

# **Tungsten TotalAgility**

## **MFP Web Services Connector SDK**

### **Developer's Guide**

Version: 8.1.0

Date: 2024-10-24

**TUNGSTEN**  
**AUTOMATION**

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# Tungsten TotalAgility MFP Web Services Connector SDK Developer's Guide

## Preface

This guide provides an overview and instructions for developing inputs with the MFP Web Services Connector Software Developer Kit (SDK). Along with this guide, the SDK provides documentation for the Web services.

## Related documentation

The product documentation set for Tungsten TotalAgility is available at the following location.

<https://docshield.tungstenautomation.com/Portal/Products/KTA/8.1.0-rmx0b1ux3q/KTA.htm>

In addition to this guide, Tungsten TotalAgility includes the following documentation:

### ***Tungsten TotalAgility Installation Guide***

Describes how to install and configure Tungsten TotalAgility.

### ***Tungsten TotalAgility Administrator's Guide***

Provides information to the administrator how to configure and maintain a Tungsten TotalAgility installation.

### ***Tungsten TotalAgility Designer Help***

Provides details about using Tungsten TotalAgility to design business jobs and cases, assign resources, create forms, integrate with external applications, and more. Access the help from the Tungsten TotalAgility application by clicking the Help button.

### ***Tungsten TotalAgility Workspace Help***

Describes how to use the workspace to manage activities, jobs, and resources. Access the help from the Tungsten TotalAgility workspace by clicking the Help button.

### ***Tungsten TotalAgility On-Premise Multi-Tenancy Guide***

Describes how to create and manage tenants using the Tungsten TotalAgility On-Premise Multi-Tenant system.

### ***Tungsten TotalAgility Product Features Guide***

Provides an overview of the dashboards that help you track data through the workflow, analyze the effectiveness of the processes and resources, and address business problems.


## Developer Resources

The developer resources include documentation, code samples, API references, and other aids that developers can use to customize or add functionality to the Tungsten TotalAgility product.

## 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.

## 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](#).

## System requirements

The primary source of information about supported devices and other Tungsten TotalAgility requirements is the Technical Specifications document. The document is updated regularly, and we recommend that you review it carefully to ensure success with your product.

## Accessing the SDK

The SDK is found in the Tungsten TotalAgility product files, and is copied to a `\OtherResources\DeveloperResources\WebAPISample` folder where Tungsten TotalAgility is installed by the setup process.

Access the .NET Validation API Reference with the rest of the product documentation. See the instructions in the *Tungsten TotalAgility Installation Guide*.

## Developer recommendations

This section provides recommendations for developing with the MFP Web Services Connector.

### Supporting global shortcuts

In the Devices, the administrator defines destinations and shortcuts, which can be assigned to a device profile. When the device profile is deployed to a licensed MFP Web Services Connector client, the global shortcuts associated with the device profile are made available to that client.

To obtain the list of global shortcuts in the device profile deployed to the client, call the `getProfile` method of the `ProfileService`. Make sure that you only send to destinations obtained from a global shortcut in the client's current profile.

1. Start a new document submission job by calling the `startJob` method of the `StartJobService`.
2. Repeat the following steps for each image:
  - a. Copy the destination information from the global shortcut's `WscDestination` object into the `WscDestination` object of a `WscSendImageRequest`, including the index fields of the `WscDestination` object.
  - b. Complete the appropriate index field information.
  - c. Send the `WscSendImageRequest` and the image by using the `sendImage` method of the `SendImageService`.
3. Complete the document submission job by sending a final `sendImage` request with the `done` field in the `WscSendImageRequest` set to `true`.

## Using RESTful web services

Tungsten TotalAgility provides RESTful web services. These are documented in the Tungsten TotalAgility RESTful API Reference.

The `\DeveloperResources\WebAPISample` folder also contains a sample Visual Studio project.

RESTful APIs support requests and responses to URIs in JSON format. The base address of the RESTful Web services is `http://<server>:<port>/totalagility/kofax/kfs/api/v1`. (If you are using SSL, replace `http` with `https`.) Applications that use RESTful Web services follow this basic flow.

1. Register the client to Tungsten TotalAgility by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/client/{id}`
2. Get global destinations and shortcuts by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/client/{id}?sessionID={sessionID}&locale={locale}`
3. Get personal destinations and shortcuts by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/users/{userID}/forms?sessionID={sessionID}&clientID={clientID}&locale={locale}`
4. Get index fields of a destination or shortcut by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/form/{id}/fields?sessionID={sessionID}&clientID={clientID}&locale={locale}`
5. Validate a value of an index field of the destination/shortcut by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/form/{id}/fields?currentField={fieldName}`
6. Validate values of all index fields of the destination/shortcut using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/form/{id}/fields`
7. Start submitting a job by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction`
8. Send images of the job to Tungsten TotalAgility by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction/{transactionID}/page/{pageID}`
9. End submitting the job by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction/{transactionID}`

## Additional RESTful web services

Tungsten TotalAgility metrics are supported by legacy web services and the following equivalent RESTful web services:


- To get lists of devices for the specified vendors by using this service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/metrics/devicelist`
- To invoke the metric service to get all shortcut names on server by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/metrics/shortcutnames`
- Invokes the metric service to get information for the specified metric types by using the service endpoint URI: `http://<server>:<port>/totalagility/kofax/kfs/api/v1/metrics/metrics`

## Supporting personal and group shortcuts

A user's list of personal and group shortcuts is returned by the login method of the `UserLoginService`. Only the personal shortcuts and the group shortcuts associated with the logged on user are retrieved.

