAL`, and the Storage service is enabled, the attachment is decoded and available from the **Attachments** tab, and the attachment is decoded and available for export when **Export attachments** is selected in the target system settings.

FatturaPA field mapping

This table shows how Tungsten AP Essentials maps internal fields to FatturaPA.

Tungsten AP Essentials internal field name	FatturaPA
Buyer fields	
Identifier	FatturaElettronica/FatturaElettronicaHeader/ CessionarioCommittente/DatiAnagrafici/CodiceFiscale
POBox	FatturaElettronica/FatturaElettronicaHeader/ CessionarioCommittente/Sede/NumeroCivico
Name	CessionarioCommittente/DatiAnagrafici/Anagrafica/ Denominazione
Street	FatturaElettronica/FatturaElettronicaHeader/ CessionarioCommittente/Sede/Indirizzo
City	FatturaElettronica/FatturaElettronicaHeader/ CessionarioCommittente/Sede/Comune
BuyerAddressPostalCode	FatturaElettronica/FatturaElettronicaHeader/ CessionarioCommittente/Sede/CAP
CountryCode	FatturaElettronica/FatturaElettronicaHeader/ CessionarioCommittente/Sede/Nazione
Supplier fields	
Identifier	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/DatiAnagrafici/IdFiscaleIVA/ IdCodice
POBox	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Sede/NumeroCivico
Name	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/DatiAnagrafici/Anagrafica/ Denominazione
Street	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Sede/Indirizzo
City	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Sede/Comune
SupplierAddressPostalCode	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Sede/CAP
CountryCode	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Sede/Nazione
TelephoneNumber	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Contatti/Telefono
FaxNumber	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Contatti/Fax
Email	FatturaElettronica/FatturaElettronicaHeader/ CedentePrestatore/Contatti/Email
Header fields	

Tungsten AP Essentials internal field name	FatturaPA
AttributeName1 AttributeValue1	AttributeValue1 is extracted using the following process. 1. The first occurrence of CodiceCUP is taken from the five supported parent elements (DatiOrdineAcquisto, DatiContratto, DatiConvenzione, DatiRicezione, DatiFattureCollegate), regardless of whether a line is referenced in RiferimentoNumeroLinea. 2. If no value is found in step 1, the value is populated from the line-item level using the mapping for LIT_ArticleAttribute1. Only the first found non-empty value is considered and set to AttributeValue1. 3. If a value is found in step 2, AttributeName1 is set to "CUP". See CodiceCUP and CodiceCIG extraction.
AttributeName2 AttributeValue2	AttributeValue2 is extracted using the following process. 1. The first occurrence of CodiceCIG is taken from the five supported parent elements (DatiOrdineAcquisto, DatiContratto, DatiConvenzione, DatiRicezione, DatiFattureCollegate), regardless of whether a line is referenced in RiferimentoNumeroLinea. 2. If no value is found in step 1, the value is populated from the line-item level using the mapping for LIT_ArticleAttribute2. Only the first found non-empty value is considered and set to AttributeValue2. 3. If a value is found in step 2, AttributeName2 is set to "CIG". See CodiceCUP and CodiceCIG extraction.
BuyerAddressPostalCode	FatturaElettronica/FatturaElettronicaHeader/CessionarioCommittente/Sede/CAP
BuyerVATRegistrationNumber	Whichever of the following comes first and has a value: • FatturaElettronica/FatturaElettronicaHeader/CessionarioCommittente/DatiAnagrafici/IdFiscaleIVA/IdCodice • FatturaElettronica/FatturaElettronicaHeader/CessionarioCommittente/DatiAnagrafici/CodiceFiscale

Tungsten AP Essentials internal field name	FatturaPA
ChargeAmount1	There are two alternatives for determining the value of ChargeAmount1. If FatturaElettronica/FatturaElettronicaBody/ DatiGenerali/DatiGeneraliDocumento/ ScontoMaggiorazione[1]/Tipo = MG then ChargeAmount1 is set to the value of: FatturaElettronica/FatturaElettronicaBody/ DatiGenerali/DatiGeneraliDocumento/ ScontoMaggiorazione[1]/Importo Alternatively, ChargeAmount1 is set to the value of: FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DatiRiepilogo[1]/SpeseAccessorie. Priority is given to the first case (ScontoMaggiorazione[1]/Importo) if both alternatives are specified.
ChargeAmount2	There are two alternatives for determining the value of ChargeAmount2. If FatturaElettronica/FatturaElettronicaBody/ DatiGenerali/DatiGeneraliDocumento/ ScontoMaggiorazione[2]/Tipo = MG then ChargeAmount2 is set to the value of: FatturaElettronica/FatturaElettronicaBody/ DatiGenerali/DatiGeneraliDocumento/ ScontoMaggiorazione[2]/Importo Alternatively, ChargeAmount2 is set to the value of: FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DatiRiepilogo[2]/SpeseAccessorie. Priority is given to the first case (ScontoMaggiorazione[2]/Importo) if both alternatives are specified.

Tungsten AP Essentials internal field name	FatturaPA
ChargeAmount3	There are two alternatives for determining the value of ChargeAmount3. If FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[3]/Tipo = MG then ChargeAmount3 is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[3]/Importo Alternatively, ChargeAmount3 is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/SpeseAccessorie. Priority is given to the first case (ScontoMaggiorazione[3]/Importo) if both alternatives are specified.
ChargeAmount4	There are two alternatives for determining the value of ChargeAmount4. If FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[4]/Tipo = MG then ChargeAmount4 is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[4]/Importo Alternatively, ChargeAmount4 is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/SpeseAccessorie. Priority is given to the first case (ScontoMaggiorazione[4]/Importo) if both alternatives are specified.
ContractNumber	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiContratto/IdDocumento The IdDocumento value found in DatiContratto is mapped to ContractNumber.
DeliveryCost	The sum of ChargeAmount1 and ChargeAmount2.
DeliveryDate	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiTrasporto/DataOraConsegna
DeliveryNote	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiTrasporto/Descrizione
DeliveryTerms	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiTrasporto/MezzoTrasporto

<table>
<tr><th>Tungsten AP Essentials internal field name</th><th>FatturaPA</th></tr>
<tr><td>DiscountAmount1</td><td>If
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[1]/Tipo = SC
then DiscountAmount1 is set to the value of:
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[1]/Importo</td></tr>
<tr><td>DiscountAmount2</td><td>If
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[2]/Tipo = SC
then DiscountAmount2 is set to the value of:
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[2]/Importo</td></tr>
<tr><td>DiscountAmount3</td><td>If
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[3]/Tipo = SC
then DiscountAmount3 is set to the value of:
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[3]/Importo</td></tr>
<tr><td>DiscountAmount4</td><td>If
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[4]/Tipo = SC
then DiscountAmount4 is set to the value of:
FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ScontoMaggiorazione[4]/Importo</td></tr>
<tr><td>InvoiceBaselineDate</td><td>FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/Data</td></tr>
<tr><td>InvoiceCredit</td><td>FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/TipoDocumento
<table>
<tr><th>FatturaPA field</th><th>Value</th><th>Invoice type</th></tr>
<tr><td>TipoDocumento</td><td>TD04</td><td>Credit</td></tr>
<tr><td>TipoDocumento</td><td>[all other values]</td><td>Invoice</td></tr>
</table>
If TipoDocumento = TD04, the document is a credit note. Any value other than TD04 is considered to be an invoice.</td></tr>
</table>

Tungsten AP Essentials internal field name	FatturaPA
InvoiceCurrency	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/Divisa
InvoiceDate	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/Data
InvoiceDiscountAmount	The sum of DiscountAmount1 and DiscountAmount2 above.
InvoiceDueDate	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/DataScadenzaPagamento
InvoiceNetAmount1	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[1]/ImponibileImporto
InvoiceNetAmount2	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[2]/ImponibileImporto
InvoiceNetAmount3	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/ImponibileImporto
InvoiceNetAmount4	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/ImponibileImporto
InvoiceTotalVatExcludedAmount	The sum of InvoiceNetAmount1, InvoiceNetAmount2, InvoiceNetAmount3, and InvoiceNetAmount4
InvoiceNumber	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/Numero
InvoiceOrderNumber	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiOrdineAcquisto/IdDocumento
InvoiceTaxAmount1	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[1]/Imposta
InvoiceTaxAmount2	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[2]/Imposta
InvoiceTaxAmount3	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/Imposta
InvoiceTaxAmount4	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/Imposta
InvoiceTotalVATAmount	The sum of InvoiceTaxAmount1, InvoiceTaxAmount2, InvoiceTaxAmount3, and InvoiceTaxAmount4
InvoiceTaxRate1	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[1]/AliquotaIVA
InvoiceTaxRate2	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[2]/AliquotaIVA
InvoiceTaxRate3	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/AliquotaIVA
InvoiceTaxRate4	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/AliquotaIVA

Tungsten AP Essentials internal field name	FatturaPA
InvoiceTaxDescription1	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[1]/RiferimentoNormativo
InvoiceTaxDescription2	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[2]/RiferimentoNormativo
InvoiceTaxDescription3	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/RiferimentoNormativo
InvoiceTaxDescription4	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/RiferimentoNormativo
InvoiceTaxCode1	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[1]/Natura
InvoiceTaxCode2	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[2]/Natura
InvoiceTaxCode3	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/Natura
InvoiceTaxCode4	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/Natura
InvoiceTaxType1	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[1]/EsigibilitaIVA
InvoiceTaxType2	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[2]/EsigibilitaIVA
InvoiceTaxType3	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[3]/EsigibilitaIVA
InvoiceTaxType4	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo[4]/EsigibilitaIVA
InvoiceTotalAmountDue	/FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/ImportoPagamento
InvoiceTotalVatIncludedAmount	/FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/ImportoTotaleDocumento If the path above is empty or missing, InvoiceTotalVatIncludedAmount is mapped to FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/ImportoPagamento
InvoiceTotalVatRatePercent	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DatiRiepilogo/AliquotaIVA

Tungsten AP Essentials internal field name	FatturaPA
InvoiceTypeId	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/TipoDocumento The first occurrence of TipoDocumento is mapped.
InvoicingPeriodEnd	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/DataScadenzaPagamento
InvoicingPeriodStart	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/DataRiferimentoTerminiPagamento
PaymentTerms	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/CondizioniPagamento
PaymentType	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/ModalitaPagamento
SupplierAddressPostalCode	FatturaElettronica/FatturaElettronicaHeader/CedentePrestatore/Sede/CAP
SupplierBankCodeNumber1	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/BIC
SupplierIBAN1	FatturaElettronica/FatturaElettronicaBody/DatiPagamento/DettaglioPagamento/IBAN
SupplierVATRegistrationNumber	FatturaElettronica/FatturaElettronicaHeader/CedentePrestatore/DatiAnagrafici/IdFiscaleIVA/IdCodice
WithholdingTaxAmount1	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/DatiRitenuta[1]/ImportoRitenuta
WithholdingTaxAmount2	FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiGeneraliDocumento/DatiRitenuta[2]/ImportoRitenuta
Line-item fields	
LIT_ArticleAttribute1	If /DatiBeniServizi/DettaglioLinee/AltriDatiGestionali/TipoDato = CUP then LIT_ArticleAttribute1 is set to the value of: /DatiBeniServizi/DettaglioLinee/AltriDatiGestionali/RiferimentoTesto
LIT_ArticleAttribute2	If /DatiBeniServizi/DettaglioLinee/AltriDatiGestionali/TipoDato = CIG then LIT_ArticleAttribute2 is set to the value of: /DatiBeniServizi/DettaglioLinee/AltriDatiGestionali/RiferimentoTesto

Tungsten AP Essentials internal field name	FatturaPA
LIT_ArticleIdentifier	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/CodiceArticolo/CodiceValore
LIT_ArticleName	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/Descrizione
LIT_DeliveryCost	If FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/ScontoMaggiorazione/Tipo = MG then LIT_DeliveryCost is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/ScontoMaggiorazione/Importo
LIT_DeliveredQuantity	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/Quantita
LIT_DeliveredQuantityUnitCode	FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/UnitaMisura
LIT_DeliveryNote	For documents with multiple purchase orders, LIT_DeliveryNote is taken from: FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiDDT/NumeroDDT The line-item rows referenced by the delivery note are taken from: FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiDDT/RiferimentoNumeroLinea[1]
LIT_DiscountAmount, LIT_DiscountPercent	If FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/ScontoMaggiorazione/Tipo = SC then LIT_DiscountAmount is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee/ScontoMaggiorazione/Importo. and LIT_DiscountPercent is set to the value of: FatturaElettronica/FatturaElettronicaBody/DatiBeniServizi/DettaglioLinee[1]/ScontoMaggiorazione/Percentuale
LIT_OrderNumber	For documents with multiple purchase orders, LIT_OrderNumber is taken from: FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiOrdineAcquisto[1]/IdDocumento The line-item rows referenced by the order number are taken from: FatturaElettronica/FatturaElettronicaBody/DatiGenerali/DatiOrdineAcquisto[1]/RiferimentoNumeroLinea

Tungsten AP Essentials internal field name	FatturaPA
LIT_RowIdentifier	FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DettaglioLinee/NumeroLinea
LIT_UnitPriceAmount	FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DettaglioLinee/PrezzoUnitario
LIT_VATCode	FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DettaglioLinee/Natura
LIT_VatAmount	
LIT_VatExcludedAmount	FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DettaglioLinee/PrezzoTotale
LIT_VatIncludedAmount	
LIT_VatRate	FatturaElettronica/FatturaElettronicaBody/ DatiBeniServizi/DettaglioLinee/AliquotaIVA
Attachment fields	
ID	NomeAttachment
EmbeddedValue	Attachment
DataType	FormatoAttachment
AdditionalInfo	DescrizioneAttachment
Invoice note field	
InvoiceNote	FatturaElettronica/FatturaElettronicaBody/ DatiGenerali/DatiGeneraliDocumento/Causale

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

CodiceCUP and CodiceCIG extraction

FatturaPA invoices can contain CodiceCUP and CodiceCIG values in several different XML elements. AP Essentials searches these parent elements in order and extracts the first valid header-level values. The parent element where the value is found determines the value of the AttributeName field, and the values from CodiceCUP and CodiceCIG are mapped to AttributeValue1 and AttributeValue2, respectively.

Supported parent elements

Block	AttributeName1 value	AttributeName2 value
DatiOrdineAcquisto	DatiOrdineAcquistoCUP	DatiOrdineAcquistoCIG
DatiContratto	DatiContrattoCUP	DatiContrattoCIG
DatiConvenzione	DatiConvenzioneCUP	DatiConvenzioneCIG
DatiRicezione	DatiRicezioneCUP	DatiRicezioneCIG
DatiFattureCollegate	DatiFattureCollegateCUP	DatiFattureCollegateCIG

Extraction rules

Rule	Description
First valid value	Elements are evaluated in priority order. The first non-empty CodiceCUP or CodiceCIG value is used.
Name/value pairs	AttributeName and AttributeValue fields are populated together. If the value is empty, the pair remains empty.
Independent values	CodiceCUP and CodiceCIG can be extracted from different elements.

Examples

Description	Example XML	Output
The first element contains non-empty values for CodiceCUP and CodiceCIG. Both are extracted. Any further occurrences in the same or subsequent elements are ignored.	<DatiOrdineAcquisto> <CodiceCUP>CUP123</CodiceCUP> <CodiceCIG>CIG456</CodiceCIG> </DatiOrdineAcquisto> <DatiContratto> <CodiceCUP>CUP789</CodiceCUP> <CodiceCIG>CIG789</CodiceCIG> </DatiContratto>	AttributeName1 = "DatiOrdineAcquistoCUP" AttributeValue1 = "CUP123" AttributeName2 = "DatiOrdineAcquistoCIG" AttributeValue2 = "CIG456"
The first element qualifies for CodiceCUP because it is not empty. CodiceCIG is taken from the second element.	<DatiOrdineAcquisto> <CodiceCUP>CUP789</CodiceCUP> <CodiceCIG></CodiceCIG> </DatiOrdineAcquisto> <DatiContratto> <CodiceCUP>CUP456</CodiceCUP> <CodiceCIG>CIG1011</CodiceCIG> </DatiContratto>	AttributeName1 = "DatiOrdineAcquistoCUP" AttributeValue1 = "CUP789" AttributeName2 = "DatiContrattoCIG" AttributeValue2 = "CIG1011"
The first element qualifies for CodiceCIG because it is not empty. CodiceCUP is taken from the second element.	<DatiOrdineAcquisto> <CodiceCUP></CodiceCUP> <CodiceCIG>CIG001</CodiceCIG> </DatiOrdineAcquisto> <DatiContratto> <CodiceCUP>CUP456</CodiceCUP> <CodiceCIG>CIG789</CodiceCIG> </DatiContratto>	AttributeName1 = "DatiContrattoCUP" AttributeValue1 = "CUP456" AttributeName2 = "DatiOrdineAcquistoCIG" AttributeValue2 = "CIG001"

Description	Example XML	Output
No qualifying element is found. Both attribute pairs remain unpopulated.	<DatiOrdineAcquisto> <CodiceCUP></CodiceCUP> <CodiceCIG></CodiceCIG> </DatiOrdineAcquisto> <DatiContratto> <CodiceCUP></CodiceCUP> <CodiceCIG></CodiceCIG> </DatiContratto>	AttributeName1 = "" AttributeValue1 = "" AttributeName2 = "" AttributeValue2 = ""

Finvoice field mapping

This table shows how Tungsten AP Essentials maps internal fields to Finvoice XML.

Tungsten AP Essentials does not support Finvoice invoices with SOAP envelopes.

This input format is deprecated. To stay up-to-date with e-invoicing and maximize connectivity, consider adding InvoiceAgility components to your solution.

Tungsten AP Essentials internal field name	Finvoice
Buyer fields	
Name	/BuyerPartyDetails/BuyerOrganisationName
Street	/BuyerPartyDetails/BuyerPostalAddressDetails/BuyerStreetName
POBox	/BuyerPartyDetails/BuyerPostalAddressDetails/PostOfficeBoxIdentifier
City	/BuyerPartyDetails/BuyerPostalAddressDetails/BuyerTownName
CountryCode	/BuyerPartyDetails/BuyerPostalAddressDetails/CountryCode
Country	/BuyerPartyDetails/BuyerPostalAddressDetails/CountryName
Supplier fields	
Name	/SellerPartyDetails/SellerOrganisationName
Street	/SellerPartyDetails/SellerPostalAddressDetails/SellerStreetName
POBox	/SellerPartyDetails/SellerPostalAddressDetails/PostOfficeBoxIdentifier
City	/SellerPartyDetails/SellerPostalAddressDetails/SellerTownName
CountryCode	/SellerPartyDetails/SellerPostalAddressDetails/CountryCode

Tungsten AP Essentials internal field name	Finvoice
Country	/SellerPartyDetails/SellerPostalAddressDetails/ CountryName
Standard fields	
AddressName	
AddressOptionalName	
AddressPostalCity	
AddressPostalCode	
AddressStreet	
Barcode	/Finvoice/VirtualBankBarcode
BuyerAddressPostalCode	/Finvoice/BuyerPartyDetails/ BuyerPostalAddressDetails/BuyerPostCodeIdentifier
BuyerContactPersonName	/Finvoice/BuyerContactPersonName
BuyerContactReference	
BuyerTaxNumber1	/Finvoice/BuyerPartyDetails/ BuyerOrganisationTaxCode
BuyerTaxNumber2	
BuyerVATRegistrationNumber	/Finvoice/BuyerPartyDetails/ BuyerOrganisationTaxCode
DeliveryCost	
DeliveryCostInsurance	
DeliveryCostPackaging	
DeliveryCostPostage	
DeliveryCostToll	
DeliveryDate	/Finvoice/DeliveryDetails/DeliveryDate. If this element does not exist, use this alternative location: /Finvoice/ DeliveryDetails/DeliveryPeriodDetails/StartDate.
DeliveryNote	/Finvoice/DeliveryDetails/WaybillIdentifier
DeliveryTerms	/Finvoice/DeliveryDetails/DeliveryTermsText
EsrAmount	
EsrNumber	
EsrReference	
InvoiceBaselineDate	/Finvoice/InvoiceDetails/InvoiceDate
InvoiceCredit	/Finvoice/InvoiceDetails/InvoiceTypeCode InvoiceCredit: INV01 ='0' (Invoice) Any other value ='1' (Credit Note) Also, the document will be considered as Credit Note if the invoice total VAT included amount is negative.

Tungsten AP Essentials internal field name	Finvoice
InvoiceCurrency	/Finvoice/InvoiceDetails/ InvoiceTotalVatIncludedAmount/ @AmountCurrencyIdentifier
InvoiceDate	/Finvoice/InvoiceDetails/InvoiceDate
InvoiceDiscountAmount	/Finvoice/InvoiceDetails/PaymentTermsDetails/ CashDiscountAmount
InvoiceDiscountPercent	/Finvoice/InvoiceDetails/PaymentTermsDetails/ CashDiscountPercent
InvoiceDueDate	/Finvoice/EpiDetails/EpiPaymentInstructionDetails/ EpiDateOptionDate
InvoiceNumber	/Finvoice/InvoiceDetails/InvoiceNumber
InvoiceOrderNumber	/Finvoice/InvoiceDetails/OrderIdentifier
InvoicePostingDate	
InvoiceTaxAmount1	/Finvoice/InvoiceDetails/VatSpecificationDetails/ VatRateAmount
InvoiceTaxAmount2	
InvoiceTaxAmount3	
InvoiceTaxAmount4	
InvoiceTotalVATAmount	/Finvoice/InvoiceDetails/InvoiceTotalVatAmount
InvoiceTotalVatExcludedAmount	/Finvoice/InvoiceDetails/ InvoiceTotalVatExcludedAmount
InvoiceTotalVatIncludedAmount	/Finvoice/InvoiceDetails/ InvoiceTotalVatIncludedAmount
InvoiceTotalVatIncludedAmountSpelled	
InvoiceTotalVatRatePercent	/Finvoice/InvoiceDetails/VatSpecificationDetails/ VatRatePercent
InvoicingPeriodEnd	/Finvoice/InvoiceDetails/InvoicingPeriodEndDate
InvoicingPeriodStart	/Finvoice/InvoiceDetails/InvoicingPeriodStartDate
PaymentReferenceNumber	/Finvoice/EpiDetails/EpiPaymentInstructionDetails/ EpiRemittanceInfoIdentifier
PaymentTerms	/Finvoice/InvoiceDetails/PaymentTermsDetails/ PaymentTermsFreeText
PaymentTermsInterest	/Finvoice/InvoiceDetails/PaymentTermsDetails/ PaymentOverDueFineDetails/ PaymentOverDueFinePercent
PaymentType	/Finvoice/EpiDetails/EpiPaymentInstructionDetails/ EpiCharge/@ChargeOption

Tungsten AP Essentials internal field name	Finvoice
SupplierAccountNumber1	/Finvoice/SellerInformationDetails/ SellerAccountDetails/ SellerAccountID. Only takes the value from the section in which the value of /Finvoice/ SellerInformationDetails/SellerAccountDetails/ SellerAccountID/@IdentificationSchemeName is equal to 'BBAN'.
SupplierAccountNumber2	
SupplierAccountNumber3	
SupplierAccountNumber4	
SupplierAddressPostalCode	/Finvoice/SellerPartyDetails/ SellerPostalAddressDetails/ SellerPostCodeIdentifier
SupplierBankClearingNumber	
SupplierBankCodeNumber1	
SupplierBankCodeNumber2	
SupplierBankCodeNumber3	
SupplierBankCodeNumber4	
SupplierIBAN1	/Finvoice/SellerInformationDetails/ SellerAccountDetails/ SellerAccountID. Only takes the value from the section in which the value of /Finvoice/ SellerInformationDetails/SellerAccountDetails/ SellerAccountID/@IdentificationSchemeName is equal to 'IBAN'.
SupplierIBAN2	
SupplierIBAN3	
SupplierIBAN4	
SupplierTaxNumber1	/Finvoice/SellerPartyDetails/ SellerOrganisationTaxCode
SupplierTaxNumber2	
SupplierVATRegistrationNumber	/Finvoice/SellerPartyDetails/ SellerOrganisationTaxCode
Line-item fields	
LIT_ArticleIdentifier	/Finvoice/InvoiceRow/ArticleIdentifier
LIT_ArticleName	/Finvoice/InvoiceRow/ArticleName
LIT_DeliveredQuantity	/Finvoice/InvoiceRow/DeliveredQuantity
LIT_DeliveredQuantityUnitCode	/Finvoice/InvoiceRow/DeliveredQuantity/ @QuantityUnitCode
LIT_DiscountAmount	
LIT_DiscountPercent	
LIT_OrderNumber	

Tungsten AP Essentials internal field name	Finvoice
LIT_RowIdentifier	/Finvoice/InvoiceRow/RowIdentifier
LIT_UnitPriceAmount	/Finvoice/InvoiceRow/UnitPriceAmount
LIT_VatAmount	/Finvoice/InvoiceRow/RowVatAmount
LIT_VatExcludedAmount	/Finvoice/InvoiceRow/RowVatExcludedAmount
LIT_VatIncludedAmount	/Finvoice/InvoiceRow/RowAmount
LIT_VatRate	/Finvoice/InvoiceRow/RowVatRatePercent
Note	/InvoiceDetails/Notes
Attachment fields	
ID	
FileName	
EmbeddedValue	
EmbeddedInfo	
DataURI	
SchemeURI	
DataType	
LinkType	
AdditionalInfo	

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

OFD field mapping

This table shows how Tungsten AP Essentials maps internal fields to OFD (Open Fixed-layout Document) XML. Currently, AP Essentials does not support OFD files that contain more than one document.

