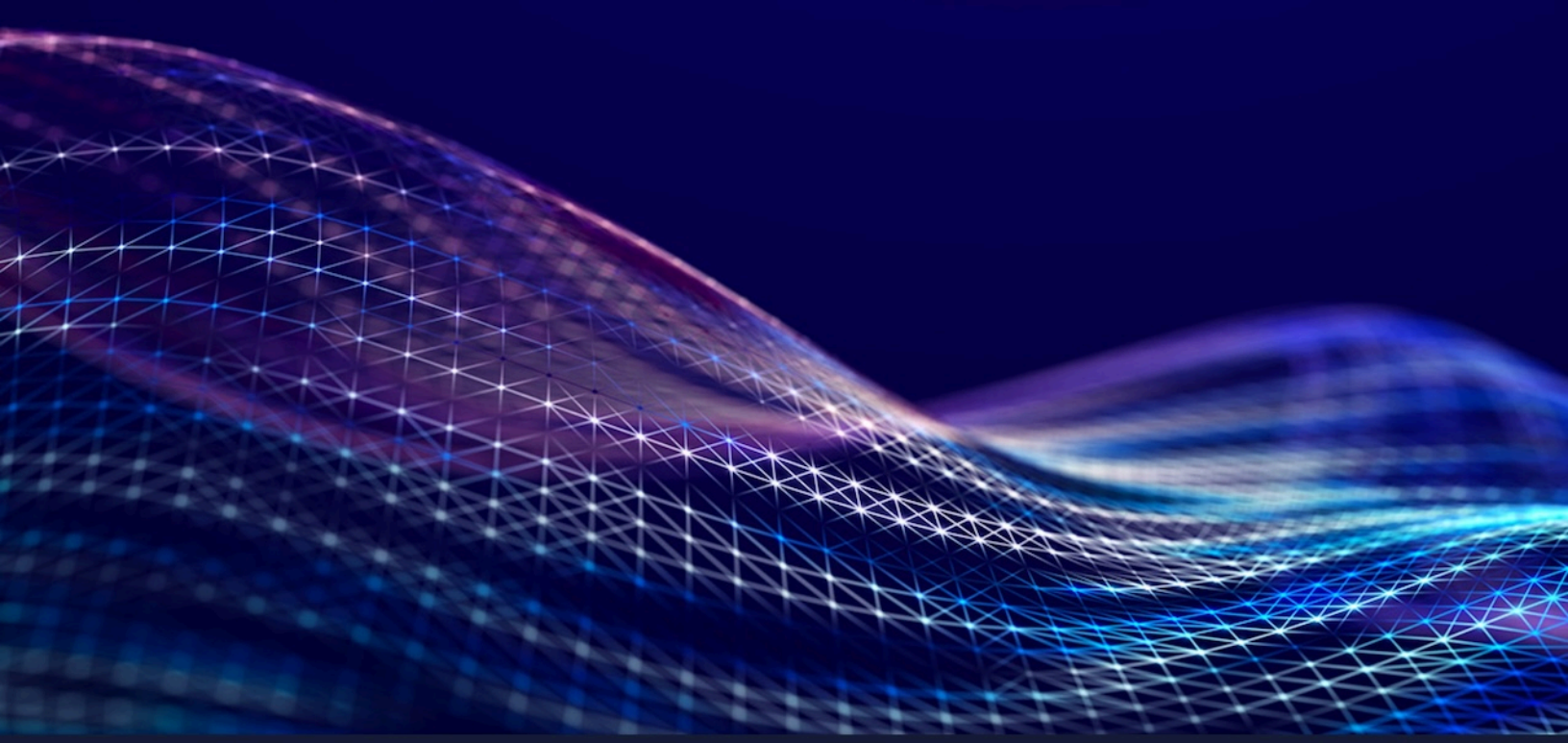


Tungsten AP Agility
On-Premise Multi-Tenant Installation Guide

Version: 2025.1

Date: 2024-12-02

TUNGSTEN AUTOMATION

Table of Contents

Preface

This guide contains information about installing the on-premise features and configuring Tungsten AP Agility to work on a TotalAgility On-Premise Multi-Tenancy environment or a Tungsten Automation hosted TotalAgility Azure environment.

This guide is written with the assumption that you have a thorough understanding of Tungsten TotalAgility and its environment.

Cloud solution considerations

When configuring Tungsten AP Agility to work in a multi-tenant or Tungsten Automation hosted Azure environment for Tungsten TotalAgility, it is important to note that there are several limitations when compared to a traditional installation.

- User exits are not supported.
- SAP ECC, Oracle, and MarkView integrations are not supported.
- PIX is not supported. Because of this you cannot process electronic XML invoices.
- ERP data such as purchase order or company data is provided by an ERP connector only.
- Exporting to Process Director is not supported.
- Windows Authentication is not supported.

Related documentation

In addition to this guide, see the following documentation for additional installation and configuration information.

The full product document set for Tungsten AP Agility is available here:

https://docshield.tungstenautomation.com/Portal/Products/APAgility/2025.1-j1u9a8a63z/APAgility.htm

The product document set for Tungsten TotalAgility is available for the following supported versions:

- 7.9.0
- 7.10.0
- 7.11.0
- 8.0.0
- 8.1.0

Select the documentation link for the Tungsten TotalAgility version that you are currently using.

If you select the incorrect link, it is possible that some features documented are not in your installed version.

In addition to this guide, the AP Agility document set includes the following items:

Tungsten AP Agility Release Notes

This guide contains late-breaking product information that may not be included in other Tungsten AP Agility documentation. Release notes are also available for each of your installed Tungsten Automation applications.

Tungsten AP Agility Configuration Help

This help provides detailed information on how to configure Tungsten AP Agility for your environment.

Tungsten AP Agility PIX Correction activity Help

This help provides detailed information about how to navigate through the PIX Correction activity. It also includes details about how to use the PIX Correction activity when processing documents with Tungsten AP Agility Invoice Processing.

Tungsten AP Agility Error Handling Help

This helps provides information on how to handle documents that end up in an error state during Invoice Processing.

Tungsten AP Agility Scan activity Help

This help provides information on how to scan documents for Tungsten AP Agility Invoice Processing.

Tungsten AP Agility Line Pairing Correction activity

This help provides use cases and examples for correcting a document that fails line pairing during Invoice Processing.

Tungsten AP Agility Validation activity Help

This help provides information about validating a document in Tungsten AP Agility Invoice Processing.

Additional documentation about validating documents is available in the *Tungsten TotalAgility Validation activity Help*.

Tungsten AP Agility AP Workflow Help

This help provides information about how to use the various activities that are part ofs the AP Agility AP Workflow. This includes general information that is relevant for all activities as well as specific information related to the Approval activity, the Coding activity, the Exception activity, the Line Pairing Exception activity, the Hold activity, and the Comment Request activity.

Analytics for AP Agility Installation Guide

This guide provides information about installing Analytics for AP Agility and integrating it with Tungsten AP Agility.

Analytics for AP Agility Help

This help provides detailed information on how to generate and interpret the various reports that are available in Analytics for AP Agility .

Training

Tungsten Automation offers both on-demand and instructor-led training to help you make the most of your product. To learn more about training courses and schedules, visit the Tungsten Automation Learning Cloud.

Getting help with Tungsten Automation products

The Tungsten Automation Knowledge Portal repository contains articles that are updated on a regular basis 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:

- Powerful search capabilities to help you quickly locate the information you need.
  Type your search terms or phrase into the **Search** box, and then click the search icon.
- Product information, configuration details and documentation, including release news.
  To locate articles, go to the Knowledge Portal home page and select the applicable Solution Family for your product, or click the View All Products button.

From the Knowledge Portal home page, you can:

- Access the Tungsten Automation Community (for all customers).
  On the Resources menu, click the **Community** link.
- Access the Tungsten Automation Customer Portal (for eligible customers).
  Go to the Support Portal Information page and click **Log in to the Customer Portal**.
- Access the Tungsten Automation Partner Portal (for eligible partners).
  Go to the Support Portal Information page and click **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 1

System requirements

For information on supported operating systems and other system requirements, see the *Tungsten AP Agility Technical Specifications* document on the Tungsten AP Agility Documentation site.

This document is updated regularly, and we recommend that you review it carefully to ensure success with Tungsten AP Agility.

A customer portal login is required to access the Tungsten Automation Knowledge Base.

Software prerequisites

The software prerequisites required prior to the installation of the Tungsten AP Agility on-premise features in a multi-tenant environment are listed as follows.

For the on-premise aspects of the Tungsten AP Agility installation, the following must be available on the on-premise machine before an installation.

.NET 4.8 or higher

This is the minimum version required by the Tungsten AP Agility assemblies and the Tungsten TotalAgility integration.

Internet Information Services (IIS) 7.5 or higher

This is required to install the ERP Agnostic connector.

Important installation notes

The following notes are important when installing Tungsten AP Agility.

Administrator Rights

To install the product, the logged on user must have Administrator rights on the local computer.

Database Editing

Tungsten AP Agility does not support direct database editing. You can make any changes needed for your solution using the Tungsten AP Agility configuration tools.

Localize Tungsten AP Agility

The localization of Tungsten AP Agility is available for the following languages.

- English
- French
- German
- Spanish
- Brazilian Portuguese

If the main language of your web browser is set to one of the above languages, the user interface and documentation for Tungsten AP Agility appear in that language automatically. For any other language, and for the administrative documentation, the user interface and documentation defaults to English.

However, this localizes the Tungsten AP Agility activities only. Because Tungsten AP Agility is a part of Tungsten TotalAgility, it is necessary to install the Tungsten TotalAgility language packs to ensure a fully localized environment. For more information about localizing Tungsten TotalAgility, refer to the *Tungsten TotalAgility Installation Guide*.

Chapter 2

Deploying Tungsten AP Agility on Tungsten TotalAgility On-Premise Multi-Tenancy

Installing Tungsten AP Agility on Tungsten TotalAgility On-Premise Multi-Tenancy requires the following on-premise installation steps.

Tungsten AP Agility on-premise components

Your environment determines which installation zip files are needed. The table below lists what files are needed to install the on-premise components for Tungsten AP Agility:

Environment type	Installation ZIP files
Tungsten Automation hosted TotalAgility Azure environment	• `TungstenAPAgility-2025.1_Azure_OnPremiseComponents.ZIP` This file is a deliverable that is part of Tungsten AP Agility 2025.1. • `TungstenTotalAgility-<Version>_IS.ZIP` This file is a deliverable that is part of Tungsten TotalAgility.
TotalAgility on-premise multi-tenant environment	• `TungstenAPAgility-OPMT.ZIP` This file is a deliverable that is part of Tungsten AP Agility 2025.1. • `TungstenTotalAgility-<Version>_IS.ZIP` This file is a deliverable that is part of Tungsten TotalAgility.
TotalAgility on-premise multi-tenant environment with MarkView	• `TungstenAPAgility-OPMT_MarkView.ZIP` This file is a deliverable that is part of Tungsten AP Agility 2025.1. • `TungstenTotalAgility-<Version>_IS.ZIP` This file is a deliverable that is part of Tungsten TotalAgility and is needed only if your customers plan to use file system or email ingestion.

Install SSL certificate

In order to use Tungsten AP Agility in a multi-tenant or Tungsten Automation hosted Azure environment, you must install the on-premise components on a server where there is an SSL certificate.

Once the certificate is available, it is listed in the IIS Server Certification settings for the on-premise server.

You can install an SSL certificate as well as configure your IIS site binding settings by following these steps:.

1. Launch the Internet Information Services Manager (IIS) on your on-premise server.
2. Open the **Default Web Site**.
   If you plan to use another website when installing the Tungsten AP Agility ERP Connector, select that web site instead.
   The central pane is updated with settings for the selected site.
3. In the **Actions** pane on the right, in the **Edit Site** group, select **Bindings**.
   The **Site Bindings** window is displayed.
4. Click **Add**.
   The **Add Site Binding** window is displayed.
5. From the **Type** list, select **https**.
6. Optionally, enter a **Port** that matches your solution.
7. From the **SSL certificate** list, select your certificate.
8. Click **OK**.
   The **Add Site Binding** window closes and your new site binding is listed in the **Site Bindings** window.
9. Click **Close**.
   The **Site Bindings** window closes.

Install the Integration Server

The Integration Server installer adds the necessary on-premise TotalAgility components so that Tungsten AP Agility works in a multi-tenant or Tungsten Automation hosted Azure environment.

Skip this procedure if:

- you do not plan to use the AP Workflow for any of the organizations configured in Tungsten AP Agility.
- you are installing Tungsten AP Agility in an OPMT environment with MarkView and are using the Scan activity only, rather than file or email ingestion.

You can install the Integration Server by following these steps:

1. Ensure that you can access the Tungsten AP Agility tenant from this server.
   If you cannot access your tenant, add an entry that lists your IP address and host name to the hosts file.
   For example,
   `192.168.0.10 tenant.apagility.cloudapp.net`
2. Download and extract the `Tungsten AutomationTotalAgility-<Version>_IS.ZIP` file.
3. Navigate to the `IntegrationServerInstall` folder and run the `Setup.exe` file.
   The Tungsten TotalAgility Integration Server Setup wizard is displayed.
4. Click **Next**.
   The **Tungsten Automation Inc. Software License Agreement** step of the Setup wizard is displayed.

5. After reading the license agreement, click **Next**.
   The **Type of Install** step of the Setup wizard is displayed.
6. The only type of install available is the **Web/Application Server** and it is already selected. Click **Next**.
   The **Destination** step of the Setup wizard is installed.
7. If you want to change the default **Destination Folder**, click **Browse** and select a new path.
   Otherwise, click **Next**.
   The **Credentials** step of the Setup wizard is displayed.
8. In the **Account** settings, provide Windows Administrator credentials for the server where you are installing the Integration Server.
9. Choose which root Website is used to host your installation and click **Next**.
   If you use the default setting, click **Next**.
   The **Software Checks** step of the Setup wizard is displayed and the checks are carried out automatically.
10. If the software checks are successful, click **Next**.
    If any of the steps fail, install the missing software and then click **Back** and then **Next** to run the checks again. Once successful, click **Next**.
    The **Tenant Information** step of the Setup wizard is displayed.
11. Enter the **Tenant URL** that points to the server where the TotalAgility Designer is located.
    For example, `https://<TenantName>.apagility.cloudapp.net`. Do not include `/Designer` in the path.
12. Enter the **System Session ID**.
    You can find this by going to the **TotalAgility Designer** > **System** > **System settings** > **Logon and authentication** > **User sessions**.
13. Click **Next**.
    The **Installation Review** step of the Setup wizard is displayed.
14. Review the installation parameters. If necessary, click **Back** to edit any steps.
    Otherwise, click **Next**.
    The **Installation Progress** step of the Setup wizard is displayed. A progress bar shows the installation progress.
    When the installation is complete, the **Tungsten TotalAgility Integration Server Installation** page is displayed with a list of installed components.
15. Click **Finish**.
    The Setup wizard closes and your installation is complete.

Install the Tungsten AP Agility on-premise components

It is necessary to install the Tungsten AP Agility on-premise components on the same server where the Tungsten TotalAgility Integration Server is installed.

You can install the ERP Connector by following these steps:

1. Download and extract the appropriate ZIP file for your environment.
   For more details on what files are needed for your environment, see Tungsten AP Agility on-premise components.

2. Navigate to the **Installer** folder.
   The contents of the **Installer** folder are displayed.
3. Right-click on **Tungsten AP Agility.exe** and select **Run as Administrator** to begin the Setup Wizard.
   The installer is displayed and calculates if there is enough space on disk for the installation.
4. Once the Install Wizard confirms that there is enough disk space, click **Next**.
   The **End-User License Agreement** Setup Wizard step is displayed.
5. Select **I accept the terms in the License Agreement** and then click **Next**.
   The **Prerequisites** Setup Wizard step is displayed along with any information about missing prerequisites.
6. The information displayed on the **Prerequisites** step is relevant if you are installing the listed components only.

   For example, if you receive a message that the SAP ECC .NET connector is missing, but you are not using SAP ECC, ignore this message. However, if you are using one of the components listed, click **Cancel** and then **Finish** to exit the Setup Wizard, install the required prerequisite, and then restart the installer. Otherwise, click **Next**.

   If you did not install the necessary prerequisites, the corresponding settings are not available for installation.

   The **Choose Setup Type** Setup Wizard step is displayed.
7. On the **Choose Setup type** window, select **Custom**.
   The **Custom Setup** step is displayed along with a list of available components.
8. Exclude all components by selecting **Entire feature will be unavailable**, except the **ERP Connector Web Service** and then click **Next**.

   The **Tungsten TotalAgility Connection** Setup Wizard step is displayed.
9. On the **Tungsten TotalAgility Connection** step, enter the following information.

   a. If the default Tungsten TotalAgility URL that is provided is not correct, update the **TotalAgility URL**.

      This must be the on-premise version that is installed on a local server and not the Azure URL.

      For example, `https://<KTAIntegrationServerName>/TotalAgility/`.

   b. Select **Authentication by username and password**.
      enter the **User name** and **User password** for the Administrator used when installing the Tungsten TotalAgility Integration Server.

   c. Click **Test connection** to ensure that your information is correct. If not, repeat the previous steps and try again.

   d. Once your connection test is successful, click **Next**.

   The **AP Agility ERP Connector Configuration** Setup Wizard step is displayed.
10. On the **AP Agility ERP Connector Configuration** step, enter the following information.

    a. Optionally, enter an alternate **Web Site**.

       This web site must exist in IIS before it can be added here. All other items are created dynamically.

    b. Optionally, enter a different **Virtual Directory**.

c. Optionally, enter a different **Application Pool**.

d. For **Pool Identity**, select **Custom Account**.

The **User name** and **User Password** must match the credentials provided when installing the Integration Server.

e. Select **Update web service URL for the ERP Connector** to update the **ERP Connector Host** value, if needed.

If cleared, **ERP Connector Host** is greyed out and cannot be edited. You can always edit this value in the **ApAgilityErpConnector** properties located in the TotalAgility Designer Home menu at **Integration** > **Web Service references** at another time.

f. If available, enter a valid **ERP Connector Host**. This setting is available only if the **Update web service URL for ERP Connector** is selected above.

This is the URL that points to the Web Sever for your ERP Connector, not the entire web service URL. By default this is set to `https://{ServerName}`. This value is then used to build the full web service URL for your ERP Connector web service. This value and the rest of the web service URL is visible after installation in the **ApAgilityErpConnector** properties located in the TotalAgility Designer Home menu at **Integration** > **Web Service references**.

g. Click **Next**.

The **Installing Tungsten AP Agility 2025.1** Setup Wizard step is displayed. A progress bar is displayed showing the status of the installation.

11. Click **Finish**.

Optionally, select the **View Installation Log** setting. The log file is displayed after the installer is closed.

The installer closes and if selected, the log file is displayed.

Disable ERP Web Connector anonymous authentication

In order for the ERP Connector to work efficiently, it is necessary to disable anonymous authentication for that web site.

You can disable the anonymous authentication for your ERP Connector web site by following these steps:

1. Open the Internet Information Services Manager (IIS) on the server where you installed the ERP web connector.
2. Open the **Default Web Site**.

   If you have configured another web site for the on-premise components of Tungsten AP Agility, select that web site instead.

   The web site home page is displayed.
3. Select the virtual directory for the ERP Connector. By default, this is called **`ApAgilityErpConnector`**.

   If you changed this name during installation, select your virtual directory.

   The settings for the selected virtual directory are displayed.
4. Under the **IIS** category, select **Authentication**.

   A list of **Authentication** settings are displayed.

5. Right-click **Anonymous Authentication** and select **Disable**.
6. Restart the **World Wide Web Publishing Service**.

Configure Web service references

After configuring the ERP web.config, it is necessary to update the ERP web service for on-premise TotalAgility Designer.

You can configure the web service references by following these steps:

1. Launce the on-premise TotalAgility Designer.
   The menu is limited to on-premise settings.
2. On the menu, select **Integration** > **Web service references**.
   The **Web service references** are displayed for the default category.
3. From the **Category** list, select **AP Agility**.
   A list of web service references for the AP Agility is displayed.
4. Click **ApAgilityErpConnector**.
   The **Edit web service references** window is displayed.
5. Edit the URL so that it uses `https` and edit "localhost" to point to the location where the Integration Server and the Tungsten AP Agility on-premise components are installed.
6. Click **Save**.
   When prompted to regenerate the proxy DLLs, click **OK**.
   Your changes are saved.
   If there are any issues with the connection, an error is displayed with information on the issue. If there is an authentication issue, refer to Disable ERP Web Connector anonymous authentication.

Encrypt database connection string for OPMT

This is an optional procedure that is necessary only if your organization has a separate Administrator that maintains tenants. In this case you may wish to encrypt the database connection string so that other users cannot access to the Tungsten AP Agility database.

