

# Kofax Transformation Toolkit

Thin Client Server

Developer's Guide

Version: 6.4.0

Date: 2020-10-27

The KOFAX logo is rendered in a bold, blue, sans-serif typeface. The letters are thick and closely spaced, with a modern, clean aesthetic. The 'K' and 'O' are particularly prominent due to their size and weight.

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# Preface

This guide is a supplement to the *Kofax Transformation Toolkit Developer's Guide* and contains information about installing Kofax Transformation Toolkit - Thin Client Server. This guide assumes that you have a thorough understanding of Windows standards, applications and interfaces,, and Kofax Transformation Toolkit.

This guide is for solution integrators who are installing Kofax Transformation Toolkit - Thin Client Server or who need a description of the installation procedures and requirements.

If you downloaded Kofax Transformation Toolkit from the Kofax Electronic Delivery site, you can extract the files from the ISO file. Refer to the instruction on the site. Or, you may have received Kofax Transformation Toolkit as a package that includes electronic media. In this guide, we refer to both the extracted files and the electronic media as the product files.

## Related Documentation

The following documentation is available in Kofax Transformation Toolkit 6.4.0.

### Guides

The following guides are available in Kofax Transformation Toolkit.

#### ***Kofax Transformation Toolkit Developer's Guide***

This guide provides installation information for the Kofax Transformation Toolkit. It also includes details about the provided merge modules and code samples, as well as a detailed information concerning integration.

#### ***Kofax Transformation Toolkit Thin Client Server Developer's Guide***

This guide provides installation and configuration information and provides details about the provided `FileAccessBackend` sample as well as information concerning customization and integration.

#### ***Kofax Transformation Toolkit Kofax Reporting Getting Started Guide***

This guide provides instructions for installing and configuring Kofax Reporting at a client site. In addition, it contains information about the data that is reported and the views that are provided by the reporting database.

## Help

The following help systems are available.

### ***Help for Kofax Transformation - Project Builder***

This help provides information for creating, configuring, and maintaining a transformation project.

### ***Help for Kofax Transformation Toolkit Thin Clients***

This help includes information on the following Thin Client user modules.

- Thin Client Correction. This section contains information on how to correct extraction problems on a document.
- Thin Client Verification. This section contains information on how to verify pieces of information on a document.
- Thin Client Validation. This section contains information on how to validate problems on a document.

### ***Help for Kofax Transformation Toolkit Scripting***

This help provides scripting examples and how to use the supported script elements.

### ***Help for Kofax Transformation - XDoc Browser***

This help provides information on how to use the XDoc Browser.

### ***Help for Kofax Transformation - Project Merge Tool***

This help provides information on how to merge two versions of the same project.

### ***Help for Kofax Transformation - Image Classifier***

This help provides information about the image classification technology that is used by Statistics Viewer.

### ***Help for Kofax Transformation - Statistics Viewer***

This help provides information about the various statistics that are collected for your solution.

## Other

The following additional documentation is available.

### ***WCFValidationServer.Backend.chm***

This compile help file provides information about the `WCFValidationServer.Backend` library for the Thin Client Server and its `FileAccessBackend` sample.

### ***Help for Developers***

For Kofax Transformation Toolkit, additional documentation can be displayed that is located in the `<installation path>\Resources\Documentation` folder.

Kofax Transformation Toolkit installs .chm files that contain the following documentation for the Document Review, Correction, Validation, and Validation controls, as well as the Scheduler, NewSamples and Statistic interfaces:

- Kofax.DocumentReview.chm - Kofax.DocumentReview library information
- Kofax.Correction.chm - Kofax.Correction library information
- Kofax.Validation.chm - Kofax.Validation library information
- Kofax.Verification.chm - Kofax.Verification library information
- Kofax.Mailroom.NewSamples.chm - Kofax.NewSamples library information
- Kofax.Mailroom.Statistic.chm - Kofax.Statistic library information
- Kofax.Server.Scheduler.Interface.chm - library information for the server scheduler interface

More information on documentation can be found in [Access Thin Client Server documentation](#).

## Training

Kofax offers both classroom and computer-based training that help you make the most of your Kofax solution. To learn more about training courses and schedules, visit the [Kofax Education Portal](#) on the Kofax website.

## Chapter 1

# System requirements

For information on supported operating systems and other system requirements, see the *Kofax Transformation Toolkit Technical Specifications* document on the [Kofax Transformation Toolkit Product Documentation](#) site.

This document is updated regularly, and we recommend that you review it carefully to ensure success with Kofax Transformation Toolkit.

