

Kofax ReadSoft InvoicesWeb API Development Guide

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Introduction

This document is not comprehensive and does not cover all of the possibilities available with the Web API. Its purpose is to provide some examples to get you started, and all of the query examples are basically written for the Graphi QL IDE included in the Web API.

The URL to the in-browser IDE for GraphQL is http://localhost:54050/api/graphql (replace local host with your web API hostname or IP address). The IDE includes code completion and a documentation explorer that shows everything you can do with the API.

For a more comprehensive tutorial on GrapQL, visit http://graphgl.org/learn/.

Related documentation

A full set of the documentation for Kofax ReadSoft Invoices 6.2.0 can be found online here: https://docshield.kofax.com/Portal/Products/en_US/RSI/6.1.0-fcscu25u5b/RS_Invoices.htm

The Web API Installation Guide (ReadSoft_Invoices_WebAPIInstall.pdf) provides specific information on how to install and configure the Kofax ReadSoft Invoices Web API application.

Getting help with Kofax products

The Kofax Knowledge Base repository contains articles that are updated on a regular basis to keep you informed about Kofax products. We encourage you to use the Knowledge Base to obtain answers to your product questions.

To access the Kofax Knowledge Base, go to the Kofax website and select **Support** on the home page.

The Kofax Knowledge Base is optimized for use with Google Chrome, Mozilla Firefox or Microsoft Edge.

The Kofax Knowledge Base 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.

Scroll through the Kofax Knowledge Base home page to locate a product family. Then click a product family name to view a list of related articles. Please note that some product families require a valid Kofax Portal login to view related articles.

- Access to the Kofax Customer Portal (for eligible customers).
 Click the Customer Support link at the top of the page, and then click Log in to the Customer Portal.
- Access to the Kofax Partner Portal (for eligible partners).
 Click the Partner Support link at the top of the page, and then click Log in to the Partner Portal.
- Access to Kofax support commitments, lifecycle policies, electronic fulfillment details, and selfservice tools.
 - Scroll to the **General Support** section, click **Support Details**, and then select the appropriate tab.

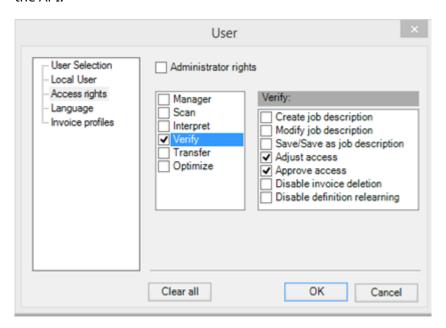
Requirements

A working Kofax Invoices 6.2.0 environment with Invoices Web API installed and running.

Authorization

A valid access token is required in the header of the http POST request when making calls to the API to ensure that only authorized users can access it. Users receive the token when they successfully log into the GraphQL IDE. In the process, the IDE contacts the IdentityServer to validate the user name and password, and if authentication succeeds, the token is sent and automatically used when the user sends gueries and mutations to the API.

The IdentityServer only accepts users that are found in the Invoices database that is connected to the system. Note that users need Verify + adjust + approve permission in Invoices to be able to use the API.



When you create your own client code to access the API, you need to call the IdentityServer to get the token. Following is an example of what the raw post request would look like when calling an IdentityServer end-point at localhost:2101 for the user, *my_user*, and password, *my_user*:

POST /connect/token HTTP/1.1 Host: localhost:2101 Content-Type: application/x-www-form-urlencoded Cache-Control:

```
no-cache client_id=webverify&client_secret=secret&grant_type=password&username=
my_user&password=my_user
```

The returned token can then be used in the header of the POST requests made to the API. If the API receives an invalid token, it returns a 401 http error.

The user name included with the token determines which Invoices inbox folders the API can access for that user (if authorization roles are used in the inbox configuration in Invoices).

① Due to security reasons, the default password ("secret") for the admin user in Invoices is not allowed for the admin user in the API. If you want to use the admin user with the API, you need to change the default password in Invoices Manager first.