You can use the encryption tool to encrypt the database connection string by following these steps:

1. View the extracted files from the ZIP file for your environment.
   For more details on what files are needed for your environment, see Tungsten AP Agility on-premise components.
2. Navigate to `<installation files>\EncryptionUtility`.
3. Run the **ConnectionStringEncrypter.exe** application.
   The **Connection String Encrypter** application is displayed.
4. In the **Database Connection String** setting, enter the database connection string to access the Tungsten AP Agility database.
   The SQL log on credentials that are part of the connection string must use the APA schema as default. For example,

```
Server=tcp:ktaservername.database.windows.net,1433;Initial
 Catalog=TotalAgility_tenantId;Persist Security
      Info=False;User ID=apa_live_user;Password=the-user-strong-password;
```

```
     MultipleActiveResultSets=False;TrustServerCertificate=False;Connection
Timeout=30;
```

5. Click **Encrypt**.
   The connection string is encrypted.
6. Select **Copy to Clipboard** and paste the string alongside the other connection information that you provide to your users.

MarkView and the Scan form

If you are using MarkView then it is necessary to perform the following steps in order to update the Scan activity navigation to use the correct capture process that is specific to MarkView. This is a global change that affects the Scan activity for all organizations. However, the extra Scan activity fields are not displayed if an organization uses another ERP system or other databases.

You can update the Scan form to use the MarkView-specific process by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **User interface** > **Navigations**.
   A list of Navigations is displayed for the Default Category.
3. From the **Category** list, select **AP Agility**.
   A list of Navigations is displayed for the AP Agility category.
4. Select **AP Agility Menu**.
   The **Edit navigation menu** window is displayed for the AP Agility menu.
5. From the menu on the left pane, select **Scan**.
   The right pane is updated with the Scan navigation menu settings.
6. From the **Target** setting, select the **InvoiceProcessingAgility** category, and then select the **Capture_Scan_MV**
   The Scan activity and its list of invoice types is updated for MarkView.

Configure MarkView file ingestion

If you plan to use the Scan activity to get documents into Tungsten AP Agility, it is not necessary to perform these steps.

If you are using MarkView and also want to use file system or email ingestion, it is necessary to create a MarkView-specific ingestion type so that it uses the correct process.

You can create a file ingestion for MarkView by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Integration** > **Import settings**.
   The **Import Settings** page is displayed.
3. Under **Import Connections**, click the name that you provided when you created the ingestion connection.

   The import connection you created earlier is visible but it has no **Import sources**.
4. Under the **Import sources** section, click +.
   The **New import source** window is displayed.

5. On the **New import source** window, edit the following settings to configure your input source.
   a. In the **Type** list, select the import source type as **FILE**.
      The available settings are updated so that they match the selected source type.
   b. Enter a **Display name**, such as "IPFileSystemImport."
   c. Optionally, after configuring file import, click **Test file import**.
   d. In the **Associated action(s)** group, ensure that the **Job type** setting is set to **Create new job**.
   e. From the **Process** setting, click on the list, select the **InvoiceProcessingAgility** category, and then select one of the following, depending on your ERP system:
      - If you have one or more organization integrated with MarkView, select the **CaptureDocumentMV** process.
      - If you are using another ERP system, select the **CaptureDocument** process.

      The **Initialization variables** table is populated with fields related to the selected process.
   f. Two fields require mapping only. Select the corresponding values as follows.

Name	Mapping
InputSource	**Input Source Type**
FileName	**File Name**

   You can map additional fields, but if you do, this mapping overrides the mapping configured in the ***Settings*** > ***Invoice Processing*** > ***Global Settings*** > ***Import Settings***.

   g. Edit the other settings as needed.
      For more information on these settings, see the *Tungsten TotalAgility Help*.
   h. Click **Save**.
      Your changes are saved, the **New import source** window is closed, and your new import source is displayed on the **Update import connection** window.

Increase upload buffer size

If you plan on processing large documents, it is necessary to edit the `uploadReadAheadSize` value for your web server. This is the number of bytes that the Web server reads into a buffer and passes on to AP Agility. If your document size is greater than 48Mb, it is necessary to increase the value of this setting in order for them to be processed by AP Agility in a timely manner.

You can increase the upload buffer size by following these steps:

1. Launch the Internet Information Services Manager (IIS) on your on-premise server.
2. Select the **Default Web Site** or the site where you installed the AP Agility ERP Connector.
   The central pane is updated with settings for the selected site.
3. In the **Management** group, double-click on **Configuration Editor**.
   The **Configuration Editor** page is displayed.
4. From the **Section** list, select **system.webServer** > **serverRuntime**.

A list of settings related to server runtime are displayed.

5. For the **`uploadReadAheadSize`** setting, increase the value from 49152 to "49152000".
   This increases the default upload buffer size from 48kb to 48000kb.
6. Optionally, close IIS.

Install Analytics for Tungsten AP Agility components

Use the following steps to install the Analytics for Tungsten AP Agility components.

Configure Tungsten AP Agility navigation menu

It is necessary to configure the navigation menu so that users can access Analytics for Tungsten AP Agility from Tungsten AP Agility.

For more information on configuring the Tungsten AP Agility navigation menu, see the *Analytics for Tungsten AP Agility Installation Guide*.

Configure the data load schedule

It is necessary to configure the data load schedule and its frequency so that data is regularly sent from Tungsten AP Agility to Analytics for Tungsten AP Agility.

For more information on configuring the data load schedule, see the *Analytics for Tungsten AP Agility Installation Guide*.

Configure Tungsten AP Agility resources

In order to ensure that the right users are able to access Analytics for Tungsten AP Agility from the Tungsten AP Agility menu, it is necessary to provide the necessary permissions.

For more information on configuring Tungsten AP Agility resources, see the *Analytics for Tungsten AP Agility Installation Guide*.

Test the Analytics for Tungsten AP Agility installation

Test if you have a successful installation by following these steps:

1. Close or log out from all instances of Tungsten AP Agility, Tungsten TotalAgility, or Analytics for Tungsten AP Agility because you cannot log on to multiple sessions in the same Browser.
2. Open the Tungsten AP Agility tenant URL.
   For example, `https://tenant-id.server-name.net/forms/apagility/` using valid user credentials.
3. Ensure that the menu navigation that you created earlier is visible.
4. Click on the new menu item to open Analytics for Tungsten AP Agility.
   Enter valid user credentials when prompted.
   You are logged on successfully to Analytics for Tungsten AP Agility.

If there is an error, review the user credentials or the installation steps.

Chapter 3

Configure your Tungsten AP Agility installation

The following steps are necessary after installing Tungsten AP Agility. Each step contains its own set of instructions and the order is important. Skipping steps that are not optional, or performing steps out of sequence can result in a failed installation.

The configuration of your Tungsten AP Agility installation is broken down into three parts.

1. Configuration steps that apply to the functionality of entire product
   - if you do not want to use the ERP Agnostic, integrate another ERP system.
2. Configuration steps that are specific to the Invoice Processing functionality.
   - CSV files for database lookups.
   - Configure document ingestion.
   - Optionally, modify the recognition engines in the Transformation Designer.
     This step is necessary if you are processing documents in languages other than English only.
3. Configuration steps that are specific to the AP Agility Workflow functionality.
   - Configure AP Agility Workflow administrative resource access.

General considerations for Tungsten AP Agility in a cloud solution

There are several steps required to configure Tungsten AP Agility that are independent of how you plan to process invoices.

If you are using an Enterprise Resource Planning system it is necessary to integrate that system with Tungsten AP Agility in a multi-tenant or Tungsten Automation hosted Azure environment.

Connection string updates for TotalAgility 8.1.0

If you have Tungsten TotalAgility 8.1.0 installed, it is necessary to modify the connection string used by AP AgilityTungsten AP Agility. This is true for all versions of AP Agility.

If you have an older version of TotalAgility, no changes are needed.

You can update your AP Agility connection string for TotalAgility 8.1.0 by following these steps:

1. Open Tungsten AP Agility as an Administrator.

2. On the **Settings** menu, select **Administration**.
   The **Administration** settings are displayed.
3. In the **AP Agility Database** section, click on the **Connection String** setting and add the `Encrypt` and `TrustServerCertificate` parameters to the end of the connection string.
   The value of these parameters can be True or False and depends on your SQL Server configuration.
   For example, add the following to the end of your connection string:
   `Encrypt=True;TrustServerCertificate=True;`
   Click **Save Database Settings**.
   A message is displayed confirming that the database is saved.

Integration with Enterprise Resource Planning systems

Tungsten AP Agility exports all validated and approved invoices to the Enterprise Resource Planning system (ERP) through a connector plugin. When you first install Tungsten AP Agility, you installed the ERP Agnostic connector. The ERP Agnostic integration provides an ERP-neutral way of integration by transferring data to and from folders. The Tungsten AP Agility Administrator specifies the output file system folder and the file name format for exported invoices. The administrator creates an invoice image in the original format and metadata (XML, CSV) files in the specified folder for all exported invoices. You can also use SAP ECC or MarkView for your ERP as long as the necessary SAP client or Oracle client components are available at the time of the Tungsten AP Agility installation.

In addition to the ERP Agnostic connector, SAP ECC, and MarkView, Tungsten AP Agility provides plugins for the following ERPs:

- PeopleSoft
- S/4HANA Cloud ES

After you are finished integrating an ERP connector, refer to the *Manage ERP integrations* chapter in the Configuration Help for more information about the steps needed to complete the ERP connector integration in Tungsten AP Agility.

Install PeopleSoft connector

If you are using the PeopleSoft ERP system, it is necessary to install the PeopleSoft ERP connector in addition to the ERP Agnostic connector. You cannot install this connector without the ERP Agnostic connector.

If the ERP Agnostic connector is installed, you can install the PeopleSoft ERP connector by following these steps:

1. Download the TungstenAPAgilityERPConnector-2025.1_For_PeopleSoft.ZIP file from the Tungsten Automation Fulfillment Site and extract it on a local drive available to your users.
   Note the extraction location as this is needed in subsequent steps after you install the connector.
2. Copy the contents in `ERP Connector\bin` from the extracted files to the `bin` folder in IIS where the ERP connector files are stored.
   By default, this path is `<Program Files (x86)>\Tungsten\APAgility\Web\bin`.

The PeopleSoft connector is installed and ready for integration with Tungsten AP Agility.

Import the PeopleSoft ERP plugin

Before using the PeopleSoft ERP in Tungsten AP Agility it is necessary to import the ERP plugin into Tungsten TotalAgility.

You can import the PeopleSoft ERP plugin by following these steps:

1. On the filesystem, navigate to where the extracted contents of the `TungstenAPAgilityERPConnector-2025.1_For_PeopleSoft.zip` file are located.
   You extracted this file when the PeopleSoft connector was installed.
2. Launch the TotalAgility Designer.
3. On the menu, select **Import**.
   The **Import** page is displayed.
4. Click **Browse** and then navigate to your extracted files and select `ERP Plugin \ErpPluginPackage-PeopleSoft.zip`.
   A list of files and artifacts for import are displayed for that package.
5. For the **Overwrite options** select **Overwrite all**.
6. For the **Non-versioned items** select **Overwrite**.
7. Click **Import**.
   When prompted to confirm the import, click **OK**.
   When the ERP plugin is imported successfully a message is displayed.

What Next?

Now that your PeopleSoft ERP plugin is imported, open Tungsten AP Agility and perform the following steps:

- Register your ERP plugin.
- Add your PeopleSoft ERP connection.
- Add or edit an organization to use the newly added PeopleSoft ERP connection.

For more information on configuring ERP connections and organizations, refer to the *Tungsten AP Agility Configuration Help*.

PeopleSoft integration

You can integrate PeopleSoft with Tungsten AP Agility by following these steps:

1. On the filesystem, navigate to where the extracted contents of the `TungstenAPAgilityERPConnector-2025.1_For_PeopleSoft.zip` file are located.
   You extracted this file when the PeopleSoft connector was installed.
2. Navigate to the `ERP Integration\PeopleSoft` folder.
   This folder contains the KofaxConnector_For_PeopleSoft.zip file.
3. Extract the KofaxConnector_For_PeopleSoft.zip file.
   The KOFAX_CONNECTOR folder is extracted.
4. Start the PeopleSoft Application Designer.
5. On the menu, select **Tools** > **Copy Project** > **From File**.

The **Copy From File : Select Project** window is displayed.

6. Select the KOFAX_CONNECTOR project and settings from the **Copy From File : Select Project** window and perform the following steps.
   a. Navigate to and select the `KOFAX_CONNECTOR` folder.
      Under **Name**, KOFAX_CONNECTOR is displayed, and KOFAX_CONNECTOR is displayed under **Select Project from the List Below**.
   b. Click **Select** to the right of the **Select Project from the List Below** box.
      The **Copy From File** window is displayed.
   c. Click **Select All** to select all definition types.
   d. Click **Copy**.
      The project and its definition types are installed.
7. Open PeopleSoft in a compatible web browser and configure KOFAX_APA_SERVICE by performing the following steps.
   a. Go to **PeopleTools** > **Integration Broker** > **Integration Setup** > **Services**.
   b. Open KOFAX_APA_SERVICE.
      Information about KOFAX_APA_SERVICE and a list of service operations is displayed.
   c. Open one of the KOFAX_APA_SERVICE service operations and click **Service Operation Security**.
   d. Set the PTPT1000 permission to **Full Access** and click **Save**.
   e. Repeat steps 7.c–7.d until all of the KOFAX_APA_SERVICE service operations have been configured.

PeopleSoft invoice export

Additional settings are needed to enable invoice export from PeopleSoft. The ChartFields settings are used for GL segments for invoices. If the buyer does not have access to the ChartFields settings, GL segment values from exported invoices are ignored and replaced by default values. You can enable buyers to access these settings by following these steps:

1. Start PeopleSoft.
2. In the PeopleSoft menu, select **Navigator** > **eSettlements** > **Buyer Information** > **Review Buyer Details**.
3. Select the buyer who should have access.
   The **Review Buyer Details** window for that buyer is displayed.
4. Click the **ChartField Configuration** tab.
5. Change the **Supplier Access** settings for the buyer to make applicable GL segments editable.
6. Save the settings.

Install S/4HANA Cloud ES ERP plugin

S/4HANA Cloud ES differs from the other supported ERP systems because it is a cloud-based ERP system. Also, its connector is installed within Tungsten TotalAgility, so no separate ERP connector is needed.

You can install the S/4HANA Cloud ES ERP plugin by following these steps:

1. Download and extract the contents of the `TungstenAPAgilityERPConnector-2025.1_For_SAPS4HANACloudES.ZIP` file.
   This file is a deliverable that is part of Tungsten AP Agility 2025.1.
   Make note of this location as it is needed later in these steps.
2. Launch the TotalAgility Designer.
3. On the menu, select **Import**.
   The **Import** page is displayed.
4. Click **Browse** and then navigate to your extracted files and select `ErpPluginPackage-SAPS4HanaCloud.zip`.
   A list of files and artifacts for import are displayed for that package.
5. For the **Overwrite options** select **Overwrite all**.
6. For the **Non-versioned items** select **Overwrite**.
7. Click **Import**.
   When prompted to confirm the import, click **OK**.
   When the ERP plugin is imported successfully a message is displayed.

What Next?

Now that your S/4HANA Cloud ES ERP plugin is imported, open Tungsten AP Agility and perform the following steps:

- Register your ERP plugin.
- Add your S/4HANA Cloud ES ERP connection.
- Add or edit an organization to use the newly added S/4HANA Cloud ES ERP connection.

For more information on configuring ERP connections and organizations, refer to the *Tungsten AP Agility Configuration Help*.

ERP master data import

The ERP master data in the Tungsten AP Agility database must be updated regularly. For the ERP Agnostic, Cloud-Based ERP Agnostic, and the Custom ERP, data is imported from CSV or XML files. For other connections, data is usually imported from the ERP application. For S/4HANA Cloud ES, some of master data must be uploaded as CSV files. The files required by S/4HANA Cloud ES are Payment Terms, Payment Term Details, and Plants files.

For the ERP Agnostic and the Cloud-Based ERP Agnostic, you need to edit the paths for the employee, UOM conversion, tax code, and miscellaneous charge in the **Settings** > **Global Import Files**. For more information on this form, refer to the *Tungsten AP Agility Configuration Help*.

To import the ERP master data, use the AP Data Import job. The Tungsten AP Agility Administrator sets up the schedule for the job or starts the job manually. One job imports data for all organizations.

Tungsten AP Agility makes records about the status of the import jobs in these Tungsten AP Agility database tables:

- ERP_CONNECTOR_SERVICE_CALL_STATUS: Contains the status of each ERP Connector call.

- ERP_IMPORT_JOB_STATUS: Contains the status of loading data as it is prepared by the ERP Connector to the Tungsten AP Agility database.

Use these records for troubleshooting purposes if the import fails or not all data was loaded.

Related topics:
- CSV master data
- XML master data

CSV master data

The ERP master data includes the following types of data with the corresponding Tungsten AP Agility database tables:
- **ERP invoices**: ERP_INVOICE
- **Payment terms**: PAYMENT_TERM
- **Payment terms details**: PAYMENT_TERM_DETAIL
- **Vendors**: VENDOR_MASTER_DATA, BRWVendorMaster
- **PO headers**: PO_HEADER
- **PO lines**: PO_LINES
- **GL Segments**: GL_SEGMENTS
- **Plants**: PLANTS
- **Receipt lines**: RECEIPT_LINES
- **Tax Codes**: TaxCode
- **Miscellaneous Charge**: MiscChargesAccount
- **Unit of Measure Conversions**: BRWUOMConversions
- **Employee**: BRWEmployeeMaster
- **Cost Center Segments**: COST_CENTER_SEGMENTS
- **Work Breakdown Structures**: WBS_SEGMENTS

The data for all ERP master data types is located in the corresponding CSV files. Data types and formats are as follows:
- **Number**: Standard number format
- **Integer**: Standard integer number format
- **Double**: Double number format with floating decimal
- **String**: Commas in the text must be in quotation marks
- **Datetime**: yyyy-mm-dd HH:MM:SS
- **Bit**: 0 or 1

In addition to CSV format, most of the above master data information is supported in XML format as well.

Master data for employee, UOM, tax code, and misc charges is supported in CSV format only.

ERP invoices CSV format

AP Agility database table name: `ERP_INVOICE`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `erp_invoices.csv`.

The `erp_invoices.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	`ERP_INVOICE_ID`	nvarchar(50)	Yes	The Invoice ID in the customer ERP system.
2	`ERP_BUSINESS_UNIT_ID`	nvarchar(100)	No*	The Business Unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
3	`INVOICE_NUMBER`	nvarchar(50)	No*	Invoice number. * This value is mandatory when the Use the number of the invoice to identify duplicates setting is enabled in the **Settings** > **Workflow** > **General Settings**.
4	`INVOICE_DATE`	date	No*	Invoice date. * This value is mandatory when the Use the date of the invoice to identify duplicates setting is enabled in the **Settings** > **Workflow** > **General Settings**.
5	`INVOICE_TYPE`	nvarchar(50)	No	Invoice type: • PO (for single PO invoices) • Non-PO • Credit Memo Invoice
6	`INVOICE_AMOUNT`	numeric	No*	Invoice amount. * This value is mandatory when the Use the amount of the invoice to identify duplicates setting is enabled in the **Settings** > **Workflow** > **General Settings**.
7	`PO_NUMBER`	nvarchar(50)	No	PO Number (or Purchase Order Number).
8	`PAYMENT_DATE`	date	No	Payment date.
9	`CANCELLED_DATE`	date	No	Canceled date.
10	`INVOICE_STATUS`	nvarchar(50)	No	Invoice payment status (PAID or UNPAID).

Field Index	Column Name	Type(Max)	Mandatory	Description
11	VENDOR_NAME1	nvarchar(50)	No	Vendor Name. This value is mandatory for any duplicate search.
12	VENDOR_SITE_ID	nvarchar(50)	No	Vendor site ID.
13	VENDOR_SITE_CODE	nvarchar(50)	No	Vendor site code.
14	ERP_VENDOR_ID	nvarchar(50)	Yes	ERP vendor ID.

For example, the contents of the `erp_invoices.csv` file may look as follows:

```
ERP_INVOICE_ID, ERP_BUSINESS_UNIT_ID, INVOICE_NUMBER, INVOICE_DATE, INVOICE_TYPE,
 INVOICE_AMOUNT, PO_NUMBER, PAYMENT_DATE, CANCELLED_DATE, INVOICE_STATUS, VENDOR_NAME1,
 VENDOR_SITE_ID, VENDOR_SITE_CODE, ERP_VENDOR_ID
214303,204,nd03np_KTM_05/31/2017,2017-05-31 00:00:00,Non-PO Invoice,1000,,,,UNPAID,GE
 Capital,BOSTON,289,93
214304,204,nd04np_KTM_05/31/2017,2017-05-31 00:00:00,Non-PO Invoice,1000,,,,UNPAID,GE
 Capital,BOSTON,289,94
214302,204,nd02np_KTM_05/31/2017,2017-05-31 00:00:00,Non-PO Invoice,1000,,,,UNPAID,GE
 Capital,BOSTON,289,95
```

Payment terms CSV format

AP Agility database table name: `PAYMENT_TERM`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `payment_terms.csv`.