Tungsten AP Essentials internal field name	OFD field from Doc_0/Attachs/original_invoice.xml
Buyer fields	
Name	/eInvoice/fp:Buyer/fp:BuyerName
BuyerVATRegistrationNumber	/eInvoice/fp:Buyer/fp:BuyerTaxID
Supplier fields	
Name	/eInvoice/fp:Seller/fp:SellerName
SupplierVATRegistrationNumber	/eInvoice/fp:Seller/fp:SellerTaxID
SupplierBankDetails1	/eInvoice/fp:Seller/fp:SellerFinancialAccount
Invoice fields	
InvoiceCode	/eInvoice/fp:InvoiceCode

Tungsten AP Essentials internal field name	OFD field from Doc_0/Attachs/original_invoice.xml
InvoiceNumber	/eInvoice/fp:InvoiceNo
InvoiceCredit	/eInvoice/fp:TypeCode If TypeCode = 0, it is considered a debit invoice.
InvoiceDate	/eInvoice/fp:IssueDate
InvoiceCurrency	Currently, this value is set to CNY.
InvoiceTotalVatExcludedAmount	/eInvoice/fp:TaxExclusiveTotalAmount
InvoiceTotalVATAmount	/eInvoice/fp:TaxTotalAmount
InvoiceTotalVatIncludedAmount	/eInvoice/fp:TaxInclusiveTotalAmount
Line-item fields	
LIT_ArticleName	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/fp:Item
LIT_ArticleIdentifier	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/ fp:Specification
LIT_DeliveredQuantityUnitCode	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/ fp:MeasurementDimension
LIT_UnitPriceAmount	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/fp:Price
LIT_DeliveredQuantity	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/fp:Quantity
LIT_VatExcludedAmount	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/fp:Amount
LIT_VatRate	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/fp:TaxScheme
LIT_VatAmount	/eInvoice/fp:GoodsInfos/fp:GoodsInfo/fp:TaxAmount

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

OIO field mapping

This table shows how Tungsten AP Essentials maps internal fields to OIO XML.

This input format is deprecated. To stay up-to-date with e-invoicing and maximize connectivity, consider adding InvoiceAgility components to your solution.

Tungsten AP Essentials internal field name	OIO
Buyer fields	
Name	/BuyerParty/PartyName/Name
Street	/BuyerParty/Address/Street
StreetSupplement	/BuyerParty/Address/AdditionalStreet
City	/BuyerParty/Address/CityName
CountryCode	/BuyerParty/Address/Country/Code

Tungsten AP Essentials internal field name	OIO
Supplier fields	
Name	/SellerParty/PartyName/Name
Street	/SellerParty/Address/Street
StreetSupplement	/SellerParty/Address/AdditionalStreet
City	/SellerParty/Address/CityName
CountryCode	/SellerParty/Address/Country/Code
Standard fields	
AddressName	
AddressOptionalName	
AddressPostalCity	
AddressPostalCode	
AddressStreet	
Barcode	
BuyerAddressPostalCode	/Invoice/BuyerParty/Address/PostalZone
BuyerContactPersonName	/Invoice/BuyerParty/BuyerContact/Name
BuyerContactReference	
BuyerTaxNumber1	
BuyerTaxNumber2	
BuyerVATRegistrationNumber	/Invoice/BuyersReferenceID
DeliveryCost	
DeliveryCostInsurance	
DeliveryCostPackaging	
DeliveryCostPostage	
DeliveryCostToll	
DeliveryDate	
DeliveryNote	
DeliveryTerms	
EsrAmount	
EsrNumber	
EsrReference	
InvoiceBaselineDate	/Invoice/IssueDate
InvoiceCredit	/Invoice/TypeCode Extracted value "PIP" or "PIE" is translated to 0 (Debit) Extracted value "PCP" or "PCM" is translated to 1 (Credit)

Tungsten AP Essentials internal field name	OIO
InvoiceCurrency	/invoice/main:InvoiceCurrencyCode
InvoiceDate	/Invoice/IssueDate
InvoiceDiscountAmount	
InvoiceDiscountPercent	
InvoiceDueDate	/Invoice/PaymentMeans/PaymentDueDate
InvoiceNumber	/Invoice/ID
InvoiceOrderNumber	/Invoice/ReferenceOrder/BuyersOrderID If the value of this element is "n/a", use an empty string.
InvoicePostingDate	
InvoiceTaxAmount1	
InvoiceTaxAmount2	
InvoiceTaxAmount3	
InvoiceTaxAmount4	
InvoiceTotalVATAmount	/Invoice/TaxTotal/TaxAmounts/TaxAmount Uses only the value from the section in which /Invoice/TaxTotal/TaxTypeCode is equal to "VAT".
InvoiceTotalVatExcludedAmount	/Invoice/LegalTotal/LineExtensionTotalAmount If the value of this element is 0, use this alternative location: /Invoice/LegalTotal/ToBePaidTotalAmount
InvoiceTotalVatIncludedAmount	/Invoice/LegalTotal/ToBePaidTotalAmount
InvoiceTotalVatIncludedAmount Spelled	
InvoiceTotalVatRatePercent	/Invoice/TaxTotal/CategoryTotal/RatePercent Numeric Uses only the value from the section in which /Invoice/TaxTotal/CategoryTotal/rateCategoryCode ID is equal to "VAT".
InvoicingPeriodEnd	
InvoicingPeriodStart	
PaymentReferenceNumber	/Invoice/PaymentMeans/PaymentID The value for this field is determined by the combination of the values for these locations in the code (if they exist): +PaymentMeans/TypeCodeID <PaymentMeans/PaymentID +PaymentMeans/JointPaymentID <
PaymentTerms	/InvoicePaymentTerms/ID

Tungsten AP Essentials internal field name	OIO
PaymentTermsInterest	/Invoice/PaymentTerms/PenaltySurchargeRate Numeric
PaymentType	/Invoice/PaymentMeans/PaymentChannelCode
SupplierAccountNumber1	If TypeCode==BANK /Invoice/PaymentMeans/PayeeFinancialAccount/ID
SupplierAccountNumber2	/Invoice/PaymentMeans/JointPaymentID
SupplierAccountNumber3	
SupplierAccountNumber4	/Invoice/PaymentMeans/PaymentID
SupplierAddressPostalCode	/Invoice/SellerParty/Address/PostalZone
SupplierBankClearingNumber	
SupplierBankCodeNumber1	
SupplierBankCodeNumber2	
SupplierBankCodeNUmber3	
SupplierBankCodeNumber4	
SupplierIBAN1	
SupplierIBAN2	
SupplierIBAN3	
SupplierIBAN4	
SupplierTaxNumber1	
SupplierTaxNumber2	
SupplierVATRegistrationNumber	/Invoice/SellerParty/PartyTaxScheme/Company TaxID
Line-item fields	
LIT_ArticleIdentifier	/Invoice/InvoiceLine/Item/ID
LIT_ArticleName	/Invoice/InvoiceLine/Item/Description
LIT_DeliveredQuantity	/Invoice/InvoiceLine/InvoicedQuantity
LIT_DeliveredQuantityUnitCode	/Invoice/InvoiceLine/comInvoicedQuantity/ @unitCode
LIT_DiscountAmount	
LIT_DiscountPercent	
LIT_OrderNumber	/Invoice/InvoiceLine/ReferencedOrderLine/BuyersID
LIT_RowIdentifier	/Invoice/InvoiceLine/ID
LIT_UnitPriceAmount	/Invoice/InvoiceLine/BasePrice/PriceAmount
LIT_VatAmount	
LIT_VatExcludedAmount	/Invoice/InvoiceLine/LineExtensionAmount
LIT_VatIncludedAmount	

Tungsten AP Essentials internal field name	OIO
LIT_VatRate	/Invoice/InvoiceLine/Item/Tax/RatePercent
Attachment fields	
ID	
Filename	
EmbeddedValue	/Invoice/EncodedDocument
EmbeddedInfo	
DataURI	
SchemeURI	
DataType	
LinkType	
AdditionalInfo	/Invoice/EncodedDocument/@agencyID

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

Svefaktura field mapping

This table shows how Tungsten AP Essentials maps internal fields to Svefaktura XML.

This input format is deprecated. To stay up-to-date with e-invoicing and maximize connectivity, consider adding InvoiceAgility components to your solution.

Tungsten AP Essentials internal field name	Svefaktura XML
Buyer fields	
Name	/BuyerParty/Party/PartyName
Street	/BuyerParty/Party/Address/StreetName
POBox	/BuyerParty/Party/Address/PostBox
City	/BuyerParty/Party/Address/CityName
CountryCode	/BuyerParty/Party/Address/Country/IdentificationCode
Supplier fields	
Name	/SellerParty/Party/PartyName
Street	/SellerParty/Party/Address/StreetName
StreetSupplement	/SellerParty/Party/Address/PostBox
City	/SellerParty/Party/Address/CityName
CountryCode	/SellerParty/Party/Address/Country/IdentificationCode
Standard fields	

Tungsten AP Essentials internal field name	Svefaktura XML
AddressName	
AddressOptionalName	
AddressPostalCity	
AddressPostalCode	
AddressStreet	
Barcode	
BuyerAddressPostalCode	/Invoice/BuyerParty/Party/Address/PostalZone
BuyerContactPersonName	/Invoice/BuyerParty/Party/Contact/Name
BuyerContactReference	
BuyerTaxNumber1	/Invoice/BuyerParty/PartyTaxScheme/CompanyID Takes the value from the section in which the value of /Invoice/BuyerParty/PartyTaxScheme/TaxScheme/ID is equal to "VAT".
BuyerTaxNumber2	/Invoice/BuyerParty/PartyTaxScheme/CompanyID Takes the value from the section in which the value of /Invoice/BuyerParty/PartyTaxScheme/TaxScheme/ID is equal to "SWT".
BuyerVATRegistrationNumber	/Invoice/BuyerParty/PartyTaxScheme/CompanyID Takes the value from the section in which the value of /Invoice/BuyerParty/PartyTaxScheme/TaxScheme/ID is equal to "VAT".
ChargeAmount1	/Invoice/AllowanceCharge[1]/Amount ...if /Invoice/AllowanceCharge[1]/ChargeIndicator = **true** This field is only available in the XML document type.
ChargeAmount2	/Invoice/AllowanceCharge[2]/Amount ...if /Invoice/AllowanceCharge[2]/ChargeIndicator = **true** This field is only available in the XML document type.
ChargeAmount3	/Invoice/AllowanceCharge[3]/Amount ...if /Invoice/AllowanceCharge[3]/ChargeIndicator = **true** This field is only available in the XML document type.
ChargeAmount4	/Invoice/AllowanceCharge[4]/Amount ...if /Invoice/AllowanceCharge[4]/ChargeIndicator = **true** This field is only available in the XML document type.

Tungsten AP Essentials internal field name	Svefaktura XML
DiscountAmount1	/Invoice/AllowanceCharge[1]/Amount ...if /Invoice/AllowanceCharge[1]/ChargeIndicator = **false** This field is only available in the XML document type.
DiscountAmount2	/Invoice/AllowanceCharge[2]/Amount ...if /Invoice/AllowanceCharge[2]/ChargeIndicator = **false** This field is only available in the XML document type.
DiscountAmount3	/Invoice/AllowanceCharge[3]/Amount ...if /Invoice/AllowanceCharge[3]/ChargeIndicator = **false** This field is only available in the XML document type.
DiscountAmount4	/Invoice/AllowanceCharge[4]/Amount ...if /Invoice/AllowanceCharge[4]/ChargeIndicator = **false** This field is only available in the XML document type.
DeliveryCost	
DeliveryCostInsurance	
DeliveryCostPackaging	
DeliveryCostPostage	
DeliveryCostToll	
DeliveryDate	/Invoice/Delivery/ActualDeliveryDateTime
DeliveryNote	/Invoice/InvoiceLine/DespatchLineReference/DocumentReference/ID
DeliveryTerms	/Invoice/DeliveryTerms/SpecialTerms
EsrAmount	
EsrNumber	
EsrReference	
InvoiceBaselineDate	/Invoice/IssueDate
InvoiceCredit	/Invoice/InvoiceTypeCode Extracted value "380" is translated into 0 (Debit) Any other extracted value is translated into 1 (Credit)
InvoiceCurrency	/Invoice/InvoiceCurrencyCode
InvoiceDate	/Invoice/IssueDate
InvoiceDueDate	/Invoice/PaymentMeans/DuePaymentDate

Tungsten AP Essentials internal field name	Svefaktura XML
InvoiceNumber	/Invoice/ID
InvoiceOrderNumber	/Invoice/InvoiceLine/OrderLineReference/OrderReference/BuyersID
InvoicePostingDate	
InvoiceTaxAmount1	/Invoice/TaxTotal/TaxSubTotal/TaxAmount Only takes the value from the section in which the value of /Invoice/TaxTotal/TaxSubTotal/TaxCategory/ID is not equal to "E".
InvoiceTaxAmount2	
InvoiceTaxAmount3	
InvoiceTaxAmount4	
InvoiceTotalVATAmount	/Invoice/TaxTotal/TotalTaxAmount
InvoiceTotalVatExcludedAmount	/Invoice/LegalTotal/ TaxExclusiveTotalAmount
InvoiceTotalVatIncludedAmount	/Invoice/LegalTotal/TaxInclusiveTotalAmount
InvoiceTotalVatIncludedAmountSpelled	
InvoiceTotalVatRatePercent	/Invoice/TaxTotal/TaxSubTotal/TaxCategory/Percent Only takes the value from the section in which the value of /Invoice/TaxTotal/TaxSubTotal/TaxCategory/ID is not equal to "E".
InvoicingPeriodEnd	/Invoice/InvoicingPeriod/EndDateTime
InvoicingPeriodStart	/Invoice/InvoicingPeriod/StartDateTime
PaymentReferenceNumber	/Invoice/PaymentMeans/PayeeFinancialAccount/PaymentInstructionID
PaymentTerms	/Invoice/PaymentTerms/Note
PaymentTermsInterest	/Invoice/PaymentTerms/PenaltySurchargePercent
PaymentType	/Invoice/PaymentMeans/PaymentMeansTypeCode
SupplierAccountNumber1	/Invoice/PaymentMeans/PayeeFinancialAccount/ID Only takes the value from the section in which the value of /Invoice/PaymentMeans/PayeeFinancialAccount/FinancialInstitutionBranch/FinancialInstitution/ID is equal to "PGSISESS" (PlusGiro)
SupplierAccountNumber2	/Invoice/PaymentMeans/PayeeFinancialAccount/ID Only takes the value from the section in which the value of /Invoice/PaymentMeans/PayeeFinancialAccount/FinancialInstitutionBranch/FinancialInstitution/ID is equal to "BGABSESS" (BankGiro).
SupplierAccountNumber3	/Invoice/PaymentMeans/PayeeFinancialAccount/ID Only takes the value from the section in which the value of /Invoice/PaymentMeans/PayeeFinancialAccount/FinancialInstitutionBranch/FinancialInstitution/ID is not equal to "PGSISESS" (PlusGiro) or "BGABSESS" (BankGiro).
SupplierAccountNumber4	
SupplierAddressPostalCode	/Invoice/SellerParty/Party/Address/PostalZone

Tungsten AP Essentials internal field name	Svefaktura XML
SupplierBankClearingNumber	
SupplierBankCodeNumber1	
SupplierBankCodeNumber2	
SupplierBankCodeNUmber3	
SupplierBankCodeNumber4	
SupplierIBAN1	
SupplierIBAN2	
SupplierIBAN3	
SupplierIBAN4	
SupplierTaxNumber1	/Invoice/SellerParty/PartyTaxScheme/CompanyID Takes the value from the section in which the value of /Invoice/SellerParty/PartyTaxScheme/TaxScheme/ID is equal to "VAT".
SupplierTaxNumber2	/Invoice/SellerParty/PartyTaxScheme/CompanyID Takes the value from the section in which the value of /Invoice/SellerParty/PartyTaxScheme/TaxScheme/ID is equal to "SWT".
SupplierVATRegistrationNumber	/Invoice/SellerParty/PartyTaxScheme/CompanyID Takes the value from the section in which the value of /Invoice/SellerParty/PartyTaxScheme/TaxScheme/ID is equal to "VAT".
Line-item fields	
LIT_ArticleIdentifier	/Invoice/InvoiceLine/Item/SellersItemIdentification/ID
LIT_ArticleName	/Invoice/InvoiceLine/Item/Description
LIT_DeliveredQuantity	/Invoice/InvoiceLine/InvoicedQuantity
LIT_DeliveredQuantityUnitCode	/Invoice/InvoiceLine/InvoicedQuantity/@quantityUnitCode
LIT_DiscountAmount	
LIT_DiscountPercent	
LIT_OrderNumber	/Invoice/InvoiceLine/OrderLineReference/OrderReference/BuyersID
LIT_RowIdentifier	/Invoice/InvoiceLine/ID
LIT_UnitPriceAmount	/Invoice/InvoiceLine/Item/BasePrice/PriceAmount
LIT_VatAmount	
LIT_VatExcludedAmount	/Invoice/InvoiceLine/LineExtensionAmount
LIT_VatIncludedAmount	
LIT_VatRate	/Invoice/InvoiceLine/Item/TaxCategory/Percent
Attachment fields	
ID	/Invoice/AdditionalDocumentReference/ID
FileName	

Tungsten AP Essentials internal field name	Svefaktura XML
EmbeddedValue	
EmbeddedInfo	
DataURI	/Invoice/AdditionalDocumentReference/ ID/@identificationSchemeDataURI
SchemeURI	/Invoice/AdditionalDocumentReference/ID/@identificationSchemeURI
DataType	/Invoice/AdditionalDocumentReference/ID/@identificationSchemeName
LinkType	
AdditionalInfo	/Invoice/AdditionalDocumentReference/ID/@identificationSchemeID

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

OIOUBL / EHF field mapping

This table shows how Tungsten AP Essentials maps internal fields to OIOUBL / EHF fields.

This input format is deprecated. To stay up-to-date with e-invoicing and maximize connectivity, consider adding InvoiceAgility components to your solution.

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
Buyer fields	
Name	…/AccountingCustomerParty/Party/PartyName/Name
Street	…/AccountingCustomerParty/Party/PostalAddress/ StreetName
POBox	…/AccountingCustomerParty/Party/PostalAddress/ AdditionalStreetName
City	…/AccountingCustomerParty/Party/PostalAddress/ CityName
CountryCode	…/AccountingCustomerParty/Party/PostalAddress/ Country/IdentificationCode
Supplier fields	
Name	…/AccountingSupplierParty/Party/PartyName/Name
Street	…/AccountingSupplierParty/Party/PostalAddress/ StreetName
StreetSupplement	…/AccountingSupplierParty/Party/PostalAddress/ AdditionalStreetName
City	…/AccountingSupplierParty/Party/PostalAddress/ CityName

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
CountryCode	…/AccountingSupplierParty/Party/PostalAddress/Country/IdentificationCode
Standard fields	
AddressName	
AddressOptionalName	
AddressPostalCity	
AddressPostalCode	
AddressStreet	
Barcode	
BuyerAddressPostalCode	…/AccountingCustomerParty/Party/PostalAddress/PostalZone
BuyerContactPersonName	…/AccountingCustomerParty/Party/Contact/Name
BuyerContactReference	
BuyerTaxNumber1	
BuyerTaxNumber2	
BuyerVATRegistrationNumber	…/AccountingCustomerParty/Party/PartyTaxScheme/CompanyID
ChargeAmount1, ChargeAmount2, ChargeAmount3, ChargeAmount4	Each of the four charge amount fields is mapped by iterating through each `. . . /AllowanceCharge` node whose child node, `ChargeIndicator`, equals true. The field value is then taken from `. . . /AllowanceCharge/Amount`. The first matching node is mapped to ChargeAmount1. The second matching node is mapped to ChargeAmount2 and so on. Charge amount fields are designated by `ChargeIndicator` nodes with a value of "true", whereas discount amount fields are designated by `ChargeIndicator` nodes with a value of "false".

Tungsten AP Essentials internal field name	UBL / EHF **For invoices, replace "…" with "/Invoice"** **For credit notes, replace "…" with "/CreditNote"**
DiscountAmount1 , DiscountAmount2, DiscountAmount3, DiscountAmount4	Each of the four discount amount fields is mapped by iterating through each `. . . /AllowanceCharge` node whose child node, `ChargeIndicator`, equals false. The field value is then taken from `. . . / AllowanceCharge/Amount`. The first matching node is mapped to DiscountAmount1. The second matching node is mapped to DiscountAmount2 and so on. ⓘ Charge amount fields are designated by `ChargeIndicator` nodes with a value of "true", whereas discount amount fields are designated by `ChargeIndicator` nodes with a value of "false".
DeliveryCost	.../LegalMonetaryTotal/ChargeTotalAmount
DeliveryCostInsurance	
DeliveryCostPackaging	
DeliveryCostPostage	
DeliveryCostToll	
DeliveryDate	…/Delivery/ActualDeliveryDate
DeliveryNote	
DeliveryTerms	
EsrAmount	
EsrNumber	
EsrReference	
InvoiceBaselineDate	…/IssueDate
InvoiceCredit	0 = Invoice (debit) 1 = Credit Note
InvoiceCurrency	…/DocumentCurrencyCode
InvoiceDate	…/IssueDate
InvoiceDiscountAmount	.../LegalMonetaryTotal/AllowanceTotalAmount
InvoiceDiscountPercent	
InvoiceDueDate	…/PaymentMeans/PaymentDueDate
InvoiceNumber	…/ID
InvoiceOrderNumber	…/OrderReference/ID
InvoicePostingDate	

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
InvoiceNetAmount1	.../TaxTotal/TaxSubtotal[1]/TaxableAmount This field is only available in the XML document type.
InvoiceNetAmount2	.../TaxTotal/TaxSubtotal[2]/TaxableAmount This field is only available in the XML document type.
InvoiceNetAmount3	.../TaxTotal/TaxSubtotal[3]/TaxableAmount This field is only available in the XML document type.
InvoiceNetAmount4	.../TaxTotal/TaxSubtotal[4]/TaxableAmount This field is only available in the XML document type.
InvoiceTaxAmount1	.../TaxTotal/TaxSubtotal[1]/TaxAmount This field is only available in the XML document type.
InvoiceTaxAmount2	.../TaxTotal/TaxSubtotal[2]/TaxAmount This field is only available in the XML document type.
InvoiceTaxAmount3	.../TaxTotal/TaxSubtotal[3]/TaxAmount This field is only available in the XML document type.
InvoiceTaxAmount4	.../TaxTotal/TaxSubtotal[4]/TaxAmount This field is only available in the XML document type.

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
InvoiceTaxRate1	.../TaxTotal/TaxSubtotal[1]/TaxCategory/Percent This field is only available in the XML document type.
InvoiceTaxRate2	.../TaxTotal/TaxSubtotal[2]/TaxCategory/Percent This field is only available in the XML document type.
InvoiceTaxRate3	.../TaxTotal/TaxSubtotal[3]/TaxCategory/Percent This field is only available in the XML document type.
InvoiceTaxRate4	.../TaxTotal/TaxSubtotal[4]/TaxCategory/Percent This field is only available in the XML document type.
InvoiceTotalVATAmount	…/TaxTotal/TaxAmount
InvoiceTotalVatExcludedAmount	…/LegalMonetaryTotal/LineExtensionAmount
InvoiceTotalVatIncludedAmount	…/LegalMonetaryTotal/PayableAmount
InvoiceTotalVatIncludedAmount Spelled	
InvoiceTotalVatRatePercent	…/TaxTotal/TaxSubtotal/TaxCategory/Percent Only takes the value from the section in which the value of …/TaxTotal/TaxSubtotal/TaxCategory/ID is equal to "StandardRated".
InvoicingPeriodEnd	
InvoicingPeriodStart	

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
PaymentReferenceNumber	…/PaymentMeans/ The value for this field is derived from the combination of these fields: + PaymentMeans/PaymentID < PaymentMeans/InstructionID + PaymentMeans/AccountID This XSL snippet is used to extract the date and combine the fields in connection with invoices. If any of the fields are missing, the field value is left empty: <xsl:template match="/"> <xsl:for-each select="/*[local-name()='Invoice']/*[local-name()='PaymentMeans']"> <xsl:if test="*[local-name()='PaymentID'] !='' and *[local-name()='InstructionID'] !='' and *[local-name()='CreditAccount']/*[local-name()='AccountID'] !='' ">+<xsl:value-of select="*[local-name()='PaymentID']"/><xsl:text disable-output-escaping="yes"><![CDATA[<</xsl:text><xsl:value-of select="*[local-name()='InstructionID']"/>+<xsl:value-of select="*[local-name()='CreditAccount']/*[local-name()='AccountID']"/><xsl:text disable-output-escaping="yes"><![CDATA[<</xsl:text></xsl:if> </xsl:for-each> </xsl:template> The same XSL snippet is used to extract the field value for credit notes except that "Invoice" is changed to "CreditNote".
PaymentTerms	…/PaymentTerms/ID
PaymentTermsInterest	…/PaymentTerms/PenaltySurchargePercent
PaymentType	…/PaymentMeans/PaymentChannelCode If the node does not exist, the value is taken from this alternate location: …/PaymentMeans/PaymentMeansCode
SupplierAccountNumber1	…/PaymentMeans/PayeeFinancialAccount/ID If the node does not exist, the value is taken from this alternate location: …/PaymentMeans/CreditAccount/AccountID
SupplierAccountNumber2	
SupplierAccountNumber3	
SupplierAccountNumber4	

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
SupplierAddressPostalCode	…/AccountingSupplierParty/Party/PostalAddress/PostalZone
SupplierBankClearingNumber	
SupplierBankCodeNumber1	
SupplierBankCodeNumber2	
SupplierBankCodeNumber3	
SupplierBankCodeNumber4	
SupplierIBAN1	
SupplierIBAN2	
SupplierIBAN3	
SupplierIBAN4	
SupplierTaxNumber1	
SupplierTaxNumber2	
SupplierVATRegistrationNumber	…/AccountingSupplierParty/Party/PartyTaxScheme/CompanyID
Line-item fields	
LIT_ArticleIdentifier	…/InvoiceLine/Item/SellersItemIdentification/ID
LIT_ArticleName	…/InvoiceLine/Item/Name
LIT_DeliveredQuantity	…/InvoiceLine/InvoicedQuantity
LIT_DeliveredQuantityUnitCode	…/InvoiceLine/InvoicedQuantity/@unitCode
LIT_DiscountAmount	
LIT_DiscountPercent	
LIT_OrderNumber	…/InvoiceLine/OrderLineReference/OrderReference/ID
LIT_RowIdentifier	…/InvoiceLine/ID
LIT_UnitPriceAmount	…/InvoiceLine/Price/PriceAmount
LIT_VatAmount	…/InvoiceLine/TaxTotal/TaxAmount
LIT_VatExcludedAmount	…/InvoiceLine/LineExtensionAmount
LIT_VatIncludedAmount	
LIT_VatRate	…/InvoiceLine/TaxTotal/TaxSubtotal/TaxCategory/Percent
Attachment fields	
ID	…/ID
FileName	

Tungsten AP Essentials internal field name	UBL / EHF For invoices, replace "…" with "/Invoice" For credit notes, replace "…" with "/CreditNote"
EmbeddedValue	…/Attachment/EmbeddedDocumentBinaryObject
EmbeddedInfo	
DataURI	…/Attachment/ExternalReference/URI
SchemeURI	
DataType	…/DocumentTypeCode
LinkType	
AdditionalInfo	…/Attachment/EmbeddedDocumentBinaryObject/@mimeCode

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

ZUGFeRD, Factur-X, and XRechnung field mapping

These tables show how Tungsten AP Essentials maps internal fields to the Cross-Industry Invoice (CII) standard used in ZUGFeRD, Factur-X, and XRechnung.