Example token

Below is an example of a GraphQL POST request with an Authorization header. The string after "bearer" is an example of the access token you get from the IdentityServer after a successful login.

```
POST /api/graphql HTTP/1.1
Host: localhost:54050
Authorization: bearer
eyJhbGciOiJSUzI1NiIsImtpZCI6IjI0MkIzQkY4QTkyQTczN0I2RUNBRkI5QjlGODEzMTA2RkM4QUQwREYi
LCJ0eXAiOiJKV1QiLCJ4NXQiOiJKQ3M3LUtrcWMzdHV5dnVibjRFeEJ2eUswTjqifQ.eyJuYmYiOjE1MDkw
MDcxODMsImV4cCI6MTUwOTAxMDc4MywiaXNzIjoiaHR0cDovL2xvY2FsaG9zdDoyMTAxIiwiYXVkIjpbImh
OdHA6Ly9sb2NhbGhvc3Q6MjEwMS9yZXNvdXJjZXMiLCJhcGkxIlOsImNsaWVudF9pZCI6IndlYnZlcmlmeSI
sInN1YiI6ImFkbWluIiwiYXV0aF90aW11IjoxNTA5MDA3MTgyLCJpZHAiOiJsb2NhbCIsIm5hbWUiOiJhZG1
pbiIsImdpdmVuX25hbWUiOiJBZG1pbmlzdHJhdG9yIiwic2NvcGUiOlsib3BlbmlkIiwicHJvZmlsZSIsIm
FwaTEiLCJvZmZsaW51X2FjY2VzcyJdLCJhbXIiOlsicGFzc3dvcmQiXX0.DHQNKkYG-qGXCrz3J0TLob4qk
UC z3SGgyskeoVW610kYdhzO1quzTNDs85zaBfxT82SiKROUnm7mOSU7GNqTAnzaOdpYr41BwJuA TQ1BMM
cOcnjfPOUBXy5z9bgP6nmMhwhLZ6N3N6Qc9BwnTbgNgdlzV4nTSyYICQsc_mC1S1aJOMEy6BfLDrdUU7Ljy
CDM6bq2HVVlpz0k2H3 3mf4wyIvNx6sYU7OgyqQr-9IceIDjbitAUHv4SACw6ypstuqRo3GAsnH0kB4uTx3
7MaNfXbMWZ-u6nyoLNY Y0aq5vApMOy-AuUvXsc5kFw4CGJgiQMfXuNMGd7_njFsVLAA
Content-Type: application/json
{"query":"{\n invoices {\n
                             allInvoices {\n
                                                   totalCount\n }\n }\n\n",
"variables": "null", "operationName": null}
```

Queries

GraphQL queries are written in Json, and all of the following examples can be executed from the GraphQL IDE. Queries fetch data from the server side.

List inbox / section criteria

User criteria in Invoices (*userCriteria* in the query) corresponds to the set of inbox folders to which the user who is currently logged in has access.

Doing a general query search in this way provides the information needed to make the search more specific as is seen in the next sections.

The following example fetches all of the user criteria specified, namely, *id*, *fullName*, and *name* for each of the folders the user has access to. The user only gets results from the folders that have been configured for them in the Invoices Manager module.

Query

```
{
  criteria
  {
   userCriteria {
     criteria {id, fullName, name}
   }
  }
}
```

Response

The response below shows that the current user has access to three inbox folders: *gbr_p02*, *gbr_po*, and *Uncertain separation*, and the information includes the *id* and *fullName* for each as was specified in the query.

Query

The *userCriteria* query can take an argument and return the results for one specific inbox folder. This is done by adding the *criteriaId* parameter to the query.

```
{
  criteria {
    userCriteria(criteriaId: 6) {
      criteria {
        id
        name
        fullName
    }
  }
}
```

Response

List invoices

You can list all of the invoices the current user has access to. The invoices a user can access is configured in the Inbox configuration in the Invoices Manager module.

The following example returns the *id* and *filename* properties for all relevant invoices.

Query

```
{
  invoices {
    allInvoices {
      items {
        id
        fileName
      }
    }
}
```

Response

Get invoice data

A large amount of data on the invoice is accessible from the API. You can get everything, or you can get subsets.

The following example returns the *id* and *filename* properties for all relevant invoices.