This CSV file is required when using the S/4HANA Cloud ES ERP.

The `payment_terms.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	ERP_TERM_ID	nvarchar(50)	Yes	The payment term ID in the customer ERP system.
2	ERP_BUSINESS_UNIT_ID	nvarchar(100)	No*	The Business Unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
3	TERM_NAME	nvarchar(50)	Yes	The payment term name.
4	TERM_DESCRIPTION	nvarchar(1000)	No	The payment term description.

For example, the contents of the `payment_terms.csv` file may look as follows:

```
ERP_TERM_ID,ERP_BUSINESS_UNIT_ID,TERM_NAME,TERM_DESCRIPTION
10001,204,Immediate,Scheduled for payment immediately.
10002,204,End next month,Paid on the last day of the following month
10003,204, "30 Days Net, 14 Days -2%","30 Days Net, 2% Discount if paid within 14 days"
```

Payment terms details CSV format

AP Agility database table name: `PAYMENT_TERM_DETAIL`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `payment_term_details.csv`.

This CSV file is required when using the S/4HANA Cloud ES ERP.

The `payment_term_details.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	ERP_TERM_ID	nvarchar(50)	Yes	The payment term ID in the customer ERP system.
2	ERP_BUSINESS_UNIT_ID	nvarchar(100)	No*	The business unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
3	SEQUENCE_NUM	int	Yes	The payment sequence number.
4	DUE_PERCENT	numeric	No	The percentage of the invoice amount that must be paid before the invoice due date.
5	DUE_AMOUNT	numeric	No	The amount that must be paid before the invoice due date. One of the fields DUE_PERCENT or DUE_AMOUNT must be left blank.
6	DUE_DAYS	int	No	The number of days left before the invoice due date.
7	DUE_DAY_OF_MONTH	int	No	The day of the month in the invoice due date
8	DUE_MONTHS_FORWARD	int	No	The months left for the invoice to be paid
9	DISCOUNT_PERCENT_1	numeric	No	The percentage of the discount.
10	DISCOUNT_DAYS_1	int	No	The days left before the discount due date.
11	DISCOUNT_DAY_OF_MONTH_1	int	No	The day of the month before the discount due date.
12	DISCOUNT_MONTH_FORWARD_1	int	No	The number of months before the discount due date.

For example, the contents of the `payment_term_details.csv` file may look as follows:

```
ERP_TERM_ID, ERP_BUSINESS_UNIT_ID, SEQUENCE_NUM, DUE_PERCENT, DUE_AMOUNT,DUE_DAYS,
 DUE_DAY_OF_MONTH, DUE_MONTHS_FORWARD, DISCOUNT_PERCENT_1, DISCOUNT_DAYS_1,
 DISCOUNT_DAY_OF_MONTH_1, DISCOUNT_MONTH_FORWARD_1
10000,204,1,100,,0,,,,,,,
10001,204,1,100,,10,,,,,,
10002,204,1,100,,60,,,4,10,,
```

Vendors CSV format

AP Agility database table name: `VENDOR_MASTER_DATA`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `vendors.csv`.

The `vendors.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	`ERP_VENDOR_ID`	nvarchar(50)	Yes	The unique vendor ID from the extracted data. Each row must have a unique reference. This is not the unique vendor ID from the customer ERP system if a site ID is also used.
2	`ERP_BUSINESS_UNIT_ID`	nvarchar(100)	No*	The business unit ID in the customer ERP system (company code). * This value is optional. However, when left empty there are no business units.
3	`ERP_TERM_ID`	nvarchar(50)	No	The default payment terms ID for the vendor in the customer ERP system. This column should match the payment terms in Payment Terms CSV.
4	`DESCRIPTION`	nvarchar(max)	No	The description.
5	`VENDOR_NAME`	nvarchar(360)	Yes	The vendor name.
6	`VENDOR_SITE_ID`	nvarchar(50)	No*	The vendor site ID. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
7	`VENDOR_SITE_CODE`	nvarchar(50)	No*	Vendor site code. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
8	`VENDOR_STREET1`	nvarchar(100)	No	The vendor street address line 1.
9	`VENDOR_STREET2`	nvarchar(100)	No	The vendor street address line 2.
10	`VENDOR_CITY`	nvarchar(50)	No	The vendor city.

Field Index	Column Name	Type(Max)	Mandatory	Description
11	VENDOR_ZIP	nvarchar(50)	No	The vendor zip code or postal code.
12	VENDOR_STATE	nvarchar(50)	No	The vendor state. For U.S. addresses, the state code is expected here, such as CA = California, VA = Virginia.
13	VENDOR_COUNTRY	nvarchar(50)	No	The vendor country. This is a two-character ISO code for the country. For example, US = United States of America, DE = Germany, and GB = United Kingdom.
14	VENDOR_VAT_CODE	nvarchar(50)	No	The vendor VAT code.
15	VENDOR_VAT_REGNO	nvarchar(100)	No	The vendor VAT registration number. If the vendor is registered for VAT in more than one country, then multiple VAT registration numbers are provided in a comma-separated list. The entire column value should be quoted to preserve CSV format.
16	TAX_NUMBER	nvarchar(50)	No	The tax number.
17	BANK_CODE	nvarchar(50)	No	The bank code. This is the U.S. equivalent of a routing number.
18	BANK_ACCOUNT_NUMBER	nvarchar(50)	No	The bank account number.
19	EMAIL	nvarchar(250)	No	The email.
20	URL	nvarchar(250)	No	The URL.
21	TELEPHONE	nvarchar(50)	No	The vendor telephone number.
22	FAX	nvarchar(50)	No	The fax number.
23	CONTACT_NAME	nvarchar(50)	No	The contact name.
24	ACTIVE	bit	Yes	The boolean value that indicates if an entry is valid or not.
25			*N/A*	*Reserved for future use.*
26	TERM_DATE_BASIS	nvarchar(50)	No	The term date basis: • Invoice • Goods received • Current • Invoice received
27	PO_BOX	nvarchar(50)	No	The vendor Post Office (PO) box number.

Field Index	Column Name	Type(Max)	Mandatory	Description
28	PO_BOX_ZIP	nvarchar(50)	No	The ZIP or postal code associated with the vendor Post Office (PO) box.
29	EU_MEMBER	nvarchar(50)	Yes	Indicates if the vendor is in an EU member country or not.
30	CURRENCY	nvarchar(50)	No	The vendor currency.
31	TAX_ID_1	nvarchar(50)	No	The vendor tax ID 1.
32	TAX_ID_2	nvarchar(50)	No	The vendor tax ID 2.
33	TAX_JUR_CODE	nvarchar(100)	No	The ID of the tax office where the vendor is based.
34	INVOICE_TYPE	nvarchar(50)	No	Vendor invoice type. This is set to a value that denotes either PO-supplying vendor or vendor who submits invoices that legitimately do not reference a purchase order. The meaning of the values must be mapped against the PO Value and Non-PO Value settings in the Invoice Type Settings. By default, the supported values are PO and NONPO.
35	PAYMENT_METHODS	nvarchar(50)	No	The comma-separated list of payment method codes appropriate for the vendor. If more than one code is specified then entire column value to be quoted to preserve CSV format.
36	WITHHOLDING_TAX_DETAILS	nvarchar(50)	No	This value is relevant for SAP ECC only. This column is used to resolve the tax type and the tax code that is submitted to SAP ECC / S/4HANA Cloud ES.
37	COMPANY_CODE	nvarchar(50)	No	This field is no longer used and should be left empty. Use the ERP_BUSINESS_UNIT_ID instead.
38	UTILITY_FLAG	nvarchar(50)	No	Indicates whether the vendor is a utility vendor
39	POR_SUBSCRIBER_NO	nvarchar(50)	No	Vendor POR subscriber number used only for Switzerland.

Field Index	Column Name	Type(Max)	Mandatory	Description
40	EXTERNAL_SITE_ID	nvarchar(50)	No	External site ID.
41	VENDOR_ACCOUNT_GROUP	nvarchar(50)	No	ERP system vendor account group.
42	ALTERNATIVE_PAYEE	nvarchar(50)	No	The party that receives payment for an invoice.
43	PERMITTED_PAYEE	nvarchar(50)	No	A comma-separated list of alternate payees for the vendor.
44	SIRET_ID	nvarchar(50)	No	The vendor SIRET ID. This ID code used in France that uniquely identifies a single vendor at a single address. It is often found on French invoices.
45	VENDOR_IDENTIFIER	nvarchar(50)	No	The unique vendor identifier code, such as a Chinese tax number.
46	INTERCOMPANY	bit	Yes	This indicates whether a vendor is an InterCompany vendor or not.
47	ERP_BANK_ACCOUNT_CODE	nvarchar(50)	No	The vendor bank account code as specified in ERP.
48	IS_ONE_TIME_VENDOR	bit	No	Indicates is a vendor is to be used once only.

For example, the contents of the `vendors.csv` file may look as follows:

```
ERP_VENDOR_ID, ERP_BUSINESS_UNIT_ID, ERP_TERM_ID, DESCRIPTION, VENDOR_NAME,
 VENDOR_SITE_ID, VENDOR_SITE_CODE, VENDOR_STREET1, VENDOR_STREET2, VENDOR_CITY,
 VENDOR_ZIP, VENDOR_STATE, VENDOR_COUNTRY, VENDOR_VAT_CODE, VEBDOR_VAT_REGNO,
 TAX_NUMBER, BANK_CODE, BANK_ACCOUNT_NUMBER, EMAIL, URL, TELEPHONE, FAX, CONTACT_NAME,
 ACTIVE, , TERM_DATE_BASIS, PO_BOX, PO_BOX_ZIP, EU_MEMBER, CURRENCY, TAX_ID1,
 TAX_ID2, TAX_JUR_CODE, INVOICE_TYPE, PAYMENT_METHODS, WITHHOLDING_TAX_DETAILS,
 COMPANY_CODE, UTILITY_FLAG, POR_SUBSCRIBER_NO, EXTERNAL_SITE_ID, VENDOR_ACCOUNT_GROUP,
 ALTERNATIVE_PAYEE, PERMITTED_PAYEE, SIRET_ID, VENDOR_IDENTIFIER, INTERCOMPANY,
 ERP_BANK_ACCOUNT_CODE, IS_ONE_TIME_VENDOR
100403, 204, 77745, test vendor a, Thumbs Up, VSID100403, VSID100403, Dummers Lane, ,
 Bury, BL9 9UT, GB, GB, GB339072747, GB339072747, , , , , , , , , 1, 1, , , , X,
 GBP, , , , , , , , , , VSID100403, , , , , , 0, 0
100406, 204, 10043, GE Capital Tungsten Automation, GE Capital Tungsten Automation,
 100500, SiteCode388, Abbey Road 69, NoName Street, New York, Zip1, NY, US, Vat1,
 VatRegNo1, 1, BankCode1, BankAccountNum1, mail@gecapitalTungsten Automation.com,
 www.gecapitalTungsten Automation.com, +12345671, (070) 412 34 561, Ivan Scott,
 True, True, Invoice, PoBox1, PoBoxZip1, 0, USD, TaxId1, TaxId2, TaxJurCode1, NON-
PO, , , , , , GEC0001, , , , , , , , , BAC1, 0
```

PO headers CSV format

AP Agility database table name: `PO_HEADER`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `po_headers.csv`.

The `po_headers.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	ERP_PO_HEADER_ID	nvarchar(50)	Yes	PO header ID in ERP.
2	ERP_BUSINESS_UNIT_ID	nvarchar(100)	Yes	Business unit ID in ERP.
3	PO_NUMBER	nvarchar(50)	Yes	PO number
4	PO_TYPE	nvarchar(50)	No	PO type: • MATERIAL • SERVICE
5	ERP_VENDOR_ID	nvarchar(50)	Yes	Vendor ID in ERP.
6	VENDOR_NAME1	nvarchar(100)	No	Vendor name.
7	VENDOR_SITE_ID	nvarchar(50)	No*	Vendor site ID. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
8	VENDOR_SITE_CODE	nvarchar(50)	No*	Vendor site code. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
9	PO_STATUS	nvarchar(50)	No	PO Status.
10	ACTIVE	bit	Yes	Is Active.
11	CURRENCY_CODE	nvarchar(3)	No	The 3-character currency code.
12	REQUISITIONED_BY	nvarchar(100)	No	Full name, user name ,or email address of the user who requisitioned the PO.
13	CREATED_BY	nvarchar(100)	No	Full name, user name ,or email address of user who created the PO in the ERP system.

For example, the contents of the `po_headers.csv` file may look as follows:

```
ERP_PO_HEADER_ID, ERP_BUSINESS_UNIT_ID, PO_NUMBER, PO_TYPE, ERP_VENDOR_ID,
 VENDOR_NAME1, VENDOR_SITE_ID, VENDOR_SITE_CODE, PO_STATUS, ACTIVE, CURRENCY_CODE,
 REQUISITIONED_BY, CREATED_BY
4500043355,204,4500043355,MATERIAL,100403,Thumbs Up,VSID100403,VSC100403,NULL,1,GBP, ,
4500043375,204,4500043375,MATERIAL,100403,Thumbs Up,VSID100403,VSC100403,NULL,1,GBP, ,
```

PO lines CSV format

AP Agility database table name: `PO_LINES`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `po_lines.csv`.

The `po_lines.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	ERP_PO_LINE_ID	nvarchar(50)	Yes	PO line ID in ERP.
2	ERP_BUSINESS_UNIT_ID	nvarchar(100)	Yes	Business unit ID in ERP.
3	ERP_PO_HEADER_ID	nvarchar(50)	Yes	PO header ID in ERP.
4	PO_NUMBER	nvarchar(50)	Yes	PO number.
5	LINE_NUMBER	nvarchar(50)	Yes	Line number.
6	MATERIAL_NO	nvarchar(50)	No	Material number.
7	MATERIAL_GROUP	nvarchar(50)	No	Material group.
8	DESCRIPTION	nvarchar(255)	No	Description.
9	PO_QUANTITY	numeric	No*	PO Quantity. * This value is required for material lines only.
10	UNIT_PRICE	numeric	No*	Unit price. * This value is required for material lines only.
11	PO_TOTAL	numeric	Yes	PO total.
12	TAX_CODE	nvarchar(50)	No	Tax code.
13	TAX_JUR_CODE	nvarchar(50)	No	Tax jurisdiction code.
14	UOM	nvarchar(50)	No	Unit of measure.
15	PRICE_UNIT	numeric	No	Price unit.
16	PUOM	nvarchar(50)	No	PUOM (Order price unit of measure.)
17	TOTAL_QUANTITY_DELIVERED	numeric	No*	Total quantity delivered. * This value is required for material lines only.
18	TOTAL_VALUE_DELIVERED	numeric	No*	Total value delivered. * This value is required for material lines only.
19	TOTAL_QUANTITY_INVOICED	numeric	No*	Total quantity invoiced. * This value is required for material lines only.
20	TOTAL_VALUE_INVOICED	numeric	No*	Total value invoiced. * This value is required for material lines only.
21	ITEM_CATEGORY	nvarchar(50)	No	Item category or line item type.

Field Index	Column Name	Type(Max)	Mandatory	Description
22	PLANT	nvarchar(50)	No	Plant (The location code for the ship-to address where the goods were delivered, or where a service was performed.)
23	CHARGE_CODE	nvarchar(50)	No	Charge code.
24	CHARGE_CODE_ID	nvarchar(50)	No	Charge code ID.
25	ERP_PO_TYPE	nvarchar(50)	No	ERP PO type (for JD Edwards PO.)
26	ERS	nvarchar(50)	No	ERS flag. Set to any non-empty value to flag a line for ERS.
27	RECEIPT_REQUIRED	bit	Yes	Receipt required.

For example, the contents of the `po_lines.csv` file may look as follows:

```
ERP_PO_LINE_ID, ERP_BUSINESS_UNIT_ID, ERP_PO_HEADER_ID, P)_NUMBER, LINE_NUMBER,
 MATERIAL_NO, MATERIAL_GROUP, DESCRIPTION, PO_QUANTITY, UNIT_PRICE, PO_TOTAL, TAX_CODE,
 TAX_JUR_CODE, UOM, PRICE_UNIT, PUOM, TOTAL_QUANTITY_DELIVERED, TOTAL_VALUE_DELIVERED,
 TOTAL_QUANTITY_INVOICED, TOTAL_VALUE_INVOICED, ITEM_CATEGORY, PLANT, CHARGE_CODE,
 CHARGE_CODE_ID, ERP_PO_TYPE, ERS, RECEIPT_REQUIRED
00010-4500043388, 204, 4500043388, 4500043388, 00010, NULL, ZT00, pencils, 1.00, 1.00,
 1.00, V0, NULL, EA, 1.00, EA, 1.00, 1.00, 0.00, 0.00, 0, 2000, NULL, NULL, NULL, , 1
00020-4500043388, 204, 4500043388, 4500043388, 00020, NULL, ZT00, rulers, 1.00, 2.00,
 2.00, V0, NULL, EA, 1.00, EA, 0.00, 0.00, 0.00, 0.00, 0, 2000, NULL, NULL, NULL, , 1
00030-4500043388, 204, 4500043388, 4500043388, 00030, NULL, ZT00, pens, 1.00, 3.00,
 3.00, V0, NULL, EA, 1.00, EA, 0.00, 0.00, 0.00, 0.00, 0, 2000, NULL, NULL, NULL, , 1
00040-4500043388, 204, 4500043388, 4500043388, 00040, NULL, ZT00, crayons, 1.00, 4.00,
 4.00, V0, NULL, EA, 1.00, EA, 1.00, 4.00, 0.00, 0.00, 0, 2000, NULL, NULL, NULL, x , 1
```

GL segments CSV format

AP Agility database table name: `GL_SEGMENTS`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `gl_segments.csv`.

The `gl_segments.csv` file has the following information.

Field Index	Column Name	Type	Mandatory	Description
1	ERP_SEGMENT_ID	nvarchar(50)	Yes	The Segment ID number in the customer ERP system.
2	ERP_BUSUNESS_UNIT_ID	nvarchar(100)	No*	The Business Unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
3	GL_SEGMENT_NUMBER	int	Yes	The order number of the Segment.
4	GL_SEGMENT_VALUE	nvarchar(50)	Yes	The Segment value.
5	DESCRIPTION	nvarchar(255)	Yes	The description of the Segment.

Field Index	Column Name	Type	Mandatory	Description
6	GL_SEGMENT_NAME	nvarchar(50)	No	The name of the GL Segment.
7	PARENT_ERP_SEGMENT_ID	nvarchar(200)	No	The ID of the parent segment. This is null for the first segment in a structure. Values for this column are required if you are using hierarchical GL codes. Refer to the *Tungsten AP Agility Configuration Help* for more information on GL code hierarchies.

For example, the contents of the `gl_segments.csv` file may look as follows:

```
ERP_SEGMENT_ID, ERP_BUSUNESS_UNIT_ID, GL_SEGMENT_NUMBER, GL_SEGMENT_VALUE,
 GL_SEGMENT_DESCRIPTION, GL_SEGMENT_NAME, PARENT_ERP_SEGMENT_ID
0101,204,1,001001,USA,COUNTRY1,
0102,204,1,001002,UK,COUNTRY2,
...
0201,204,2,002001,California,STATE1,0101
0202,204,2,002002,New York,STATE2,0101
0205,204,2,002005,Bristol,STATE5,0102
0206,204,2,002006,London,STATE6,0102
...
0301,204,3,003001,Los Angeles,CITY1,0201
0302,204,3,003002,San Francisco,CITY2,0201
0303,204,3,003005,New York,CITY5,0202
0304,204,3,003006,Buffalo,CITY6,0202
03017,204,3,0030017,Bishopston,CITY17,0205
03018,204,3,0030018,London,CITY18,0206
...
```

Plants CSV format

AP Agility database table name: `PLANTS`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `plants.csv`.

This CSV file is required when using the S/4HANA Cloud ES ERP.

The `plants.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	PLANT_ID	nvarchar(50)	Yes	The plant ID. It must be unique in CSV file. It matches the Plant value specified for PO lines. It is exported as the invoice line Plant field.