Fields marked with an asterisk (*) are new or updated in the June 2026 release.

ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
Buyer fields	
Name	BuyerTradeParty/Name
Identifier	BuyerTradeParty/GlobalID
BuyerContactPersonName	BuyerTradeParty/DefinedTradeContact/PersonName
BuyerVATRegistrationNumber	BuyerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="VA"
CountryCode	BuyerTradeParty/PostalTradeAddress/CountryID
BuyerAddressPostalCode	BuyerTradeParty/PostalTradeAddress/PostcodeCode
Street	BuyerTradeParty/PostalTradeAddress/LineOne
StreetSupplement	BuyerTradeParty/PostalTradeAddress/LineTwo
City	BuyerTradeParty/PostalTradeAddress/CityName
TelephoneNumber	BuyerTradeParty/DefinedTradeContact/TelephoneUniversalCommunication/CompleteNumber

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
FaxNumber	BuyerTradeParty/DefinedTradeContact/ FaxUniversalCommunication/CompleteNumber
Email	BuyerTradeParty/DefinedTradeContact/ EmailURIUniversalCommunication/URIID
Supplier fields	
Name	SellerTradeParty/Name
Identifier	SellerTradeParty/GlobalID
Street	SellerTradeParty/PostalTradeAddress/LineOne
StreetSupplement	SellerTradeParty/PostalTradeAddress/LineTwo
PostalCode	SellerTradeParty/PostalTradeAddress/PostcodeCode
City	SellerTradeParty/PostalTradeAddress/CityName
CountryCode	SellerTradeParty/PostalTradeAddress/CountryID
TelephoneNumber	SellerTradeParty/DefinedTradeContact/ TelephoneUniversalCommunication/ CompleteNumber
FaxNumber	SellerTradeParty/DefinedTradeContact/ FaxUniversalCommunication/CompleteNumber
SupplierVATRegistrationNumber	SellerTradeParty/SpecifiedTaxRegistration/ID where attribute schemeID="VA"
SupplierTaxNo1	SellerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="FC"
Email	SellerTradeParty/DefinedTradeContact/ EmailURIUniversalCommunication/URIID
Header fields	
ChargeAmount1, ChargeAmount2, ChargeAmount3, ChargeAmount4	1. Each of the charge amount fields is mapped by iterating through all `/ram:ChargeIndicator` nodes under `/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeAllowanceCharge`. 2. If the `udt:Indicator` child node is true, the corresponding charge amount is retrieved from `/ram:ActualAmount`. 3. The first valid entry is mapped to ChargeAmount1, the second to ChargeAmount2, and so on.
ContractNumber	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeAgreement/ ram:ContractReferenceDocument/ ram:IssuerAssignedID

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
DeliveryAddressName	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ShipToTradeParty/ram:Name
DeliveryAddressStreet	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ShipToTradeParty/ram:PostalTradeAddress/ ram:LineOne and /rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ShipToTradeParty/ram:PostalTradeAddress/ ram:LineTwo with a space between the values.
DeliveryAddressCity	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ShipToTradeParty/ram:PostalTradeAddress/ ram:CityName
DeliveryAddressCountry	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ShipToTradeParty/ram:PostalTradeAddress/ ram:CountryID
DeliveryAddressZip	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ShipToTradeParty/ram:PostalTradeAddress/ ram:PostcodeCode
DeliveryCost	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:ChargeTotalAmount
DeliveryDate	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:ActualDeliverySupplyChainEvent/ ram:OccurrenceDateTime/udt:DateTimeString/text()
DeliveryNote	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeDelivery/ ram:DespatchAdviceReferencedDocument/ ram:IssuerAssignedID

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
DeliveryTerms	/rsm:SupplyChainTradeTransaction/ rsm:SupplyChainTradeTransaction/ ram:ApplicableTradeDeliveryTerms
DiscountAmount1, DiscountAmount2, DiscountAmount3, DiscountAmount4	1. Each of the discount amount fields is mapped by iterating through all `/ram:ChargeIndicator` nodes under `/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeAllowanceCharge`. 2. If the `udt:Indicator` child node is false, the corresponding discount amount is retrieved from `/ram:ActualAmount`. 3. The first valid entry is mapped to DiscountAmount1, the second to DiscountAmount2, and so on.
InvoiceCredit	InvoiceCredit is classified as credit if `GrandTotal` is a negative amount or if `/rsm:CrossIndustryInvoice/ rsm:ExchangedDocument/ram:TypeCode` is set to any of these codes: • 381 (credit note) • 396 (factored credit note) • 261 (self billed credit note) • 262 (Consolidated credit note) • 296 (Credit note for price variation) • 308 (Delcredere credit note)
InvoiceCurrency	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:InvoiceCurrencyCode
InvoiceDate	/rsm:ExchangedDocument/ram:IssueDateTime/ udt:DateTimeString
InvoiceDiscountAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:AllowanceTotalAmount
InvoiceDueDate	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradePaymentTerms/ ram:DueDateDateTime/udt:DateTimeString
invoiceNumber	/rsm:ExchangedDocument/ram:ID

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
InvoiceOrderNumber	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeAgreement/ ram:BuyerOrderReferencedDocument/ ram:IssuerAssignedID
InvoicingPeriodStart	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:BillingSpecifiedPeriod/ram:StartDateTime/ udt:DateTimeString
InvoicingPeriodEnd	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:BillingSpecifiedPeriod/ram:EndDateTime/ udt:DateTimeString
InvoicePrepaidAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:TotalPrepaidAmount
InvoiceTaxAmount1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[1]/ram:CalculatedAmount
InvoiceTaxAmount2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[2]/ram:CalculatedAmount
InvoiceTaxAmount3	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[3]/ram:CalculatedAmount
InvoiceTaxAmount4	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[4]/ram:CalculatedAmount
InvoiceNetAmount1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[1]/ram:BasisAmount
InvoiceNetAmount2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[2]/ram:BasisAmount
InvoiceNetAmount3	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[3]/ram:BasisAmount

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
InvoiceNetAmount4	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[4]/ram:BasisAmount
InvoiceTaxCode1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[1]/ram:CategoryCode
InvoiceTaxCode2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[2]/ram:CategoryCode
InvoiceTaxCode3	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[3]/ram:CategoryCode
InvoiceTaxCode4	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[4]/ram:CategoryCode
InvoiceTaxCurrency	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:TaxCurrencyCode
InvoiceTaxDescription1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[1]/ram:ExemptionReason
InvoiceTaxDescription2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[2]/ram:ExemptionReason
InvoiceTaxDescription3	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[3]/ram:ExemptionReason
InvoiceTaxDescription4	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[4]/ram:ExemptionReason
InvoiceTaxRate1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[1]/ ram:RateApplicablePercent

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
InvoiceTaxRate2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[2]/ ram:RateApplicablePercent
InvoiceTaxRate3	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[3]/ ram:RateApplicablePercent
InvoiceTaxRate4	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[4]/ ram:RateApplicablePercent
InvoiceTaxType1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[1]/ram:TypeCode
InvoiceTaxType2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[2]/ram:TypeCode
InvoiceTaxType3	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[3]/ram:TypeCode
InvoiceTaxType4	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:ApplicableTradeTax[4]/ram:TypeCode
InvoiceTotalLineAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:LineTotalAmount
InvoiceTotalVATAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:TaxTotalAmount If multiple TotalTaxAmount values exist with different currencies, TotalTaxAmount maps to the matching InvoiceCurrency field.

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
InvoiceTotalVatExcludedAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:TaxBasisTotalAmount
InvoiceTotalVatIncludedAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:DuePayableAmount If this field does not exist, `GrandTotalAmount` is used.
InvoicingPeriodEnd	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:BillingSpecifiedPeriod/ram:EndDateTime/ udt:DateTimeString
InvoicingPeriodStart	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:BillingSpecifiedPeriod/ram:StartDateTime/ udt:DateTimeString
PaymentReferenceNumber	/rsm:CrossIndustryInvoiceType)/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:PaymentReference
PaymentTerms	/rsm:SpecifiedSupplyChainTradeTransaction/ ram:ApplicableSupplyChainTradeSettlement/ ram:SpecifiedTradePaymentTerms/ram:Description Since the text is often long, it is added at the top of the first page of the Invoice Notes page(s).
PaymentTermsInterest	/rsm:SupplyChainTradeTransaction/ ram:ApplicableSupplyChainTradeSettlement/ ram:SpecifiedTradePaymentTerms/ ram:ApplicableTradePaymentPenaltyTerms/ ram:CalculationPercent
PaymentType	/rsm:SupplyChainTradeTransaction/ ram:ApplicableSupplyChainTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans/ ram:TypeCode
SupplierEndpointID *	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeAgreement/ ram:SellerTradeParty/ ram:URIUniversalCommunication/ram:URIID

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
SupplierIBAN1	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[1]/ ram:PayeePartyCreditorFinancialAccount/ram:IBANID
SupplierIBAN2	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[2]/ ram:PayeePartyCreditorFinancialAccount/ram:IBANID
SupplierIBAN3	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[3]/ ram:PayeePartyCreditorFinancialAccount/ram:IBANID
SupplierIBAN4	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[4]/ ram:PayeePartyCreditorFinancialAccount/ram:IBANID
SupplierSWIFT1	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[1]/ ram:PayeeSpecifiedCreditorFinancialInstitution/ ram:BICID
SupplierSWIFT2	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[2]/ ram:PayeeSpecifiedCreditorFinancialInstitution/ ram:BICID
SupplierSWIFT3	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[3]/ ram:PayeeSpecifiedCreditorFinancialInstitution/ ram:BICID
SupplierSWIFT4	/rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementPaymentMeans[4]/ ram:PayeeSpecifiedCreditorFinancialInstitution/ ram:BICID
SupplierTaxNumber1	/ram:SellerTradeParty/ram:SpecifiedTaxRegistration/ ram:ID where the attribute schemeID="FC"
TotalTaxAmountInTaxCurrency	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:ApplicableHeaderTradeSettlement/ ram:SpecifiedTradeSettlementHeaderMonetarySummation/ ram:TaxTotalAmount where the `CurrencyID` attribute of `TaxTotalAmount` is same as `TaxCurrencyCode`.
Line-item fields	

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
LIT_ArticleDescription *	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedTradeProduct/ram:Description
LIT_ArticleIdentifier	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedTradeProduct/ram:SellerAssignedID
LIT_ArticleName	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedTradeProduct/ram:Name
LIT_BuyerArticleNumber	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedTradeProduct/ram:BuyerAssignedID
LIT_DeliveredQuantity	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeDelivery/ram:BilledQuantity
LIT_DeliveredQuantityUnitCode	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeDelivery/ram:BilledQuantity/ @unitCode
LIT_DeliveryCost	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeSettlement/ ram:SpecifiedTradeAllowanceCharge[2]/ ram:ActualAmount /rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeSettlement/ ram:SpecifiedTradeAllowanceCharge[1]/ ram:ChargeIndicator/udt:Indicator = True
LIT_DeliveryDate1	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedLineTradeSettlement/ ram:BillingSpecifiedPeriod/ram:StartDateTime/ udt:DateTimeString
LIT_DeliveryDate2	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedLineTradeSettlement/ ram:BillingSpecifiedPeriod/ram:EndDateTime/ udt:DateTimeString

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
LIT_VatDescription	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedLineTradeSettlement/ ram:ApplicableTradeTax/ram:ExemptionReason
LIT_DiscountAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeSettlement/ ram:SpecifiedTradeAllowanceCharge[2]/ ram:ActualAmount when /rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeSettlement/ ram:SpecifiedTradeAllowanceCharge[1]/ ram:ChargeIndicator/udt:Indicator = False
LIT_DiscountPercent	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeSettlement/ ram:SpecifiedTradeAllowanceCharge[1]/ ram:CalculationPercent when /rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeSettlement/ ram:SpecifiedTradeAllowanceCharge[1]/ ram:ChargeIndicator/udt:Indicator = False
LIT_OrderNumber	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeAgreement/ ram:BuyerOrderReferencedDocument/ ram:IssuerAssignedID
LIT_PO_RowIdentifier	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeAgreement/ ram:BuyerOrderReferencedDocument/ram:LineID
LIT_RowIdentifier	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:AssociatedDocumentLineDocument/ram:LineID
LIT_UnitPriceAmount	SpecifiedLineTradeAgreement/ NetPriceProductTradePrice/ChargeAmount

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
LIT_UnitPriceBasis	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem/ ram:SpecifiedLineTradeAgreement/ ram:NetPriceProductTradePrice/ram:BasisQuantity
LIT_UniqueArticleNumber	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedTradeProduct/ram:GlobalID
LIT_VatAmount	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedLineTradeSettlement/ ram:ApplicableTradeTax/ram:CalculatedAmount
LIT_VatCode	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedLineTradeSettlement/ ram:ApplicableTradeTax/ram:CategoryCode
LIT_VatExcludedAmount	SpecifiedLineTradeSettlement/ SpecifiedTradeSettlementLineMonetarySummation/ LineTotalAmount
LIT_VatRate	/rsm:CrossIndustryInvoice/ rsm:SupplyChainTradeTransaction/ ram:IncludedSupplyChainTradeLineItem[1]/ ram:SpecifiedLineTradeSettlement/ ram:ApplicableTradeTax/ram:RateApplicablePercent
Attachment fields	
ID	Not mapped
FileName	Not mapped
EmbeddedValue	Not mapped
EmbeddedInfo	Not mapped
DataURI	Not mapped
SchemeURI	Not mapped
DataType	Not mapped
LinkType	Not mapped
AdditionalInfo	Not mapped
Invoice note field	

Tungsten AP Essentials internal field name	ZUGFeRD 2.3, Factur-X 1.0, XRechnung 3.0
InvoiceNote	/rsm:CrossIndustryInvoice/rsm:ExchangedDocument/ram:IncludedNote/ram:Content If a subject code (`/rsm:CrossIndustryInvoice/rsm:ExchangedDocument/ram:IncludedNote/ram:SubjectCode`) is set to TXD, it has the highest priority and `Content` is mapped. If there is no TXD subject code, subject code REG is mapped. If there is no TXD or REG subject code, `Content` is mapped regardless of the subject code.

ZUGFeRD 2.0

Tungsten AP Essentials internal field name	ZUGFeRD 2.0
Buyer fields	
Name	BuyerTradeParty/Name
Identifier	BuyerTradeParty/GlobalID
BuyerVATRegistrationNumber	BuyerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="VA"
CountryCode	BuyerTradeParty/PostalTradeAddress/CountryID
CountryName	
BuyerAddressPostalCode	BuyerTradeParty/PostalTradeAddress/PostcodeCode
Street	BuyerTradeParty/PostalTradeAddress/LineOne
StreetSupplement	BuyerTradeParty/PostalTradeAddress/LineTwo
POBox	
City	BuyerTradeParty/PostalTradeAddress/CityName
TelephoneNumber	BuyerTradeParty/DefinedTradeContact/TelephoneUniversalCommunication/CompleteNumber
FaxNumber	BuyerTradeParty/DefinedTradeContact/FaxUniversalCommunication/CompleteNumber
Email	BuyerTradeParty/DefinedTradeContact/EmailURIUniversalCommunication/URIID
BuyerTaxNumber1	
BuyerTaxNumber2	
Supplier fields	
Name	SellerTradeParty/Name
Identifier	SellerTradeParty/GlobalID
Street	SellerTradeParty/PostalTradeAddress/LineOne
StreetSupplement	SellerTradeParty/PostalTradeAddress/LineTwo
PostalCode	SellerTradeParty/PostalTradeAddress/PostcodeCode

Tungsten AP Essentials internal field name	ZUGFeRD 2.0
City	SellerTradeParty/PostalTradeAddress/CityName
CountryCode	SellerTradeParty/PostalTradeAddress/CountryID
TelephoneNumber	SellerTradeParty/DefinedTradeContact/ TelephoneUniversalCommunication/ CompleteNumber
FaxNumber	SellerTradeParty/DefinedTradeContact/ FaxUniversalCommunication/CompleteNumber
SupplierVATRegistrationNumber	SellerTradeParty/SpecifiedTaxRegistration/ID where attribute schemeID="VA"
SupplierTaxNo1	SellerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="FC"
Email	SellerTradeParty/DefinedTradeContact/ EmailURIUniversalCommunication/URIID
Standard fields	
BuyerContactPersonName	BuyerTradeParty/DefinedTradeContact/PersonName
DeliveryDate	SupplyChainTradeTransaction/ ApplicableSupplyChainTradeDelivery/ ActualDeliverySupplyChainEvent/ OccurrenceDateTime/DateTimeString
DeliveryTerms	SupplyChainTradeTransaction/ SupplyChainTradeTransaction/ ApplicableTradeDeliveryTerms
InvoiceCredit	if SupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementMonetarySummation/ GrandTotalAmount < 0 then Credit else Debit
InvoiceCurrency	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ InvoiceCurrencyCode
InvoiceDate	ExchangedDocument/IssueDateTime/DateTimeString
InvoiceDiscountAmount	SupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/ ApplicableTradePaymentDiscountTerms/ ActualDiscountAmount
InvoiceDueDate	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradePaymentTerms/DueDateDateTime/ DateTimeString
invoiceNumber	ExchangedDocument/ID

Tungsten AP Essentials internal field name	ZUGFeRD 2.0
InvoiceOrderNumber	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ BuyerOrderReferencedDocument/ID
InvoiceTotalLineAmount	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ ApplicableTradeTax/CalculatedAmount
InvoiceTotalVATAmount	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ ApplicableTradeTax/CalculatedAmount
InvoiceTotalVatExcludedAmount	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ ApplicableTradeTax/BasisAmount
InvoiceTotalVatIncludedAmount	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementHeaderMonetarySummation/ GrandTotalAmount
InvoiceTotalVatRatePercent	First instance of: SupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ ApplicableTradeTax/ApplicablePercent
PaymentReferenceNumber	SupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ PaymentReference
PaymentTerms	Taken from: SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/Description Since the text is often long, it is added at the top of the first page of the Invoice Notes page(s).
PaymentTermsInterest	SupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/ ApplicableTradePaymentPenaltyTerms/ CalculationPercent
PaymentType	SupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans/TypeCode
SupplierIBAN1	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[1]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierIBAN2	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[2]/ PayeePartyCreditorFinancialAccount/IBANID

Tungsten AP Essentials internal field name	ZUGFeRD 2.0
SupplierIBAN3	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[3]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierIBAN4	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[4]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierSWIFT1	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[1]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierSWIFT2	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[2]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierSWIFT3	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[3]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierSWIFT4	SupplyChainTradeTransaction/ ApplicableHeaderTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[4]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierTaxNumber1	SellerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="VA"
Line-item fields	
	Note that the ParentNode for these is: IncludedSupplyChainTradeLineItem
LIT_ArticleIdentifier	SpecifiedTradeProduct/ GlobalID","SpecifiedTradeProduct/SellerAssignedID
LIT_ArticleName	SpecifiedTradeProduct/Name
LIT_DeliveredQuantity	SpecifiedLineTradeDelivery/BilledQuantity
LIT_DeliveredQuantityUnitCode	SpecifiedLineTradeDelivery/BilledQuantity/@unitCode
LIT_OrderNumber	SpecifiedLineTradeSettlement/ BuyerOrderReferencedDocument/ID
LIT_RowIdentifier	AssociatedDocumentLineDocument/LineID
LIT_UnitPriceAmount	SpecifiedLineTradeAgreement/ NetPriceProductTradePrice/ChargeAmount
LIT_VatExcludedAmount	SpecifiedLineTradeSettlement/ SpecifiedTradeSettlementLineMonetarySummation/ LineTotalAmount
LIT_VatRate	SpecifiedLineTradeSettlement/ApplicableTradeTax/ RateApplicablePercent

Tungsten AP Essentials internal field name	ZUGFeRD 2.0
Attachment fields	
ID	Not mapped
FileName	Not mapped
EmbeddedValue	Not mapped
EmbeddedInfo	Not mapped
DataURI	Not mapped
SchemeURI	Not mapped
DataType	Not mapped
LinkType	Not mapped
AdditionalInfo	Not mapped
Invoice note field	
InvoiceNote	Since the text is often very long, it is put on the note page of the invoice. Payment Terms are listed first. The value is taken from: SupplyChainTradeTransaction/ApplicableSupplyChainTradeSettlement/SpecifiedTradePaymentTerms/Description All notes on fields are listed after payment terms, and they are extracted from one or several nodes with this path: HeaderExchangedDocument/IncludeNote/Content

ZUGFeRD 1.0

Tungsten AP Essentials internal field name	ZUGFeRD 1.0
Buyer fields	
Name	BuyerTradeParty/Name
Identifier	BuyerTradeParty/GlobalID
BuyerVATRegistrationNumber	BuyerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="VA"
CountryCode	BuyerTradeParty/PostalTradeAddress/CountryID
PostalCode	BuyerTradeParty/PostalTradeAddress/PostcodeCode
Street	BuyerTradeParty/PostalTradeAddress/LineOne
StreetSupplement	BuyerTradeParty/PostalTradeAddress/LineTwo
City	BuyerTradeParty/PostalTradeAddress/CityName
TelephoneNumber	BuyerTradeParty/DefinedTradeContact/TelephoneUniversalCommunication/CompleteNumber

Tungsten AP Essentials internal field name	ZUGFeRD 1.0
FaxNumber	BuyerTradeParty/DefinedTradeContact/ FaxUniversalCommunication/CompleteNumber
Email	BuyerTradeParty/DefinedTradeContact/ EmailURIUniversalCommunication/URIID
Supplier fields	
Name	SellerTradeParty/Name
Identifier	SellerTradeParty/GlobalID
Street	SellerTradeParty/PostalTradeAddress/LineOne
StreetSupplement	SellerTradeParty/PostalTradeAddress/LineTwo
PostalCode	SellerTradeParty/PostalTradeAddress/PostcodeCode
City	SellerTradeParty/PostalTradeAddress/CityName
CountryCode	SellerTradeParty/PostalTradeAddress/CountryID
TelephoneNumber	SellerTradeParty/DefinedTradeContact/ TelephoneUniversalCommunication/ CompleteNumber
FaxNumber	SellerTradeParty/DefinedTradeContact/ FaxUniversalCommunication/ CompleteNumber
SupplierVATRegistrationNumber	SellerTradeParty/SpecifiedTaxRegistration/ID where attribute schemeID="VA"
SupplierTaxNo1	SellerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="FC"
Email	SellerTradeParty/DefinedTradeContact/ EmailURIUniversalCommunication/URIID
Standard fields	
BuyerContactPersonName	BuyerTradeParty/DefinedTradeContact/PersonName
DeliveryDate	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeDelivery/ ActualDeliverySupplyChainEvent/ OccurrenceDateTime/DateTimeString
DeliveryTerms	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeAgreement/ ApplicableTradeDeliveryTerms
InvoiceCredit	If SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementMonetarySummation/ GrandTotalAmount < 0 then Credit else Debit
InvoiceCurrency	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementMonetarySummation/ GrandTotalAmount/@currencyID

Tungsten AP Essentials internal field name	ZUGFeRD 1.0
InvoiceDate	HeaderExchangedDocument/IssueDateTime/ DateTimeString
InvoiceDiscountAmount	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/ ApplicableTradePaymentDiscountTerms/ ActualDiscountAmount
InvoiceDueDate	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/DueDateDateTime/ DateTimeString
invoiceNumber	HeaderExchangedDocument/ID
InvoiceOrderNumber	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeAgreement/ BuyerOrderReferencedDocument/ID
InvoiceTotalVATAmount	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementMonetarySummation/ TaxTotalAmount
InvoiceTotalVatExcludedAmount	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementMonetarySummation/ TaxBasisTotalAmount
InvoiceTotalVatIncludedAmount	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementMonetarySummation/ GrandTotalAmount
InvoiceTotalVatRatePercent	First instance of: SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement / ApplicableTradeTax/ApplicablePercent
PaymentReferenceNumber	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ PaymentReference
PaymentTerms	Taken from: SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/Description Since the text is often long, it is added at the top of the first page of the Invoice Notes page(s).
PaymentTermsInterest	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradePaymentTerms/ ApplicableTradePaymentPenaltyTerms/ CalculationPercent

Tungsten AP Essentials internal field name	ZUGFeRD 1.0
PaymentType	SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans/TypeCode
SupplierIBAN1	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[1]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierIBAN2	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[2]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierIBAN3	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[3]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierIBAN4	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[4]/ PayeePartyCreditorFinancialAccount/IBANID
SupplierSWIFT1	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[1]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierSWIFT2	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[2]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierSWIFT3	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[3]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierSWIFT4	CrossIndustryDocument/ SpecifiedSupplyChainTradeTransaction/ ApplicableSupplyChainTradeSettlement/ SpecifiedTradeSettlementPaymentMeans[4]/ PayeeSpecifiedCreditorFinancialInstitution/BICID
SupplierTaxNumber1	SellerTradeParty/SpecifiedTaxRegistration/ID where the attribute schemeID="VA"
Line-item fields	

Tungsten AP Essentials internal field name	ZUGFeRD 1.0
	Note that the ParentNode for these is: IncludedSupplyChainTradeLineItem
LIT_ArticleIdentifier	/SpecifiedTradeProduct/SellerAssignedID
LIT_ArticleName	/SpecifiedTradeProduct/Name
LIT_DeliveredQuantity	/SpecifiedSupplyChainTradeDelivery/BilledQuantity
LIT_DeliveredQuantityUnitCode	/SpecifiedSupplyChainTradeDelivery/BilledQuantity/@unitCode
LIT_OrderNumber	/SpecifiedSupplyChainTradeAgreement/BuyerOrderReferencedDocument/ID
LIT_RowIdentifier	/AssociatedDocumentLineDocument/LineID
LIT_UnitPriceAmount	/SpecifiedSupplyChainTradeAgreement/NetPriceProductTradePrice/ChargeAmount
LIT_VatExcludedAmount	/SpecifiedSupplyChainTradeAgreement/NetPriceProductTradePrice/ChargeAmount
LIT_VatRate	/SpecifiedSupplyChainTradeSettlement/ApplicableTradeTax/ApplicablePercent
Attachment fields	
ID	Not mapped
FileName	Not mapped
EmbeddedValue	Not mapped
EmbeddedInfo	Not mapped
DataURI	Not mapped
SchemeURI	Not mapped
DataType	Not mapped
LinkType	Not mapped
AdditionalInfo	Not mapped
Invoice note field	
InvoiceNote	Since the text is often very long, it is put on the note page of the invoice. Payment Terms are listed first. The value is taken from: SpecifiedSupplyChainTradeTransaction/ApplicableSupplyChainTradeSettlement/SpecifiedTradePaymentTerms/Description All notes on fields are listed after payment terms, and they are extracted from one or several nodes with this path: HeaderExchangedDocument/IncludeNote/Content

Field mappings from incoming XML formats only map to standard fields. They do not map to custom fields. Consider using the XML document type if your current document type does not support the field mappings you require.