Values and status

The following example shows how to get values and statuses from header and footer tables. Query

```
invoices {
  invoice(id: "546") {
   id,
   headerFields {
     name
     value
     statusStr}
   tables {
     rows {cells {
        name
        value
        value
```

```
} 
}
}
}
```

Response (truncated)

```
"data": {
  "invoices": {
     "invoice": {
        "id": "546 ",
        "headerFields": [
             "name": "Debit/Credit",
"value": "Debit",
              "statusStr": "Complete"
             "name": "InvoiceNumber",
"value": "510870",
"statusStr": "Complete"
        "tables": [
           {
             "rows": [
                {
                   "cells": [
                        "name": "LI_OrderLine",
"value": ""
                      },
                        "name": "LI_Description", "value": ""
                   ]
                },
                   "cells": [
                        "name": "LI_OrderLine",
"value": ""
                        "name": "LI_Description",
"value": ""
                   ]
            ]
         }
```

```
}
}
}
```

Pages and OCR data

The following example returns the pages and ocr data for a single invoice (with id 546).

Query

The following examlpe shows how to get values and statuses from header and footer tables.

Response (truncated)

```
"data": {
  "invoices": {
    "invoice": {
      "id": "546_",
      "pages": [
           "imageFileName": "E:\\Test\\import\\Ident\\GBR-PO-A1.000",
           "ocrWords": [
                "text": "ML",
                "rect": {
                  "x": 365,
                  "y": 523,
                  "width": 63,
"height": 34
             },
                "text": "order",
                "rect": {
    "x": 843,
                  "y": 2733,
                  "width": 124,
```

Queries with variables

Instead of passing your arguments in the query and modifying your queries every time an argument needs to change, you can use variables instead and keep your predefined query intact.

Query

```
query QueryName($id: Int) {
   criteria {
    userCriteria(criteriaId: $id) {
      criteria {
        id
        name
        fullName
      }
    }
}
```

Variables

```
{"id": 6}
```

Request payload

This is what the actual JSON request payload looks like:

Mutations

GraphQL mutations are used to modify the data on an invoice.

Lock invoices

Before an invoice can be modified, it must be locked by the current user so that no one else can modify it at the same time. Use the *lockInvoice* mutation to lock an invoice:

GraphQL query

```
mutation {
  lockInvoice(input: {id: "1026"}) {
    success
}
```

GraphQL response

```
{
  "data": {
    "lockInvoice": {
        "success": true
    }
  }
}
```

GraphQL response

If the requested invoice is already locked by a different user, you get an error as in the following example:

```
{
  "data": {
     "lockInvoice": null
  },
  "errors": [
     {
        "message": "The INVOICES.MT.Repository.Contracts.ILockInvoice request faulted:
        INVOICES_ERROR: The invoice with id 1026 is already locked by another user"
        }
  ]
}
```

If the current user has already locked the invoice and uses *lockInvoice* on it again, the error does not appear.

Unlock invoices

When you are finished updating the invoice, you should release the lock so that other users can modify it. This is done using the *releaseInvoice* mutation:

GraphQL query

```
mutation {
  releaseInvoice(input: {id: "1026"}) {
    success
  }
}
```

GraphQL response

```
{
  "data": {
    "releaseInvoice": {
        "success": true
     }
  }
}
```

GraphQL response

If an invoice has been locked by a different user, and the current user attempts to release the lock using a query, an error occurs. In the same way, if a user attempts to release the lock on an invoice that is not locked, the error also occurs.

```
{
  "data": {
      "releaseInvoice": null
  },
  "errors": [
      {
         "message": "The INVOICES.MT.Repository.Contracts.IReleaseInvoice request faulted:
      INVOICES_ERROR: The lock for invoice 1002 could not be released"
      }
  ]
}
```

Modify invoices

Use the *updateInvoice* mutation to modify an invoice. Currently, header field values, header field rectangles, and the invoice status can be modified. You can also add new user remarks.

An invoice can only be modified by the logged-in user if it is currently locked by the same user. See the *lockInvoice* mutation. When you are finished updating the invoice, release the lock using the *releaseInvoice* mutation.