Field Index	Column Name	Type(Max)	Mandatory	Description
2	ERP_ORGANIZATION_ID	nvarchar(50)	No	The plant belongs to this organization ID. If an organization ID is not provided, the plant is created and linked to the organization defined in the ERP Connection.
3	COUNTRY_CODE	nvarchar(2)	Yes	The two-character ISO country code for the plant. Entries with empty country codes are skipped in the import process.
4	STATE_CODE	nvarchar(60)	No	The state where the plant is located. For the United States, use the two-character state code such as CA for California.

For example, the contents of the `plants.csv` file may look as follows:

```
PLANT_ID,ERP_ORGANIZATION_ID,COUNTRY_CODE,STATE_CODE
USA001,Tungsten Automation,US,NY
```

Receipt Lines data format

AP Agility database table name: `RECEIPT_LINES`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `receipt_lines.csv`.

The `receipt_lines.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	ERP_BUSINESS_UNIT_ID	nvarchar(100)	Yes	The business unit ID in customer ERP system (company code).
2	PO_NUMBER	nvarchar(50)	Yes	The PO number that is used during line pairing to match the receipt line. See PO lines CSV format.
3	PO_LINE_NUMBER	nvarchar(50)	Yes	The PO line number in the customer ERP system. This is an ERP-specific line ID in the PO, such as the line number. It must be unique among lines in the PO. It is used during line pairing to match the receipt line to the number of PO line. See PO lines CSV format.

Field Index	Column Name	Type(Max)	Mandatory	Description
4	ERP_RECEPT_ID	nvarchar(50)	Yes	The receipt ID in the customer ERP system. This value is used by Tungsten AP Agility Invoice Processing as the receipt number (DOC_NO field) during line pairing. For the line-paired invoice lines this column is exported as the GRDocNo tag.
5	RECEIPT_LINE_NUMBER	nvarchar(50)	Yes	The receipt item number in the customer ERP system. This value is used by Tungsten AP Agility Invoice Processing as the receipt item (DOC_ITEM field) during line pairing. For paired invoice lines, it is exported as the GRDocItem tag.
6	DELIVERY_DOCUMENT_NUMBER	nvarchar(50)	No	The delivery document number.
7	QUANTITY	numeric	Yes	The quantity on a document.
8	UNITPRICE	numeric	Yes	The unit price on a document.
9	TOTAL	numeric	Yes	The total amount on a document.
10	QUANTITY_INVOICED	numeric	Yes	The quantity invoiced on a document.
11	TOTAL_INVOICED	numeric	Yes	The total invoiced on a document.
12	DOC_YEAR	nvarchar(50)	No	The receipt year on a document.

For example, the contents of the receipt_lines.csv file may look as follows:

```
BUSINESS_UNIT, PO_NUMBER, PO_LINE_NUMBER, ERP_RECEPT_ID, RECEIPT_LINE_NUMBER,
 DELIVERY_DOCUMENT_NUMBER, QUANTITY, UNIT_PRICE, TOTAL, QUANTITY_INVOICED,
 TOTAL_INVOICED, DOC_YEAR
204,4500043375,00010,5000000940,0001,NULL,4.00,5.00,20.00,0.00,0.00,2019
204,4500043375,00010,5000000941,0001,NULL,6.00,5.00,30.00,0.00,0.00,2019
204,4500043375,00020,5000000941,0002,NULL,7.00,8.00,56.00,0.00,0.00,2019
204,4500043375,00020,5000000940,0002,NULL,3.00,8.00,24.00,0.00,0.00,2019
```

Employee format

AP Agility database table name: BRWEmployeeMaster

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: employee.csv.

The employee.csv file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	INDEX_ID	nvarchar(100)	Yes	The index ID of the employee record.

Field Index	Column Name	Type(Max)	Mandatory	Description
2	PARTITION_ID	int	Yes	The ID of the partition for the employee.
3	ID	nvarchar(50)	Yes	The ID of the employee.
4	NAME	nvarchar(100)	No	The employee name.
5	ADDRESS1	nvarchar(200)	No	The first line of the employee's address.
6	ADDRESS2	nvarchar(200)	No	The second line of the employee's address.
7	CITY	nvarchar(50)	No	The employee city.
8	ZIP	nvarchar(15)	No	The employee ZIP code.
9	STATE	nvarchar(50)	No	The employee state.
10	COUNTRY	nvarchar(10)	No	The employee country code.
11	TEL_NO	nvarchar(50)	No	The employee telephone number.
12	TAX_ID1	nvarchar(50)	No	The employee tax ID 1.
13	TAX_ID2	nvarchar(50)	No	The employee tax ID 2.

For example, the contents of the `employee.csv` file may look as follows:

```
INDEX_ID, PARTITION_ID, ID, NAME, ADDRESS1, ADDRESS2, CITY, ZIP, STATE, COUNTRY,
 TEL_NO, TAXID1, TAXID2
0-1,0,1,John Doe,330 Tijeras NW,,Albuquerque,87102,New Mexico,USA,1 505 842 1234,,
```

Miscellaneous Charge format

AP Agility database table name: `MiscChargesAccount`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `misc_charge.csv`.

The `misc_charge.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	POPARTITION	int	Yes	The PO partition.
2	COMPANYCODE	varchar(50)	Yes	The company code.
3	CATEGORY	varchar(50)	Yes	The category of the charge.
4	PLANT	varchar(50)	No	The plant.
5	LINETYPE	varchar(10)	No	The line type.
6	GLACCOUNT	varchar(50)	No	The GL account number.
7	COSTCENTER	varchar(50)	No	The cost center.
8	PROFITCENTER	varchar(50)	No	The profit center.
9	TAXCODE	varchar(50)	No	The tax code.

For example, the contents of the `misc_charge.csv` file may look as follows:

```
POPARTITION, COMPANYCODE, CATEGORY, PLANT, LINETYPE, GLACCOUNT, COSTCENTER,
 PROFITCENTER, TAXCODE
0,123,Good,Plant-SF,POLine,188-662,Irvine,Irvine,1
```

Tax code format

AP Agility database table name: `TaxCode`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `taxcode.csv`.

The `taxcode.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	PARTITION_ID	int	Yes	Partition ID.
2	VENDOR_ID	varchar(50)	No	Vendor ID.
3	COUNTRY	varchar(2)	No	Two-character country code.
4	SHIP_TO	varchar(2)	No	Two-character code of the country where the item was shipped to.
5	SHIP_FROM	varchar(2)	No	Two-character code of the country where the item was shipped from.
6	SERVICE	varchar(1)	No	If this is a service. Enter Y or N.
7	MATERIAL_NO	varchar(50)	No	Material number.
8	MATERIAL_GROUP	varchar(50)	No	Material group.
9	PERCENTAGE	decimal	Yes	Tax percentage.
10	TAX_CODE	varchar(50)	No	Tax code.

For example, the contents of the `taxcode.csv` file may look as follows:

```
PARTITION_ID, VENDOR_ID, COUNTRY, SHIP_TO, SHIP_FROM, SERVICE, MATERIAL_NO,
 MATERIAL_GROUP, PERCENTAGE, TAX_CODE
1,1,US,US,US,Y,12345,1,10,2
```

Unit of Measure Conversion format

AP Agility database table name: `BRWUOMConversions`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `uom_conversion.csv`.

The `uom_conversion.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	PO_PARTITION	int	Yes	PO partition.
2	MATERIAL_NO	varchar(50)	Yes	Material number.
3	BASE_UOM	varchar(50)	Yes	Base unit of measure.

Field Index	Column Name	Type(Max)	Mandatory	Description
4	NUMERATOR	varchar(50)	Yes	Numerator for the unit of measure.
5	DENOMINATOR	varchar(50)	Yes	Denominator for the unit of measure.
6	EXTERNAL_UOM	varchar(50)	Yes	External unit of measure.

For example, the contents of the `uom_conversion.csv` file may look as follows:

```
PO_PARTITION,MATERIAL_NO,BASE_UOM,NUMERATOR,DENOMINATOR,EXTERNAL_UOM
0,1,100,5,2,1001
```

Cost center segments CSV format

Table name: `COST_CENTER_SEGMENTS`

File name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `cc_segments.csv`.

The `cc_segments.csv` file has the following information.

Field Index	Column Name	Type(Max)	Mandatory	Description
1	ERP_SEGMENT_ID	nvarchar(50)	Yes	The segment ID number in the customer ERP system.
2	ERP_BUSUNESS_UNIT_ID	nvarchar(100)	No*	The Business Unit ID number in the customer ERP system. * This value is optional. However, when left empty there are no business units.
3	CC_SEGMENT_NUMBER	int	Yes	The order number of the segment.
4	CC_SEGMENT_VALUE	nvarchar(50)	Yes	The segment code.
5	CC_SEGMENT_DESCRIPTION	nvarchar(255)	Yes	The segment description.
6	CC_SEGMENT_NAME	nvarchar(50)	No	The Name of the cost center segment.
7	PARENT_ERP_SEGMENT_ID	nvarchar(50)	No	A column used for storing information about the parent segment. This is null for the first segment in a structure.

For example, the contents of the `COST_CENTER_SEGMENTS.csv` file may look as follows:

```
ERP_SEGMENT_ID,ERP_BUSUNESS_UNIT_ID,CC_SEGMENT_NUMBER,CC_SEGMENT_VALUE,
 CC_SEGMENT_DESCRIPTION,CC_SEGMENT_NAME,PARENT_ERP_SEGMENT_ID
1001,204,1,000,Organization Desc,Organization
1002,204,2,001,Logstics Desc,Logstics,1001
1003,204,3,002,Energy Desc,Energy,1002
1004,204,3,003,Warehouse Desc,Warehouse,1002
1005,204,2,004,Administration Desc,Administration,1001
1006,204,3,005,Purchase Desc,Purchase,1005
1007,204,3,006,Accounting Desc,Accounting,1005
```

```
1008,204,2,007,Production Desc,Production,1001
1009,204,3,008,Production Department Desc,Production Department,1008
1010,204,3,009,Line Department Desc,Line Department,1008
```

Work breakdown structure segments CSV format

AP Agility database table name: `WBS_SEGMENTS`

CSV file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `WBS_SEGMENTS.csv`.

The `WBS_SEGMENTS.csv` file has the following information.

Field Index	Column Name	Type	Mandatory	Description
1	`ERP_SEGMENT_ID`	nvarchar(50)	Yes	The segment ID number in the customer ERP system.
2	`ERP_BUSUNESS_UNIT_ID`	nvarchar(100)	No*	The Business Unit ID number in the customer ERP system. * This value is optional. However, when left empty there are no business units.
3	`WBS_SEGMENT_NUMBER`	int	Yes	The order number of the segment.
4	`WBS_SEGMENT_VALUE`	nvarchar(50)	Yes	The value of the work breakdown structure.
5	`WBS_SEGMENT_DESCRIPTION`	nvarchar(255)	Yes	The segment description.
6	`WBS_SEGMENT_NAME`	nvarchar(50)	No	The Name of the work breakdown structure segment.
7	`PARENT_ERP_SEGMENT_ID`	nvarchar(50)	No	A column used for storing information about the parent segment. This is null for the first segment in a structure.

For example, the contents of the `WBS_SEGMENTS.csv` file may look as follows:

```
ERP_SEGMENT_ID, ERP_BUSUNESS_UNIT_ID, WBS_SEGMENT_NUMBER, WBS_SEGMENT_VALUE,
 WBS_SEGMENT_DESCRIPTION, WBS_SEGMENT_NAME, PARENT_ERP_SEGMENT_ID
2001, 204, 1, 000, Development Desc, Development
2002, 204, 2, 001, Project Management, Project Management, 2001
```

XML master data

XML files have the capacity to accommodate hierarchical data structures. Therefore, it is possible to consolidate related information in a single XML file based on hierarchical relationships.

Database Table(s)	XML File	Type
`PAYMENT_TERM`, `PAYMENT_TERM_DETAIL`	`payment_terms.xml`	Hierarchical
`PO_HEADER`, `PO_LINES`, and `RECEIPT_LINES`	`purchase_orders.xml`	Hierarchical
`GL_SEGMENTS`	`gl_segments.xml`	Standalone

Database Table(s)	XML File	Type
COST_CENTER_SEGMENTS	cc_segments.xml	Standalone
WBS_SEGMENTS	wbs_segments.xml	Standalone
PLANTS	plants.xml	Standalone
ERP_INVOICE	erp_invoices.xml	Standalone
VENDOR_MASTER_DATA	vendors.xml	Standalone

Master data for employee, UOM, tax code, and misc charges is supported in CSV format only.

Payment terms XML format

This XML file is a hierarchical data file that includes content from two separate tables:

- Payment terms
- Payment term details

The Payment terms table includes the conditions that the buyer agrees to pay a seller for goods and services. These terms typically include the name of the term, description, and term code.

The Payment term details table includes specific attributes and information associated with each payment term, such as the due date calculation method, the discount percentage, or amount.

These two tables are linked because they usually have a one-to-many relationship, where each payment term in the payment terms table can have multiple corresponding entries in the payment term details table.

AP Agility database table names: PAYMENT_TERM, PAYMENT_TERM_DETAIL

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: payment_terms.xml if it does not exceed 5 MB. If this file is greater than 5 MB, it is split into payment_terms_001.xml, payment_terms_002.xml, payment_terms_003.xml, etc. None of these split files can exceed 5 MB.

The payment_terms.xml file has the following information.

XML Node	Data Type	Mandatory	Description
ERPTermID	string	No	The payment term ID in the customer ERP system.
ERPBusinessUnitID	string	No	The Business Unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
TermName	string	No	The payment term name.
TermDescription	string	No	The payment term description.

XML Node	Data Type	Mandatory	Description

`PaymentTermDetails`
This node has the following repeating structure:
`<PaymentTermDetails>`
`<PaymentTermDetail>`
`<SequenceNumber />`
`<DuePercent />`
`<DueAmount />`
`<DueDays />`
`<DueDayOfMonth />`
`<DueMonthsForward />`
`<DiscountPercent />`
`<DiscountDays />`
`<DiscountDayOfMonth />`
`<DiscountMonthForward />`
`</PaymentTermDetail>`
`</PaymentTermDetails>`
			The hierarchical details of the payment terms. The `PaymentTermDetail` node can be repeated as often as necessary. If the file exceeds 5 MB it is split into multiple files, each no larger than 5 MB.

The `PaymentTermDetail` repeating node contains the following.

XML Node	Data Type	Mandatory	Description
`SequenceNumber`	int	Yes	The payment sequence number.
`DuePercent`	decimal	No	The percentage of the invoice amount that must be paid before the invoice due date.
`DueAmount`	decimal	No	The amount that must be paid before the invoice due date. Either `DUE_PERCENT` or `DUE_AMOUNT` must be left blank.
`DueDays`	int	No	The number of days left before the invoice due date.
`DueDayOfMonth`	int	No	The day of the month in the invoice due date.
`DueMonthsForward`	int	No	The months left for the invoice to be paid.
`DiscountPercent`	decimal	No	The percentage of the discount.
`DiscountDays`	int	No	The days left before the discount due date.
`DiscountDayOfMonth`	int	No	The day of the month before the discount due date.
`DiscountMonthForward`	int	No	The number of months before the discount due date.

Related topics:

- Master data XML samples
- Payment terms XML sample
- Master data XML schema definitions
- Payment terms XSD file

Purchase orders XML format

This XML file is a hierarchical data file that includes content from three separate tables:

- PO headers
- PO lines
- Receipt lines

The PO headers table represents the primary information about a purchase order, including details like the business unit, vendor name, vendor site information, PO number, and PO type.

The PO lines table can have multiple PO Lines that detail the individual items being ordered for each PO header. Details such as item description, quantity, and price are included.

The PO lines table references the PO number in the PO Header table, establishing a link between the PO header and corresponding lines.

Receipt lines are linked back to the corresponding PO lines, indicating what items have been received, in what quantities, delivery document number, and more.

Receipt lines reference the PO number in the PO header table, establishing a link between the receipt and other original purchase orders.

Additionally, the Receipt lines table references the PO line number in the PO lines table, indicating the corresponding line item on the receipt.

AP Agility database table names: `PO_HEADER`, `PO_LINES`, and `RECEIPT_LINES`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `purchase_orders.xml` if it does not exceed 5 MB. If this file is greater than 5 MB, it is split into `purchase_orders_001.xml, purchase_orders_002.xml, purchase_orders_003.xml`, etc. None of these split files can exceed 5 MB.

The `purchase_orders.xml` file has the following information.

XML Node	Data Type	Mandatory	Description
`ERPPOHeaderID`	string	No	PO header ID in ERP.
`ERPBusinessUnitID`	string	No	Business unit ID in ERP.
`PONumber`	string	No	PO number.
`POType`	string	No	PO type: • MATERIAL • SERVICE
`ERPVendorID`	string	No	Vendor ID in ERP.
`VendorName1`	string	No	Vendor name.
`VendorSiteID`	string	No	Vendor site ID. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.

XML Node	Data Type	Mandatory	Description
VendorSiteCode	string	No	Vendor site code. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
POStatus	string	No	PO Status.
Active	boolean	No	Is Active.
CurrencyCode	string	No	The 3-character currency code.
RequisitionedBy	string	No	Full name, user name ,or email address of the user who requisitioned the PO.
CreatedBy	string	No	Full name, user name ,or email address of user who created the PO in the ERP system.

XML Node	Data Type	Mandatory	Description

`PurchaseOrderLines`
This node has the following repeating structure:
`<PurchaseOrderLines>`
`<PurchaseOrderLine>`
`<ERPPOLineID />`
`<LineNumber />`
`<MaterialNumber />`
`<MaterialGroup />`
`<Description />`
`<POQuantity />`
`<UnitPrice />`
`<POTotal />`
`<TaxCode />`
`<TaxJurCode />`
`<UnitOfMeasure />`
`<PriceUnit />`
`<Puom />`
`<TotalQuantityDelivered />`
`<TotalValueDelivered />`
`<TotalQuantityInvoiced />`
`<TotalValueInvoiced />`
`<ItemCategory />`
`<Plant />`
`<ChargeCode />`
`<ChargeCodeID />`
`<ERPPOType />`
`<Ers />`
`<ReceiptRequired />`
`<ReceiptLines>`
`<ReceiptLine>`
`<ERPReceiptID />`
`<ReceiptLineNumber />`
`<DeliveryDocumentNumber />`
`<Quantity />`
`<UnitPrice />`
`<Total />`
`<QuantityInvoiced />`
`<TotalInvoiced />`
`<DocYear />`
`</ReceiptLine>`
`</ReceiptLines>`
`</PurchaseOrderLine>`
`</PurchaseOrderLines>`
			The hierarchical details of the purchase orders. The `PurchaseOrderLines` node can be repeated as often as necessary. If the file exceeds 5 MB it is split into multiple files, each no longer than 5 MB.

The `PurchaseOrderLine` repeating node contains the following.

XML Node	Data Type	Mandatory	Description
`ERPPOLineID`	string	No	PO line ID in ERP.
`LineNumber`	string	No	Line number.
`MaterialNo`	string	No	Material number.
`MaterialGroup`	string	No	Material group.
`Description`	string	No	Description.

XML Node	Data Type	Mandatory	Description
POQuantity	decimal	No*	PO Quantity. * This value is required for material lines only.
UnitPrice	decimal	No*	Unit price. * This value is required for material lines only.
POTotal	decimal	Yes	PO total.
TaxCode	string	No	Tax code.
TaxJurCode	string	No	Tax jurisdiction code.
UnitOfMeasure	string	No	Unit of measure.
PriceUnit	decimal	Yes	Price unit.
Puom	string	No	PUOM (Order price unit of measure.)
TotalQuantityDelivered	decimal	No*	Total quantity delivered. * This value is required for material lines only.
TotalValueDelivered	decimal	No*	Total value delivered. * This value is required for material lines only.
TotalQuantityInvoiced	decimal	No*	Total quantity invoiced. * This value is required for material lines only.
TotalValueInvoiced	decimal	No*	Total value invoiced. * This value is required for material lines only.
ItemCategory	string	No	Item category or line item type.
Plant	string	No	Plant (The location code for the ship-to address where the goods were delivered, or where a service was performed.)
ChargeCode	string	No	Charge code.
ChargeCodeID	string	No	Charge code ID.
ERPPOType	string	No	ERP PO type (for JD Edwards PO.)
Ers	string	No	ERS flag. Set to any non-empty value to flag a line for ERS.
ReceiptRequired	boolean	Yes	Receipt required.

XML Node	Data Type	Mandatory	Description

`ReceiptLines`
This node has the following repeating structure:
`<ReceiptLines>`
`<ReceiptLine>`
`<ERPReceiptID />`
`<ReceiptLineNumber />`
`<DeliveryDocumentNumber />`
`<Quantity />`
`<UnitPrice />`
`<Total />`
`<QuantityInvoiced />`
`<TotalInvoiced />`
`<DocYear />`
`</ReceiptLine>`
`</ReceiptLines>`
			The `ReceiptLines` node can be repeated as often as necessary. If the file exceeds 5 MB it is split into multiple files, each no longer than 5 MB.