CII XML invoice rendering preferences

If you process Cross-Industry Invoice (CII) XML invoices, you can choose whether to view the original invoice image or an invoice image rendered from the XML data.

The **Render CII XML invoices (ZUGFeRD, Factur-X, and XRechnung) using the official stylesheet** setting controls how Tungsten AP Essentials displays and exports CII invoices. This setting affects ZUGFeRD, Factur-X, and XRechnung invoice formats. Use this setting to choose between using the original invoice image or generating a standardized rendered image from the XML data.

The XML data is always used for data extraction and field interpretation, regardless of this setting. This setting only determines which image is displayed in AP Essentials Office, which attachments are shown, and what is exported to PDF or TIFF.

When the setting is disabled

When this setting is disabled, Tungsten AP Essentials displays and exports invoices as follows:

- The original PDF is displayed as the invoice image in AP Essentials Office and used for PDF or TIFF exports.
- Attachments embedded in the ZUGFeRD/CII XML remain in the PDF and are not extracted to the **Attachments** tab.
- For ZUGFeRD PDFs, the original PDF remains the main invoice image, whereas for pure XML, P7M, or OFD files, the XML content is not rendered for display.

When the setting is enabled

When this setting is enabled, Tungsten AP Essentials displays and exports invoices as follows:

- The invoice image is rendered from the XML and displayed in AP Essentials Office and used for PDF or TIFF exports.
- Attachments embedded in the ZUGFeRD/CII XML are extracted to the **Attachments** tab (requires the Storage service).
- For ZUGFeRD 2.x PDFs, the original PDF becomes an attachment and the XML-rendered version becomes the main invoice image, whereas for pure XML, P7M, or OFD files, the XML content is rendered directly as a PDF for display.

The rendered invoice image includes a disclaimer stating that the image is software-generated from the XML data. This disclaimer is part of the official xRechnung visualization stylesheet.

Comparison of setting behaviors

When the setting is disabled	When the setting is enabled
The original PDF is displayed as the invoice image in AP Essentials Office and used for PDF or TIFF exports.	The invoice image is rendered from the XML and displayed in AP Essentials Office and used for PDF or TIFF exports.

When the setting is disabled	When the setting is enabled
Attachments embedded in the ZUGFeRD/CII XML remain in the PDF and are not extracted to the **Attachments** tab.	Attachments embedded in the ZUGFeRD/CII XML are extracted to the **Attachments** tab (requires the Storage service).
For ZUGFeRD PDFs, the original PDF remains the main invoice image, whereas for pure XML, P7M, or OFD files, the XML content is not rendered for display.	For ZUGFeRD 2.x PDFs, the original PDF becomes an attachment and the XML-rendered version becomes the main invoice image, whereas for pure XML, P7M, or OFD files, the XML content is rendered directly as a PDF for display.

Benefits

This setting lets you choose between two processing approaches:

Using the original invoice image
Preserves original formatting.

Using a standardized rendered image from the XML data

Provides the following benefits:

- Ensures the displayed image matches the authoritative invoice data in the XML. Because there is no validation that the PDF corresponds to the XML, the PDF and XML may contain conflicting information.
- Provides consistent formatting across different invoice formats.
- Ensures all data from the XML is visually represented.
- Better for automated processing.
- Meets legal requirements in some countries (such as Germany) to display the XML data.

Rendered invoice image

When this setting is enabled, Tungsten AP Essentials uses the official xRechnung visualization stylesheet to render the invoice image from the XML data. This stylesheet is maintained by KoSIT (Coordination Office for IT Standards) and is the standard visualization tool for xRechnung invoices in Germany.

The xRechnung visualization stylesheet transforms the structured XML invoice data into a human-readable PDF format. The rendered image displays all invoice information in a standardized layout, including:

- Invoice header information (invoice number, date, supplier, and buyer details)
- Line items with descriptions, quantities, and prices
- Tax calculations and totals
- Payment terms and banking information
- Any additional notes or references

The rendered image includes a disclaimer at the top stating that the document is software-generated from the XML data and is not the original supplier document.

The following images show examples of rendered invoice images compared to original PDF invoice images. The rendered images have a consistent, standardized appearance, while original PDFs may vary in layout and design depending on the supplier.

Rechnung

ZUGFERD 2.x Profil EN 16931 (COMFORT)

Enterprise Systems Consulting Services - Q1 Performance Agreement. Internal ref: PO-99214.

Rechnungssteller
Apex Corporate Solutions GmbH
Kaiserstrasse 42
60311 Frankfurt am Main
USt-IdNr. DE554433221
Tel. +49 69 98765430
invoicing@example.com

Rechnungsempfaenger
ACME Inc.
Attn: Accounts Payable
Monckebergstrasse 10
20095 Hamburg
USt-IdNr. DE112233445
ap@example.com

Rechnungsnummer:
INV-2026-8891

Rechnungsdatum:
10.03.2026

Lieferdatum:
08.03.2026

Faelligkeit:
09.04.2026

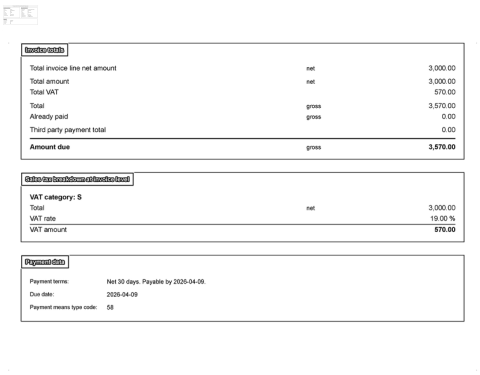
Pos	Beschreibung	Menge	Einzelpreis	Netto
1	Cloud Architecture Workshop and Optimization	8,00 Std	150,00 EUR	1.200,00 EUR
2	Enterprise Data Connector Platform (Annual Subscription)	1,00 Stk	1.800,00 EUR	1.800,00 EUR

Nettobetrag:	3.000,00 EUR
USt. 19%:	570,00 EUR
Gesamtbetrag:	**3.570,00 EUR**

Net 30 days. Payable by 09.04.2026 without deduction to IBAN DE89 3704 0044 0532 0130 00.

Diese PDF enthaelt eine eingebettete factur-x.xml (CII) nach EN 16931.

A standard invoice image.

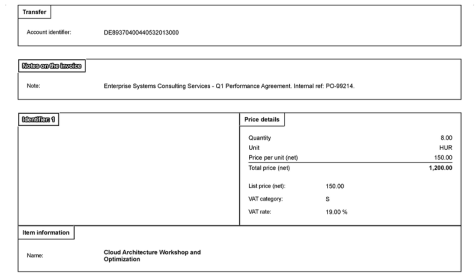


Total invoice line net amount	net	3,000.00
Total amount	net	3,000.00
Total VAT		570.00
Total	gross	3,570.00
Already paid	gross	0.00
Third party payment total		0.00
Amount due	gross	**3,570.00**

VAT category: S

Total	net	3,000.00
VAT rate		19.00 %
VAT amount		**570.00**

Payment terms:	Net 30 days. Payable by 2026-04-09.
Due date:	2026-04-09
Payment means type code:	58



The same invoice rendered from XML can span several pages.

Attachments

When this setting is enabled and Storage service is enabled, all embedded attachments (including the original ZUGFeRD PDF) are extracted and appear in the **Attachments** tab. This lets you review the original PDF if needed while relying on the XML data as the authoritative source.

Related information

For information about field mapping for these invoice formats, refer to ZUGFeRD, Factur-X, and XRechnung field mapping.

Supported SFTP encodings

If you use the SFTP target system, use the Encoding setting to specify the encoding when writing XML documents. The encoding you choose must be supported by your target system. Tungsten AP Essentials supports these SFTP encodings:

Encoding	Description
IBM037	IBM EBCDIC (US-Canada)
IBM437	OEM United States
IBM500	IBM EBCDIC (International)
ASMO-708	Arabic (ASMO 708)
DOS-720	Arabic (DOS)
ibm737	Greek (DOS)
ibm775	Baltic (DOS)
ibm850	Western European (DOS)
ibm852	Central European (DOS)
IBM855	OEM Cyrillic
ibm857	Turkish (DOS)
IBM00858	OEM Multilingual Latin I
IBM860	Portuguese (DOS)
ibm861	Icelandic (DOS)
DOS-862	Hebrew (DOS)
IBM863	French Canadian (DOS)
IBM864	Arabic (864)
IBM865	Nordic (DOS)
cp866	Cyrillic (DOS)
ibm869	Greek, Modern (DOS)
IBM870	IBM EBCDIC (Multilingual Latin-2)
windows-874	Thai (Windows)
cp875	IBM EBCDIC (Greek Modern)
shift_jis	Japanese (Shift-JIS)
gb2312	Chinese Simplified (GB2312)
ks_c_5601-1987	Korean
big5	Chinese Traditional (Big5)
IBM1026	IBM EBCDIC (Turkish Latin-5)
IBM01047	IBM Latin-1

Encoding	Description
IBM01140	IBM EBCDIC (US-Canada-Euro)
IBM01141	IBM EBCDIC (Germany-Euro)
IBM01142	IBM EBCDIC (Denmark-Norway-Euro)
IBM01143	IBM EBCDIC (Finland-Sweden-Euro)
IBM01144	IBM EBCDIC (Italy-Euro)
IBM01145	IBM EBCDIC (Spain-Euro)
IBM01146	IBM EBCDIC (UK-Euro)
IBM01147	IBM EBCDIC (France-Euro)
IBM01148	IBM EBCDIC (International-Euro)
IBM01149	IBM EBCDIC (Icelandic-Euro)
utf-16	Unicode
unicodeFFFE	Unicode (Big endian)
windows-1250	Central European (Windows)
windows-1251	Cyrillic (Windows)
Windows-1252	Western European (Windows)
windows-1253	Greek (Windows)
windows-1254	Turkish (Windows)
windows-1255	Hebrew (Windows)
windows-1256	Arabic (Windows)
windows-1257	Baltic (Windows)
windows-1258	Vietnamese (Windows)
Johab	Korean (Johab)
macintosh	Western European (Mac)
x-mac-japanese	Japanese (Mac)
x-mac-chinesetrad	Chinese Traditional (Mac)
x-mac-korean	Korean (Mac)
x-mac-arabic	Arabic (Mac)
x-mac-hebrew	Hebrew (Mac)
x-mac-greek	Greek (Mac)
x-mac-cyrillic	Cyrillic (Mac)
x-mac-chinesesimp	Chinese Simplified (Mac)
x-mac-romanian	Romanian (Mac)
x-mac-ukrainian	Ukrainian (Mac)
x-mac-thai	Thai (Mac)

Encoding	Description
x-mac-ce	Central European (Mac)
x-mac-icelandic	Icelandic (Mac)
x-mac-turkish	Turkish (Mac)
x-mac-croatian	Croatian (Mac)
utf-32	Unicode (UTF-32)
utf-32BE	Unicode (UTF-32 Big endian)
x-Chinese-CNS	Chinese Traditional (CNS)
x-cp20001	TCA Taiwan
x-Chinese-Eten	Chinese Traditional (Eten)
x-cp20003	IBM5550 Taiwan
x-cp20004	TeleText Taiwan
x-cp20005	Wang Taiwan
x-IA5	Western European (IA5)
x-IA5-German	German (IA5)
x-IA5-Swedish	Swedish (IA5)
x-IA5-Norwegian	Norwegian (IA5)
us-ascii	US-ASCII
x-cp20261	T.61
x-cp20269	ISO-6937
IBM273	IBM EBCDIC (Germany)
IBM277	IBM EBCDIC (Denmark-Norway)
IBM278	IBM EBCDIC (Finland-Sweden)
IBM280	IBM EBCDIC (Italy)
IBM284	IBM EBCDIC (Spain)
IBM285	IBM EBCDIC (UK)
IBM290	IBM EBCDIC (Japanese katakana)
IBM297	IBM EBCDIC (France)
IBM420	IBM EBCDIC (Arabic)
IBM423	IBM EBCDIC (Greek)
IBM424	IBM EBCDIC (Hebrew)
x-EBCDIC-KoreanExtended	IBM EBCDIC (Korean Extended)
IBM-Thai	IBM EBCDIC (Thai)
koi8-r	Cyrillic (KOI8-R)
IBM871	IBM EBCDIC (Icelandic)

Encoding	Description
IBM880	IBM EBCDIC (Cyrillic Russian)
IBM905	IBM EBCDIC (Turkish)
IBM00924	IBM Latin-1
EUC-JP	Japanese (JIS 0208-1990 and 0212-1990)
x-cp20936	Chinese Simplified (GB2312-80)
x-cp20949	Korean Wansung
cp1025	IBM EBCDIC (Cyrillic Serbian-Bulgarian)
koi8-u	Cyrillic (KOI8-U)
iso-8859-1	Western European (ISO)
iso-8859-2	Central European (ISO)
iso-8859-3	Latin 3 (ISO)
iso-8859-4	Baltic (ISO)
iso-8859-5	Cyrillic (ISO)
iso-8859-6	Arabic (ISO)
iso-8859-7	Greek (ISO)
iso-8859-8	Hebrew (ISO-Visual)
iso-8859-9	Turkish (ISO)
iso-8859-13	Estonian (ISO)
iso-8859-15	Latin 9 (ISO)
x-Europa	Europa
iso-8859-8-i	Hebrew (ISO-Logical)
iso-2022-jp	Japanese (JIS)
csISO2022JP	Japanese (JIS-Allow 1 byte Kana)
iso-2022-jp	Japanese (JIS-Allow 1 byte Kana - SO/SI)
iso-2022-kr	Korean (ISO)
x-cp50227	Chinese Simplified (ISO-2022)
euc-jp	Japanese (EUC)
EUC-CN	Chinese Simplified (EUC)
euc-kr	Korean (EUC)
hz-gb-2312	Chinese Simplified (HZ)
GB18030	Chinese Simplified (GB18030)
x-iscii-de	ISCII Devanagari
x-iscii-be	ISCII Bengali
x-iscii-ta	ISCII Tamil

Encoding	Description
x-iscii-te	ISCII Telugu
x-iscii-as	ISCII Assamese
x-iscii-or	ISCII Oriya
x-iscii-ka	ISCII Kannada
x-iscii-ma	ISCII Malayalam
x-iscii-gu	ISCII Gujarati
x-iscii-pa	ISCII Punjabi
utf-7	Unicode (UTF-7)
utf-8	Unicode (UTF-8)

System requirements

Tungsten AP Essentials is a web application that runs in a web browser.

Browser support

For your security, Tungsten AP Essentials is compatible with industry-standard web browsers. Older web browsers are not supported.

In the following tables, "Latest version - 1" refers to one major version older than the latest version. For example, if the latest version of Chrome is version 74, then the latest version minus one is version 73.

Supported browsers	Office	Admin Center
Windows		
Chrome	Latest version and latest version - 1	Latest version
Edge	Latest version and latest version - 1	Latest version and latest version - 1
Firefox	Latest version and latest version - 1	Latest version and latest version - 1
MacOS		
Chrome	Latest version and latest version - 1	Latest version
Firefox	Latest version and latest version - 1	Latest version and latest version - 1
Safari	Latest version and latest version - 1	Latest version and latest version - 1

For optimum performance using Mozilla Firefox, disable autocomplete (autofill).

Supported browsers	Mobile Approval
Android	

Supported browsers	Mobile Approval
Chrome	Latest version
Edge	Latest version and latest version - 1
Firefox	Latest version and latest version - 1
iPhone	
Chrome	Latest version
Firefox	Latest version and latest version - 1
Safari	Latest version and latest version - 1

Browser requirements

- JavaScript must be enabled in your web browser.
- The web browser history must be enabled.
- You must accept cookies.

Screen resolution

Recommended minimum screen resolution: 1280 x 1024.

Internet connection

Recommended minimum internet connection speed: 2 Mbps.

Component versions

Some AP Essentials solutions rely on extra components to function properly. To ensure compatibility and access to the latest features, make sure you always use the most recent version. This table lists various components and the latest version available.

Component	Latest version	How to find your version
Tungsten AP Essentials Connect	2026.2.1.8224	The version number is displayed in the title bar of the app itself.
Dynamics AX 2012 model file	22.2.15.1	Within Dynamics AX, navigate to **Tools** > **Model management** > **Models installed**. In the list that appears, locate "RsoIntegration" and check the version. You can download the latest model file here.
NetSuite bundle	1.36	Within NetSuite, navigate to the **Saved Bundles** view, and check the version of the Tungsten Automation Integration.

Component	Latest version	How to find your version
Reports for Microsoft Excel	10.6.14.482	The version number is located in the right corner of the app. If you do not have the latest version of the app, right-click the app in Excel and select **Reload frame**.
Master-data import for Microsoft Excel	10.6.14.378	The version number is located in the right corner of the app. If you do not have the latest version of the app, right-click the app in Excel and select **Reload frame**.
Supported OpenAI model for Tungsten Copilot services	gpt-5-mini	Check your Azure OpenAI Service resource to verify your version.

See also

Refer to System limits.

Enable TLS in your web browser

Transport Layer Security (TLS) is a cryptographic protocol that provides communication security over computer networks. To use Tungsten AP Essentials and Help, your web browser must support TLS 1.2. The latest web browsers supported by Tungsten AP Essentials have TLS 1.2 enabled, so if you are up-to-date, you have nothing to worry about.

To test if your browser supports TLS 1.2, follow this link: https://tlstest.readsoftonline.com/

If you navigate to the link above and your web browser supports TLS 1.2, a message appears that confirms that your browser is compatible. If your web browser is not compatible, your browser displays an error page.

Refer to documentation for your web browser for more information:

- Chrome
- Edge
- Firefox
- Safari

Disable autocomplete (autofill) in Firefox

When verifying documents with thousands of fields, Firefox may experience poor performance due to the autofill feature. To resolve this issue, disable the autofill settings for addresses and credit cards in Firefox.

1. In Firefox, type **about:config** in the address bar and press Enter.
2. Select **Accept the Risk and Continue**.
3. In the search box, type **extensions.formautofill.addresses.enabled**.

4. Select the toggle button to change the value to **false**.
5. In the search box, type **extensions.formautofill.creditCards.enabled**.
6. Select the toggle button to change the value to **false**.

Autofill is now disabled in Firefox, which improves performance when verifying documents with many fields.

System limits

This topic lists known limits, quotas and constraints of Tungsten AP Essentials services. System limits apply to the AP Essentials web interface (Admin Center, Office, and Mobile Approval), the API, AP Essentials Connect, custom integrations, and anywhere you access AP Essentials.

File size limitations

Description	Limit	Note
Maximum file size for input files	100 MB	This is the maximum size allowed for documents that are uploaded through AP Essentials Office, AP Essentials Connect, or the API. If the limit is exceeded, the document receives the status "input failed."
Maximum file size for storage upload	25 MB	If the limit is exceeded, you receive a notification that the upload failed.
Maximum file size for master data upload	200 MB	If the limit is exceeded, you receive a notification that the upload failed.

Document limitations

Description	Limit	Note
Maximum number of pages in a document	2,000 pages	If the limit is exceeded, the document receives the status "input failed."
Maximum number of pages in an invoice containing line items from a new supplier where all pages are interpreted	100 pages on the first invoice from a new supplier. 2,000 pages on subsequent invoices from the same supplier.	If the document has more than 100 pages, only the first page is interpreted on the first invoice received from a new supplier. The next time an invoice is received from the same supplier, and the supplier is properly identified, up to 2,000 pages can be interpreted.
Maximum number of pages in a remittance advice	2,000 pages	

Miscellaneous organization limits

Resource	Limit
Custom validation rules	30 custom rules per organization
Organization names (Partner name, Customer name, Buyer name)	200 characters

User settings

Some settings on user accounts have character length limitations.

Setting	Limit
User name	150 characters
Full name	150 characters
Email address	100 characters
Password	1,000 characters
Phone number	128 characters

Users, customers, buyers, and sellers

Each limit is contained within its respective owner. In other words, the user count of a customer account is not deducted from the user count of its parent partner account.

Resource	Limit
Users	• 2,000 per partner • 5,000 per customer group • 5,000 per customer account
User groups	• 2,000 per partner • 2,000 per customer group • 2,000 per customer account
Customers	• 10,000 per partner • 5,000 per customer group
Customer groups	500 per partner
Buyers	10,000 per customer account
Sellers	10,000 per customer account

Workflow service

Resource	Limit
Workflows	1,000 per customer account

Resource	Limit
Steps	50 per workflow
Conditions	10 per trigger
Values	1,000 per condition
Correction handlers	20 per customer account
Triggers	1,000 per customer account
Account types	30 per customer account
Coding fields	20 per customer account

Some workflow settings have character-length or numeric limitations.

Setting	Limit
Maximum duration (days) of workflow steps	366 days
Workflow name	150 characters
Workflow description	1,000 characters
Step description	200 characters
Trigger name	200 characters
Trigger value	50 characters
Trigger value in list	100 characters
Coding field name	50 characters
Coding field internal name	50 characters
Account type name	100 characters
Account type internal name	50 characters

Master data

Each master data type has a maximum number of items allowed per organization. Each master data file uploaded via AP Essentials Connect and each API request payload is limited to 200 MB. The same limits apply to both uploading and downloading master data.

Master data type	Maximum count allowed	Maximum size
Accounts (general ledger)	100,000	200 MB
Currencies	500	200 MB
Supplier banks	300,000	200 MB
Suppliers	150,000	200 MB
Generic master-data objects	500,000 You can have up to 40 different generic master-data types, each with up to 500,000 objects.	200 MB

Master data type	Maximum count allowed	Maximum size
Purchase orders	200,000 Up to 200,000 purchase orders are allowed for each buyer or customer account. After the initial upload, you cannot add, update, or delete more than 5,000 purchase orders per upload. Each purchase order can have a maximum of 5,000 order lines.	200 MB
Customers	1,000,000 When uploading customer master data on the seller level, the total count from all sellers of the parent account cannot exceed 1,000,000. After the initial upload, you cannot add or update more than 2,000 customers per upload. An initial upload is performed when you upload customers: • via the **Upload master data** button in AP Essentials Connect. • via the API method, CompleteMasterDataCustomerUpload. Subsequent uploads, via the **Synchronize** button in AP Essentials Connect or the AddOrUpdateMasterDataCustomers API method, are limited to 2,000 customers per upload.	200 MB

Maximum length of master data field values

The values of the master-data fields later in this topic cannot exceed the maximum length specified in this table:

Field	Maximum length
Generic master-data objects	
Type name	50
Value	150
Name	150
Description	200
Currencies	
Code	40
Name	100

Field	Maximum length
Accounts (general ledger)	
Code	100
Name	220
Group	100
Description	500
Suppliers	
Supplier number	200
Name	400
Description	2000
Organization number	100
Tax registration number	200
Tax code	200
Payment term	300
Payment method	200
Currency code	50
Location	300
Street	500
Postal code	100
City	200
State	100
Country name	100
Telephone number	250
Fax number	250
Supplier banks	
Bank name	200
Bank number type	20
Bank number	50
Account number type	20
Account number	250
Purchase orders	
Order number	50
Supplier number	200
Supplier name	400
Currency code	40

Field	Maximum length
Contact name	200
Description	1500
Status text	100
RequisitionedBy	254
CreatedBy	254
Purchase orders lines	
Order line number	40
Article number	1500
Article description	5000
Supplier article number	300
Category number	80
Category description	1500
Unit	50
Status text	100
DeliveryNoteNumber	50
DeliveryDate1	8
DeliveryDate2	8
UniqueArticleNumber	20
Purchase order search query	
Sort field	500
Customers	
Customer number	100
Name	100
TaxRegistrationNumber	30
OrganizationNumber	30
Street	100
PostalCode	20
Country	100
City	100
State	50
TelephoneNumber	30
FaxNumber	30

AP Essentials Connect plug-in

Resource	Limit
Plug-in file size	50 MB

When uploading a plug-in ZIP file to the **Resource** view in Admin Center, the combined file size of the ZIP file contents cannot exceed 50 MB.

API throttling

API throttling is the process of limiting the number of API requests you can make during a certain period. AP Essentials throttles key API methods to promote stability and fair usage of the system. If a request is throttled, HTTP error code 429 is returned.

Throttling rates

This table lists throttling rates on a per-hour basis unless otherwise noted. The context of "Organization ID" in this table depends on the context of the method. For example, Organization ID can refer to a customer account or the buyer/seller (if buyers or sellers are in use).