## Software prerequisites

Kofax Transformation Toolkit - Thin Client Server requires the following software to be installed:

- Kofax Transformation Toolkit 6.4.0
- Information Internet Services (IIS) 8 or higher with the following features enabled:
  - ASP.NET v4.0.30319
  - HTTP Redirection
  - HTTP Activation
  - Enable WebSockets

## Chapter 2

# Installation

This chapter describes how to install Kofax Transformation Toolkit - Thin Client Server and maintain an existing installation.

**Important** The best practice is to use the Thin Clients over a Virtual Private Network (VPN) if you are working with sensitive data. Alternatively, configure IIS to run over a Secure Sockets Layer (SSL).

## Thin Client restrictions

This section explains the Thin Client restrictions and the differences between the toolkit controls for the Rich Client user modules and their corresponding Thin Clients. The individual Thin Client restrictions are as follows.

### Thin Client Correction restrictions

There are several differences between the Correction control and Thin Client Correction. The biggest difference is that Thin Client Correction runs in a Web browser while the Correction control requires software to be installed on a computer. Other differences with Thin Client Correction include:

- This is a Web-based application, so you may need to log on.
- There is no status bar at the bottom of the window. Instead, there is a status footer inside the Web browser window.
- Pressing F1 launches the *Web browser Help* and not the *Thin Client Correction Help*. To open the latter, you need to click the Help option # inside the application or use the Ctrl, H keyboard shortcut.
- It is not possible to customize the toolbar or rearrange the order of the toolbar.
- It is possible to use the keyboard to process batches, but the keyboard shortcuts in Thin Client Correction are different because they use a modal system where Ctrl activates the keyboard shortcut mode. Once in the keyboard shortcut mode, press any of the relevant keyboard shortcut combinations to perform the needed action.
- Regular Expression Validation methods that contain dictionaries are not supported. If a validation method contains a dictionary, the only way for the correction operator to correct the field is to override it.
- Validation methods that include regular expressions may, on rare occasions, behave differently in Thin Client Validation. To ensure there are no problems, test all validation methods in both modules.
- The keyboard shortcut to allow Whole Field Correction is not F12, as this is a reserved key in the supported Web browsers. To enter Whole Field Correction mode, press F2.
- When in Full Image mode, pressing Enter saves the field and the user is returned to the default correction view. If field is valid, the next field is loaded automatically. If the field fails validation, the user needs to correct that field before processing the rest of the batch.
- Smart zoom is not available for images in Single Key or Whole Field mode.



- Right-to-left languages such as Arabic are not supported by the Thin Client Correction module.

## Thin Client Verification restrictions

There are several differences between the Verification control and Thin Client Verification. The biggest difference is that Thin Client Verification runs in a Web browser while the Verification control requires software to be installed on a computer. Other differences include:

- This is a Web-based application so you may need to log on.
- There is no status bar at the bottom of the window. Instead, there is a status footer inside the Web browser window.
- Pressing F1 launches the *Web browser Help* and not the *Thin Client Verification Help*. Instead, you need to click the Help option # inside the application or use the Ctrl, H keyboard shortcut.
- Panes cannot be floated. Instead, unnecessary frames can be collapsed to maximize the space available to other frames.
- It is not possible to customize the toolbar, or rearrange the order of the toolbar.
- It is not possible to toggle automatic focus on and off.
- Script events that are based on focus, selection, and changes to the validation form are not supported. For more details refer to the *Help for Thin Client Server* and the *Help for Scripting* for more information.
- Page rejection is not supported. Instead, reject the entire document.

## Thin Client Validation restrictions

There are several differences between the Validation control and Thin Client Validation. The biggest difference is that Thin Client Validation runs in a Web browser while the Validation control requires software to be installed on a computer. Other differences include:

- This is a Web-based application so you may need to log on.
- There is no status bar at the bottom of the window. Instead, there is a status footer inside the Web browser window.
- Panes cannot be floated. Instead, unnecessary frames can be collapsed to maximize the space available to other frames.
- Pressing F1 launches the *Web browser Help* and not the *Thin Client Validation Help*. Instead, you need to click the Help option # inside the application or use the Ctrl, H keyboard shortcut.
- It is not possible to customize the toolbar, or rearrange the order of the toolbar.
- It is possible to use the keyboard to process batches, but the keyboard shortcuts in Thin Client Validation are different because they use a modal system where Ctrl activates the keyboard shortcut mode. Once in the keyboard shortcut mode, press any of the relevant keyboard shortcut combinations to perform the needed action.
- Keyboard shortcuts for custom buttons are not supported.
- Thin Client Validation does not have a separate batch editing mode. Instead, all supported batch editing operations are available at all times.
- Page rejection is not supported. Instead, reject an entire document.
- Thin Client Validation does not have the Confirm Document toolbar option. All documents are automatically confirmed when modified during Batch Editing.
- It is not possible to create a folder by right-clicking on a document. Instead, you must right-click a folder or the root node of the batch.