The `ReceiptLines` repeating node contains the following.

XML Node	Data Type	Mandatory	Description
`ERPReceiptID`	string	No	The receipt ID in the customer ERP system. This value is used by Tungsten AP Agility Invoice Processing as the receipt number (`DOC_NO` field) during line pairing. For the line-paired invoice lines this column is exported as the `GRDocNo` tag.
`ReceiptLineNumber`	string	No	The receipt item number in the customer ERP system. This value is used by Tungsten AP Agility Invoice Processing as the receipt item (`DOC_ITEM` field) during line pairing. For paired invoice lines, it is exported as the `GRDocItem` tag.
`DelieveryDocumentNumber`	string	No	The delivery document number.
`Quantity`	decimal	Yes	The quantity on a document.
`UnitPrice`	decimal	Yes	The unit price on a document.
`Total`	decimal	Yes	The total amount on a document.
`QuantityInvoiced`	decimal	Yes	The quantity invoiced on a document.
`TotalInvoiced`	decimal	Yes	The total invoiced on a document.
`DocYear`	string	No	The receipt year on a document.

Related topics:

- Master data XML samples
- Purchase orders XML sample
- Master data XML schema definitions
- Purchase orders XSD file

GL segments XML format

This is a standalone XML file that contains information about managing GL segments with the context of an ERP system. This file includes hierarchical relationships between segments.

AP Agility database table name: `GL_SEGMENTS`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `gl_segments.xml`

The `gl_segments.xml` file has the following information.

Column Name	Data Type	Mandatory	Description
`ERPSegmentID`	string	No	The Segment ID number in the customer ERP system.
`ERPBusinessUnitID`	string	No	The Business Unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
`GLSegmentNumber`	int	Yes	The order number of the Segment.
`GLSegmentValue`	string	No	The Segment value.
`Description`	string	No	The description of the Segment.
`GLSegmentName`	string	No	The name of the GL Segment.

`ChildSegments`
This node has the following repeating structure:
`<ChildSegments>`
`  <GLSegment>`
`  <ERPSegmentID />`
`  <ERPBusinessUnitID />`
`  <GLSegmentNumber />`
`  <GLSegmentValue />`
`  <Description />`
`  <GLSegmentName />`
`  <ChildSegments>`
`  <GLSegment>`
`  <ERPSegmentID />`
`  <ERPBusinessUnitID />`
`  <GLSegmentNumber />`
`  <GLSegmentValue />`
`  <Description />`
`  <GLSegmentName />`
`  <ChildSegments />`
`  </GLSegment>`
`  </ChildSegments>`
`  </GLSegment>`
`</ChildSegments>`
			The `ChildSegments` node can be repeated and nested as needed.

Related topics:

- Master data XML samples

- GL segments XML sample
- Master data XML schema definitions
- GL segments XSD file

Cost center segments XML format

This is a standalone XML file that contains information about managing cost center segments with the context of an ERP system. This file includes hierarchical relationships between segments.

AP Agility database table name: `COST_CENTER_SEGMENTS`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `cc_segments.xml`

The `cc_segments.xml` file has the following information.

XML Node	Type(Max)	Mandatory	Description
`ERPSegmentID`	string	No	The segment ID number in the customer ERP system.
`ERPBusinessUnitID`	string	No*	The Business Unit ID number in the customer ERP system. * This value is optional. However, when left empty there are no business units.
`CCSegmentNumber`	int	Yes	The order number of the segment.
`CCSegmentValue`	string	Yes	The segment code.
`Description`	string	No	The segment description.
`CCSegmentName`	string	No	The Name of the cost center segment.

XML Node	Type(Max)	Mandatory	Description
`ChildSegments` This node has the following repeating structure: `<ChildSegments> <CCSegment> <ERPSegmentID /> <ERPBusinessUnitID /> <CCSegmentNumber /> <CCSegmentValue /> <Description /> <CCSegmentName /> <ChildSegments> <CCSegment> <ERPSegmentID /> <ERPBusinessUnitID /> <CCSegmentNumber /> <CCSegmentValue /> <Description /> <CCSegmentName /> <ChildSegments /> </CCSegment> </ChildSegments> </CCSegment> </ChildSegments>`			The `ChildSegments` node can be repeated and nested as needed.

Related topics:

- Master data XML samples
- Cost center XML sample
- Master data XML schema definitions
- Cost center segments XSD file

Work breakdown structure segments XML format

This is a standalone XML file that contains information about managing work breakdown structure segments with the context of an ERP system. This file includes hierarchical relationships between segments.

AP Agility database table name: `WBS_SEGMENTS`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `wbs_segments.xml`

The `wbs_segments.xml` file has the following information.

XML Node	Data Type	Mandatory	Description
`ERPSegmentID`	string	No	The segment ID number in the customer ERP system.
`ERPBusinessUnitID`	string	No*	The Business Unit ID number in the customer ERP system. * This value is optional. However, when left empty there are no business units.
`WBSSegmentNumber`	int	Yes	The order number of the segment.

XML Node	Data Type	Mandatory	Description
`WBSSegmentValue`	string	string	The value of the work breakdown structure.
`Description`	string	Yes	The segment description.
`WBSSegmentName`	string	No	The Name of the work breakdown structure segment.
`ChildSegments` This node has the following repeating structure: <ChildSegments> <WBSSegment> <ERPSegmentID /> <ERPBusinessUnitID /> <WBSSegmentNumber /> <WBSSegmentValue /> <Description /> <WBSSegmentName /> <ChildSegments> <WBSSegment> <ERPSegmentID /> <ERPBusinessUnitID /> <WBSSegmentNumber /> <WBSSegmentValue /> <Description /> <WBSSegmentName /> <ChildSegments /> </WBSSegment> </ChildSegments> </WBSSegment> </ChildSegments>			The `ChildSegments` node can be repeated and nested as needed.

Related topics:

- Master data XML samples
- Work breakdown structure segments XML sample
- Master data XML schema definitions
- Work breakdown structure segments XSD file

Plants XML format

This is a standalone XML file that contains information about plants, including their identifiers, taxation partition identifiers, country codes, and state codes.

AP Agility database table name: `PLANTS`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `plants.xml`

The `plants.xml` file has the following information.

XML Node	Data Type	Mandatory	Description
`PlantID`	string	No	The plant ID. It must be unique in CSV file. It matches the Plant value specified for PO lines. It is exported as the invoice line Plant field.

XML Node	Data Type	Mandatory	Description
`ERPOrganizationID`	string	No	The plant belongs to this organization ID. If an organization ID is not provided, the plant is created and linked to the organization defined in the ERP Connection.
`CountryCode`	string	No	The two-character ISO country code for the plant. Entries with empty country codes are skipped in the import process.
`StateCode`	string	No	The state where the plant is located. For the United States, use the two-character state code such as CA for California.

Related topics:

- Master data XML samples
- Plants XML sample
- Master data XML schema definitions
- Plants XSD file

ERP Invoices

This file contains information about invoices, including their identifiers, dates, amounts, statuses, and associated business units, vendors, and purchase orders.

AP Agility database table name: `ERP_INVOICE`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `erp_invoices.xml`

The `erp_invoices.xml` file has the following information.

Column Name	Data Type	Mandatory	Description
`ERPInvoiceID`	string	No	The Invoice ID in the customer ERP system.
`ERPBusinessUnitID`	string	No	The Business Unit ID in the customer ERP system. * This value is optional. However, when left empty there are no business units.
`InvoiceNumber`	string	No	Invoice number. * This value is mandatory when the **Use the number of the invoice to identify duplicates** setting is enabled in the **Settings** > **Workflow** > **General Settings**.
`InvoiceDate`	dateTime	No	Invoice date. * This value is mandatory when the **Use the date of the invoice to identify duplicates** setting is enabled in the **Settings** > **Workflow** > **General Settings**.

Column Name	Data Type	Mandatory	Description
InvoiceType	string	No	Invoice type: • PO (for single PO invoices) • Non-PO • Credit Memo Invoice
InvoiceAmount	decimal	No	Invoice amount. * This value is mandatory when the **Use the amount of the invoice to identify duplicates** setting is enabled in the **Settings** > **Workflow** > **General Settings**.
PONumber	string	No	PO Number (or Purchase Order Number).
PaymentDate	dateTime	No	Payment date.
CancelledDate	dateTime	No	Canceled date.
InvoiceStatus	string	No	Invoice payment status (PAID or UNPAID).
VendorName1	string	No	Vendor Name. This value is mandatory for any duplicate search.
VendorSiteCode	string	No	Vendor site ID.
VendorSiteID	string	No	Vendor site code.
ERPVendorID	string	No	ERP vendor ID.

Related topics:

- Master data XML samples
- ERP invoices XML sample
- Master data XML schema definitions
- ERP invoices XSD file

Vendors XML format

This file contains comprehensive information about vendors, including their identifiers, ERP details, business unit associations, payment terms, contact information, tax details, and various other attributes.

AP Agility database table name: `VENDOR_MASTER_DATA`

XML file name for ERP Agnostic, Cloud-based ERP Agnostic, or Custom ERP: `vendors.xml`

The `vendors.xml`file has the following information.

XML Node	Data Type	Mandatory	Description
ERPVendorID	string	No	The unique vendor ID from the extracted data. Each row must have a unique reference. This is not the unique vendor ID from the customer ERP system if a site ID is also used.

XML Node	Data Type	Mandatory	Description
ERPBusinessUnitID	string	No	The business unit ID in the customer ERP system (company code). * This value is optional. However, when left empty there are no business units.
ERPTermID	string	No	The default payment terms ID for the vendor in the customer ERP system. This column should match the payment terms in Payment Terms CSV.
Description	string	No	The description.
VendorName	string	No	The vendor name.
VendorSiteID	string	No	The vendor site ID. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
VendorSiteCode	string	No	Vendor site code. This value should be empty if the ERP does not support the vendor sites. * This value is mandatory if your ERP system supports vendor sites.
VendorStreet1	string	No	The vendor street address line 1.
VendorStreet2	string	No	The vendor street address line 2.
VendorCity	string	No	The vendor city.
VendorZip	string	No	The vendor zip code or postal code.
VendorState	string	No	The vendor state. For U.S. addresses, the state code is expected here, such as CA = California, VA = Virginia.
VendorCountry	string	No	The vendor country. This is a two-character ISO code for the country. For example, US = United States of America, DE = Germany, and GB = United Kingdom.
VendorVATCode	string	No	The vendor VAT code.
VendorVATRegno	string	No	The vendor VAT registration number. If the vendor is registered for VAT in more than one country, then multiple VAT registration numbers are provided in a comma-separated list. The entire column value should be quoted to preserve CSV format.
TaxNumber	string	No	The tax number.
BankCode	string	No	The bank code. This is the U.S. equivalent of a routing number.

XML Node	Data Type	Mandatory	Description
BankAccountNumber	string	No	The bank account number.
Email	string	No	The email.
Url	string	No	The URL.
Telephone	string	No	The vendor telephone number.
Fax	string	No	The fax number.
ContactName	string	No	The contact name.
Active	boolean	No	The boolean value that indicates if an entry is valid or not.
TermDateBasis	boolean	No	The term date basis: • Invoice • Goods received • Current • Invoice received
PoBox	string	No	The vendor Post Office (PO) box number.
PoBoxZip	string	No	The ZIP or postal code associated with the vendor Post Office (PO) box.
EuMember	No	No	Indicates if the vendor is in an EU member country or not.
Currency	string	No	The vendor currency.
TaxID1	string	No	The vendor tax ID 1.
TaxID2	string	No	The vendor tax ID 2.
TaxJurCode	string	No	The ID of the tax office where the vendor is based.
InvoiceType	string	No	Vendor invoice type. This is set to a value that denotes either PO-supplying vendor or vendor who submits invoices that legitimately do not reference a purchase order. The meaning of the values must be mapped against the PO Value and Non-PO Value settings in the Invoice Type Settings. By default, the supported values are PO and NONPO.
PaymentMethods	string	No	The comma-separated list of payment method codes appropriate for the vendor. If more than one code is specified, then entire column value to be quoted to preserve CSV format.

XML Node	Data Type	Mandatory	Description
`WithholdingTaxDetails`	string	No	This value is relevant for SAP ECC only. This column is used to resolve the tax type and the tax code that is submitted to SAP ECC /S/4HANA Cloud ES.
`ComopanyCodes`	string	No	This field is no longer used and should be left empty. Use the `ERPBusinessUnitID` instead.
`UtilityFlag`	string	No	Indicates whether the vendor is a utility vendor.
`PORSubscriberNo`	string	No	Vendor POR subscriber number used only for Switzerland.
`ExternalSiteID`	string	No	External site ID.
`VendorAccountGroup`	string	No	ERP system vendor account group.
`AlternativePayee`	string	No	The party that receives payment for an invoice.
`PermittedPayee`	string	No	A comma-separated list of alternate payees for the vendor.
`SiretID`	string	No	The vendor SIRET ID. This ID code used in France that uniquely identifies a single vendor at a single address. It is often found on French invoices.
`VendorIdentifier`	string	No	The unique vendor identifier code, such as a Chinese tax number.
`Intercompany`	string	No	This indicates whether a vendor is an InterCompany vendor or not.
`ERPBankAccountCode`	string	No	The vendor bank account code as specified in ERP.
`IsOneTimeVendor`	boolean	No	Indicates is a vendor is to be used once only.

Related topics:

- Master data XML samples
- Vendors XML sample
- Master data XML schema definitions
- Vendors XSD file

Configure ERP import job schedule

Since your ERP master data may change regularly it is necessary to set up a regular schedule to update to the Tungsten AP Agility database. The following tables store the master data in Tungsten AP Agility.

- **ERP invoices**: ERP_INVOICE

- **Payment terms**: PAYMENT_TERM
- **Payment terms details**: PAYMENT_TERM_DETAIL
- **Vendors**: VENDOR_MASTER_DATA, BRWVendorMaster
- **PO headers**: PO_HEADER
- **PO lines**: PO_LINES
- **GL Segments**: GL_SEGMENTS
- **Plants**: PLANTS
- **Receipt lines**: RECEIPT_LINES
- **Tax Codes**: TaxCode
- **Miscellaneous Charge**: MiscChargesAccount
- **Unit of Measure Conversions**: BRWUOMConversions
- **Employee**: BRWEmployeeMaster
- **Cost Center Segments**: COST_CENTER_SEGMENTS
- **Work Breakdown Structures**: WBS_SEGMENTS

To configure the optimal schedule, consider the amount of the ERP master data. If you have a large amount of the ERP master data and you set the import job schedule to run too often, performance issues may occur.

Configure the job schedule that imports the ERP master data to the Tungsten AP Agility database by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **System** > **Job Schedules**.
   The **Job schedules** page is displayed for the Default Category.
3. From the **Category** list, select **AP Agility**.
   A list of AP Agility job schedules is displayed.
4. Select the **AP Data Import** job schedule.
   The **AP Data Import** job schedule is displayed.
5. Edit the job schedule as needed.
   It is recommended that you configure the import job schedule to run once per day. In case of performance issues, ensure that the import occurs when Tungsten AP Agility if not heavily used. For example, at night.
6. Click **New** to add a new schedule.
   The **New job schedule** window is displayed.
7. Fill in the new job schedule form to set up the address dump as follows.
   a. Enter a **Name** such as Dump Address Files.
   b. Click on the **Process** list, select the **InvoiceProcessingAgility** category, and then select the **DumpAddressFiles** job.
   c. Specify the other settings as required.
      It is recommended that you set up the dump job schedule to run once per day, but after the data import process has finished. This is because the results of the data import process are required by the dump address process. In case of performance issues, ensure that the dump occurs when Tungsten AP Agility if not heavily used. For example, at night.

8. Click **Save** to save the import job schedule.
   Now that you have your job scheduled, reference the *Tungsten AP Agility Configuration Help* for information about scheduling your vendor master data cleanup.

Localization

Tungsten AP Agility supports localized end-user activities in English, French, German, Spanish, and Brazilian Portuguese.

However, the translations for the Tungsten TotalAgility Global Variables are not installed automatically when Tungsten AP Agility is installed. Instead, it is necessary to manually install the translations for these variables.

Install translations for global variables

Because translations for the Tungsten TotalAgility Global Variables are not installed automatically when Tungsten AP Agility installed, it is necessary to do this manually.

You can manually install the translations for the Tungsten TotalAgility Global Variables needed by Tungsten AP Agility by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Import**.
   The **Import** page is displayed.
3. Click **Browse**, navigate to your extracted files, and then select `/Languages/TungstenAPAgility-2025.1_Lang.zip`.
   The zip file is loaded automatically.
4. Click **Import** to start the import.
   When the languages are imported successfully, a message is displayed.
5. On the menu, select **Translation**.
   The **Translation** page is displayed.
6. From the **Translate** list, select **Global Variables** and then click **Translate**.
   The **Translation: Global variables** window is displayed with a list of variable values in English and the other supported languages.
7. Click **Save**.
   This applies the imported translations to any forms that use one or more of the global variables.
8. Optionally, close the TotalAgility Designer.

Configure Invoice Processing

In order to use the Invoice Processing functionality of Tungsten AP Agility, the following additional configuration steps are required. Each step contains its own set of instructions and the order is important. Skipping steps that are not optional, or performing steps out sequence can result in a failed installation.

1. Create CSV files for database lookups.

2. Optionally, modify the recognition engines in Transformation Designer.
   This step is necessary only if you are processing documents in languages other than English.
3. Prepare ingestion configuration.
   - Configure scan ingestion.
   - Optionally, configure scan ingestion for MarkView
   - Configure filesystem ingestion.
   - Configure email ingestion.
4. Configure page Image rendition.
5. Restart the services.

Dump data to CSV databases

If you are using an ASE database it is necessary to create CSV files. There is a process in Tungsten TotalAgility that enables you to automatically create CSV files from the `BRWVendorMaster`, `BRWEmployeeMaster`, and the `BRWCompanyAddressMaster` tables in the AP Agility database. These files are then stored in Tungsten TotalAgility.

You can create the CSV database needed for the database lookups in Transformation Designer by following these steps:

1. Ensure that data is available in the AP Agility database for the `BRWVendorMaster`, `BRWEmployeeMaster`, and the `BRWCompanyAddressMaster` tables.
   If you have no data for these tables at this time, or you do not plan to use all three database lookups, you can leave those tables blank. The CSV tables are created using mod data that you can update at a later time when it is available.
2. Open the AP Agility Workspace.
3. On the menu, select **Jobs** > **Create**.
   The **Create Jobs** page is displayed.
4. From the **Category** list, select **InvoiceProcessingAgility**.
   The **Process** list is populated with processes.
5. From the **Process** list, select **DumpAddressFiles**
6. Click **Create**.
   A message is displayed when the job is created successfully and the Vendor.csv, Employee.csv, and CompanyCode.csv files are created automatically. These files are stored in Tungsten TotalAgility and picked up automatically by the corresponding database locators in the Transformation Designer.
   However, it is still necessary to Release your project in Transformation Designer after you create the CSV databases.
7. Optionally, configure the CSV databases to update automatically.

Release project with new database references

When Tungsten AP Agility is first installed, three database lookups are created in Transformation Designer automatically. Now that you have dumped your address data to CSV files that are stored in Tungsten TotalAgility, it is necessary to open and then release your project in Transformation Designer so that the newly created databases are use.

You can update the project and its databases by following these steps:

1. If not already done, dump your address data.
2. Open the Transformation Designer.
3. From the **Project** tab, click **Open Project**.
   The **Open Project** window is displayed.
4. From the **Select category** group, select the **InovoiceProcessingAgility** category.
   The **Select project** area is updated.
5. In the **Select project** area, expand **Shared**, and then double-click on the **InvoiceProcessingAgility** project.
   The project is displayed.
6. On the **Project** tab, click **Project Settings**.
   The **Project Settings** window is displayed.
7. In the **Project Settings** window, click on the **Databases** tab.
   The **Databases** tab is displayed.
8. Select the **VendorASE** database and click **Import**.
   When prompted to import the database click **Yes**.
   The corresponding CSV file is imported.
9. If you are using the Employee field, select the **EmployeeASE** database and click **Import**.
   When prompted to import the database click **Yes**.
   The corresponding CSV file is imported.
10. If you are using the Company Code field, select the **CompanyCodeASE** database and click **Import**.
    When prompted to import the database click **Yes**.
    The corresponding CSV file is imported.
11. On the **Project Settings** window, click **OK**.
    Your changes are saved and the window closes.
12. On the **Project** tab, click **Release**.
    The project is released with the updated databases.
13. Close the Transformation Designer.

Configure CSV databases to update automatically

When you converted the `BRWVendorMaster`, `BRWEmployeeMaster`, and the `BRWCompanyAddressMaster` database tables into CSV databases, that was a single point-in-time representation of that data. Since it is likely that some of those tables are modified regularly with additional data over the lifetime of your project, it is necessary to update the CSV files at regular intervals.