Method	Maximum requests per hour	Throttled by
Authentication		
Authenticate	1,000	UserName
IsAuthenticated	1,000	Organization ID and Current user
SignOut	1,000	Organization ID and Current user
Touch	1,000	Organization ID and Current user
Customer master data		
DeleteMasterDataCustomers	10	Organization ID
AddOrUpdateMasterDataCustomers	10	Organization ID
DeleteMasterDataCustomersByID	500	Organization ID
AddOrUpdateSingleMasterDataCustomer	100	Organization ID and Current user
SearchMasterDataCustomers	500	Organization ID and Current user
StartMasterDataCustomerUpload	1 request every 2 hours	Organization ID
CompleteMasterDataCustomerUpload	1 request every 1 hour 55 minutes	Organization ID
Documents		
GetBatchHistory	30	Current user
GetDocumentHistory	300	Current user
Files		
UploadImage	4,000	Organization ID

Method	Maximum requests per hour	Throttled by
UploadImage2	4,000	Organization ID
UploadImage3	4,000	Organization ID
Generic master data objects		
SetMasterDataObjects	60	Organization ID and Master data object type
AddOrUpdateMasterDataObjects	60	Organization ID and Master data object type
DeleteMasterDataObjects	60	Organization ID and Master data object type (a collection of object types can be specified)
GetMasterDataObjects	300	Organization ID and Master data object type
GetAvailableMasterDataObjectTypesByCustomerId	2,000	Customer ID and Current user
SearchMasterDataObjects	2,000	Organization ID and Current user
GetMasterDataObjectsMatchingSearchValue	2,000	Organization ID, Master data object type, and Current user
Purchase order master data		
SetPurchaseOrders	60	Organization ID
AddOrUpdatePurchaseOrders	120	Organization ID
DeletePurchaseOrders	120	Organization ID
GetPurchaseOrders	100	Organization ID
SearchPurchaseOrderFilteredLines	400	Organization ID and Current user
SearchPurchaseOrders	400	Organization ID and Current user
Supplier master data		
SetSuppliers	100	Organization ID
AddOrUpdateSuppliers	400	Organization ID
AddOrUpdateSupplierWithBankAccounts	400	Organization ID
DeleteSuppliersById	100	Organization ID
DeleteSuppliers	200	Organization ID
GetSuppliers	200	Organization ID
GetSupplier	100	Organization ID
SearchSuppliers	60	Customer ID and Current user
SearchSuppliersQuery	400	Organization ID and Current user
SearchSuppliersWithQueryResult	100	Customer ID and Current user
Users		
ResetPassword3	25	Calling user (the user making the API call)
Workflows		
ApproveDocument2	20	Document ID

Method	Maximum requests per hour	Throttled by
LockDocument	100	Document ID
UnlockDocument	100	Document ID

Monitor API throttling via HTTP headers

When you make HTTP requests to an endpoint that supports throttling, AP Essentials provides throttling information in the HTTP header. These headers are returned simultaneously:

- **X-RateLimit-WindowSize** — Throttling involves setting a limit on the number of requests allowed within a designated time frame, such as one hour. The X-RateLimit-WindowSize header denotes the duration of this window in seconds.
- **X-RateLimit-Reset** — This header shows how many seconds are left until the end of the current throttling window.
- **X-RateLimit-Limit** — This header shows how many requests can be performed within the throttling window.
- **X-RateLimit-Remaining** — This header shows how many requests remain before throttling is applied.

Consider this example:

```
X-RateLimit-WindowSize: 3600
X-RateLimit-Reset: 3300
X-RateLimit-Limit: 400
X-RateLimit-Remaining: 397
```

These headers indicate a time window of 3,600 seconds (1 hour). The window will reset in 3,300 seconds (55 minutes). Within this 3,600-second window, a total of 400 requests are permitted. Currently, you have the capacity to make 397 more requests within the remaining 3,300 seconds (55 minutes). To clarify, you can make up to 400 requests per hour, and so far, you have made three requests in the first five minutes. If you attempt to exceed the limit of 400 requests within the one-hour period, your requests will be throttled until the time window resets.

Troubleshooting

This topic lists frequently asked questions and solutions to various common problems you might have with Tungsten AP Essentials.

- **AP Essentials Connect permanently displays the message, "Please wait while Tungsten AP Essentials Connect downloads..."**

  This can occur if your Internet connection blocks access to files that Tungsten AP Essentials Connect needs to update. See troubleshooting for AP Essentials Connect for more information.
- **"You have reached the request limit for this process."**

  To keep Tungsten AP Essentials running smoothly, some internal processes have limits to how many times they can be performed during a given period of time. If you receive the message, "You have reached the request limit for this process," it is followed by the number of minutes to wait until you can try again. You must wait the specified amount of time before trying again. After the specified time elapses, the request limit resets, and you can try again.

If you receive this message often, it can be because you use a custom integration that does not follow the API access requirements.

- **Invoice fields shown in the verification view differ from the fields selected in Extraction service.**
  This can occur if you are viewing Document type settings at the customer level, but changes have been made at the buyer level. When you change the Document type settings at buyer level, those settings are used when you verify an invoice from that specific buyer.
- **Tungsten AP Essentials login fails.**
  Make sure your web browser accepts cookies. Make sure you type your user name and password correctly. For your security, Tungsten AP Essentials locks your account after three failed attempts to log in, and the password must be reset by an administrator.
- **An "unauthorized" error message is displayed when accessing the Services view.**
  Make sure that the browsing history is enabled in your web browser and that your web browser accepts cookies. Also, make sure the Tungsten AP Essentials URL you are trying to access is not restricted by the internet security settings on your computer.
- **Date formats in the verification view do not match my browser.**
  The date format is determined by the language settings and your web browser. If your browser language is not supported by Tungsten AP Essentials, English (en-US) is used.
- **The Print button does not work.**
  Make sure your web browser allows pop-up windows from Tungsten AP Essentials.
- **A user can perform account coding without the "Edit approval documents" privilege.**
  In addition to the Edit approval documents privilege, users can also perform account coding if they are assigned to a step in a workflow configuration and Coding is selected.
- **A user with limited privileges can still see all of the views in Office.**
  Privileges that allow access to different views in Office can be assigned at the user level and the group level. The combination of privileges on both levels are granted to the user. Check the user-level and group-level privileges to avoid confusion.
- **Changes made to workflows are not applied to existing documents.**
  Changes made to workflows only apply to documents that enter the system after the change is applied. Therefore, we recommend completely processing all documents before making changes to a workflow.
- **Documents remain in the Export in progress state when using XML locally as the target system.**
  Make sure AP Essentials Connect is running and the AP Essentials Connect service is also running. Documents can become unresponsive in the Export in progress state if AP Essentials Connect service is not running.
- **Batches are split into multiple documents after uploading them in the Upload view.**
  Batches are automatically split into multiple documents when you upload them using the **Upload** view. If you want to send one document per batch, send batches via email or use AP Essentials Connect to upload them. See also: Page separation.
- **Documents remain in the Pending Registration state.**
  If the Keep batch together setting is selected, all of the invoices in the batch are registered simultaneously and cannot move forward until all of the invoices are verified. In other words, even if only one invoice requires manual verification, the entire batch remains in the Pending Registration state until that one invoice is verified.

- **Some input email addresses and suppliers have disappeared.**
- Email addresses and suppliers that are associated with a specific buyer can be deleted if you delete the buyer. Therefore, it is not recommended to delete buyers if you are still using email addresses or suppliers that are associated with the buyer.

  Note, however, that deleting an input email address does not affect invoices that are already in the system.

  To delete a buyer that has associated invoices that are still being processed, we recommend that you do not delete the buyer until all of the existing invoices are processed completely. If you delete a buyer prior to processing the invoices, it can cause errors.
- **System-wide notifications are not being sent.**

  As a customer, you have to set up system-wide notifications yourself using Notification services.
- **Some invoices are not imported to Tungsten AP Essentials.**

  If a file is corrupt, it cannot be imported to Tungsten AP Essentials. We recommend using email forwarding, so you receive an email if an invoice is discarded by Tungsten AP Essentials.
- **Empty fields are not allowed during validation.**

  If Enforce validation is selected, you cannot complete the invoice verification until the field passes validation and the field status is Complete.
- **My invoices appear to be locked.**

  Invoices are locked by the users who open them, and they remain locked if they are not properly closed. For example, if you close the browser while working on an invoice, the invoice remains locked until you open it again or it is opened or unlocked by another user that is authorized to do so.
- **Some batches take a long time to extract.**

  The time it takes to extract invoices in a batch depends on the number of pages in the batch. If you send a large batch with hundreds of pages to Tungsten AP Essentials, it can take some time to extract it. Deleting and resending large batches does not speed up the process.
- **None of the document rules are selected, but I still get errors during verification.**

  Some internal validations are always performed during invoice interpretation, even if all of the validations are disabled. So it is possible to receive validation warnings during verification, even if there are no enabled validations.
- **AP Essentials Connect will not synchronize.**

  Tungsten AP Essentials Connect fails to synchronize if the Windows service is not running or is currently busy. Restart the AP Essentials Connect Windows service manually to resolve this issue.
- **Are documents sent to storage while storage indexing is in progress?**

  Storage is indexed every 15 minutes, and this process does not stop documents from being archived. All documents sent to storage are saved and you can see them after the indexing process is complete.
- **The Rules tab is not visible at the customer level.**

  Rules must be enabled in the Validation service on the partner level in order for them to be available at the customer level. If no rules are enabled at the partner level, then the **Rules** tab is not displayed on the customer level.
- **Master data import failed using AP Essentials Connect.**

  Several problems can cause master-data import to fail; however, the most common problems are:

  - Poor XML syntax.

  - Incorrect file encoding. For example , the XML specifies UTF-8, but the file was saved using ANSI encoding.
  - The XML filenames do not correspond to the settings specified in Tungsten AP Essentials Connect.
- **The Silverlight plug-in failed.**
- Silverlight can fail for a number of reasons that have nothing to do with Tungsten AP Essentials. If Silverlight fails, simply restart your web browser. If the problem persists, try clearing the cookies from your web browser, and then restart the web browser.
- **An invoice fails to register in the target system with the error, "No account found."**

  Several problems can cause this error, depending on your target system. The most common cause of registration failure is that no matching account is found in the target system. Make sure the accounts you specify when coding an invoice have corresponding accounts in the target system.
- **Accounts from the target system are not imported to Tungsten AP Essentials.**

  Make sure accounts exist in the target system and make sure they are named. Tungsten AP Essentials cannot import accounts without names.
- **Invoices are not posted in target system due to authentication errors.**

  Authentication errors can occur if the target system is not responding or is temporarily down due to maintenance , such as maintenance. Try to register the invoice again.
- **New suppliers cannot be created during verification.**

  You can only add new suppliers or change existing suppliers if Let users update supplier data when verifying invoices is selected in the Master data service.
- **Changes made to service settings on the partner level are not copied to the customer level.**

  If you make changes to services at partner level, they are only copied to new customers that you create after making those changes. The service settings of existing customers are not affected by changes on the partner level.
- **An invalid tax rate error is displayed when verifying invoices.**

  Use the VAT rate setting to specify which tax rates are valid.
- **Master data cannot be imported from the target system after changing a user name or password.**

  Sometimes communication between Tungsten AP Essentials and the target system is two-way. Therefore, if you change a user name or password in Tungsten AP Essentials, and that user is also defined in the target system, you must update the login information in the target system, so the target system can access Tungsten AP Essentials.
- **The Storage service is enabled, but invoices are not appearing in storage.**

  Invoices are sent to storage after they are exported to the target system. Make sure the invoice is not still in progress. Also, if the storage service was not enabled when the invoice was exported, it might not be sent to storage.
- **If I delete an invoice during verification, can I get it back?**

  No. If you delete an invoice during verification, it is deleted from Tungsten AP Essentials, and there is no way to retrieve it. You must upload the invoice again if you want to verify it.
- **Some services are disabled at the customer level.**

  At the customer level, you can only enable services that are enabled at the partner level. If a service is disabled at the partner level, it is automatically disabled at the customer level. Make sure the service is enabled at the partner level before you enable it at the customer level.

- **Who can reset user passwords?**

  Administrators with the **Manage user accounts** privilege can reset passwords.
- **Invoices sent via email are returned or bounced back.**

  If the Email input service is disabled or the email address is deleted from Tungsten AP Essentials, invoices sent to that address are bounced back. Make sure that the Email input service is enabled and that you specified an email address in Tungsten AP Essentials.
- **A supplier is missing.**

  Normally suppliers are imported from a target system to Tungsten AP Essentials. If a supplier is deleted from the target system, it is also removed from Tungsten AP Essentials when the master data is synchronized.
- **Many invoices are sent to Tungsten AP Essentials via email, but only a few are displayed in the document list view.**

  All invoices that can be processed by Tungsten AP Essentials are imported; however, any unsupported attachments are ignored. If Storage services are enabled, you can see the original email as an attachment in the **STORAGE** > **Documents** view.
- **Invoices that fail export are not visible in the document list view.**

  You can find these documents in the **In progress** and **All documents** views.
- **The supplier is removed when the buyer is changed during verification.**

  If you have supplier master data at the buyer level, each buyer has its own supplier master data. Therefore, when you change the buyer on an invoice, the validation is performed again with supplier master data from the new buyer, which might not have the same suppliers as the previous buyer.
- **If I change master data from the buyer level to the customer level, can I make use of the existing master data from the buyer?**

  No . It is not possible to use existing master data when you change the setting from the buyer to the customer level. You must upload new master data for use at the customer level, which then can be shared by all buyers.
- **Field values cannot be drawn after rotating the invoice image.**

  Field values for the entire invoice are interpreted when the invoice is extracted (before verification). Therefore, if you rotate an invoice during verification, there is no data interpreted for the new rotation. Invoice data can only be interpreted automatically during extraction (before verification).
- **When viewing multi-TIF images, only the first page is displayed using the Safari browser.**

  If you view a multi-TIF image in storage, but only the first page is displayed, you must download the image and open the file on your computer to view all of the pages. This is a known issue with the Safari browser.

Configure XML output format

When Tungsten AP Essentials exports invoice images and information, one XML file is created for each invoice using a format described later. The invoice data and document history are included in the XML output for each invoice.

XML schema

AP Essentials uses an XML schema to format data for XML output. You specify the schema in the target system settings. We recommend using the latest schema, ReadSoft Online XML 2.0, to ensure your output contains the most up-to-date and relevant output data. Purchase orders (accounts receivable documents) can only use ReadSoft Online XML 2.0. These XML schemas are available:

- **ReadSoft Online XML 2.0** - The latest, recommended format. Use this format for new accounts. Purchase orders (accounts receivable documents) can only use this format.
- **ReadSoft Online XML 1.1** - This format is only kept for backwards compatibility and is *not recommended* for use unless you have an old INVOICES solution with an existing XML transform that you must use. Even if you have an old transform, however, we recommend that you create a new one that uses **ReadSoft Online XML 2.0** because this format is not completely compatible with the INVOICES format.
- **ReadSoft Online XML 1.0** - This format is only kept for backwards compatibility and is *not recommended* for use. Do not use this option if you are setting up a new target system.
- **Internal XML** - This format is only kept for backwards compatibility and is *not recommended* for use. Do not use this option if you are setting up a new target system.

The version numbers refer to the version of the XML schema itself. They do not refer to the version of the XML specification.

Basic structure

Parties	For accounts payable documents, this element contains buyer and supplier information. For accounts receivable documents, this element contains customer and seller information.
HeaderFields	Contains all single-item field data.
HeaderField	Describes a field by its type and contains the captured value. **ValidationError** - Specifies the level of certainty that the interpreted value is correct: • 0 - No errors, the value is correct or Accept empty value is selected. If Accept empty value is selected, **ValidationError** can be "0" even if no value is found. • 1 - Possible interpretation error. For example, the interpretation seems correct, but it does not match a calculated value. • 2 - Error. The field has probably not been interpreted correctly. **Position** - Specifies the coordinates of the field value on the invoice image using the format X1, Y1, X2, Y2 where X1, Y1 specifies the coordinates of the left, top corner and X2, Y2 specifies the right, bottom corner of the rectangle that contains the field value.

Tables	Contains line-item field data.

Example output

The files later demonstrate how the output files can look:

- ReadSoft Online XML (2.0) invoice output (accounts payable) - example_output_20111014.xml
- ReadSoft Online XML (2.0) for purchase orders (accounts receivable) - example_po_output.xml
- ReadSoft Online XML (1.0) for accounts payable documents - example_output_20111001.xml

Output file creation

Output files are created in the target system in a specific order. The order depends on which output method you use, as described in the sections later. Note that the file order differs between AP Essentials Connect and SFTP (not zipped).

AP Essentials Connect

1. The extension of the image file is .img.tmp when the file transfer begins.
2. The extension of the data file (XML or text) is .out.tmp when the file transfer begins.
3. When the image-file transfer is complete, the file extension changes to the correct extension (.tif or .pdf).
4. When the data-file transfer is complete, the file extension changes to the correct extension (.xml or .txt).

SFTP (zipped)

1. The extension of the ZIP file is .tmp when transfer begins.
2. When the transfer is complete, the extension is changed to .zip.

SFTP (not zipped)

1. The extension of the image file is .tmp when the file transfer begins.
2. When the image-file transfer is complete, the file extension changes to the correct extension (.tif or .pdf).
3. The extension of the data file (XML or text) is .tmp when the file transfer begins.
4. When the data-file transfer is complete, the file extension changes to the correct extension (.xml or .txt).

Field mapping between standard XML formats and Tungsten AP Essentials

Tungsten AP Essentials supports these XML input file formats:

- Cross Industry Invoice (CII) standard (ZUGFeRD, Factur-X, XRechnung)
- E2B
- ESXML
- FatturaPA

- Finvoice
- OFD
- OIO
- UBL (OIOUBL) / EHF
- Svefaktura

Select the preceding links to see which fields are mapped between Tungsten AP Essentials and the input format.

Getting help with Tungsten Automation products

The Tungsten Automation Knowledge Portal repository contains articles that are updated regularly to keep you informed about Tungsten Automation products. We encourage you to use the Knowledge Portal to obtain answers to your product questions.

To access the Tungsten Automation Knowledge Portal, go to https://knowledge.tungstenautomation.com.

The Tungsten Automation Knowledge Portal is optimized for use with Google Chrome, Mozilla Firefox, or Microsoft Edge.

The Tungsten Automation Knowledge Portal provides the following:

- Powerful search capabilities to help you quickly locate the information you need.
  Type your search terms or phrase into the **Search** box, and then select the search icon.
- Product information, configuration details, documentation, and release news.
  To locate articles, go to the Knowledge Portal home page and select the applicable Solution Family for your product, or select the View All Products button.

From the Knowledge Portal home page, you can do the following:

- Access the Tungsten Automation Community (for all customers).
  On the Resources menu, select the **Community** link.
- Access the Tungsten Automation Customer Portal (for eligible customers).
  Go to the Support Portal Information page and select **Log in to the Customer Portal**.
- Access the Tungsten Automation Partner Portal (for eligible partners).
  Go to the Support Portal Information page and select **Log in to the Partner Portal**.
- Access Tungsten Automation support commitments, lifecycle policies, electronic fulfillment details, and self-service tools.
  Go to the Support Details page and select the appropriate article.

Chapter 11

API User Guide

The Tungsten AP Essentials API (RSO-API) provides partners with access to the services available in Tungsten AP Essentials. The API is an interface between Tungsten AP Essentials and other systems that enables integrators to exchange information with Tungsten AP Essentials. The API is exposed by a number of services that allow access and interaction with Tungsten AP Essentials.

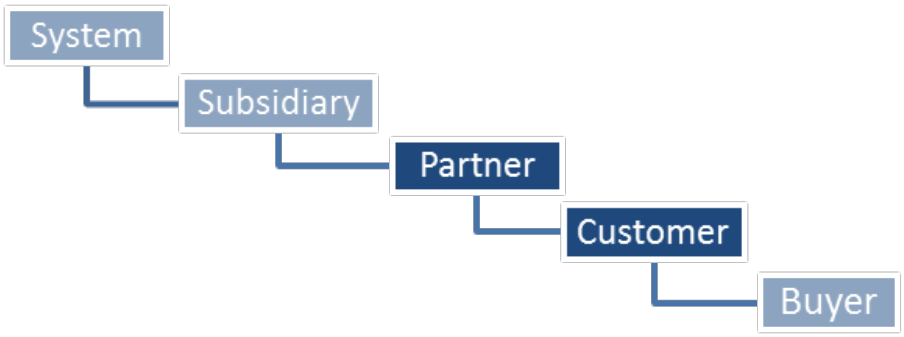
This guide describes how to use the Tungsten AP Essentials API. All examples use the European production environment URLs. When using the Tungsten AP Essentials API, the URLs must reflect the correct system. Currently, the following systems are in use:

System	URL
European production system	https://services.readsoftonline.com
Australian production system	https://services-au.readsoftonline.com
North American production system	https://services-us.readsoftonline.com

Tungsten AP Essentials consists of an organization level hierarchy. Depending on the needs of the integration, log in to Tungsten AP Essentials at the appropriate organization level.

You can log in at a Partner and Customer level from the API. Authentication can be done with either a User account or an Administrator account.

The functionality that is available from the API differs depending on the organization level (this is pointed out in the Online API documentation).



Tungsten AP Essentials API Reference

The Tungsten AP Essentials API reference is an online service available at the following address:

https://services.readsoftonline.com/documentation/rest

The RSO-API reference is generated from code that is always an accurate description of the API, reflecting the system where the service is located. The reference pages are split up into an overview page containing links for each method call. The online reference contains schemas for all entities and their properties. The whole schema for the entities can be accessed from the following address:

https://services.readsoftonline.com/documentation/rest/xsd

Information in the schemas, such as format or required attribute, is not relevant in the automatically generated API reference.

The API is under continuous development, and new elements can be added without warning.

Download the SDK and samples

.NET Client SDK

To integrate with the Tungsten AP Essentials API, download the .NET SDK as part of the SDK package. The .NET SDK contains assemblies that you must reference in the development project (such as Visual Studio).

When using the SDK, it requires the .NET 4 framework to be installed.

Service Clients

The Tungsten AP Essentials API is divided into different services. Each service can be accessed through wrapper classes (Service Clients) found in the .NET SDK.

For complete documentation about the .NET SDK, download the binaries and use them in a project in Visual Studio. The online documentation contains a subset of the operations that are available in the .NET SDK.

You can download the SDK and samples from the locations below.

System	URL
European production system	https://services.readsoftonline.com/documentation/rest/client
Australian production system	https://services-au.readsoftonline.com/documentation/rest/client
North American production system	https://services-us.readsoftonline.com/documentation/rest/client

The links above prompt you to download a ZIP file which contains the SDK and sample code. Each sample is described in the scenarios.

RSO-API/REST

Prerequisites

Any client capable of calling REST-based web services, which supports HTTP cookies. All requests are done over SSL.

HTTP headers

The following HTTP headers are important to understand when using the API:

- Version information
- API Key
- Culture
- UI-culture
- Content type
- Accept

Version information

The version tag is used to manage different versions of the API. The default value is the first version that is released.

Syntax (required)	Example
x-rs-version: <service version>	x-rs-version: 2011-10-14

Use this header to specify the service version.

API Key

The key must be included in all calls to the different services. Each sub-domain (selected when an account is created) has its own key.

Syntax (required)	Example
x-rs-key: <api key for application>	x-rs-key: 30B5C6E9-34B2-4AA1-9920-DBDF95EE3E48

This key is supplied by Technical Support or through the admin UI.

Culture

Sets the current culture to the supplied language culture if supported or falls back to English.

Syntax (required, must follow RFC1766)	Example
x-rs-culture: <culture>	x-rs-culture: sv-SE

UI-culture

Sets the current UI-culture to the supplied culture if supported or falls back to English.

Syntax (required, must follow RFC1766)	Example
x-rs-uiculture: <culture>	x-rs-uiculture: sv-SE

Content type

Defines the format of the data entities passed to the service.

Syntax (required)	Example
Content-Type: <content type>	Content-Type: application/xml
	Content-Type: application/json

Accept

The accept value defines the format of the data entities that is passed as a result from the service call.

Syntax (required)	Example
Accept: <content type>	Accept: application/xml
	Accept: application/json

Syntax

The JSON and plain XML interfaces have the following syntax:

```
https://services.readsoftonline.com/<serviceName>/rest
```

Schema information for the different entities is published as XML-schemas and can be found at the online reference.

REST authentication

These examples demonstrate how to log in to Tungsten AP Essentials using the REST API with and without authentication.

Example: REST authentication with cookies

This is a C# example of how to log in to Tungsten AP Essentials using the REST API with cookie authentication.

```
class Program
{
  private static Uri authUri =
   new Uri("https://services.readsoftonline.com/authentication/rest/authenticate");

  private static Cookie currentCookie = null;

  private static void Main(string[] args)
  {
    Authenticate();
  }

  private static void Authenticate()
  {
    HttpWebRequest client = (HttpWebRequest)HttpWebRequest.Create(authUri);
```

```
    client.CookieContainer = new CookieContainer();
    client.Accept = "application/xml";
    client.ContentType = "application/xml";
    client.Headers.Add("x-rs-version", "2011-10-14");
    client.Headers.Add("x-rs-key", "1F6C568B-84DA-43FB-A9CE-80FB4E0B6EFA");
    client.Headers.Add("x-rs-culture", CultureInfo.CurrentCulture.Name);
    client.Headers.Add("x-rs-uiculture", CultureInfo.CurrentUICulture.Name);
    client.Method = "POST";

    using (Stream request = client.GetRequestStream())
    {
      using (StreamWriter sr = new StreamWriter(request, Encoding.UTF8))
      {
        sr.Write("<AuthenticationCredentials>");
        sr.Write("<UserName>account_name</UserName>");
        sr.Write("<Password>account_password</Password>");
        sr.Write("<AuthenticationType>SetCookie</AuthenticationType>");
        sr.Write("</AuthenticationCredentials>");
      }
    }

    using (WebResponse response = client.GetResponse())
    {
      using (Stream resp = response.GetResponseStream())
      {
        using (StreamReader sr = new StreamReader(resp, Encoding.UTF8))
        {
          System.Diagnostics.Debug.WriteLine(sr.ReadToEnd());
        }
      }
    }

    if (client.CookieContainer.Count > 0)
    {
      currentCookie = client.CookieContainer.GetCookies(authUri)[0];
    }
  }
}
```

Example: REST authentication without cookies

This is a C# example of how to log in to Tungsten AP Essentials using the REST API without cookie authentication.