To update field data on an invoice, provide the invoice *id* and a list of *updatedFields* objects. The objects in the list include the name of the field and the field properties/values that should be updated.

Update the field value of one field on an invoice

You can list all of the invoices the current user has access to. The invoices a user can access is configured in the Inbox configuration in the Invoices Manager module.

The following mutation updates the *InvoiceNumber* field with the new value "123456". You can specify to return a subset of the properties for the updated invoice as a response.

GraphQL mutation

```
mutation {
    updateInvoice(input: {id: "1026",
        updatedFields: [
        {fieldName: "InvoiceNumber", changedValues: [
            {key: "value", value: "123456"}
        ]}
    ]
    }
    ) {
        invoice {
            headerFields {
                name
                value
                statusStr
                infoStr
        }
    }
}
```

GraphQL mutation response

Validation errors

A field is validated in multiple ways when you attempt to update it. If the field receives a validation error in the process, the information is returned in the *statusStr* and *infoStr* properties.

GraphQL mutation

```
mutation {
    updateInvoice(input: {id: "1026",
        updatedFields: [{fieldName: "InvoiceNumber", changedValues: [
        {key: "value", value: "12"}
    ]}]
}
) {
    invoice {
        headerFields {
            name
            value
            statusStr
            infoStr
        }
    }
}
```

GraphQL mutation response

Update the field value and override validation errors

If you want to set a field value to Complete even though it contains validation errors, you can use the *confirmed* key in the *updatedFields* list to override the errors:

GraphQL mutation

```
mutation {
  updateInvoice(input: {id: "1026",
    updatedFields: [{fieldName: "InvoiceNumber", changedValues: [
        {key: "value", value: "12"},
        {key: "confirmed", value:"true"}
    ]}]
}
}
}

// Confirmed for the proof of the proof o
```

GraphQL mutation response

Update multiple fields at the same time

You can update several fields with the same mutation by adding extra objects to the *updatedFields* list. The following example updates the field values of both *InvoiceNumber* and *OrderNumber*:

GraphQL mutation

```
mutation {
   updateInvoice(input: {id: "1026",
```

GraphQL mutation response

Adjust the area defined on an invoice for a single field

This mutation updates the value rectangle defined for the InvoiceNumber field:

GraphQL mutation

```
mutation {
  updateInvoice(input: {id: "1026",
     updatedFields: [
     {fieldName: "InvoiceNumber", index: 0, changedValues: [
         {key: "valueRect", value: "{'x':1862,'y':997,'width':166,'height':26}"}
     ]}]
}
```

```
) {
  invoice {
   headerFields {
     id
     value
     valueRect {x y width height}
     statusStr
     infoStr
   }
}
```

GraphQL mutation response

Update the status of an invoice

Update invoice status using the *updatedStatus* property. The following list contains the valid values for this property. The number represents the status and is followed by the status name:

- 1 Identified
- 2 Complete
- 3 Incomplete
- 5 ValidationError
- 7 Transferred
- · 8 Unidentified
- 11 Approved
- 14 Rejected
- 17 Scanned

If you use an invalid value for the status, you get an error back from the mutation.

GraphQL query

```
mutation {
  updateInvoice(input: {id: "1002",
  updatedStatus: 2
  }
  ) {
    invoice {
     status
     statusStr
    }
  }
}
```

GraphQL response

```
{
  "data": {
    "updateInvoice": {
        "invoice": {
            "status": 2,
            "statusStr": "Complete"
        }
    }
}
```

Add user remarks to an invoice

You can add user remarks to an invoice by providing a list of messages to the *newUserRemarks* list property. The example below adds two new user remarks. Note that remarks are automatically registered with the current user and time stamp.

GraphQL query

```
mutation {
  updateInvoice(input: {id: "1026",
    newUserRemarks: [{message: "hello!"}, {message: "hello again!"}]
}
) {
  invoice {
    userRemarks {
      message
      user
      timeStamp
    }
}
}
```

GraphQL response

Validate invoices

The invoice is validated when it is updated or saved using the *updateInvoice* mutation. If you want to validate one or more fields without saving to the database, you can use the *validateInvoice* mutation. This is useful when validating while a user is typing field values from a thin client or for doing pre-validations before saving the changes.