You can update the CSV databases at regular intervals by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **System** > **Job schedules**.
   The **Job schedules** page is displayed for the Default Category.
3. From the **Categories** list, select **InvoiceProcessingAgilty**.

A filtered list of scheduled jobs is displayed.

4. Click the **AddressData2CSV** scheduled job.
5. When prompted, click **Yes** to lock the scheduled job for modification.
   The properties for the job are displayed.
6. Select **Active**.
7. Edit the **Schedule** settings so that this job is executed as needed.
   For more information on these settings, see the *TotalAgility Designer Help*.
8. Click **Save**.
   Your changes are saved.
9. Optionally, **Close** the TotalAgility Designer.

Modify the Transformation Designer recognition engines

If you are processing documents in languages other than English, it is recommended that you update the recognition engines in the Transformation Designer. This ensures that the recognition engines are more efficient for your needs than they are by default.

You can modify the recognition engines by following these steps:

1. Open the Transformation Designer.
2. On the **Project** tab, click **Open Project**.
   The **Open Project** window is displayed.
3. From the **Select category** group, select the **InovoiceProcessingAgility** category.
   The **Select project** area is updated.
4. In the **Select project** area, expand **Shared**, and then double-click on the **InvoiceProcessingAgility** project.
   The project is displayed.
5. On the **Project** tab, click **Project Settings**.
   The **Project Settings** window is displayed.
6. On the **Project Settings** window, click the **Recognition** tab.
   A list or recognition engines is displayed.
7. Double-click on the default **FineReader** recognition engine.
   This is the third entry in the list.
   The **FineReader Profile Settings** window is displayed.
8. In the **Languages** list, select each language that your process.

   For the best results, ensure that **Digits** and **English** are selected in addition to any other languages selected.

9. Click **OK** to save your changes.
   The **FineReader Profile Settings** window closes.
10. Click **OK** to save changes to the project settings.
    The **Project Settings** window closes.
11. On the **Project** tab, click **Release**.
    The project is released with the updated databases.

12. Close the Transformation Designer.

Prepare ingestion configuration

Before you can configure individual types of ingestion, you first need to create a general import connection for Tungsten AP Agility Invoice Processing. Once the import connection is available, you can add filesystem and email ingestion.

If you are using Tungsten AP Agility in a multi-tenant environment, use the Tungsten TotalAgility Integration Server to configure ingestion.

You can add an import connection by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Integration** > **Import settings**.
   The **Import Settings** page is displayed.
3. Click **New**.
   The **New import connection** page is displayed.
4. For the **New import connection** setting, enter a **Name** such as "InvoiceProcessing."
5. Enter a **Description** for your new connection.
6. Configure the **Message Connector URL** settings. This is set to `http://localhost:25086/` by default. This is the most common configuration. by following these steps:
   You can confirm the URL on your server
   a. On the Windows Start menu, select **Start** > **Tungsten** > **Message Connector** > **Message Connector Monitor**.
      The **Message Connector Web Portal** website is displayed.
   b. Copy the **hostname** and **port** for the Message Connector Web Portal and then paste them into the **Message Connector URL** field back on the **Import Connection** page.
7. Edit the other settings based on your requirements.
   For more information on these settings, see the *TotalAgility Designer Help*.
8. Click **Save**.
   Your changes are saved and you are returned to the **Import settings** page where your new import connector is listed.

Configure scan ingestion

You can configure scan ingestion by following these steps:

1. Open the AP Agility Workspace.
2. On the menu, select **Scan**.
   The **Tungsten Web Capture Service Required** window is displayed.
3. Install the **Tungsten Web Capture Service** by clicking the **click here** link in the window.
   A progress bar is displayed while the installation occurs.
4. Click **OK** to close the **Tungsten Web Capture Service Required** window after the installation is complete.
5. Optionally, configure the settings to scan documents in languages other than English.

6. Refresh the **Scan activity** page.
   This ensures that the newly installed Web Capture Service is accessible to Scan activity.

Configure language settings

If your invoices are in a language other than English, you can improve the extraction results by selecting the relevant language before scanning your documents. To aid in document recognition, these languages are available for selection at the point of scan.

1. **AR**: Arabic
2. **CN**: Chinese
3. **GR**: Greek
4. **JP**: Japanese
5. **KR**: Korean
6. **RU**: Russian
7. **TH**: Thai

Depending on which of the above language is selected, a dedicated recognition profile is available in Transformation Designer. Each of these languages has its own profile that is configured to extract documents in the relevant language. Using one of these dedicated recognition profiles ensures better extraction results than the default recognition profile. For more information on recognition profiles, refer to the *Transformation Designer Help*.

You can configure scan language settings by following these steps:

1. Open the AP Agility Workspace.
2. On the menu, select **Scan**
3. On the **Scan activity** form, select the language from the **Language ID** list.
4. Refer to the Configure scan ingestion to complete the remaining steps of the ingestion process.

Configure scan ingestion for MarkView

If you are using MarkView then it is necessary to perform the following steps in order to update the Scan activity navigation to use the correct capture process that is specific to MarkView. This is a global change that affects the Scan activity for all organizations. However, the extra Scan activity fields are not displayed if an organization uses another ERP system or other databases.

You can configure the Scan activity navigation to include the necessary content for Scan activity by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **User interface** > **Navigations**.
   A list of **Navigations** is displayed for the default category.
3. From the **Category** list, select **AP Agility**.
   A list of MarkView is displayed for AP Agility category.
4. Select the **AP Agility Menu**.
   The **Edit navigation menu** window is displayed for the AP Agility menu.

5. Select the **Scan** menu item.
   The right pane is updated to show the Scan menu settings.
6. From the **Target** list, select the **InvoiceProcessingAgility** category, and select **CaptureDocument_Scan_MV** process.
7. Restart the **Tungsten Automation Core Worker Service**.
   The Scan activity and its list of invoice types is updated for MarkView.

Configure file system ingestion

You can configure file system ingestion by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Integration** > **Import settings**.
   The **Import Settings** page is displayed.
3. Under **Import Connections**, click the name that you provided when you created the ingestion connection.

   The import connection you created earlier is visible but it has no **Import sources**.
4. Under the **Import sources** section, click +.
   The **New import source** window is displayed.
5. On the **New import source** window, edit the following settings to configure your input source.
   a. In the **Type** list, select the import source type as **FILE**.
      The available settings are updated so that they match the selected source type.
   b. Enter a **Display name**, such as "IPFileSystemImport."
   c. Optionally, after configuring file import, click **Test file import**.
   d. In the **Associated action(s)** group, ensure that the **Job type** setting is set to **Create new job**.
   e. From the **Process** setting, click on the list, select the **InvoiceProcessingAgility** category, and then select one of the following, depending on your ERP system:
      - If you have one or more organization integrated with MarkView, select the **CaptureDocumentMV** process.

        A MarkView cover page must be included for the **AP Invoice Follow-Up**, **Previously Entered Invoice**, and the **Supplier Follow-Up** invoice types. Without the cover page these documents cannot be exported to MarkView.

      - If you are using another ERP system, select the **CaptureDocument** process.

      The **Initialization variables** table is populated with fields related to the selected process.
   f. Two fields require mapping only. Select the corresponding values as follows.

Name	Mapping
InputSource	**Input Source Type**
FileName	**File Name**

> You can map additional fields, but if you do, this mapping overrides the mapping configured in the ***Settings*** > ***Invoice Processing*** > ***Global Settings*** > ***Import Settings***.

g. Edit the other settings as needed.
   For more information on these settings, see the *Tungsten TotalAgility Help*.

h. Click **Save**.
   Your changes are saved, the **New import source** window is closed, and your new import source is displayed on the **Update import connection** window.

6. Click **Save**.
   Your changes are saved and the **Update import connection** window is closed.
7. Optionally, close the TotalAgility Designer.

Configure email ingestion

If you plan to process invoices received by one or more email addresses, email ingestion is necessary. An email import process is required for each email address that you monitor. This is configured in the same location as filesystem ingestion. For more information on ingestion and its various settings, refer to the *Tungsten TotalAgility Help*.

You can configure email ingestion by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Integration** > **Import settings**.
   The **Import Settings** page is displayed.
3. Under **Import Connections**, click the name that you provided when you created the ingestion connection.

   The import connection you created earlier is visible but it has no **Import sources**.
4. In the **Input sources** window, click +.
   The **New import source** window is displayed.
5. On the **New import source** window, edit the following settings to configure your input source.

   a. In the **Type** list, select the import source type as **POP3** or **IMAP**.
      The available settings are updated so that they match the selected source type.

   b. Enter a **Display Name**, such as "IPEmailImport."

   c. Enter your email service provider into the **Host** field.

   d. Enter a **Port**.

   e. Enter a **Username** and **Password**.

   f. Test your settings by clicking **Test Mailbox**.

   g. In the **Associated action(s)** group, ensure that the **Job type** setting is set to **Create new job**.

h. Create a job in one of the following two ways:
   - To create a single job from one email, regardless of how many attachments, from the **Process** setting, click on the list, select the **InvoiceProcessingAgility** category, and then select the **CaptureDocument** process.
   - To create a separate job for each email attachment, a custom process with the **InputSource** and **ClientID** input variables is required. A folder input variable is also required.

     The folder inside the custom process is where documents for each attachment are located. Loop over the folder and move each document to a temporary folder. Then use the **CreateJob** method of the **TotalAgility.Sdk.JobService** class to initialize a **CaptureDocument** job with the two input variables (**InputSource** and **ClientID**) and the temp folder. After the method is complete remove the document from the temporary folder and continue the loop.

     Map the **Process** setting on the **New import source** window to use the custom process.

   The **Initialization variables** table is populated with fields related to the selected process.

i. Two fields require mapping only. Select the corresponding values as follows.

Name	Mapping
InputSource	**Input Source Type**
ClientID	You can either hard code a Client ID or you can select one of the metadata variables. If you do map a variable, you need to modify the `CaptureDocument` process so that it can use the Metadata value and process it accordingly.

   You can map additional fields, but if you do, this mapping overrides the mapping configured in the ***Settings*** > ***Invoice Processing*** > ***Global Settings*** > ***Import Settings***.

j. Edit the other settings as needed.
   For more information on these settings, see the *Tungsten TotalAgility Help*.

k. Click **Save**.
   Your changes are saved, the **New import source** window is closed, and your new import source is displayed on the **Update import connection** window.

6. Click **Save**.
   Your changes are saved and the **Update import connection** window is closed.
7. Optionally, close the TotalAgility Designer.
8. On your mail server, do the following.

   a. In the email account specified above, enable POP or IMAP downloads in the account settings.

   b. Configure the settings to allow Tungsten AP Agility to access your email account.

Your settings are now configured to use email ingestion.

Image rendition

Rendition is used in Invoice Processing stage of Tungsten AP Agility to keep a copy of the originally ingested document when `ImageProcessing` activities are performed. For example, copies are kept for a PDF, a 200 DPI image, or a color TIFF image.

The `ImageProcessing` activities in the main process convert all documents to 300 DPI black and white TIFF images.

The original document is stored in rendition.

Add image rendition

You need to add image rendition to Tungsten AP Agility and provide "Original" as its name.

You can add image rendition by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **System** > **System settings**.
   A list of system settings is displayed.
3. In the **Capture** group, click **Page renditions**.
   The **Page renditions** window is displayed.
4. If no rendition is available, define one and click **Save**.
   The **Page renditions** window is closed and you are returned ot the list of System settings.

Restart the services

You need to restart the following services to complete the Tungsten AP Agility installation.

- Tungsten TotalAgility Core Worker
- Tungsten Automation Transformation Server
- World Wide Web Publishing Service

Configure the AP Agility Workflow

After installing Tungsten AP Agility, it is necessary to configure the AP Agility Workflow administrative resource. Otherwise, it is not possible to administer the AP Agility Workflow aspects of Tungsten AP Agility.

Configure AP Agility Workflow Administrator access

Before you can start configuring the AP Agility Workflow functionality for Tungsten AP Agility it is necessary to configure AP Agility Workflow Administrator access in the TotalAgility Designer.

You can configure the AP Agility Workflow Administrator resource access by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Resources** > **Groups**.

The **Resources and groups** page is displayed for the Default Category.

3. From the **Category** list, select the **AP Agility** category from the menu.
   A list of groups related to AP Agility is displayed.
4. Click **APA Administrators**.
   The **Edit resource group** window is displayed for the selected resource group.
5. To add group members click **Add** next to the **Group members** field.
   The **Add group members** window is displayed.
6. In the list of users in the **Individual** tab, click **Administrator** to add this to your group.
   The selected user is added to the list below.
7. Click **Done**.
   The **Add group members** window is closed and the **Administrator** user is added to the **APA Administrators** resource group.
8. In the **Edit group resource** window, click **Save**.
   The **Edit group resource** is closed and your changes are saved.

Configure AP_Approvers Permissions

In order for a Approval activity user to have access to the User Settings menu where they configure approval email notifications, they must be a member of the `AP_Approvers` resource group or one of its subgroups in Tungsten TotalAgility.

You can add a user to the `AP_Approvers` resource group by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Resources** > **Groups**.
   The **Resources and groups** page is displayed for the Default Category.
3. From the **Category** list, select the **AP Agility** category from the menu.
   A list of groups related to AP Agility is displayed.
4. Click **AP_Approvers** or one of its subgroups, depending on need.
   The **Edit resource group** window is displayed for the selected resource group.
5. To add group members click **Add** next to the **Group members** field.
   The **Add group members** window is displayed.
6. In the list of users on the **Individual** tab, click a user to add it to the selected resource group.
   Alternatively, select the **Group** tab and click a group to add it to the selected resource group.
   The selected user or group is added to the list below.
7. Click **Done**.
   The **Add group members** window is closed and the **Administrator** user is added to the **APA Administrators** resource group.
8. In the **Edit group resource** window, click **Save**.
   The **Edit group resource** is closed and your changes are saved.
9. Optionally, repeat the above steps for other subgroups.
10. Optionally, close the TotalAgility Designer.

AP Agility workspace

After successfully installing Tungsten AP Agility, the Tungsten AP Agility workspace is available to the AP Agility user. The Tungsten AP Agility workspace includes the Tungsten AP Agility site and work queue.

Tungsten AP Agility site

The SPA package creates the Tungsten TotalAgility site called AP Agility with the following settings.

Site Parameter	Parameter Value	Comment
Category	Tungsten AP Agility	Installed with the Tungsten AP Agility package
Name	Tungsten AP Agility	The site name in Tungsten AP Agility URL
Header Form	Workspace_Header_2	Installed with the Tungsten AP Agility package
Horizontal Navigation	Tungsten AP Agility Menu	Installed with the Tungsten AP Agility package
Vertical Navigation	N/A	N/A
Default Form	TotalAgility Work Queue	Standard Tungsten TotalAgility form
Theme	TotalAgility Workspace	Standard Tungsten TotalAgility theme

The Tungsten AP Agility site URL address must be in the following format, depending on the installation:

- On-premise: `http(s)://<TotalAgility_server>/TotalAgility/forms/APAgility`
- Multi-tenant/Azure: `https://<TotalAgility_server>/forms/APAgility`

In both cases, `<kta_server>` is the Tungsten TotalAgility server host name.

Work Queue form

Tungsten AP Agility uses the standard Work Queue form to access invoices.

Chapter 4

Upgrade considerations

You can upgrade from an older version of Tungsten AP Agility and Tungsten Invoice Processing Agility to the next released version of Tungsten AP Agility, while maintaining the any customizations made. The Tungsten AP Agility and Tungsten Invoice Processing Agility are implemented as sub-processes. These are automatically upgraded to the new Tungsten AP Agility package that is installed.

Tungsten Automation recommends that you process all outstanding jobs for both the Invoice Processing and the AP Agility Workflow functionality of Tungsten AP Agility.

If this is not possible for any reason, you can upgrade unprocessed invoices that are already in-progress.

You must not modify any processes, business rules, or forms, with the exception of the following artifacts.

- **Classification Group**
  - `InvoiceProcessingAgility`
- **Document Group**
  - `InvoiceProcessingAgility`
- **Forms**
  - `CaptureDocument_Scan`
  - `GeneralWorkQueue`
  - `Invoices_Validation`
  - `RescanRejectedDocs_Re Scan_Scan`
  - `XMLDisplay`
  - `IPA_SessionTimeout`
- **Processes**
  - `CaptureDocument`
  - `ParkNAIDocuments`
  - `PostLinePairing`

Transformation Designer project customizations

In most cases, changes to the project in Transformation Designer are required. This is because your organization may have specific requirements that are not available in the out-of-the-box solution.

The following guidelines should be met when customizing your project. These guidelines ensure that any customizations are still available in future versions of Tungsten AP Agility.

Keep notes about all changes made to a project. This is so that you can manually redo them if necessary, or to confirm if a future upgrade and merge are successful. Also, before an upgrade is performed, ensure that you have no unsaved customizations in the Transformation Designer project and release the project if necessary.

Save a backup copy of any scripts to a location outside of the Transformation Designer. These are needed after an upgrade.

It is important that you do not delete, move, or rename the following.

- Classes.
- Field Groups.
- Fields.
- Locators.

  If you delete one of these items and then add it back, the internal ID is no longer the same, so the item does not behave as it should.
- All new Classes, Field Groups, Fields, or Locators should have a name that will not conflict with future releases of the solution. For example, add the "Custom_" prefix to all new items.
- Do not remove any Databases, Dictionaries, Recognition Profiles, Table Models, or other dependent settings.
- You can modify Recognition Profiles by adding an additional language.
- Add script below the marking line that says `'Modify script only below this line`. Any modifications above this line can cause problems with the package and are not included in a future merge.
- In script, refer to lookup fields and other items by their name and not by their index IDs. This is because the indexes can change and the names are not likely to change.

Document sets and training sets are included in the merge process. This means that if you have documents in either the classification training set or the extraction straining set, make a copy of them outside of the training folder to ensure that they are not lost during the merge. You can copy them back after the merge.

Customized Workflow processes

Any customized processes are not overwritten during an upgrade. However, variable values are overwritten with the default value of False. This means that if you are using any customized Workflow processes, it is necessary to go to **Tungsten AP Agility** > **Settings** > **Administration** > **Variables** and update the values of the processes that you are using back to True, after an upgrade.

TotalAgility 8.1.0 requirements

If you have upgraded Tungsten TotalAgility to version 8.1.0, it is necessary to update the AP Agility connection string to account for some changes made to TotalAgility 8.1.0. See Connection string updates for TotalAgility 8.1.0 for instructions on modifying your AP Agility connection string.

Upgrade Tungsten AP Agility in a multi-tenant environment

There are four parts to upgrading Tungsten AP Agility in a multi-tenant environment.

1. Review the version of the Tungsten TotalAgility Integration Server to see if it compatible with the new version of Tungsten AP Agility.

   If that version is not compatible, it is necessary to upgrade the Integration Server before you upgrade Tungsten AP Agility.
2. Upgrade the Tungsten AP Agility on-premise components.
3. Import upgraded Tungsten TotalAgility packages.
4. Run Tungsten AP Agility database upgrade job.

Upgrade Tungsten AP Agility on-premise components

If you want to upgrade Tungsten AP Agility that is used in either a Tungsten Automation hosted TotalAgility Azure environment or your own multi-tenant TotalAgility environment, it is necessary to run the installer. The installer is included in the installation zip file.

You can upgrade the Tungsten AP Agility on-premise components by following these steps:

1. Download and extract the appropriate ZIP file for your environment.

   For more details on what files are needed for your environment, see Tungsten AP Agility on-premise components.
2. Navigate to the **Installer** folder.
   The contents of the **Installer** folder are displayed.
3. Right-click on **Tungsten AP Agility.exe** and select **Run as Administrator** to begin the Setup Wizard.
   The installer is displayed and calculates if there is enough space on disk for the installation.
4. Once the Install Wizard confirms that there is enough disk space, click **Next**.
   The **End-User License Agreement** Setup Wizard step is displayed.
5. Select **I accept the terms in the License Agreement** and then click **Next**.
   The **Prerequisites** Setup Wizard step is displayed along with any information about missing prerequisites.
6. The information displayed on the **Prerequisites** step is relevant if you are installing the listed components only.

   For example, if you receive a message that the SAP ECC .NET connector is missing, but you are not using SAP ECC, ignore this message. However, if you are using one of the components

listed, click **Cancel** and then **Finish** to exit the Setup Wizard, install the required prerequisite, and then restart the installer. Otherwise, click **Next**.

If you did not install the necessary prerequisites, the corresponding settings are not available for installation.

The **Choose Setup Type** Setup Wizard step is displayed.