When you successfully authenticate without a cookie, the response includes an authentication token that is valid for 30 minutes. After 30 minutes, the client must call the Authenticate API endpoint again to receive a new token.

See also Authenticate REST examples.

```
class Program
{
  private static readonly Uri AuthUri =
      new Uri("https://services.readsoftonline.com/authentication/rest/authenticate");

  private static readonly Uri CurrentUserUri =
      new Uri("https://services.readsoftonline.com/users/rest/currentuser");

  private static string ApiKey = "11111111-2222-3333-4444-555555555555";

  private static void Main(string[] args)
  {
```

```
    Authenticate();
  }

  private static void Authenticate()
  {
    var loginRequest = (HttpWebRequest)WebRequest.Create(AuthUri);

    loginRequest.Accept = "application/xml";
    loginRequest.ContentType = "application/xml";
    loginRequest.Headers.Add("x-rs-key", ApiKey);
    loginRequest.Method = "POST";

    using (var request = loginRequest.GetRequestStream())
    using (var sr = new StreamWriter(request, Encoding.UTF8))
    {
      sr.Write("<AuthenticationCredentials>");
      sr.Write("<UserName>account_name</UserName>");
      sr.Write("<Password>account_password</Password>");
      sr.Write("<AuthenticationType>SetBodyToken</AuthenticationType>");
      sr.Write("</AuthenticationCredentials>");
    }

    string authenticationToken;

    using (var response = loginRequest.GetResponse())
    using (var responseStream = response.GetResponseStream())
    using (var streamReader = new StreamReader(responseStream, Encoding.UTF8))
    {
      var body = streamReader.ReadToEnd();

      var xmlDocument = new XmlDocument { XmlResolver = null };
      xmlDocument.LoadXml(body);

      authenticationToken = xmlDocument.SelectSingleNode("/AuthenticationResult/
Token").InnerText;
    }

    var getCurrentUserRequest = (HttpWebRequest)WebRequest.Create(CurrentUserUri);
    getCurrentUserRequest.Accept = "application/xml";
    getCurrentUserRequest.ContentType = "application/xml";
    getCurrentUserRequest.Headers.Add("x-rs-key", ApiKey);
    getCurrentUserRequest.Headers.Add("Authorization", $"ApsToken Value=
\"{authenticationToken}\"");
    getCurrentUserRequest.Method = "GET";

    using (var response = getCurrentUserRequest.GetResponse())
    using (var responseStream = response.GetResponseStream())
    using (var streamReader = new StreamReader(responseStream, Encoding.UTF8))
    {
      var body = streamReader.ReadToEnd();

      var xmlDocument = new XmlDocument { XmlResolver = null };
      xmlDocument.LoadXml(body);

      var fullName = xmlDocument.SelectSingleNode("/User2/FullName").InnerText;

      Console.WriteLine($"Hello {fullName}");
    }
  }
}
```

Access the Tungsten AP Essentials API

To access the Tungsten AP Essentials API, you must provide an API key upon login. The API key is used for multi-tenancy security and to distinguish each account. You find the API key in Admin Center at the partner level in the **Target system** view.

Exception handling

Handling exceptions in a proper way is crucial when integrating with Tungsten AP Essentials. These are the most common status codes that the server can return.

HTTP Status Code 400 – Bad request

The server can return this code such as if a request is made to a document or other object that does not exist. If you receive an error code 400, there is no reason to continue with the request since this indicates a defect in client code.

HTTP Status Code 401 – Unauthorized

This code is returned when the requesting user does not have permission to access a method. This can also be returned when the wrong API key is used. If you receive an error code 401, there is no reason to continue with the request since this indicates a defect in client code.

HTTP Status Code 500 – Internal server error

This code is returned if there are any exceptions taking place on server side. When this code is returned, you can make controlled attempts to try again.

Handle exceptions in client-side code

The status codes should be handled in the following way:

HTTP Status Code 4xx

When the server returns any of these error codes (starting with 4xx), log the error locally. Do not request this method again until the exception has been resolved.

HTTP Status Code 5xx

When the server returns any of these error codes (starting with 5xx), you can retry the same method call a maximum of 10 times over a time period of 10 hours.

Throttling

Throttling will be introduced in the near future. This means that API access will be limited if the number of retries do not follow Tungsten AP Essentials recommendations.

Date and amount formats

The following formats are used in the Tungsten AP Essentials API:

Date format: YYYYMMDD

Amount format: NNNN.NN (dot as decimal separator, no thousand separator)

XML data uses the XML standard for dates and amounts.

Paging

When retrieving entities that can exist in large quantities, such as batches or documents, the API offers paging to reduce the amount of data retrieved in a single call. When calling an API operation which supports paging using REST, you must include two parameters in the query string: the *Page Index* and the *Page Size*.

Using the page-size parameter, you tell the API how many items you want to retrieve. Using the Page Index parameter, you tell the API which page you want to start retrieving. For example, if there are 10,000 batches in the system and you want to retrieve information for 1,000 batches at a time, you first call the API with page index 0 and page size 1,000. This retrieves the first 1,000 items. After this, call the API with page index 1 and page size 1000. This retrieves the next 1,000 items. Continue like this to retrieve all the batches. If you set the page size to 1,000, but there are only 500 items, only 500 are returned.

API operations that return paged data also return information on the total number of pages in the data (page count). In the above example, the page count would be 10 (10000 / 1000).

Single Sign-On

Single sign-on through the API has been deprecated.

Use the API user guide

The next section describes different scenarios which have sample code that can be downloaded. The code uses the .NET Client SDK, but it can be translated to the REST API by using the online RSO-API documentation.

All code in this user guide uses the .NET Client SDK and is described in C# (except for some illustrations that are specifically noted).

API access requirements

To keep API integrations running smoothly, there are a number of key concepts you must adhere to. Failure to follow of these requirements can result in errors and reduced performance.

- The API is not intended to provide a live feed of the data inside AP Essentials. For example, retrieving all records every few seconds to provide an up-to-date view in another system is not a supported scenario.
- Authentication tokens are saved in a cookie and expire after 30 minutes of inactivity. Therefore, your integration does not need to re-authenticate for every API operation. You only need to authenticate if your integration has not made a request for over 30 minutes.
- If you need to retrieve a lot of records, retrieve 2,000–5,000 records at a time. Do not retrieve one record at a time.
- Perform master-data synchronization on a schedule, such as four times per day or once per hour. Do not perform master-data synchronization in an infinite loop.
- When synchronizing data with an external system, only synchronize changed data. Do not synchronize all data at once. For example, if supplier master data is synchronized and the external system uses timestamps, only update records whose timestamp has been updated since the last synchronization.
- Do not synchronize documents to be exported or posted more than once every 2 minutes.
- Note the limits on maximum number of entities allowed. Exceeding these limits will cause errors.
- Note that requests may be throttled. If a request is throttled, HTTP error code 429 is returned.

API throttling

API throttling is the process of limiting the number of API requests you can make during a certain period. AP Essentials throttles key API methods to promote stability and fair usage of the system. If a request is throttled, HTTP error code 429 is returned.

Throttling rates

This table lists throttling rates on a per-hour basis unless otherwise noted. The context of "Organization ID" in this table depends on the context of the method. For example, Organization ID can refer to a customer account or the buyer/seller (if buyers or sellers are in use).

Method	Maximum requests per hour	Throttled by
Authentication		
Authenticate	1,000	UserName
IsAuthenticated	1,000	Organization ID and Current user
SignOut	1,000	Organization ID and Current user
Touch	1,000	Organization ID and Current user

Method	Maximum requests per hour	Throttled by
Customer master data		
DeleteMasterDataCustomers	10	Organization ID
AddOrUpdateMasterDataCustomers	10	Organization ID
DeleteMasterDataCustomersByID	500	Organization ID
AddOrUpdateSingleMasterDataCustomer	100	Organization ID and Current user
SearchMasterDataCustomers	500	Organization ID and Current user
StartMasterDataCustomerUpload	1 request every 2 hours	Organization ID
CompleteMasterDataCustomerUpload	1 request every 1 hour 55 minutes	Organization ID
Documents		
GetBatchHistory	30	Current user
GetDocumentHistory	300	Current user
Files		
UploadImage	4,000	Organization ID
UploadImage2	4,000	Organization ID
UploadImage3	4,000	Organization ID
Generic master data objects		
SetMasterDataObjects	60	Organization ID and Master data object type
AddOrUpdateMasterDataObjects	60	Organization ID and Master data object type
DeleteMasterDataObjects	60	Organization ID and Master data object type (a collection of object types can be specified)
GetMasterDataObjects	300	Organization ID and Master data object type
GetAvailableMasterDataObjectTypesByCustomerId	2,000	Customer ID and Current user
SearchMasterDataObjects	2,000	Organization ID and Current user
GetMasterDataObjectsMatchingSearchValue	3,000	Organization ID, Master data object type, and Current user
Purchase order master data		
SetPurchaseOrders	60	Organization ID
AddOrUpdatePurchaseOrders	120	Organization ID
DeletePurchaseOrders	120	Organization ID
GetPurchaseOrders	100	Organization ID
SearchPurchaseOrderFilteredLines	400	Organization ID and Current user
SearchPurchaseOrders	400	Organization ID and Current user
Supplier master data		

Method	Maximum requests per hour	Throttled by
SetSuppliers	100	Organization ID
AddOrUpdateSuppliers	400	Organization ID
AddOrUpdateSupplierWithBankAccounts	400	Organization ID
DeleteSuppliersById	100	Organization ID
DeleteSuppliers	200	Organization ID
GetSuppliers	200	Organization ID
GetSupplier	100	Organization ID
SearchSuppliers	60	Customer ID and Current user
SearchSuppliersQuery	400	Organization ID and Current user
SearchSuppliersWithQueryResult	600	Customer ID and Current user
Users		
ResetPassword3	25	Calling user (the user making the API call)
Workflows		
ApproveDocument2	20	Document ID
LockDocument	100	Document ID
UnlockDocument	100	Document ID

Monitor API throttling via HTTP headers

When you make HTTP requests to an endpoint that supports throttling, AP Essentials provides throttling information in the HTTP header. These headers are returned simultaneously:

- **X-RateLimit-WindowSize** — Throttling involves setting a limit on the number of requests allowed within a designated time frame, such as one hour. The X-RateLimit-WindowSize header denotes the duration of this window in seconds.
- **X-RateLimit-Reset** — This header shows how many seconds are left until the end of the current throttling window.
- **X-RateLimit-Limit** — This header shows how many requests can be performed within the throttling window.
- **X-RateLimit-Remaining** — This header shows how many requests remain before throttling is applied.

Consider this example:

```
X-RateLimit-WindowSize: 3600
X-RateLimit-Reset: 3300
X-RateLimit-Limit: 400
X-RateLimit-Remaining: 397
```

These headers indicate a time window of 3,600 seconds (1 hour). The window will reset in 3,300 seconds (55 minutes). Within this 3,600-second window, a total of 400 requests are permitted. Currently, you have the capacity to make 397 more requests within the remaining 3,300 seconds (55 minutes). To clarify, you can make up to 400 requests per hour, and so far, you have made three

requests in the first five minutes. If you attempt to exceed the limit of 400 requests within the one-hour period, your requests will be throttled until the time window resets.

Example scenarios

This section contains scenarios that help you understand the API and the system settings required before performing an integration. The scenarios are covered in different integration samples that can be downloaded as part of the SDK package. This table shows the samples in which each capability is implemented, and points out the capabilities that are exposed in the Tungsten AP Essentials API.

Services and capabilities	Scenarios						
	Authentic	Data capture			AP automation		
	Authentic	Upload document	File-based integration	External data verification	Upload master data	Workflow integration	Lock and unlock a document
Operational management							
User management							
Customer account management							
User feedback							
Data extraction							
Header field extraction							
Line item extraction							
Auto-learning with external verification							
Document processing							
Verification of header fields							

Services and capabilities	Scenarios						
	Authentic	Data capture			AP automation		
	Authentic	Upload document	File-based integration	External data verification	Upload master data	Workflow integration	Lock and unlock a document
Verification of line items							
Workflow							
Approval workflow							
Coding							
Preliminary post							
Final post							
Correction workflow							
Integration							
File upload							
Document download							
Master-data upload							
Storage							
Search							
File upload							

Each scenario provides a high-level description for general understanding. Green arrows () indicate steps where the example code runs.

Authentication

This scenario demonstrates how to authenticate a user in Tungsten AP Essentials. In addition to logging on, it also retrieves the current user (the user you are logged in with). The scenario uses the Authentication and Users API services.

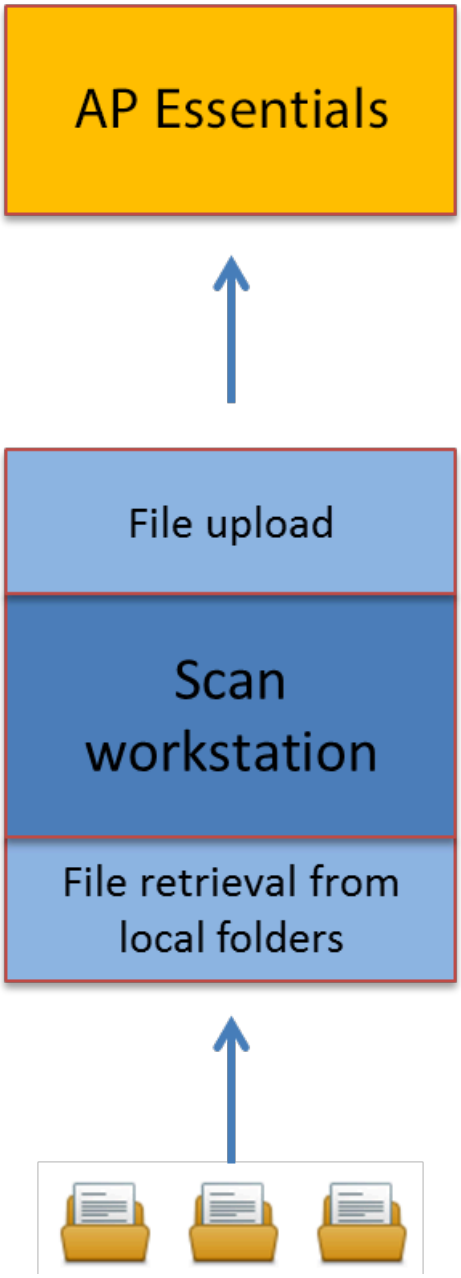
Authentication tokens are saved in a cookie and expire after 30 minutes of inactivity. Therefore, your integration does not need to re-authenticate for every API operation. You only need to authenticate if your integration has not made a request for over 30 minutes.

1. Ensure that a customer account has been created and that you have created an admin user.
2. Log in to AP Essentials using the API code and ensure that the current user is retrieved.

```
const string ApiKey = "<enter your API key>";
const string ServiceUri = @"https://services.readsoftonline.com"; // European
 system
const string UserName = "<enter your username>";
const string Password = "<enter your password>";

// Authenticate
var config = ClientConfiguration.Create(Guid.Parse(ApiKey), new Uri(ServiceUri));
var authClient = new AuthenticationServiceClient(config);
var credentials = new AuthenticationCredentials
{
 AuthenticationType = AuthenticationType.SetCookie,
 UserName = UserName,
 Password = Password
 };
var authenticationResult = authClient.Authenticate(credentials);
if (authenticationResult.Status != AuthenticationStatus.Success)
{
 Console.WriteLine("Error logging in");
 return;
}
// Get current user info
var userClient = new UserServiceClient(config);
var user = userClient.GetCurrentUser();
Console.WriteLine("Hello {0}!", user.FullName);
```

Upload documents



This scenario demonstrates how to upload documents to AP Essentials. A customer can use this scenario, for example, to upload scanned documents to AP Essentials. In this case, the integration is installed on a scanning workstation where the locally scanned documents are accessed.

The scenario uses the Authentication and Files API services.

1. Ensure that a customer account has been created and that you have created a customer user.

2. Scan a document to a local folder.

   Use the API code to upload a document to AP Essentials using a customer user login.

3. Log in to AP Essentials and check that a document has been uploaded properly.

```
// Upload a file (SelectedFilePath)
// Requires CurrentCustomer, SelectedBuyer and SelectedDocumentType to be set
ClientConfiguration config = Authenticate();
var stream = File.Open(SelectedFilePath, FileMode.Open, FileAccess.Read,
 FileShare.Read);
var fileClient = new FileServiceClient(config);
var result = fileClient.UploadImage2(
 Path.GetFileName(SelectedFilePath), CurrentCustomer.Id, String.Empty,
 SelectedBuyer.Id, SelectedDocumentType.SystemName,
 "OneDocumentPerFile", stream); // alternatively: "MultipleDocumentsPerFile"
if (result.Value)
 Console.WriteLine("File uploaded successfully!");
else
 Console.WriteLine("Error uploading image");
```

Note that the Files API service has multiple methods for uploading documents. The UploadImage3 method, for example, supports specifying header field values during document upload. This feature is helpful for specifying field values that do not already exist on the document, such as document priority or category fields. When specified, these field values remain unchanged during data extraction, allowing you to tag documents with additional context and streamline workflows.

When you specify a field value using the `UploadImage3` method, you submit the field values through HTTP headers. You can specify up to ten header fields, including custom fields. Line-item fields are not allowed. Values containing non-ASCII characters, URL reserved characters, or %, must be URL-encoded.

You can specify the sender and sender number using the format below.

```
senderName: Value
senderNumber: Value
```

Specify all other fields using the format below.

```
rso-fieldtypeX: FieldTypeName
rso-fieldvalueX: Value
```

The example below sets field values for three standard header fields (`SenderName`, `SenderNumber`, `InvoiceNumber`) and one custom field (`InvoicePriority`).

```
 public void UploadBatchesFromFolder(ClientConfiguration clientConfig,
 List<FolderMap> folderMaps)
 {
    // Upload batches to the current customer.

    var fileClient = new FileServiceClient(clientConfig);

    foreach (var folderMap in folderMaps)
    {
       UploadAllFilesInFolder(folderMap, fileClient);
    }
 }

 private void UploadAllFilesInFolder(FolderMap folderMap, FileServiceClient
 fileClient)
 {
    const string uploadSortingMethod = "OneDocumentPerFile";

    var files = Directory.GetFiles(folderMap.FolderPath);
```

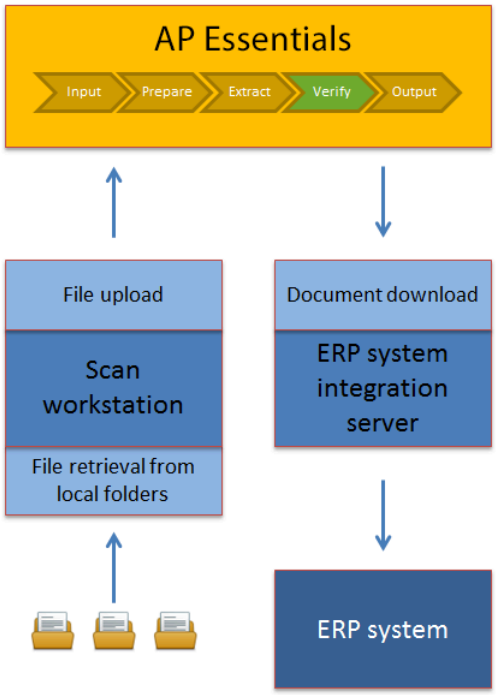
```
   if (files.Length == 0)
      return;

   foreach (var filePath in files)
   {
      bool uploadedOk = false;
      string errorMessage = string.Empty;

      try
      {
         Logger.Log(string.Format("Uploading document {0}.", filePath));
         using (var stream = File.Open(filePath, FileMode.Open, FileAccess.Read,
FileShare.Read))
         {
            string customPriotiy = "Urgent";
            var customHeaders = new Dictionary<string, string>();
            customHeaders["SenderName"] = "ACME";
            customHeaders["SenderNumber"] = HttpUtility.UrlEncode("140+5");
            customHeaders["RSO-FieldType1"] = "InvoiceNumber";
            customHeaders["RSO-FieldValue1"] = HttpUtility.UrlEncode("#777/25");
            customHeaders["RSO-FieldType2"] = "InvoicePriority";
            customHeaders["RSO-FieldValue2"] = customPriotiy;
            BoolValue result;
            result = fileClient.UploadImage3(
               Path.GetFileName(filePath), folderMap.CustomerId, String.Empty,
               string.Empty, folderMap.DocumentTypeInternalName,
               uploadSortingMethod, stream, null, customHeaders);

            uploadedOk = result.Value;
            if (!uploadedOk)
               errorMessage = "Error uploading file. Server response was
'False'";
         }
      }
      catch (ClientException ex)
      {
         errorMessage = "Error uploading file.\n" + ex;
         Logger.Log(errorMessage);
      }
   }
}
```

File-based integration



This scenario gives a basic understanding of how AP Essentials works with the data-capture process. Typically, a partner integrator uses AP Essentials to integrate with an on-premise solution that is installed locally at the customer site. This scenario uses the Authentication, Files and Documents API services.

File upload

AP Essentials works with batches to keep documents together, because files can contain multiple documents.

File uploading takes place at the scan workstation where documents are scanned to the local folders. The local folders are checked at regular intervals. If any files are found in the folders, they are uploaded to AP Essentials. After the file enters AP Essentials, a batch is created with one or more documents, and it is ready for interpretation and verification.

Document download

After a document has been verified by a user, the document is sent to the ERP system. This is handled by the ERP system integration server, where the integration software has been installed.

1. Ensure that a customer account has been created and that you have created a customer user. You must also configure one document type with header fields that are configured in the Extraction service.
2. Set the target system to API.

3. Scan a document to a local folder.
4. Use the API code to upload a document to AP Essentials using a customer user login.
5. Log in to Tungsten AP Essentials Office and verify the document and its header-field information.
6. Use the API code to download the document (and send it to the ERP system you select).

```
public void DownloadOutputDocumentsReadyForExport(ClientConfiguration
 clientConfig)
{
 var client = new DocumentServiceClient(clientConfig);
 var documents = client.GetOutputDocumentsByCurrentCustomer();
 foreach (var docRef in documents)
 {
 if (docRef.OutputOperation == OutputOperationType.Export)
 {
 try
 {
 // Download image and xml
 DownloadOutputDocument(client, docRef);

 // Report document as downloaded
 client.DocumentStatus(docRef.DocumentId, new OutputResult{Status =
 OutputStatus.Success});
 }
 catch (Exception ex)
 {
 // Report error back to Online
 string errorMessage = string.Format("Error processing document: {0}",
 ex.Message);
 var rejectedInfo = new OutputResult
 { Status = OutputStatus.RejectDocument, Message = errorMessage };
 client.DocumentStatus(docRef.DocumentId, rejectedInfo);
 }
 }
 }
}
private static void DownloadOutputDocument(DocumentServiceClient docClient,
 DocumentReference docRef)
{
 string documentBasePath = Path.Combine(Settings.Default.DownloadFolder,
 docRef.DocumentId);
 string contentType = string.Empty;

 // Download image file
 var imageStream = docClient.GetDocumentOutputImage(docRef.DocumentId, response =>
 { contentType = response.ContentType; });

 using (imageStream)
 {
 string imageFileExtension = GetFileExtensionFromContentType(contentType);
 string imageFilePath = Path.ChangeExtension(documentBasePath,
 imageFileExtension);
 WriteStreamToFile(imageStream, imageFilePath);
 }

 // Download xml file
 var documentDataStream = docClient.GetDocumentOutputData(docRef.DocumentId,
 new MetaDataCollection(), response => { contentType = response.ContentType; });

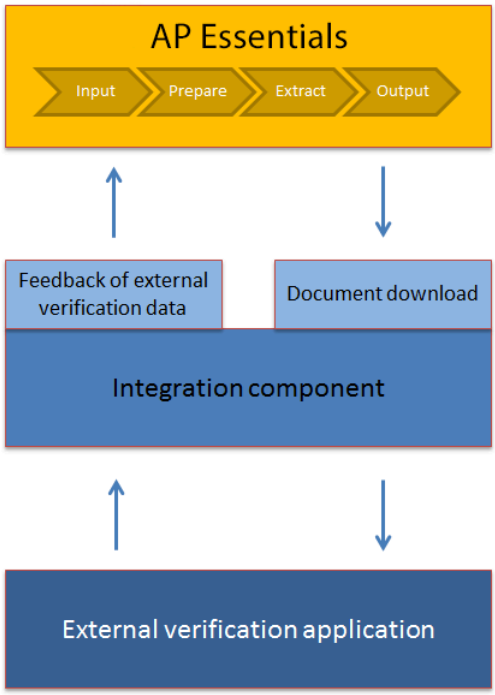
 using (documentDataStream)
 {
```

```
 string documentDataExtension = GetFileExtensionFromContentType(contentType);
 string documentDataFilePath = Path.ChangeExtension(documentBasePath,
 documentDataExtension);

 WriteStreamToFile(documentDataStream, documentDataFilePath);
 }
}

private static string GetFileExtensionFromContentType(string contentType)
{ ... }
private static void WriteStreamToFile(Stream stream, string filePath)
{ ... }
```

External data verification



This scenario demonstrates how to integrate external data verification with AP Essentials. Normally, data verification is performed in Tungsten AP Essentials Office, where you can verify each field with help from the auto-complete functionality and draw on the image so the data is interpreted. AP Essentials also provides automatic learning functionality. After a document has been verified, the document template is relearned using feedback from the user. For example, if the user draws a field on the invoice, AP Essentials relearns the template using the new field location. This improves data capture performance the next time the same supplier invoice enters AP Essentials.

If verification is performed outside of AP Essentials, you can use the API to send validated data back to AP Essentials, so you do not lose the auto-learning benefits. You can do this by using a specific API method call in the Document API service, which is shown in this example.