An invoice does not have to be locked before calling *validateInvoice* since no changes are saved to the invoice.

For the *validateInvoice* mutation, you specify what invoice to validate and provide a list of updated field values. You can specify a response to return the results of the validation if you want to know which fields were affected by the validation, for example. Depending on the requirements of your client code, it can make sense to fetch more properties for the affected fields.

Validate a field value

GraphQL query

GraphQL mutation response

Validate error information in responses

If field validation fails, a validation error is included in the response.

GraphQL query

GraphQL response

Normalized formats

During validation, date fields and amount fields are formatted to a normalized output format.

Dates are returned with the format, YYYY-MM-DD, and amounts are returned using a period (.) as the decimal separator and no separator for thousands (1234.56, for example).

GraphQL query

In this example query, the value for an invoice number is specified as "30 sep 2017". The invoice is connected to a German/DEU profile which has DDMMMYYYY as a valid format, and as a result, the validation is correct.

GraphQL response

In the response, you get the *formattedValue* back as 2017-09-30 since this is the date value formatted against the normalized date format. The value property still contains the original value (not formatted).

Get the page images for an invoice

The images for invoice pages are fetched using http GET requests and are not available via the GraphQL protocol. The image URI to fetch a specific page has the following format:

http://<API uri>/api/image/{invoiceid}_{pagenumber}

For example, the following string connects to the API located at localhost:54050 and fetches the image for page 1 of the invoice with id 3:

http://localhost:54050/api/image/3_1

The response from the request contains the image converted to PNG image file format.

The image URI is authorized using an access token. To get access, you need to specify an Authorization header in the GET request header.

A complete GET request looks like this:

GET /api/image/3_1 HTTP/1.1

Host: localhost:54050

Authorization: bearer
eyJhbGciOiJSUzI1NiIsImtpZCI6IjIOMkIzQkY4QTkyQTczNOI2RUNBRkI5QjlGODEzMTA2RkM4QUQwREY
iLCJOeXAiOiJKV1QiLCJ4NXQiOiJKQ3M3LUtrcWMzdHV5dnVibjRFeEJ2eUswTjgifQ.eyJuYmYiOjE1MDk
wMDcxODMsImV4cCI6MTUwOTAxMDc4MywiaXNzIjoiaHR0cDovL2xvY2FsaG9zdDoyMTAxIiwiYXVkIjpbIm
h0dHA6Ly9sb2NhbGhvc3Q6MjEwMS9yZXNvdXJjZXMiLCJhcGkxIl0sImNsaWVudF9pZCI6IndlYnzlcmlme
SIsInN1Yi16ImFkbWluIiwiYXV0aF90aW11IjoxNTA5MDA3MTgyLCJpZHAiOiJsb2NhbCIsIm5hbWUiOiJh
ZG1pbiIsImdpdmVuX25hbWUiOiJBZG1pbmlzdHJhdG9yIiwic2NvcGUiOlsib3BlbmlkIiwicHJvZmlsZSI
smFwaTEiLCJvZmZsaW51X2FjY2VzcyJdLCJhbXIiOlsicGFzc3dvcmQiXXO.DHQNKkYG-qGXCrz3J0TLob
4gkUC_z3SGgyskeoVW610kYdhzOlquzTNDs85zaBfxT82SiKROUnm7mOSU7GNqTAnzaOdpYr41BwJuA_TQ1
BMMcOcnjfPOUBXy5z9bgP6nmMhwhLZ6N3N6Qc9BwnTbgNgdlzV4nTsyYICQsc_mC1S1aJOMEy6BfLDrdUU7
LjyCDM6bq2HVVlpz0k2H3_3mf4wyIvNx6sYU7OgyqQr-9IceIDjbitAUHv4SACw6ypstuqRo3GAsnHOkB4u
Tx37MaNfXbMWZ-u6nyoLNY Y0aq5vApMOy-AuUvXsc5kFw4CGJgiQMfXuNMGd7 njFsVLAA

The string after "bearer" is the access token received from the IdentityServer after logging in successfully.