7. On the **Choose Setup type** window, select **Custom**.
   The **Custom Setup** step is displayed along with a list of available components.
8. Exclude all components by selecting **Entire feature will be unavailable**, except the **ERP Connector Web Service** and then click **Next**.
   The **Tungsten TotalAgility Connection** Setup Wizard step is displayed.
9. On the **Tungsten TotalAgility Connection** step, enter the following information.
   a. If the default Tungsten TotalAgility URL that is provided is not correct, update the **TotalAgility URL**.
      This must be the on-premise version that is installed on a local server and not the Azure URL.
      For example, `https://<KTAIntegrationServerName>/TotalAgility/`.
   b. Select **Authentication by username and password**.
      enter the **User name** and **User password** for the Administrator used when installing the Tungsten TotalAgility Integration Server.
   c. Click **Test connection** to ensure that your information is correct. If not, repeat the previous steps and try again.
   d. Once your connection test is successful, click **Next**.

   The **AP Agility ERP Connector Configuration** Setup Wizard step is displayed.
10. On the **AP Agility ERP Connector Configuration** step, enter the following information.
    a. Optionally, enter an alternate **Web Site**.

       This web site must exist in IIS before it can be added here. All other items are created dynamically.

    b. Optionally, enter a different **Virtual Directory**.
    c. Optionally, enter a different **Application Pool**.
    d. For **Pool Identity**, select **Custom Account**.
       The **User name** and **User Password** must match the credentials provided when installing the Integration Server.
    e. Select **Update web service URL for the ERP Connector** to update the **ERP Connector Host** value, if needed.
       If cleared, **ERP Connector Host** is greyed out and cannot be edited. You can always edit this value in the **ApAgilityErpConnector** properties located in the TotalAgility Designer Home menu at **Integration** > **Web Service references** at another time.
    f. If available, enter a valid **ERP Connector Host**. This setting is available only if the **Update web service URL for ERP Connector** is selected above.

This is the URL that points to the Web Sever for your ERP Connector, not the entire web service URL. By default this is set to `https://{ServerName}`. This value is then used to build the full web service URL for your ERP Connector web service. This value and the rest of the web service URL is visible after installation in the **ApAgilityErpConnector** properties located in the TotalAgility Designer Home menu at **Integration** > **Web Service references**.

g. Click **Next**.

The **Installing Tungsten AP Agility 2025.1** Setup Wizard step is displayed. A progress bar is displayed showing the status of the installation.

11. Click **Finish**.

    Optionally, select the **View Installation Log** setting. The log file is displayed after the installer is closed.

    The installer closes and if selected, the log file is displayed.

Upgrade Tungsten TotalAgility packages

To continue to upgrade Tungsten AP Agility it is necessary to upgrade the Tungsten TotalAgility packages.

You can upgrade the Tungsten TotalAgility packages by following these steps:

1. Launch the TotalAgility Designer.
2. On the menu, select **Import**.
3. Click **Browse** and select the `TungstenAPAgility2025.1_OPMT\TotalAgility\Packages\Invoice Capture.zip` file.

   A list of package artifacts is displayed.
4. For **Non-versioned items** select **Overwrite**.
5. Click **Import**.

   When prompted, click **Yes** to start the import.

   A progress bar is displayed and closes when the import is complete. Any errors or warning are displayed.
6. Click **OK** to return to the **Import page**
7. Browse to the `TungstenAPAgility-2025.1_OPMT\TotalAgility\Packages\AP Workflow.zip` file.

   A list of package artifacts is displayed.
8. For **Non-versioned items** select **Overwrite**.
9. Click **Import**.

   When prompted, click **Yes** to start the import.

   A progress bar is displayed and closes when the import is complete. Any errors or warning are displayed.
10. Click **OK**.

Upgrade Tungsten AP Agility database

To finalize the upgrade of Tungsten AP Agility, upgrade the Tungsten AP Agility database by following these steps:

1. Log on to Tungsten AP Agility.
2. On the menu, select **Jobs** > **Create**.
3. From the category list select AP Agility.
   The list of processes is updated for the AP Agility category.
4. From the **Processes** list, select **AP Database Upgrade**.
   In the text field provide a database schema name for upgrade. This should be `[apa_live]` `[apa_dev]`.
   Click **Create** to start the job.
   The Tungsten AP Agility database is updated.

ERP Connectors after upgrade

After an upgrade, if an ERP connection is listed from a previous version and the corresponding ERP plugin is not installed in the upgraded system, any attempts to edit that ERP connection result in an error.

In addition, the `AP Data Import` process also logs an error if an ERP plugin is missing. To ensure that the ERP Connections page is up-to-date and that there are no errors during the data import process, install the required plugin or remove the unused ERP connection.

Merge Transformation Designer project customizations

If you have made changes your Transformation Designer project it is necessary to merge those changes after an upgrade.

You can merge your project by by following these steps:

1. Open the Transformation Designer.
2. On the menu, select **File** > **Merge Local Changes from Previous Version**.
   The **Choose Project Version with Desired Local Changes** window is displayed.
3. Each time a project is released, a new version number is assigned. From the list of versions, select the most recent version and then click **OK**.
   A **Data Transfer** progress window and then the **Comparing Project Version** progress window indicate the merge process. when they are complete, the **Select Items to Merge** window is displayed.
4. In this window, any differences between the old version and the new version are selected automatically.
   Review the selections to ensure that only the changes you have made are selected. Do not revert any locators, table models, or table header pack. When you are done, click **OK**.
   When the merge is complete, click **OK**.
5. Optionally, restore any custom scripts.

6. If you have made any of the following changes to your project, these were lost with the merge. Redo these changes as appropriate.
   - Tungsten Search and Matching Server database configurations
   - Searchable columns in ASE databases
   - If you have added any custom fields, regenerate and then edit the validation form to include the additional custom fields.
7. **Release** the project.
   The merges from the older project are saved and available in the newly released project.
8. Test the released project to ensure that it works as expected.

Upgrade document variants

After an upgrade is performed it is necessary to update the document variants used in your solution. This is done by releasing the InvoiceProcessingAgility extraction group.

You can update the document variants by following these steps:.

1. Launch the TotalAgility Designer.
2. On the menu, select **Capture** > **Extraction groups**.
   The **Extraction groups** page is displayed.
3. From the **Category** list, select **InvoiceProcessingAgility**.
   A list of extraction groups is displayed for the **InvoiceProcessingAgility** category.
4. Select the **InvoiceProcessingAgility** extraction group.
   The designer is opened so that you can make changes to the **InvoiceProcessingAgility** extraction group.
5. Click **Release**.
   When prompted to confirm that you want to re-release this extraction group, click **Yes**.
   The extraction group is released and the document variants are updated successfully.
6. Optionally, close TotalAgility Designer

Update field configurations

After an upgrade it is necessary to update the field configurations for all organizations that use work breakdown structures and cost centers when processed by the AP Agility Workflow.

You can update organization field configurations by following these steps:

1. Log on to Tungsten AP Agility.
2. On the menu select **Settings** > **Organizations**.
   A list of organizations is displayed.
3. For each organization in the list that uses work breakdown structures or cost centers in the AP Workflow, perform the following:
   a. Click on the organization name link.
      The organization and its configuration details are displayed.
   b. Click on the **Field Configuration** tab.
   c. Click **Update** at the bottom of the form.

The field configurations for that organization are updated.

d. Repeat for all other organizations that use work breakdown structures and cost centers when processed by the AP Agility Workflow.

All organizations are now able to successfully apply both work breakdown structures and cost centers during the AP Agility Workflow.

How to deal with unprocessed invoices

If you have unprocessed invoices in one of the AP Workflow activities, it is ideal to finish processing those invoices before upgrading Tungsten AP Agility. However, this is not always possible. As a result, after you upgrade to the new Tungsten AP Agility version, you can update any active jobs by following these steps:

1. Log on to Tungsten TotalAgility as an Administrator and then navigate to the **General Work Queue**.
2. On the menu, select **Administration** > **Job Upgrader**
   The **Job Upgrader** page is displayed.
3. From the **Category** list, select **AP Agility.**
   The process list is updated for processes specific to Tungsten AP Agility.
4. From the **Process** list, select **Main AP Workflow**.
5. Click **Start**.
   The upgrade job is scheduled.
6. On the menu, select **Jobs** > **Find**.
   A list of jobs on Tungsten AP Agility is displayed.
7. Ensure that the version listed for the activities is the maximum version for Tungsten AP Agility.
8. On the menu, select **Jobs** > **Create**.
   The **Create Jobs** page is displayed.
9. From the **Category** list, select **AP Agility.**
   The process list is updated for processes specific to Tungsten AP Agility.
10. From the **Process** list, select **AP Restart Job** and then click **Create**.
    The **AP Restart Job** process is run and all processes are upgraded to the new Tungsten AP Agility version.

MarkView upgrade requirements

If you are using MarkView, then specific requirements were overwritten during the upgrade. As a result, it is necessary to perform these tasks after the upgrade.

In order to use MarkView document types, it is necessary to update the Scan form. See MarkView and the Scan form for information on how to configure the Scan form for MarkView.

If you have the Tungsten TotalAgility Integration Server installed and use file system ingestion for MarkView, it is necessary to update the ingestion settings. See Configure MarkView file ingestion for information on how to configure file system ingestion for MarkView. Otherwise, skip the integration update.

If you are upgrading and have one or more organizations using the MarkView template then there is a change related to company partition support that you need to know.

- If an organization created in Tungsten AP Agility 2.6.0 uses the MarkView template then Tungsten AP Agility automatically uses the `MV_COMPANYDATA` database table, meaning that partitions are supported.
- If an organization created in an earlier version of Tungsten AP Agility uses the MarkView template, Tungsten AP Agilitycontinues to use the old `MV_COMPANY` database table that does not have partition support.

  If you require partition support, update the database mappings for the MarkView organizations manually and then run the `AP Data Import` process.

Chapter 5

Remove Tungsten AP Agility

If you no longer want Tungsten AP Agility on your server, you can remove several components from your server using the installer via Windows Programs and Features.

Specifically, the following component is removed.

- ERP Agnostic Web Service

⚠ Although it is also possible to remove Tungsten AP Agility using Windows Programs and Features, Tungsten Automation recommends that you use the Tungsten AP Agility installer instead.

You can remove several Tungsten AP Agility components by following these steps:

1. Open Windows Programs and Features.
   A list of installed programs is displayed.
2. Select Tungsten AP Agility 2025.1 from the list.
   The list of available buttons changes at the top of the program list.
3. Click **Uninstall**.
   A message is displayed for you to confirm the removal of Tungsten AP Agility 2025.1.
4. Click **Yes**.
   Tungsten AP Agility 2025.1 is uninstalled and removed from the list of installed programs.
5. To remove the rest of Tungsten AP Agility, contact your Tungsten TotalAgility Cloud Administrator or Service provider representative who can roll back the changes made to the database and restore the previous version of Tungsten AP Agility, or remove Tungsten AP Agility altogether.

Chapter 6

Access Tungsten AP Agility documentation

By default, the Tungsten AP Agility documentation is available online. However, if necessary, you can also configure Tungsten AP Agility to use help offline.

Default online documentation

The product documentation for Tungsten AP Agility 2025.1 is available at the following location.

https://docshield.tungstenautomation.com/Portal/Products/APAgility/2025.1-j1u9a8a63z/APAgility.htm

To launch the online help for the Tungsten AP Agility site, select the required help from the **Help** menu or click on the **Help** button within the AP Agility Workflow.

Configure offline documentation

To access the documentation offline, download TungstenAPAgilityDocumentation-2025.1_EN.zip from the Tungsten Automation Fulfillment Site and extract it on a local drive available to your users.

This compressed file includes both `help` and `print` folders. The print folder contains all guides, such as the *Tungsten AP Agility Installation Guide* and the *Analytics for Tungsten AP Agility Administrator's Guide*.

The compressed file for all other languages contains the `help` folder only. For more information on other languages, refer to the Localized offline help

You can configure Tungsten AP Agility to use offline help by following these steps:

1. Extract the contents of the compressed documentation file, TungstenAPAgilityDocumentation-2025.1_EN.zip.
2. Navigate to where Tungsten TotalAgility is installed.
   By default, this is `<Program Files>\Tungsten\TotalAgility`.
3. In the `Agility.Server.Web\Help\` folder, create a folder called **en_US**.
   If you are using other languages, refer to Localized offline help.
4. Copy the help from the extracted EN zip file into the `en_US` folder.

This location is suggested because it is available and already used for Tungsten TotalAgility offline documentation. However, for Tungsten AP Agility, it is possible to use any path for the help, as long as it is on a web server available through http. Modify the paths below accordingly.

5. To configure the user help, open Tungsten AP Agility with Administrative permissions.
6. On the menu, select **Settings** > **Administration**.
   The **Administration** page is displayed.
7. Locate the **Help Base URL** and make a note of its contents so that you can revert back to the online help at any point in the future.
8. In the **Help Base URL** field, enter the following URL.
   `http://<Server>/TotalAgility/Help/`.
   Where <Server> is host name or IP address of the Tungsten TotalAgility server.
9. Click **Save Help Settings**.
   A message is displayed to indicate that your changes are saved successfully.
10. To test your changes, select any of **Help** menu settings.
    The help is displayed from the file-based location. If you selected to open the Configuration help, the path should be similar to the following path.
    `http://<localhost>/TotalAgility/Help/en_US/CFG/index.html`.
    If the help is not displayed, review your changes and try again.

Localized offline help

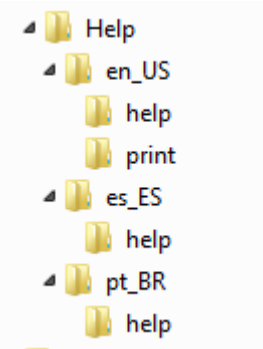
Localized help is available in German, Spanish, Brazilian Portuguese, and French for the following activities. The language is indicated in the documentation zip file.

The following four activities are included in the localized help.

1. The Invoice Processing Scan activity
2. The Invoice Processing Validation activity
3. The Invoice Processing Line Pairing Correction activity
4. The AP Agility help, that consists of the following activities in a single help system.
   - The AP Agility Workflow Coding activity.
   - The AP Agility Workflow Approval activity.
   - The AP Agility Workflow Hold activity.
   - The AP Agility Workflow Comment Request activity.
   - The AP Agility Workflow Exception activity.
   - The AP Agility Workflow Line Pairing Exception activity.

For languages other than English, the zip file contains the `help` folder only. the `print` folder is available for English only. Also, not all help is localized. Administrative help such as the *Tungsten AP Agility Configuration Help* and the *Tungsten AP Agility PIX Correction activity Help* are available in English only.

An example of the folder hierarchy needed to support multiple languages is as follows.



Copy the required hierarchy using the above hierarchy as a reference. The country codes needed for the supported languages are as follows.

- German - `de_DE`
- Spanish - `es_ES`
- French - `fr_FR`
- Portuguese (Brazilian) - `pt_BR`

Appendix A

Master data XML samples

This appendix contains sample XML for the following master data XML files.

Payment terms XML sample

Use the following sample of the hierarchical `payment_terms.xml` file.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

   <xs:element name="PaymentTerms">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="PaymentTerm" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="ERPTermID" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="TermName" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="TermDescription" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="PaymentTermDetails" maxOccurs="unbounded">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="PaymentTermDetail" maxOccurs="unbounded">
                      <xs:complexType>
                        <xs:sequence>
                          <xs:element name="SequenceNumber" type="xs:int"
minOccurs="1"/>
                          <xs:element name="DuePercent" nillable="true"
type="xs:decimal" minOccurs="1"/>
                          <xs:element name="DueAmount" nillable="true"
type="xs:decimal" minOccurs="1"/>
```

```
                           <xs:element name="DueDays" nillable="true" type="xs:int"
minOccurs="1"/>
                           <xs:element name="DueDayOfMonth" nillable="true"
type="xs:int" minOccurs="1"/>
                           <xs:element name="DueMonthsForward" nillable="true"
type="xs:int" minOccurs="1"/>
                           <xs:element name="DiscountPercent" nillable="true"
type="xs:decimal" minOccurs="1"/>
                           <xs:element name="DiscountDays" nillable="true" type="xs:int"
minOccurs="1"/>
                           <xs:element name="DiscountDayOfMonth" nillable="true"
type="xs:int" minOccurs="1"/>
                           <xs:element name="DiscountMonthForward" nillable="true"
type="xs:int" minOccurs="1"/>
                        </xs:sequence>
                     </xs:complexType>
                  </xs:element>
               </xs:sequence>
            </xs:complexType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>
 </xs:element>

</xs:schema>
```

Purchase orders XML sample

Use the following sample of the hierarchical `purchase_orders.xml` file.

```
<PurchaseOrders xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <PurchaseOrder>
    <ERPPOHeaderID>4500043375</ERPPOHeaderID>
    <ERPBusinessUnitID>2000</ERPBusinessUnitID>
    <PONumber>4500043375</PONumber>
    <POType>MATERIAL</POType>
    <ERPVendorID>100403</ERPVendorID>
    <VendorName1>Thumbs Up</VendorName1>
    <VendorSiteID>VSID100403</VendorSiteID>
    <VendorSiteCode>VSID100403</VendorSiteCode>
    <POStatus />
    <Active>true</Active>
    <CurrencyCode/>
 <RequisitionedBy/>
 <CreatedBy/>
 <PurchaseOrderLines>
      <PurchaseOrderLine>
        <ERPPOLineID>00010-4500043375</ERPPOLineID>
        <LineNumber>00010</LineNumber>
        <MaterialNumber />
        <MaterialGroup>ZT00</MaterialGroup>
        <Description>stuff 1</Description>
        <POQuantity>10</POQuantity>
        <UnitPrice>5</UnitPrice>
        <POTotal>50</POTotal>
        <TaxCode>V0</TaxCode>
        <TaxJurCode />
```

```
        <UnitOfMeasure>EA</UnitOfMeasure>
        <PriceUnit>1</PriceUnit>
        <Puom>EA</Puom>
        <TotalQuantityDelivered>10</TotalQuantityDelivered>
        <TotalValueDelivered>50</TotalValueDelivered>
        <TotalQuantityInvoiced>0</TotalQuantityInvoiced>
        <TotalValueInvoiced>0</TotalValueInvoiced>
        <ItemCategory>0</ItemCategory>
        <Plant>2000</Plant>
        <ChargeCode />
        <ChargeCodeID />
        <ERPPOType />
        <Ers />
        <ReceiptRequired>true</ReceiptRequired>
        <ReceiptLines>
          <ReceiptLine>
            <ERPReceiptID>5000000940</ERPReceiptID>
            <ReceiptLineNumber>0001</ReceiptLineNumber>
            <DeliveryDocumentNumber />
            <Quantity>4</Quantity>
            <UnitPrice>5</UnitPrice>
            <Total>20</Total>
            <QuantityInvoiced>0</QuantityInvoiced>
            <TotalInvoiced>0</TotalInvoiced>
            <DocYear>2018</DocYear>
          </ReceiptLine>
        </ReceiptLines>
      </PurchaseOrderLine>
    </PurchaseOrderLines>
  </PurchaseOrder>
</PurchaseOrders>
```

GL segments XML sample

Use the following sample of the `gl_segments.xml` file.

```
<GLSegments xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <GLSegment>
    <ERPSegmentID>777801</ERPSegmentID>
    <ERPBusinessUnitID>2000</ERPBusinessUnitID>
    <GLSegmentNumber>1</GLSegmentNumber>
    <GLSegmentValue>112000</GLSegmentValue>
    <Description>First One</Description>
    <GLSegmentName>NM1</GLSegmentName>
    <ChildSegments>
      <GLSegment>
        <ERPSegmentID>777803</ERPSegmentID>
        <ERPBusinessUnitID>2000</ERPBusinessUnitID>
        <GLSegmentNumber>2</GLSegmentNumber>
        <GLSegmentValue>212000</GLSegmentValue>
        <Description>Second One</Description>
        <GLSegmentName>NM3</GLSegmentName>
        <ChildSegments>
          <GLSegment>
            <ERPSegmentID>777807</ERPSegmentID>
            <ERPBusinessUnitID>2000</ERPBusinessUnitID>
            <GLSegmentNumber>3</GLSegmentNumber>
            <GLSegmentValue>232000</GLSegmentValue>
            <Description>Thir One</Description>
            <GLSegmentName>NM7</GLSegmentName>
```

```
            <ChildSegments />
          </GLSegment>
        </ChildSegments>
      </GLSegment>
    </ChildSegments>
  </GLSegment>
</GLSegments>
```

Cost center XML sample

Use the following sample of the `cc_segments.xml` file.