All data that is used during verification must be sent back to AP Essentials. Data that is confirmed by the user (whether modified or not) must be sent back through the API. AP Essentials uses the modified and unmodified data to automatically learn field positions on the invoice.
On the other hand, data that has not been confirmed by a user should not be sent back to AP Essentials because it is not confirmed to be correct, and the automatic learning process might learn incorrectly by sending back incorrect data.

This scenario uses the Authentication and Documents API service.

Feedback of external verification data

In this scenario, a partner is developing an external application that will be the only interface for the end users. The external application has a user interface that can create new customers and customer users. During document processing, the documents are sent to AP Essentials through email from the end customers or their suppliers. After the document is interpreted by AP Essentials, they are downloaded by the integration component and presented to the end user through the external application. The end user can see the document image and fill in fields where the interpreted data (if any) is present. After manual verification, the integration component takes the verified field values and sends them back to AP Essentials so the auto-learning step is triggered. The end user can also send user feedback.

1. Ensure that a partner account has been created with an administrator user.
2. Ensure the partner account has only one document type (with line items) selected and that this type is selected as the default document type.
3. Ensure that API is the only target system enabled for the partner account.
4. Enable the Process control service and select **Never** in the Data verification settings. This allows documents to bypass verification, because the scenario uses external verification.
5. Create a customer using the integration component.
6. Send a document to AP Essentials through email. After the file is uploaded, the file is prepared (by different image enhancements) and the field data is extracted.
7. Use the API code to download a document and send it to the external verification application.
8. Use the API code to verify the document in the external verification application and create user feedback.
9. Use the API code to send the verified data to AP Essentials, so auto-learning process can take place. At the same time, send the external user feedback to AP Essentials in order to inform the system that interpretation enhancements must be performed.
10. To ensure that the auto-learning step was performed: Send another document (from the same supplier) to AP Essentials through email. Verify if the document interpretation was enhanced by the feedback that was sent previously.

```
private void ApproveCurrentDocument()
{
 try
 {
 if (CurrentDocument == null)
 throw new Exception("No document downloaded");

 var docClient = new DocumentServiceClient(_authorizationManager.Configuration);
```

```
// Update document with data from our UI
//
// You are allowed to change:
// - Field values
// - Field positions (If you have a UI that allows for users to
// rubber-band new values)
// - Supplier name
//

var doc = CurrentDocument.DocumentModel;

var supplier = doc.GetSupplierParty();
supplier.Name = CurrentDocument.SupplierName;

var invoiceNumField = doc.GetHeaderField("invoicenumber");
if (invoiceNumField != null)
{
invoiceNumField.Text = CurrentDocument.InvoiceNumber;
invoiceNumField.Position = "0,0,0,0"; // left, top, width, height
// (Tip: you can use the .net class RectangleConverter
// (For example ConvertToInvariantString) to convert rects to strings and vice
versa)
}

var amountField = doc.GetHeaderField("invoicetotalvatincludedamount");
if (amountField != null)
{
amountField.Text = CurrentDocument.TotalAmount;
amountField.Position = "0,0,0,0";
}

// Send document back for auto-learning purposes
docClient.LearnDocument(doc.Id, doc);

// Mark document as downloaded
docClient.DocumentStatus(doc.Id, new OutputResult { Status =
OutputStatus.Success });

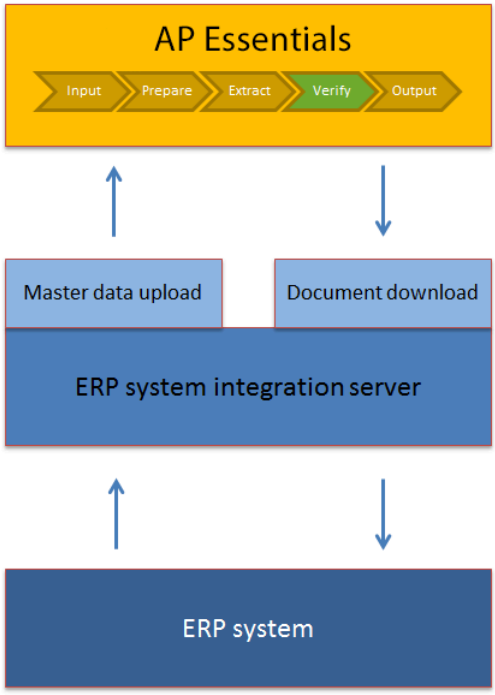
// Pass along to next system, e.g. an ERP system
// ...

UpdateUserMessage("Document approved");
CurrentDocument = null;

}
catch (Exception ex)
{
UpdateUserMessage("Error approving document: " + ex.Message);
}
}
```

Upload master data

This example shows how to upload master data. Two code samples are provided: one for uploading supplier master and one for uploading customer master data. The API services used in this scenario are Authentication, Documents and Master data.



In this case, a partner integrator wants to implement autocomplete functionality by connecting fields to master data. During verification, the master data provides autocomplete functionality to connected fields. For example, when master data is connected to the supplier field or customer field, depending on which document process you use, users can easily select the correct supplier/customer from a list. Selecting values from a list is less prone to errors and more efficient than entering values manually. However, manually exporting master data from the ERP system and uploading it to AP Essentials on a regular basis can be tedious, so we will demonstrate how to automate this task using the API.

Master data upload

Master data is retrieved from the ERP system and uploaded to AP Essentials, where it is available during verification. Typically, the integration software runs on the integration server and synchronizes the master-data once or twice per day. This limits the load on the ERP system but still offers the data to be available reasonably fast.

1. Ensure that a customer account has been created and that you have created a user. You must also configure one document type with header fields connected to master data (configured in the Extraction service).
2. Set the target system to API and ensure that the Master data service is activated.
3. Use the API code to synchronize the master data, so all available suppliers/customers are uploaded to AP Essentials.
4. Send or upload a document to AP Essentials.
5. Verify the document. Ensure that the imported suppliers/customers are available for selection during verification.

Code example: Uploading supplier master data

This code example demonstrates how to upload supplier master data to AP Essentials.

```
public void UploadMasterData(ClientConfiguration clientConfig)
{
 var accountClient = new AccountServiceClient(clientConfig);
 var currentCustomer = accountClient.GetCurrentCustomer();

 // If IsMasterDataOnCustomerLevel is set, this customer has buyers but wants
 // to manage master data on the customer level. In other words, share
 // master data between buyers. In that case, we upload directly to the customer.
 // If IsMasterDataOnCustomerLevel is not set and the customer has buyers, we
 // upload data to specific buyers.

 var userConfig = accountClient.GetUserConfiguration(currentCustomer.Id);
 var buyers = accountClient.GetCurrentUserBuyers();
 bool hasBuyers = (buyers.Count > 1 || (buyers.Count == 1 && buyers.First().Id !=
 currentCustomer.Id));
 bool uploadToBuyers = !userConfig.IsMasterDataOnCustomerLevel && hasBuyers;

 var masterDataClient = new MasterDataServiceClient(clientConfig);

 if (uploadToBuyers)
 {
 foreach (var buyer in buyers)
 UploadMasterDataToOrganization(buyer.Id,
 buyer.ExternalId,
 masterDataClient);
 }
 else
 {
 UploadMasterDataToOrganization(currentCustomer.Id,
 currentCustomer.ExternalId,
 masterDataClient);
 }
}

private void UploadMasterDataToOrganization(string organizationId, string
 erpClientId, MasterDataServiceClient masterDataClient)
{
 var erpClient = new FakeERPClient.ErpClient(erpClientId);

 var erpSuppliers = erpClient.GetAllSuppliers();
 var onlineSuppliers = from erpSupplier in erpSuppliers select
 ToOnlineSupplier(erpSupplier);
 masterDataClient.SetSuppliers(organizationId, new
 SupplierCollection(onlineSuppliers));
}

private Supplier ToOnlineSupplier(FakeERPClient.Supplier erpSupplier)
{
 return new Supplier
 {
 SupplierNumber = erpSupplier.Number,
 Name = erpSupplier.Name
 };
}
```

Workflow integration

This scenario describes how to coordinate the Workflow service with an ERP integration. This scenario applies if a partner wants to integrate with the ERP system with the AP Essentials workflow service, so they can offer a solution to their customers to handle their approval workflows. In this case, AP Essentials supports a two-step procedure for transferring data to the ERP system:

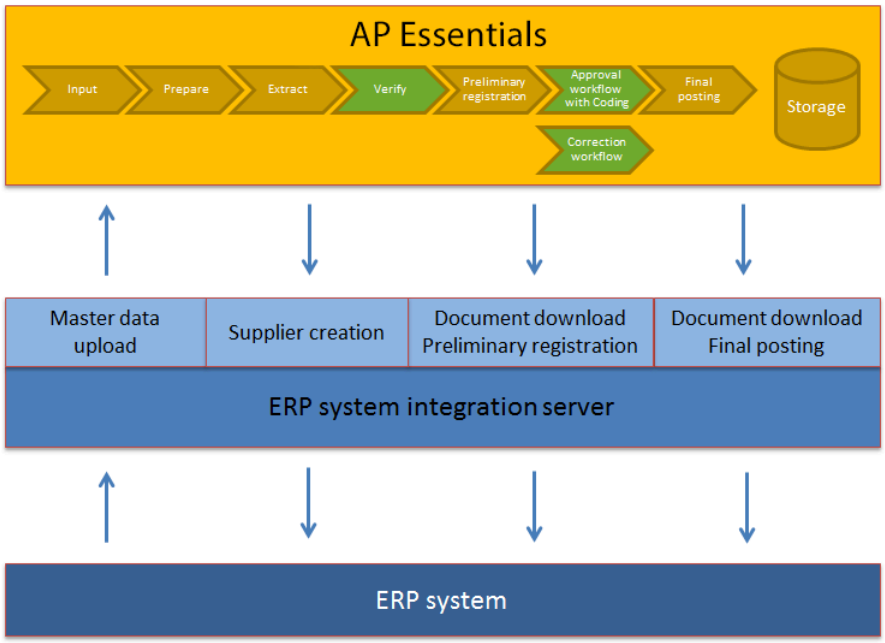
- The registration step, where a preliminary registration of the document takes place in the ERP system. This occurs directly after data verification.
- The final posting step, where the data can be updated with any corrections that have taken place during the approval workflow steps.

Two-step integration

The same document downloading methods are used in the API as previous examples. The difference between the two steps is the status of the document. During the first step, the document has the status, register, while in the second step, the document has the status, post.

Storage

This scenario also uses AP Essentials Storage, where the documents are stored. The main benefit is having AP Essentials store all processing information, such as data and history, in one place, together with the document image. This is useful for customers that do not have access to the ERP system, but still want to have one place to store their documents. Storage also has support for file uploading, with or without a connection to existing documents.



1. Ensure that a customer account has been created and that you have created a user. You must also configure one document type with header fields that are configured in the Extraction service.

2. Enable the Workflow service and create at least one workflow, and enable the Storage service. Let the user have the approval admin role and set the privileges to access the Manage and Storage views.

   Send or upload a document to AP Essentials and verify the document. Ensure you select a supplier that has been uploaded to AP Essentials as master data.
3. Use the API code to download a document with registration status and do a preliminary posting (registration) to the fake ERP system.

   Approve the invoice in the approval workflow.
4. Use the API code to download a document the second time; this time with the post status. Do a final posting (post) of the document to the fake ERP system.
5. Verify that the voucher has been created properly in the fake ERP system.
6. Locate the document in AP Essentials Storage.
7. Try to upload a file as an attachment to the existing document.

```
try
{
 if (documentReference.OutputOperation == OutputOperationType.Register)
 {
 // "Register" document
 var regResult = RegisterInvoice(documentServiceClient, documentReference);

 // Report registration result
 documentServiceClient.DocumentStatus(documentReference.DocumentId, regResult);
 }
 else if (documentReference.OutputOperation == OutputOperationType.Post)
 {
 // Download image
 string localImageTempPath = DownloadImage(documentServiceClient,
 documentReference);

 // Post Voucher to ERP system based on the document data
 string voucherId = CreateVoucher(documentServiceClient,
 documentReference,
 localImageTempPath);

 // Report document as posted
 string message = string.Format("Voucher {0} posted successfully in FakeERP.",
 voucherId);
 documentServiceClient.DocumentStatus(documentReference.DocumentId, new
 OutputResult
 {
 Status = OutputStatus.Success,
 Message = message
 });
 }
}
catch (Exception ex)
{
 string errorMessage = string.Format("Error processing document: {0}",
 ex.Message);
 var rejectedInfo = new OutputResult
 {
 Status = OutputStatus.RejectDocument,
 Message = errorMessage
 };

 documentServiceClient.DocumentStatus(documentReference.DocumentId, rejectedInfo);
}
```

Lock and unlock a document for external processing

This scenario demonstrates how to lock and unlock a document. An organization uses a custom validation application to perform additional checks on invoices before they are approved for processing.

When an invoice requires validation, the application retrieves the document ID from the workflow and locks the document to prevent other users or integrations from modifying it simultaneously. The application then performs the required checks, such as validating supplier information or matching invoice data against an external system.

After processing is complete, the application unlocks the document so that it can continue through the workflow.

Locking documents helps prevent concurrent updates and ensures data consistency when multiple users or integrations access the same document.

```
// Create the client configuration using the API key and service URL.
var config = ClientConfiguration.Create(
    Guid.Parse(ApiKey),
    new Uri(ServiceUri));

// Create the Workflow service client.
var workflowClient = new WorkflowServiceClient(config);

Console.WriteLine($"Attempting to lock document: {DocumentId}");

// Lock the document to prevent concurrent updates.
var lockResult = workflowClient.LockDocument(DocumentId);

if (lockResult.Value)
{
    Console.WriteLine("Document locked successfully.");

    try
    {
        // Perform custom processing while the document is locked.
        // For example:
        // - Validate supplier information
        // - Match invoice data against an ERP system
        // - Update document metadata
    }
    finally
    {
        Console.WriteLine($"Attempting to unlock document: {DocumentId}");

        // Release the lock so the document can continue
        // through the workflow.
        var unlockResult = workflowClient.UnlockDocument(DocumentId);

        if (unlockResult.Value)
        {
            Console.WriteLine("Document unlocked successfully.");
        }
        else
        {
            Console.WriteLine("Failed to unlock the document.");
```

```
        }
    }
}
else
{
    Console.WriteLine("Failed to lock the document.");
}
```

Services

This section defines services that are included in the RSO-API.

The following are the services defined:

- Accounts
- Authentication
- Documents
- Files
- Masterdata
- Metering
- Privileges
- Roles
- Users
- Workflows

The different services are described from a general perspective which includes the operations. For implementation and details about all of the entities, see the data-schema files or the .NET SDK assemblies. See REST API documentation for information about all public API methods.

Accounts

The account service is used to manage the organizational accounts within Tungsten AP Essentials. From here, you can preform operations on Partner, Customer and Buyer Accounts. Typical operations are to create Customer and Buyer Accounts and to activate them before usage.

Base URL

https://services.readsoftonline.com/accounts/rest

Authentication

The authentication service is used to authenticate a user to the user-management system within AP Essentials. When authenticating a user, the user name and password must be provided.

Base URL

https://services.readsoftonline.com/authentication/rest

Documents

Operations in the document service operate on documents and batches within the Document Repository. The service is mainly used to retrieve extracted data files and image files from AP Essentials. For integrations where the verification is performed outside of AP Essentials, you can send data to AP Essentials, so the document auto-learning process is performed.

When downloading documents through the API, it is important to set the Output target to “API”.

Base URL

https://services.readsoftonline.com/documents/rest

Files

This service provides a way to upload images (for example, TIF and JPG images) and other files (such as PDF) to AP Essentials. After the file is uploaded, the data extraction takes place (depending on configuration).

Base URL

https://services.readsoftonline.com/files/rest/

Masterdata

Master data can be used to validate business information in the system during the manual user steps. A typical usage is to send supplier master data to AP Essentials so it is available during the verification.

Base URL

https://services.readsoftonline.com/masterdata/rest/

Metering

This service provides ways to observe document status, history and other document details.

Base URL

https://services.readsoftonline.com/metering/rest/

Privileges

This service provides operations on the privilege entity in the system.

Privileges are assigned to a specific user, but can also be connected to a certain role which is used to assign a specific set of privileges to users. This service is mostly for internal usage.

Base URL

https://services.readsoftonline.com/privileges/rest/

Roles

This service provides operations on the roles within the system.

Base URL

https://services.readsoftonline.com/roles/rest/

Users

This service provides operations for user management. Typical usage is to create users and administrators from an external system.

Base URL

https://services.readsoftonline.com/users/rest/

Workflows

This service provides operations for different workflow scenarios.

Base URL

https://services.readsoftonline.com/workflows/rest/

Raw REST examples

These REST examples demonstrate the data that is sent when you make a request.

Authenticate

You can make authentication requests with or without cookies. If you use the AP Essentials API SDK, you should use cookies for authentication. The SDK does not support cookieless authentication. Cookieless authentication is only available for uncommon cases where the AP Essentials API SDK is not used and cookieless authentication is required.

Authenticate with a cookie

```
POST https://services.readsoftonline.com/authentication/rest/authenticate HTTP/1.1
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip,deflate
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: dddc687e2d3e45bdb842df2e78123f3d
Host: services.readsoftonline.com
```

```
Content-Length: 73
Connection: Close

{"UserName":"myuser","Password":"mypassword","AuthenticationType":0}
```

Authenticate without a cookie

If you use the AP Essentials API SDK, you should use cookies for authentication. The SDK does not support cookieless authentication. Cookieless authentication is only available for uncommon cases where the AP Essentials API SDK is not used and cookieless authentication is required.

When you successfully authenticate without a cookie, the response includes an authentication token that is valid for 30 minutes. After 30 minutes, the client must call the Authenticate API endpoint again to receive a new token.

The following C# code demonstrates how to authenticate without using cookies and without using the API SDK.

```
class Program
{
  private static readonly Uri AuthUri =
      new Uri("https://services.readsoftonline.com/authentication/rest/authenticate");

  private static readonly Uri CurrentUserUri =
      new Uri("https://services.readsoftonline.com/users/rest/currentuser");

  private static string ApiKey = "11111111-2222-3333-4444-555555555555";

  private static void Main(string[] args)
  {
    Authenticate();
  }

  private static void Authenticate()
  {
    var loginRequest = (HttpWebRequest)WebRequest.Create(AuthUri);

    loginRequest.Accept = "application/xml";
    loginRequest.ContentType = "application/xml";
    loginRequest.Headers.Add("x-rs-key", ApiKey);
    loginRequest.Method = "POST";

    using (var request = loginRequest.GetRequestStream())
    using (var sr = new StreamWriter(request, Encoding.UTF8))
    {
      sr.Write("<AuthenticationCredentials>");
      sr.Write("<UserName>account_name</UserName>");
      sr.Write("<Password>account_password</Password>");
      sr.Write("<AuthenticationType>SetBodyToken</AuthenticationType>");
      sr.Write("</AuthenticationCredentials>");
    }

    string authenticationToken;

    using (var response = loginRequest.GetResponse())
    using (var responseStream = response.GetResponseStream())
    using (var streamReader = new StreamReader(responseStream, Encoding.UTF8))
    {
      var body = streamReader.ReadToEnd();
```

```
      var xmlDocument = new XmlDocument { XmlResolver = null };
      xmlDocument.LoadXml(body);

      authenticationToken = xmlDocument.SelectSingleNode("/AuthenticationResult/
Token").InnerText;
    }

    var getCurrentUserRequest = (HttpWebRequest)WebRequest.Create(CurrentUserUri);
    getCurrentUserRequest.Accept = "application/xml";
    getCurrentUserRequest.ContentType = "application/xml";
    getCurrentUserRequest.Headers.Add("x-rs-key", ApiKey);
    getCurrentUserRequest.Headers.Add("Authorization", $"ApsToken Value=
\"{authenticationToken}\"");
    getCurrentUserRequest.Method = "GET";

    using (var response = getCurrentUserRequest.GetResponse())
    using (var responseStream = response.GetResponseStream())
    using (var streamReader = new StreamReader(responseStream, Encoding.UTF8))
    {
      var body = streamReader.ReadToEnd();

      var xmlDocument = new XmlDocument { XmlResolver = null };
      xmlDocument.LoadXml(body);

      var fullName = xmlDocument.SelectSingleNode("/User2/FullName").InnerText;

      Console.WriteLine($"Hello {fullName}");
    }
  }
}
```

The code above produces this authentication request:

```
POST https://services.readsoftonline.com/authentication/rest/authenticate HTTP/1.1
Accept: application/xml
Content-Type: application/xml
x-rs-key: 11111111-2222-3333-4444-555555555555

<AuthenticationCredentials>
  <UserName>account_name</UserName>
  <Password>account_password</Password>
  <AuthenticationType>SetBodyToken</AuthenticationType>
</AuthenticationCredentials>
```

A successful response to the request above would look like this:

```
<AuthenticationResult xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
  <Status>Success</Status>
  <RedirectUri i:nil="true"/>
  <Challange i:nil="true"/>
  <ClientDeviceSecret i:nil="true"/>
  <Token>secret-token</Token>
</AuthenticationResult>
```

After a successful authentication without a cookie, a request to get the current user would look like this:

```
GET https://services.readsoftonline.com/users/rest/currentuser HTTP/1.1
Accept: application/xml
Content-Type: application/xml
x-rs-key: 11111111-2222-3333-4444-555555555555
```

```
Authorization: ApsToken Value="secret-token"

Get current user response (body):

<User2 xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
  <Id>22222222222222222222222222222222</Id>
  <OrganizationId>11111111111111111111111111111111</OrganizationId>
  <UserName>account_name</UserName>
  ....
</User2>
```

GetDocumentOutputData

```
POST https://services.readsoftonline.com/documents/rest/
file/77d38d515ae6447ea2ef0465bd59c2d6/data HTTP/1.1
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip,deflate
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: dddc687e2d3e45bdb842df2e78123f3d
Host: services.readsoftonline.com
Cookie: x-rs-auth-
v1=33B1C66101611E8FBA7E38DFF2BC2C90288A09C9472963DDFB3EB8164D2BE1068CCFBD0C99A2A27D3B4C4D71B68061D
x-rs-host=somepartner.readsoftonline.com
Content-Length: 2
Connection: Close
[]
```

GetDocumentOutputImage

```
GET https://services.readsoftonline.com/documents/rest/file/
ccc5cae1ec0a47b89fb6fc3afee92d73/image HTTP/1.1
Accept: */*
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: dddc687e2d3e45bdb842df2e78123f3d
Host: services.readsoftonline.com
Cookie: x-rs-auth-
v1=127E5FA6CCB41269F4B814E6610B57BB3A9540188DDD424A26566FDAF9B8254D0A3B8A7257054383B6946BD17695CD0
x-rs-host=somepartner.readsoftonline.com
Accept-Encoding: gzip, deflate
Connection: Close
```

GetOutputDocuments

```
GET https://services.readsoftonline.com/documents/rest/customers/
outputdocumentsbycurrentcustomer HTTP/1.1
Accept: */*
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: dddc687e2d3e45bdb842df2e78123f3d
Host: services.readsoftonline.com
Cookie: x-rs-auth-
v1=127E5FA6CCB41269F4B814E6610B57BB3A9540188DDD424A26566FDAF9B8254D0A3B8A7257054383B6946BD17695CD0
x-rs-host=somepartner.readsoftonline.com
```

```
Accept-Encoding: gzip, deflate
Connection: Close
```

UploadImage

```
POST https://services.readsoftonline.com/files/rest/image2?
filename=BenningtonFax4.tif&customerid=68dd6ce8e9bb4fec8fedc43b49514d24&batchexternalid=&buyerid=6
 HTTP/1.1
Content-Type: application/octet-stream
Accept: */*
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: d68c687e2d3e45bdb842df2e78123f3d
Host: services.readsoftonline.com
Cookie: x-rs-auth-
v1=E1F32D1F16BF04576E7B210722AF1B9920D5A0255874A80CCCDE5B8674F8701FA561B611A00998C90F8CB4B1A85682C
x-rs-host=somepartner.readsoftonline.com
Content-Length: 19838
Accept-Encoding: gzip, deflate
Connection: Close

binary image data...]
```

Select here to see the example with actual binary image data.

UploadMasterDataObjects

```
PUT https://services.readsoftonline.com/masterdata/
rest/88dd6ce8e9bb4fec8fedc43b49514d24/masterdataobjects/Department HTTP/1.1
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip,deflate
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: dddc687e2d3e45bdb842df2e78123f3d
Host: services.readsoftonline.com
Cookie: x-rs-auth-
v1=E5C93B76034307BB869F136174C1B3C85EAD045AFB135B2F84A032BCAA84DE65DC45DC57932BCB57CAA1C387C4215C5
x-rs-host=somepartner.readsoftonline.com
Content-Length: 201
Connection: Close

[{"Value":"DPA001","Name":"IT","Description":null,"Active":true},
{"Value":"DPB002","Name":"Finance","Description":null,"Active":true},
{"Value":"DPC003","Name":"Sales","Description":null,"Active":true}]
```

UploadSuppliers

```
PUT https://services.readsoftonline.com/masterdata/
rest/88dd6ce8e9bb4fec8fedc43b49514d24/suppliers HTTP/1.1
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip,deflate
x-rs-culture: en-US
x-rs-uiculture: en-US
x-rs-version: 2011-10-14
x-rs-key: dddc687e2d3e45bdb842df2e78123f3d
```

```
Host: services.readsoftonline.com
Cookie: x-rs-auth-
v1=E5C93B76034307BB869F136174C1B3C85EAD045AFB135B2F84A032BCAA84DE65DC45DC57932BCB57CAA1C387C4215C5
x-rs-host=somepartner.readsoftonline.com
Content-Length: 1238
Connection: Close

[{"SupplierNumber":"1001","Name":"Anconia
 Corp","Description":null,"TaxRegistrationNumber":null,"OrganizationNunmber":null,"Street":null,"P
[]},{"SupplierNumber":"1002","Name":"Veiraoou Groygguoo
 Company","Description":null,"TaxRegistrationNumber":null,"OrganizationNunmber":null,"Street":null
[]},{"SupplierNumber":"1003","Name":"Raxaf Negooo
 Limited","Description":null,"TaxRegistrationNumber":null,"OrganizationNunmber":null,"Street":null
[]},{"SupplierNumber":"1004","Name":"Polychemtex
 Inc","Description":null,"TaxRegistrationNumber":null,"OrganizationNunmber":null,"Street":null,"Po
[]}]
```

Plug-in API for AP Essentials Connect

The Plug-in API exposes a number of different events that a plug-in can subscribe to in order to enhance the process in various ways.