Once you have retrieved the shortcuts, follow the appropriate steps for sending images to the shortcut. Note the following:

- A user ID and password are required when sending to a personal or group shortcut.
  - Make sure that you only use destinations obtained from a personal or group shortcut in the list returned by the login call.
1. Obtain the index field information for the shortcut by calling the `getIndexFields` method of the `GetIndexFieldsService`. When setting values of the `WscIndexFieldsRequest`, note the following:
    - Set the `shortcutName` and `shortcutTypeOrdinal` fields to the corresponding values from the selected shortcut.
    - Set the user name and password.

 The `backendId`, `dataStoreName`, `formTypeId` fields are no longer required and will be ignored if you set values for them.

2. Start a new document submission job by calling the `startJob` method of the `StartJobService`.
3. Send the image by doing the following:
  - a. Copy the destination information from the shortcut's `WscDestination` object into the `WscDestination` object of the `WscSendImageRequest`.
  - b. Fill in the associated index field array from the `WscIndexFieldResponse` obtained in step 1.
  - c. Set the appropriate index field values.
  - d. Set the user name and password in the `WscSendImageRequest`.
  - e. Send the `WscSendImageRequest` and the first image by using the `sendImage` method of the `SendImageService`.
4. Repeat step 3 for each image.
5. Send a final `sendImage` request with the **"done"** field in the `WscSendImageRequest` set to true, to complete the document submission job.

## Requirement for unique job IDs

Every job submitted to Tungsten TotalAgility must have a unique job ID that is different from any job ID used by any other MFP Web Services Connector client or input device (such as MFPs and scanners). Use a randomly generated GUID for each job because a timestamp does not guarantee uniqueness, especially across multiple devices.

## Completing document submission jobs

After you have initiated a document submission job with `StartJobService`, images and metadata files remain in the Tungsten TotalAgility `scanjobs` folder until the job is done, canceled, or aborted.



To make sure that incomplete document submissions jobs do not take up too much space on the server, make sure all jobs are completed.

When sending to a shortcut, the job is completed by calling the `SendImageService` with a `WscSendImageRequest` where the `done`, `canceled`, or `aborted` field is set to `true`. Similarly, one of the `done`, `canceled`, or `aborted` fields would be set to `true` in the last `WscSendWithCoversheetRequest` to complete a job when sending with a coversheet.

## MFP Web Services Connector client licensing

The MFP Web Services Connector client is licensed through the Tungsten TotalAgility Device license. RESTful web services are licensed as mobile. Clients that use the following legacy or RESTful web services decrement the Scan/Import and PDF Image+Text page counts.

- Legacy web services:
  - `SendImageService`
  - `SendToKDEInboxService`
  - `SendWithCoversheetService`
- RESTful web service endpoint URIs:
  - `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction/{transactionID}/page/{pageID}`
  - `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction/{transactionID}/page/{pageID}/part/{partID}`
  - `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction/{transactionID}/pagestream/{pageID}`
  - `http://<server>:<port>/totalagility/kofax/kfs/api/v1/transaction/{transactionID}/pagestream/{pageID}/part/{partID}`

## Adding a MFP Web Services Connector client

In the Devices, add the MFP Web Services Connector client manually as shown in the Devices Help. Some fields on the Add Device tab need to be entered differently from other devices, as listed in this section. After adding the MFP Web Services Connector client, associate a device profile to it as you would with any other device.

### **IP**

This field is required by the Devices. If the client does not have an IP address, enter a fictional IP address that is not the same as any other IP addresses licensed on Tungsten TotalAgility. Make sure it is in the correct format for an IP address.

### **Device name**

Enter any name to identify the MFP Web Services Connector client.

### **Host name**

Enter the name for the client if it does not have a host name. This name must not correspond to any real host.

### **Device model**

Enter "other" (without quotation marks) for a MFP Web Services Connector client.


**MAC address**

This field is required by the Devices. It is also required by MFP Web Services Connector as the Device ID for invoking Web services.

If the client does not have a MAC address, enter a fictional address that is not the same as any other MAC address licensed on Tungsten TotalAgility. Make sure it is in the correct format for a MAC address:

xx-xx-xx-xx-xx-xx

Where x is a hexadecimal digit and digits must be separated with dashes.

 When invoking a Web service that requires a MFP Web Services Connector client ID, make sure you use dashes in the MAC address that you pass in as the MFP Web Services Connector client ID, as shown in the format above. Using colons instead of dashes as separators will result in an error.

**Description**

Enter a description of the MFP Web Services Connector client. This field is optional.

**Device Profile**

After you have saved the device, select a device profile. In a device profile, you can specify whether Tungsten licensing applies. See [MFP Web Services Connector](#).