```
<?xml version="1.0" encoding="UTF-8"?>
<CCSegments xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <CCSegment>
  <ERPSegmentID>ERP1</ERPSegmentID>
  <ERPBusinessUnitID>ERPBusinessUnit1</ERPBusinessUnitID>
  <CCSegmentNumber>101</CCSegmentNumber>
  <CCSegmentValue>SegmentValue1</CCSegmentValue>
  <Description>SegmentDescription1</Description>
  <CCSegmentName>SegmentName1</CCSegmentName>
  <ChildSegments>
   <CCSegments>
    <CCSegment>
     <ERPSegmentID>ERP2</ERPSegmentID>
     <ERPBusinessUnitID>ERPBusinessUnit2</ERPBusinessUnitID>
     <CCSegmentNumber>102</CCSegmentNumber>
     <CCSegmentValue>SegmentValue2</CCSegmentValue>
     <Description>SegmentDescription2</Description>
     <CCSegmentName>SegmentName2</CCSegmentName>
    </CCSegment>
    <CCSegment>
     <ERPSegmentID>ERP3</ERPSegmentID>
     <ERPBusinessUnitID>ERPBusinessUnit3</ERPBusinessUnitID>
     <CCSegmentNumber>103</CCSegmentNumber>
     <CCSegmentValue>SegmentValue3</CCSegmentValue>
     <Description>SegmentDescription3</Description>
     <CCSegmentName>SegmentName3</CCSegmentName>
     <ChildSegments>
      <CCSegments>
       <CCSegment>
        <ERPSegmentID>ERP4</ERPSegmentID>
        <ERPBusinessUnitID>ERPBusinessUnit4</ERPBusinessUnitID>
        <CCSegmentNumber>104</CCSegmentNumber>
        <CCSegmentValue>SegmentValue4</CCSegmentValue>
        <Description>SegmentDescription4</Description>
        <CCSegmentName>SegmentName4</CCSegmentName>
       </CCSegment>
      </CCSegments>
     </ChildSegments>
    </CCSegment>
   </CCSegments>
  </ChildSegments>
 </CCSegment>
</CCSegments>
```

Work breakdown structure segments XML sample

Use the following sample of the `wbs_segments.xml` file.

```
<?xml version="1.0" encoding="UTF-8"?>
<WBSSegments xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <WBSSegment>
  <ERPSegmentID>ERP1</ERPSegmentID>
  <ERPBusinessUnitID>ERPBusinessUnit1</ERPBusinessUnitID>
  <WBSSegmentNumber>101</WBSSegmentNumber>
  <WBSSegmentValue>SegmentValue1</WBSSegmentValue>
  <Description>SegmentDescription1</Description>
  <WBSSegmentName>SegmentName1</WBSSegmentName>
  <ChildSegments>
   <WBSSegments>
    <WBSSegment>
     <ERPSegmentID>ERP2</ERPSegmentID>
     <ERPBusinessUnitID>ERPBusinessUnit2</ERPBusinessUnitID>
     <WBSSegmentNumber>102</WBSSegmentNumber>
     <WBSSegmentValue>SegmentValue2</WBSSegmentValue>
     <Description>SegmentDescription2</Description>
     <WBSSegmentName>SegmentName2</WBSSegmentName>
    </WBSSegment>
    <WBSSegment>
     <ERPSegmentID>ERP3</ERPSegmentID>
     <ERPBusinessUnitID>ERPBusinessUnit3</ERPBusinessUnitID>
     <WBSSegmentNumber>103</WBSSegmentNumber>
     <WBSSegmentValue>SegmentValue3</WBSSegmentValue>
     <Description>SegmentDescription3</Description>
     <WBSSegmentName>SegmentName3</WBSSegmentName>
     <ChildSegments>
      <WBSSegments>
       <WBSSegment>
        <ERPSegmentID>ERP4</ERPSegmentID>
        <ERPBusinessUnitID>ERPBusinessUnit4</ERPBusinessUnitID>
        <WBSSegmentNumber>104</WBSSegmentNumber>
        <WBSSegmentValue>SegmentValue4</WBSSegmentValue>
        <Description>SegmentDescription4</Description>
        <WBSSegmentName>SegmentName4</WBSSegmentName>
       </WBSSegment>
      </WBSSegments>
     </ChildSegments>
    </WBSSegment>
   </WBSSegments>
  </ChildSegments>
 </WBSSegment>
</WBSSegments>
```

Plants XML sample

Use the following sample of the `plants.xml` file.

```
<Plants xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <Plant>
    <PlantID>2000</PlantID>
    <ERPOrganizationID>Tungsten Automation</ERPOrganizationID>
```

```
    <CountryCode>GB</CountryCode>
    <StateCode />
  </Plant>
  <Plant>
    <PlantID>3000</PlantID>
    <ERPOrganizationID>Tungsten Automation</ERPOrganizationID>
    <CountryCode>US</CountryCode>
    <StateCode>NY</StateCode>
  </Plant>
</Plants>
```

ERP invoices XML sample

Use the following sample of the `erp_invoices.xml` file.

```
<ERPInvoices xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <ERPInvoice>
    <ERPInvoiceID>214303</ERPInvoiceID>
    <ERPBusinessUnitID>204</ERPBusinessUnitID>
    <InvoiceNumber>nd03np_TM_05/31/2017</InvoiceNumber>
    <InvoiceDate>2017-05-31T00:00:00</InvoiceDate>
    <InvoiceType>Non-PO Invoice</InvoiceType>
    <InvoiceAmount>1000</InvoiceAmount>
    <PONumber />
    <PaymentDate xsi:nil="true" />
    <CancelledDate xsi:nil="true" />
    <InvoiceStatus>UNPAID</InvoiceStatus>
    <VendorName1>GE Capital</VendorName1>
    <VendorSiteCode>289</VendorSiteCode>
    <VendorSiteID>BOSTON</VendorSiteID>
    <ERPVendorID>GEC0001</ERPVendorID>
  </ERPInvoice>
</ERPInvoices>
```

Vendors XML sample

Use the following sample of the `vendors.xml` file.

```
<Vendors xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <Vendor>
    <ERPVendorID>100403</ERPVendorID>
    <ERPBusinessUnitID>2000</ERPBusinessUnitID>
    <ERPTermID>77745</ERPTermID>
    <Description>IPA test vendor</Description>
    <VendorName>Thumbs Up</VendorName>
    <VendorSiteID>VSID100403</VendorSiteID>
    <VendorSiteCode>VSID100403</VendorSiteCode>
    <VendorStreet1>Dummers Lane</VendorStreet1>
    <VendorStreet2 />
    <VendorCity>Bury</VendorCity>
    <VendorZip>BL9 9UT</VendorZip>
    <VendorState>GB</VendorState>
    <VendorCountry>GB</VendorCountry>
    <VendorVatCode>GB339072747</VendorVatCode>
    <VendorVatRegno>GB339072747</VendorVatRegno>
    <TaxNumber />
```

```
    <BankCode />
    <BankAccountNumber />
    <Email />
    <Url />
    <Telephone />
    <Fax />
    <ContactName />
    <Active>true</Active>
    <Enabled>true</Enabled>
    <TermDateBasis />
    <PoBox />
    <PoBoxZip />
    <EuMember>X</EuMember>
    <Currency>GBP</Currency>
    <TaxID1 />
    <TaxID2 />
    <TaxJurCode />
    <InvoiceType />
    <PaymentMethods />
    <WithholdingTaxDetails />
    <CompanyCodes />
    <UtilityFlag />
    <PORSubscriberNo />
    <ExternalSiteID>VSID100403</ExternalSiteID>
    <VendorAccountGroup />
    <AlternatePayee />
    <PermittedPayee />
    <SiretID />
    <VendorIdentifier />
    <InterCompany>false</InterCompany>
    <ERPBankAccountCode />
    <IsOneTimeVendor>false</IsOneTimeVendor>
  </Vendor>
</Vendors>
```

Appendix B

Master data XML schema definitions

This appendix contains the following XML Schema definitions for the master data XML files:

Payment terms XSD file

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

   <xs:element name="PaymentTerms">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="PaymentTerm" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="ERPTermID" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="TermName" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="TermDescription" nillable="true" type="xs:string"
minOccurs="1"/>
              <xs:element name="PaymentTermDetails" maxOccurs="unbounded">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="PaymentTermDetail" maxOccurs="unbounded">
                      <xs:complexType>
                        <xs:sequence>
                          <xs:element name="SequenceNumber" type="xs:int"
minOccurs="1"/>
                          <xs:element name="DuePercent" nillable="true"
type="xs:decimal" minOccurs="1"/>
                          <xs:element name="DueAmount" nillable="true"
type="xs:decimal" minOccurs="1"/>
                          <xs:element name="DueDays" nillable="true" type="xs:int"
minOccurs="1"/>
```

```
                          <xs:element name="DueDayOfMonth" nillable="true"
type="xs:int" minOccurs="1"/>
                          <xs:element name="DueMonthsForward" nillable="true"
type="xs:int" minOccurs="1"/>
                          <xs:element name="DiscountPercent" nillable="true"
type="xs:decimal" minOccurs="1"/>
                          <xs:element name="DiscountDays" nillable="true" type="xs:int"
minOccurs="1"/>
                          <xs:element name="DiscountDayOfMonth" nillable="true"
type="xs:int" minOccurs="1"/>
                          <xs:element name="DiscountMonthForward" nillable="true"
type="xs:int" minOccurs="1"/>
                        </xs:sequence>
                      </xs:complexType>
                    </xs:element>
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

Purchase orders XSD file

The following is the XML schema document for the `purchase_orders.xml` file:

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

 <xs:element name="PurchaseOrders">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="PurchaseOrder" maxOccurs="unbounded">
     <xs:complexType>
      <xs:sequence>
       <xs:element name="ERPPOHeaderID" nillable="true" type="xs:string" minOccurs="1"/
>
       <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
minOccurs="1"/>
       <xs:element name="PONumber" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="POType" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="ERPVendorID" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="VendorName1" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="VendorSiteID" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="VendorSiteCode" nillable="true" type="xs:string"
minOccurs="1"/>
       <xs:element name="POStatus" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="Active" nillable="true" type="xs:boolean" minOccurs="1"/>
       <xs:element name="CurrencyCode" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="RequisitionedBy" nillable="true" type="xs:string"
minOccurs="1"/>
       <xs:element name="CreatedBy" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="PurchaseOrderLines" minOccurs="0" maxOccurs="unbounded">
        <xs:complexType>
          <xs:sequence>
         <xs:element name="PurchaseOrderLine" maxOccurs="unbounded" minOccurs="0">
```

```
          <xs:complexType>
         <xs:sequence>
          <xs:element name="ERPPOLineID" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="LineNumber" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="MaterialNumber" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="MaterialGroup" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="Description" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="POQuantity" type="xs:decimal" minOccurs="1"/>
          <xs:element name="UnitPrice" type="xs:decimal" minOccurs="1"/>
          <xs:element name="POTotal" type="xs:decimal" minOccurs="1"/>
          <xs:element name="TaxCode" nillable="true" type="xs:string" minOccurs="1"/>
          <xs:element name="TaxJurCode" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="UnitOfMeasure" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="PriceUnit" type="xs:decimal" minOccurs="1"/>
          <xs:element name="Puom" nillable="true" type="xs:string" minOccurs="1"/>
          <xs:element name="TotalQuantityDelivered" type="xs:decimal" minOccurs="1"/>
          <xs:element name="TotalValueDelivered" type="xs:decimal" minOccurs="1"/>
          <xs:element name="TotalQuantityInvoiced" type="xs:decimal" minOccurs="1"/>
          <xs:element name="TotalValueInvoiced" type="xs:decimal" minOccurs="1"/>
          <xs:element name="ItemCategory" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="Plant" nillable="true" type="xs:string" minOccurs="1"/>
          <xs:element name="ChargeCode" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="ChargeCodeID" nillable="true" type="xs:string"
minOccurs="1"/>
          <xs:element name="ERPPOType" nillable="true" type="xs:string" minOccurs="1"/
>
          <xs:element name="Ers" nillable="true" type="xs:string" minOccurs="1"/>
          <xs:element name="ReceiptRequired" type="xs:boolean" minOccurs="1"/>
          <xs:element name="ReceiptLines" minOccurs="0" maxOccurs="unbounded">
           <xs:complexType>
            <xs:sequence>
             <xs:element name="ReceiptLine" maxOccurs="unbounded" minOccurs="0">
              <xs:complexType>
               <xs:sequence>
                <xs:element name="ERPReceiptID" nillable="true" type="xs:string"
minOccurs="1"/>
                 <xs:element name="ReceiptLineNumber" nillable="true" type="xs:string"
minOccurs="1"/>
                 <xs:element name="DeliveryDocumentNumber" nillable="true"
type="xs:string" minOccurs="1"/>
                 <xs:element name="Quantity" type="xs:decimal" minOccurs="1"/>
                 <xs:element name="UnitPrice" type="xs:decimal" minOccurs="1"/>
                 <xs:element name="Total" type="xs:decimal" minOccurs="1"/>
                 <xs:element name="QuantityInvoiced" type="xs:decimal" minOccurs="1"/>
                 <xs:element name="TotalInvoiced" type="xs:decimal" minOccurs="1"/>
                 <xs:element name="DocYear" nillable="true" type="xs:string"
minOccurs="1"/>
               </xs:sequence>
              </xs:complexType>
             </xs:element>
            </xs:sequence>
           </xs:complexType>
          </xs:element>
         </xs:sequence>
          </xs:complexType>
```

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

</xs:schema>
```

GL segments XSD file

The following is the XML schema document for the `gl_segments.xml` file:

```
<?xml version="1.0"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

 <xs:element name="GLSegments">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="GLSegment" maxOccurs="unbounded">
     <xs:complexType>
      <xs:sequence>
       <xs:element name="ERPSegmentID" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="GLSegmentNumber" type="xs:int" minOccurs="1"/>
       <xs:element name="GLSegmentValue" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="GLSegmentName" nillable="true" type="xs:string" minOccurs="1"/
>
       <xs:element name="ChildSegments" minOccurs="0" maxOccurs="unbounded">
        <xs:complexType>
         <xs:sequence>
          <xs:element ref="GLSegment" minOccurs="0" maxOccurs="unbounded"/>
         </xs:sequence>
        </xs:complexType>
       </xs:element>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
   </xs:sequence>
  </xs:complexType>
 </xs:element>

 <xs:element name="GLSegment">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="ERPSegmentID" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
    <xs:element name="GLSegmentNumber" type="xs:int" minOccurs="1"/>
    <xs:element name="GLSegmentValue" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="GLSegmentName" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="ChildSegments" minOccurs="0" maxOccurs="unbounded">
     <xs:complexType>
```

```
      <xs:sequence>
       <xs:element ref="GLSegment" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
   </xs:sequence>
  </xs:complexType>
 </xs:element>

</xs:schema>
```

Cost center segments XSD file

The following is the XML schema document for the `cc_segments.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

 <xs:element name="CCSegments">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="CCSegment" maxOccurs="unbounded">
     <xs:complexType>
      <xs:sequence>
       <xs:element name="ERPSegmentID" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="CCSegmentNumber" type="xs:int" minOccurs="1"/>
       <xs:element name="CCSegmentValue" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="CCSegmentName" nillable="true" type="xs:string" minOccurs="1"/
>
       <xs:element name="ChildSegments" minOccurs="0" maxOccurs="unbounded">
         <xs:complexType>
          <xs:sequence>
           <xs:element ref="CCSegment" minOccurs="0" maxOccurs="unbounded"/>
          </xs:sequence>
         </xs:complexType>
        </xs:element>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
   </xs:sequence>
  </xs:complexType>
 </xs:element>

 <xs:element name="CCSegment">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="ERPSegmentID" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
    <xs:element name="CCSegmentNumber" type="xs:int" minOccurs="1"/>
    <xs:element name="CCSegmentValue" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="CCSegmentName" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="ChildSegments" minOccurs="0" maxOccurs="unbounded">
     <xs:complexType>
      <xs:sequence>
       <xs:element ref="CCSegment" minOccurs="0" maxOccurs="unbounded"/>
```

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

</xs:schema>
```

Work breakdown structure segments XSD file

The following is the XML schema document for the `wbs_segments.xml` file:

```
<?xml version="1.0"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

 <xs:element name="WBSSegments">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="WBSSegment" minOccurs="0" maxOccurs="unbounded">
     <xs:complexType>
      <xs:sequence>
       <xs:element name="ERPSegmentID" nillable="true" type="xs:string"/>
       <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="WBSSegmentNumber" type="xs:int" minOccurs="1"/>
       <xs:element name="WBSSegmentValue" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
       <xs:element name="WBSSegmentName" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="ChildSegments" minOccurs="0" maxOccurs="unbounded">
        <xs:complexType>
         <xs:sequence>
          <xs:element ref="WBSSegment" minOccurs="0" maxOccurs="unbounded"/>
         </xs:sequence>
        </xs:complexType>
       </xs:element>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
   </xs:sequence>
  </xs:complexType>
 </xs:element>

 <!-- Declaration of WBSSegment -->
 <xs:element name="WBSSegment">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="ERPSegmentID" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
    <xs:element name="WBSSegmentNumber" type="xs:int" minOccurs="1"/>
    <xs:element name="WBSSegmentValue" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="WBSSegmentName" nillable="true" type="xs:string" minOccurs="1"/>
    <xs:element name="ChildSegments" minOccurs="0">
     <xs:complexType>
      <xs:sequence>
       <xs:element ref="WBSSegment" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
```

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

</xs:schema>
```

Plants XSD file

The following is the XML schema document for the `plants.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

    <xs:element name="Plants">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="Plant" maxOccurs="unbounded">
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="PlantID" nillable="true" type="xs:string"
 minOccurs="1"/>
       <xs:element name="ERPOrganizationID" nillable="true" type="xs:string"
 minOccurs="1"/>
                            <xs:element name="CountryCode" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="StateCode" nillable="true"
 type="xs:string" minOccurs="1"/>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:element>
</xs:schema>
```

ERP invoices XSD file

The following is the XML schema document for the `erp_invoices.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="ERPInvoices">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="ERPInvoice" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="ERPInvoiceID" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="ERPBusinessUnitID" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="InvoiceNumber" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="InvoiceDate" nillable="true" type="xs:dateTime"
 minOccurs="1"/>
```

```
              <xs:element name="InvoiceType" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="InvoiceAmount" nillable="true" type="xs:decimal"
 minOccurs="1"/>
              <xs:element name="PONumber" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="PaymentDate" nillable="true" type="xs:dateTime"
 minOccurs="1"/>
              <xs:element name="CancelledDate" nillable="true" type="xs:dateTime"
 minOccurs="1"/>
              <xs:element name="InvoiceStatus" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="VendorName1" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="VendorSiteCode" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="VendorSiteID" nillable="true" type="xs:string"
 minOccurs="1"/>
              <xs:element name="ERPVendorID" nillable="true" type="xs:string"
 minOccurs="1"/>
   </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

Vendors XSD file

The following is the XML schema document for the `Vendors.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <xs:element name="Vendors">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="Vendor" maxOccurs="unbounded">
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="ERPVendorID" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="ERPBusinessUnitID" nillable="true"
 type="xs:string" minOccurs="1"/>
      <xs:element name="ERPTermID" nillable="true" type="xs:string" minOccurs="1"/>
      <xs:element name="Description" nillable="true" type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorName" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorSiteID" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorSiteCode" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorStreet1" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorStreet2" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorCity" nillable="true"
 type="xs:string" minOccurs="1"/>
                            <xs:element name="VendorZip" nillable="true"
 type="xs:string" minOccurs="1"/>
```

```
                              <xs:element name="VendorState" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="VendorCountry" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="VendorVatCode" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="VendorVatRegno" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="TaxNumber" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="BankCode" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="BankAccountNumber" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="Email" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="Url" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="Telephone" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="Fax" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="ContactName" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="Active" nillable="true" type="xs:boolean"
minOccurs="1"/>
                              <xs:element name="Enabled" nillable="true"
type="xs:boolean" minOccurs="1"/>
                              <xs:element name="TermDateBasis" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="PoBox" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="PoBoxZip" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="EuMember" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="Currency" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="TaxID1" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="TaxID2" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="TaxJurCode" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="InvoiceType" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="PaymentMethods" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="WithholdingTaxDetails" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="CompanyCodes" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="UtilityFlag" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="PORSubscriberNo" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="ExternalSiteID" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="VendorAccountGroup" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="AlternatePayee" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="PermittedPayee" nillable="true"
type="xs:string" minOccurs="1"/>
```

```
                              <xs:element name="SiretID" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="VendorIdentifier" nillable="true"
type="xs:string" minOccurs="1"/>
                              <xs:element name="InterCompany" nillable="true"
type="xs:boolean" minOccurs="1"/>
      <xs:element name="ERPBankAccountCode" nillable="true" type="xs:string"
minOccurs="1"/>
                              <xs:element name="IsOneTimeVendor" nillable="true"
type="xs:boolean" minOccurs="1"/>
                         </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:element>
</xs:schema>
```