The Tungsten AP Essentials Connect Plug-in API allows partners to write plug-ins that execute in Tungsten AP Essentials Connect, on premise at the site of the customer. The Plug-in API exposes a number of different events that a plug-in can subscribe to in order to enhance the process in various ways.

Plug-ins can be used in a number of scenarios, from simple tasks such as renaming files, to full integrations to new target systems.

Plug-in essentials

Plug-ins are created using the AP Essentials Connect Plug-in SDK. A plug-in is a .NET 4.0 class library assembly (DLL) with references to the Plug-in API.

When a plug-in has been built, the main DLL must be signed using a code certificate. All files needed by the plug-in should then be compressed into a single ZIP file and uploaded to Tungsten AP Essentials as a resource, using the Tungsten AP Essentials Admin Center.

Once uploaded, the plug-in can be selected as part of the target system configuration for a specific customer. When the customer runs through the configuration wizard of Tungsten AP Essentials (on premise) they will be informed about the usage of the plug-in and have to accept this in order to continue.

Download the SDK and samples

You can download the SDK and samples here.

Relationship to the Tungsten AP Essentials API

The Plug-in API is a simplification of the Tungsten AP Essentials API. In many cases, developing a plug-in is sufficient to meet integration needs. When using plug-ins, the infrastructure around

it, such as the installation of AP Essentials Connect, Windows Service, automatic updates, authentication, scheduling etc, are handled for you.

If the Plug-in API does not meet your needs, you can create a more advanced integration using the Tungsten AP Essentials API.

The Plug-in API uses parts of the Tungsten AP Essentials API, and knowledge about both APIs can be necessary.

Plug-in API

The Plug-in API consists of a few interfaces and classes that are contained in `ReadSoft.Connect.Plug-in.dll`, which is part of the plug-in SDK.

IPlugin

For a plug-in to be valid, the plug-in DLL must contain a class that implements the **IPlugin** interface and also exports that same type as demonstrated in the example scenarios below.

When a plug-in is loaded, the **Initialize** method is invoked and the plug-in can set things up as well as subscribe to different events. Each event comes with a specialized event handler.

Plug-ins are executed in AP Essentials Connect, which runs in the background as a Windows Service. Therefore, you cannot display any UI elements (such as message boxes) that might block the AP Essentials Connect process. Instead, messages must be written to log files or the Windows Event Log.

Plug-ins are executed in AP Essentials Connect, which runs in the background as a Windows Service. Therefore, you cannot display any UI elements (such as message boxes) that might block the AP Essentials Connect process. Instead, messages must be written to log files or the Windows Event Log.

```
public interface IPlugin
  {
    void Initialize(IApplication app);
    Guid Id { get; }
  }
```

IApplication

IApplication is the main application interface that plug-ins use to subscribe to events and get various information.

The **GetProgramFolder** method returns the path to the folder where the AP Essentials Connect configuration is located (default location: `C:\Program Files (x86)\Tungsten\AP Essentials Connect\`).

```
public interface IApplication
```

```
{
  string GetProgramFolder();
  event EventHandler<DocumentDownloadStartEventArgs> DocumentDownloadStart;
  event EventHandler<ImageDownloadCompleteEventArgs> ImageDownloadComplete;
  event EventHandler<FileDownloadCompleteEventArgs> FileDownloadComplete;
  event EventHandler<DocumentDownloadCompleteEventArgs> DocumentDownloadComplete;
  event EventHandler<MasterDataRequestEventArgs> MasterDataRequest;
}
```

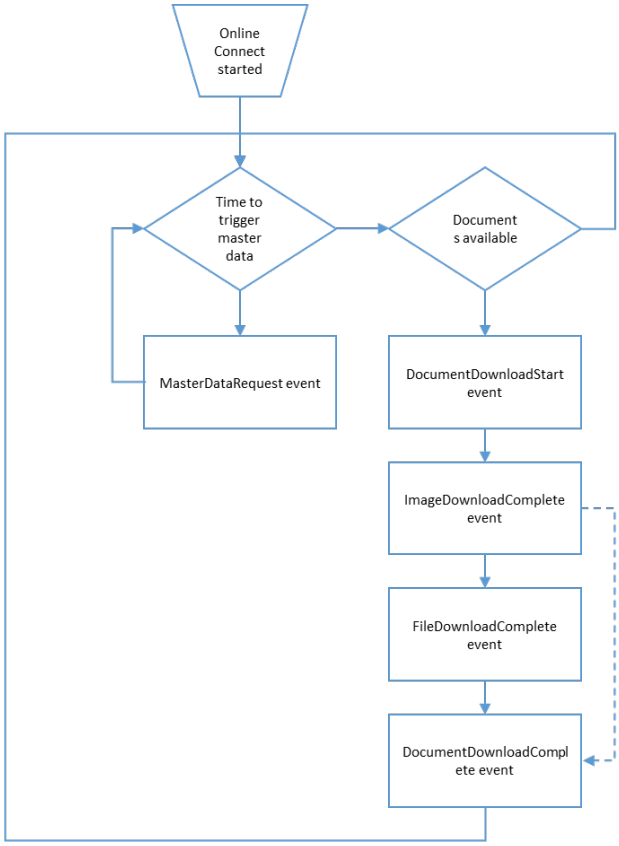
Events

Plug-ins subscribe to events to execute code when an event occurs, such as when a file has been downloaded.

Some of the events require references to other DLLs besides `ReadSoft.Connect.Plug-in.dll`. The other DLLs can be found in the Tungsten AP Essentials SDK.

Some event arguments provide a connection to the Tungsten AP Essentials API (**ServiceConnection** property). This connection can be used to communicate further with the Tungsten AP Essentials API in case more information is needed. Knowledge of the Tungsten AP Essentials API and SDK is required for such tasks. The same events also provide information allowing the plug-in to know if the connection was made using customer or partner credentials (**IsCustomerLevelConnection** property).

Event flow chart



DocumentDownloadStart event

This event occurs when a document has been processed in Tungsten AP Essentials and is about to be downloaded by AP Essentials Connect. The event arguments contain brief information about the document (**DocumentReference**) as well as connection information. It also has a property (**SkipXmlDownload**) that allows the plug-in to control if the XML file for the document should be downloaded or not. This can be useful in situations where only the image is needed, or the document data is fetched by the plug-in code instead.

```
public class DocumentDownloadStartEventArgs : EventArgs
  {
    public bool SkipXmlDownload { get; set; }
    public DocumentReference DocumentReference { get; set; }
    public ClientConfiguration ServiceConnection { get; set; }
    public bool IsCustomerLevelConnection { get; set; }
  }
```

ImageDownloadComplete event

This event occurs when a document image has been downloaded and saved to a local file (in the folder selected in the AP Essentials Connect wizard configuration). It can, for example, be used to do image manipulation.

```
public class ImageDownloadCompleteEventArgs : EventArgs
  {
    public string ImageFilePath { get; set; }
  }
```

FileDownloadComplete event

This event occurs when the document XML and image have been downloaded and saved to local files. It can be used to manipulate the XML content and/or image, or to rename/move files.

This event is not triggered if **SkipXmlDownload** is set during the **DocumentDownloadStart** event.

```
public class FileDownloadCompleteEventArgs : EventArgs
  {
    public string XmlFilePath { get; set; }
    public string ImageFilePath { get; set; }
  }
```

DocumentDownloadComplete event

This event occurs when the document processing (downloading of files) is complete, from AP Essentials Connect's point of view. You can use this event, for example, to integrate data with external systems. The argument class contains a **Result** property that can be used to give more details to Tungsten AP Essentials about the document process result. For example, if the integration fails for any reason, the error message can be set in the **Result**, and the status can be set to **Failed**. Doing so would send the document back to Tungsten AP Essentials, where an operator can review the message and take appropriate actions. In the Plug-in SDK, there is a sample that shows a full integration solution.

```
public class DocumentDownloadCompleteEventArgs : EventArgs
  {
    public string XmlFilePath { get; set; }
    public string ImageFilePath { get; set; }
    public DocumentReference DocumentReference { get; set; }
    public ClientConfiguration ServiceConnection { get; set; }
```

```
    public OutputResult Result { get; set; }

    public bool IsCustomerLevelConnection { get; set; }

  }
```

MasterDataRequest event

Most events are triggered by each document. However, this event is triggered when AP Essentials Connect determines that it is time to provide master data from your external system to Tungsten AP Essentials. By default, the event is triggered every 12 hours, and when the user presses **Synchronize** in AP Essentials Connect.

Use the connection data provided in the event arguments to connect to the Tungsten AP Essentials API and upload the master data needed by your integration. Tungsten AP Essentials API knowledge is required. See the Plug-in SDK sample for more details on how this can be used.

```
public class MasterDataRequestEventArgs : EventArgs

  {

    public ClientConfiguration ServiceConnection { get; set; }

    public bool IsCustomerLevelConnection { get; set; }

  }
```

Scenarios

Create a Hello World plug-in

This scenario demonstrates how to create a plug-in and subscribe to an event. It also shows how to create a custom debug log file for your plug-in.

1. In Visual Studio (or similar), create a new project for a .NET 4.0 class library named **MyTargetSystemPlug-in**.
2. Add a reference to ReadSoft.Connect.Plug-in.dll (part of the plug-in SDK).
3. Rename Class1.cs to MyPlugin.cs and change to the following code:

```
using System;

using System.ComponentModel.Composition;

using System.IO;

using ReadSoft.Connect.Plugin;

namespace MyTargetSystemPlugin

{

[Export(typeof(IPlugin))]

public class MyPlugin : IPlugin

{

private string _logFilePath;
```

```
public Guid Id

{

// Unique ID for your plugin, create a new one if copying this sample.

get { return Guid.Parse("EB67638B-308F-4627-A927-0D9743DC99AC"); }

}

public void Initialize(IApplication app)

{

_logFilePath = Path.Combine(app.GetProgramFolder(),"myplugin_log.txt");

app.FileDownloadComplete += AppOnFileDownloadComplete;

}

private void AppOnFileDownloadComplete(object sender,
 FileDownloadCompleteEventArgs args)

{

LogDebug("Hello world! I just downloaded this guy: " + args.XmlFilePath);

}

private void LogDebug(string message)

{

message = string.Format("{0} - {1}\n", DateTime.Now, message);

File.WriteAllText(_logFilePath, message);

}

}

}
```

4. Compile and publish the plug-in as described in the Publishing section below.
5. Process a document in Tungsten AP Essentials using a customer where the plug-in is activated.
6. After the document is processed by AP Essentials Connect, the plug-in log file "`C:\Program Files (x86)\Tungsten\AP Essentials Connect\myplug-in_log.txt`" contains the greeting message from the code.

Rename files

In this scenario, you rename the XML and image files downloaded using the invoice number and supplier name from the document.

1. Set up your project according to the Hello World scenario.
2. In the event handler for **FileDownloadComplete**, get the invoice number and supplier name from the downloaded XML. If you use Online XML v2.0, you can achieve this using these XPath values:

```
var downloadedXml = File.ReadAllText(args.XmlFilePath, Encoding.UTF8);
```

```
var xmlDoc = XDocument.Parse(File.ReadAllText());

var invoiceNumber = string.Format("{0}", xmlDoc.XPathSelectElement("/Batches/
Batch/Documents/Document/HeaderFields/HeaderField[Type='invoicenumber']/
Text").Value);

var supplierName = string.Format("{0}", xmlDoc.XPathSelectElement("/Batches/Batch/
Documents/Document/Parties/Party[Type='supplier']/Name").Value);
```

3. Rename the XML file and image file using the paths available in **FileDownloadCompleteEventArgs**.

```
var newFileName = Path.Combine(Path.GetDirectory(args.XmlFilePath),
 string.Format("{0}_{1}", supplierName, invoiceNumber)) + ".xml";

File.Copy(args.XmlFilePath, newFileName)

...
```

Manipulate images

In this scenario, you manipulate the downloaded image. Assume you want to split a multi-TIF file into several files (one per page). Or maybe you want to convert the image to a format that is not supported by Tungsten AP Essentials.

1. Set up your project according to the Hello World scenario.
2. In the event handler, **ImageDownloadComplete**, the "args" argument contains the path to the downloaded document image (PDF or multi-TIF, depending on the configuration you have done in Tungsten AP Essentials). Process the image file as needed.

Create a full target system integration

In the Plug-in SDK, there is a sample that describes how a full integration to a new target system can be implemented. This sample uses several events to get data and image from the document, as well as uploading master data.

Publish a plug-in

The following steps are needed to publish and activate your plug-in to be used for a specific customer, or for testing.

1. Compile your plug-in project.
2. Using a code signing certificate, sign the plug-in DLL.

   If you do not have such a certificate, you can create a test certificate in Visual Studio: Create a new **Windows Forms App** project, open project properties, go to the **Signing** tab, select **Sign the ClickOnce manifest** and then select **Create Test Certificate**. After you copy the resulting PFX file to your plugin project folder, you can delete the Windows form app project.

   You can use SignTool.exe from the Microsoft Windows Kit to perform the actual signing. To validate that the plug-in DLL is signed, right-click the DLL and choose **Properties**. If the dialog contains a **Digital Signatures** tab with a signature in the list, the DLL is signed correctly.
3. Compress all plug-in files (DLLs) into a ZIP file. The name of the ZIP file is used as the the plug-in.

4. Upload the ZIP file to the **Resources** view in Tungsten AP EssentialsAdmin Center on the partner level. The contents of the ZIP file cannot exceed 50 MB in size.

   If your plug-in is not signed, you will get an error message.

5. In Tungsten AP Essentials Admin Center, navigate to the customer you would like to activate the plug-in for and choose **XML locally** as the target system.
6. Specify your newly uploaded plug-in in the **AP Essentials Connect plug-in** setting and save your changes.
7. In AP Essentials Connect, run the configuration wizard. When prompted to allow usage of the new plug-in, accept the usage and finalize the configuration wizard.

Plug-in configuration

Currently, there is no way for plug-ins to display a configuration UI in AP Essentials Connect or the Tungsten AP Essentials Admin Center. One way of providing configurable settings for your plug-in is to serialize/de-serialize your configuration object to an XML file located in the same folder that AP Essentials Connect stores its configuration. In your plug-in code, you can retrieve this folder path from the app object through the **Initialize** method. See the Plug-in SDK sample for an example that demonstrates how to do this.

Debug a plug-in

You can debug your plug-in by attaching Visual Studio to the AP Essentials Connect Windows service process:

- In debug mode, build your plug-in.
- Publish the plug-in and run the AP Essentials Connect configuration wizard locally on your computer to make sure the latest version of the plug-in is downloaded by AP Essentials Connect.
- In Visual Studio, select **Debug/Attach to Process** and attach to the **ReadSoft.Connect.Host.exe** process.
- Make sure you have breakpoints set up in your code, and then process a document in Tungsten AP Essentials.

Submit invoice images using Python

Although Python is not officially supported, this code example can help you get started if you need to create a custom integration using Python. The code following demonstrates how to authenticate a user and upload an invoice image file for processing in Tungsten AP Essentials. To run the code, you must supply:

- An API key from a partner account.
- A username and password from the partner account or sub-account.
- The ID of the customer that you want to send the invoice to. You can obtain the customer ID through the API using GetCurrentCustomer or GetCurrentUserCustomers, for example.

- The ID of the buyer. If the account does not have a buyer specified, use the customer ID. You can obtain the buyer ID through the API using GetCurrentBuyer or GetCurrentUserBuyers, for example.
- The System name of the document type that you want to use to process the invoice, if your solution uses more than one document type.

```
# Python version: 3.4.3
# Requests library version: 2.6.0 http://docs.python-requests.org/

import requests

APIKey = 'YOUR_API_KEY'
userName = 'YOUR_USER_NAME'
password = 'YOUR_PASSWORD'

customerId = 'YOUR_CUSTOMER_ID'
buyerId = 'YOUR_BUYER_ID'
documentType = 'YOUR_DOC_TYPE'

# Make sure you use the base URL that corresponds to your production system:
# Europe - https://services.readsoftonline.com
# Australia - https://services-au.readsoftonline.com
# North America - https://services-us.readsoftonline.com
url = 'https://services.readsoftonline.com:443/authentication/rest/authenticate'
payload = '<AuthenticationCredentials><UserName>'+userName+'</
UserName><Password>'+password+'</Password><AuthenticationType>SetCookie</
AuthenticationType></AuthenticationCredentials>'
headers = {'Accept': 'application/xml',
'Content-Type': 'application/xml; charset=UTF-8',
'x-rs-version': '2011-10-14',
'x-rs-key': APIKey,
'x-rs-culture': 'en-EN',
'x-rs-uiculture': 'en-EN'}
# Use a session to persist the authentication cookie across requests.
s = requests.Session()
# Post an authentication request.
req = s.post(url, data=payload, headers=headers)
# If status code 200 is returned, the authentication succeeded.
print(req.status_code)
print('')
print(req.text)
print('')

# Prepare the header for posting the image.
headers = {
'content-type': 'application/octet-stream',
'x-rs-version': '2011-10-14',
'x-rs-key': APIKey,
}
# Get the image data.
with open(r'C:\temp\invoice.png', "rb") as imageData:
 imageData = imageData.read()
url = 'https://services.readsoftonline.com:443/files/rest/image2?
filename=test.png&customerid='+customerId+'&batchexternalid=123456&buyerid='+buyerId
+'&documenttype='+documentType+'&sortingmethod=OneDocumentPerFile'
# Post the invoice image to Tungsten AP Essentials.
req = s.post(url, data=imageData, headers=headers)
print(req.status_code)
print('')
print(req.text)
```

Chapter 12

Tungsten AP Essentials Store

Tungsten AP Essentials services are available for purchase at the Tungsten AP Essentials Store. Visit the store to

- Order a service plan.
- Change your service plan.
- Edit payment information.
- Manage your store account.

Order a service plan

You can purchase Tungsten AP Essentials service plans at the online store. Not all of the following steps are available if you select a trial plan.

1. Navigate to the Tungsten AP Essentials Store: https://store.readsoftonline.com/
2. Select a Tungsten AP Essentials solution to integrate with your financial system and select **Order now**. Tungsten AP Essentials integrates with a number of ERP systems, financial systems, and accounting programs. You can also integrate with other systems that are not listed using Tungsten AP Essentials for XML, or create custom solutions using the API.
3. Select a service plan, such as **Trial**, **Basic**, or **Premium**, and select **Select**.

   Tungsten AP Essentials partners can request a demo account by following the link lower on the page.
4. Use the settings on the page that appears to specify the number of **Documents per month** you process and the desired **Subscription period**. The longer the subscription period, the more money you save per invoice.
5. Specify the registration settings. The email address and password you specify here are used for accessing your store account later.
6. Provide your payment method. Payment is not processed in this step. You are given a chance to review your purchase in the next step. Currently, we accept many major credit cards and PayPal.
7. Review your order and read the Terms and Conditions and Terms of Service. VAT is only applied to your subscription purchase if your organization is located in Sweden. After you agree to the terms, select **Confirm order** to process the order. Shortly after your order is complete, you will receive separate emails containing login information, your first invoice, and a receipt of payment.

   Email notifications are sent automatically each month when payment is drafted from your credit card or PayPal account. Notification emails are also sent if you are about to reach your monthly document volume limit.

Licensing

When you order a service plan at the Tungsten AP Essentials Store, there are several licensing models to choose from.

- **Trial** - The trial plan lets you test Tungsten AP Essentials with a limited number of documents for a limited time. You can choose a trial plan with basic features or premium features. If you exceed the trial period or document limit, whichever comes first, you must order a subscription plan to continue using Tungsten AP Essentials. When you order a trial plan, you experience all the features of the plan you choose. The only limitation is the time period and the number of documents you can process.
- **Basic** - The basic plan supports everything you need to process invoices with header and footer fields.
- **Premium** - The premium plan is the same as the basic plan, with the addition of line-item field capture.
- **Enterprise** - The enterprise plan is not available through the store. For enterprise solutions, please contact Sales.
- **Demo** - Demo accounts are only available for Tungsten AP Essentials partners. Demo accounts include all the features of premium accounts. However, the license expires after one year or 500 invoices, whichever comes first. When a demo license expires, you are welcome to request a renewal by ordering a new demo service plan in the store. Note that applications for demo accounts must be manually approved.

Pricing for basic and premium plans is based on the number of documents you process each month. The larger the volume, the lower the price. Each subscription plan includes a base allowance of documents you can process each month. You are charged for each document that exceeds the base allowance. Therefore, when you place your order, you should choose a base volume with a little room to grow, to avoid extra charges.

Features	Trial	Basic	Premium	Enterprise
Cloud computing in your web browser				
Online correction				
Header-field capture				
Footer-field capture				
Line-item capture				
Email input				
In-browser document upload				
Desktop app for automated upload				
Automatic field validation				
Accounts payable				
Workflows				

Features	Trial	Basic	Premium	Enterprise
Line pairing				
Unlimited document volume				
Automatic subscription renewal				

Your Store account

When you purchase a service plan at the Tungsten AP Essentials Store, a Store account is automatically created for you using the email and password you provided during the registration step. You can log in to your account at the Store and select your email address at the top of the web page to manage your account settings.

All information in this view is for billing purposes only. These settings do not affect Tungsten AP Essentials.

Account

Company name	The name of the company.
Tax registration number	An identifying number used for tax purposes. VAT is applied to your subscription purchase only if your organization is located in Sweden.
First name	Your first name.
Last name	Your last name.
Phone number	Your phone number.
Address	The street address of the company specified above.
Zip code	The zip code or postal code.
City	The city.
State	The state.
Country	The country. For tax reasons, you cannot change the country. If you need to change the country, you must order a new service plan. When you order a new service plan, your old plan is replaced with the new one.
Save	Saves any changes you make to the settings on this page.

My plan

Displays information about your current plan. You cannot change the settings on this page. To change your plan, simply order a new plan, and your current plan will update automatically.

Payment method

Payment method	
Change payment method	Displays a view that lets you edit your payment method.
Try again	This button is only visible if we were unable to process your payment. Select this button after you check your payment details to try processing your payment again. If payment fails too many times, your Tungsten AP Essentials account is paused. When an account is paused, you can continue to accept and process invoices, but output is not sent to the target system. Upon successful payment, normal processing resumes.

Orders

Order number	The order number. Selecting the order number displays details about the order.
Created	The date the order was placed.
License	Displays the length of your current subscription period. If your subscription is inactive or expires, you receive an email notification immediately. If you do not renew your subscription, you receive another email notification 30 days after the subscription end date, a second email after 60 days, and a final reminder after 85 days. If you do not renew after 90 days, the Store account is deleted and you can no longer log in.
Description	Describes the plan that you ordered.

Invoices

Invoice number	The invoice number.
Created	The date the invoice was created.
Status	The current payment status of the invoice.

Change password

Password settings apply to your Store account only. These settings do not affect Tungsten AP Essentials account settings.

Current password	The current password you log in with.
New password	The new password that you want to use. Passwords must be at least 15 and at most 100 characters long.
Confirm new password	Repeat the new password.
Update password	Updates your credentials with the new password.

Configure two-factor authentication	Displays a view that lets you configure two-factor authentication for your Store account. Two-factor authentication (2FA), often referred to as two-step verification or multi-factor authentication, is a security process in which users provide two forms of authentication to verify their identity and log into an account. In contrast, single-factor authentication is a security process in which the user provides only one form of identification, such as a password. Two-factor authentication provides an additional layer of security that makes it harder for attackers to gain access to your account because knowing the password alone is not enough to pass the authentication check. You can use 2FA apps such as: • Authy (Android or iOS) • Duo Mobile (Android or iOS) • Google Authenticator (Android or iOS) • LastPass Authenticator (Android or iOS) • Microsoft Authenticator (Windows Phone, Android or iOS)

Account creation and deletion are logged for auditing purposes.

Edit payment information

To edit the payment information that you use for purchasing Tungsten AP Essentials services:

1. Log in to the Tungsten AP Essentials Store: https://store.readsoftonline.com/
   You have five chances to enter the correct password when logging in. If you enter the wrong password more than five times, your account is locked for 30 minutes.
2. Select your email address at the top of the web page to manage the account settings.
3. Navigate to the **Payment method** .
4. Select **Change payment details** to edit the payment method.
5. Select **Update** to save your changes.

Payment information

When you purchase Tungsten AP Essentials services, credit card details are not shared with Tungsten Automation. Credit card information is handled by the payment provider, Braintree. Braintree stores payment information safely and securely to facilitate recurring subscription payments.

Payment authorizations made through the Tungsten AP Essentials store are in compliance with 3DS 2 and PSD2 Strong Consumer Authentication (SCA) requirements.

Change a service plan

Existing customers can easily upgrade or downgrade their current service plans.

1. Log in to the Tungsten AP Essentials Store: https://store.readsoftonline.com/
   You have five chances to enter the correct password when logging in. If you enter the wrong password more than five times, your account is locked for 30 minutes.
2. Order a new service plan from the landing page.
   After you complete your order, the new service plan replaces the old service plan, and your existing Tungsten AP Essentials account is updated according to the new plan. A new invoice is created for the new plan. Any remaining days on your old plan are credited to the new plan. Overage charges from the old plan are also added to the balance. If you downgrade your service plan, or if for any reason the balance is negative, no refund is issued.

Cancel a service plan

You can cancel a service plan at any time.

1. Log in to the Tungsten AP Essentials Store: https://store.readsoftonline.com/
   You have five chances to enter the correct password when logging in. If you enter the wrong password more than five times, your account is locked for 30 minutes.
2. Select your email address at the top of the web page to manage the account settings.
3. Select **My plan**.
4. Select **Cancel my plan** and use the view that appears to confirm that you want to cancel your service plan.
   After you cancel a plan, you can continue to use Tungsten AP Essentials until the current subscription period ends. After the current subscription period ends, your account is paused.