- The "Create Document" from a page option is not supported.
- Copying or adding documents or pages is not supported.
- It is not possible to select more than one document or folder in the Batch Content pane.
- Cut and Paste using the clipboard are not supported when editing a batch.
- It is not possible to toggle automatic focus on or off.
- Layout scripting is not supported. This means that it is not possible to set the background color of a table cell.
- It is not possible to double-click a word in the image to validate a field. However, clicking on the image still adds the text to the validation form field.
- Script events that are based on focus, selection, and changes to the validation form are not supported. For more details refer to the *Help for Thin Client Server* and the *Help for Scripting* for more information.
- Tables sums are not supported.
- The "Show Hidden Columns" feature is not supported by Thin Client Validation.
- There is no "Clear All Fields" toolbar option in Thin Client Validation.
- Auto-folding is not supported.
- Modifying masked areas using a script is not supported by the Thin Client Validation.
- The Instant Search feature for database lookups is not supported.
- Thin Client Validation has a hard-coded limit of 1000 search results.
- Paging for fuzzy databases using navigation buttons is not available Thin Client Validation.
- There is no InPlace Editor.

## Important installation notes

This section lists important notes for installing Kofax Transformation Toolkit.

### Administrator Rights

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

### Command Line Installation

You can run the Kofax Transformation Toolkit - Thin Client Server installation from the command line by typing `KTS.msi`.

You can also use the command line installation if you do not want to install the FileAccessBackend sample and its documentation by typing the following command.

```
KTS.msi NOEXAMPLES=1
```

This command installs the Kofax Transformation Toolkit - Thin Client Server components, but does not install the sample, the FileAccessBackend zip file, or the Thin Client Server Developer's Guide documentation. If you need the sample at a later time you can copy the sample zip file and the documentation from the installation media (`Thin Client Server\Resources\Examples and Thin Client Server\Documentation`).

### Kofax Transformation Toolkit and Thin Client Server Upgrades

Kofax Transformation Toolkit and Thin Client Server do not support automatic upgrades. To upgrade either of them, uninstall the older version and then install the new one.

### IIS Application Pool User Permissions

The user account that is assigned to the Application Pool in ISS requires the same permissions as the `BatchListRootFolder` that is configured in the `web.config` file.

### Logging Permissions

In order for logging to successfully record errors for the Thin Client Server, the log file location (`C:\YourLogPath` by default) requires that the configured IIS user (`IIS_USR` by default) has Full Control over the log file directory.

**Tip** Logging is enabled via the Thin Client Server [configuration files](#).

### Clear Browser History

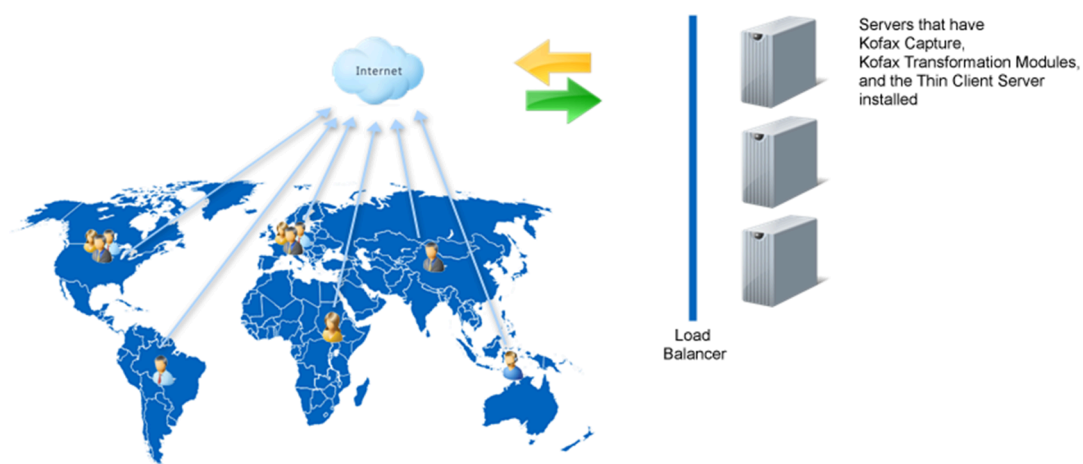
After a change, repair, or upgrade, clear the browser history and then restart IIS to ensure that old data does not cause problems.

## Load balancing

To support a cluster environment with multiple Thin Client Servers, a load standard balancer needs to be placed in from of the cluster, and then all clients use the URL of the load balancer to connect to the Thin Client Server.

**Important** Any software or hardware-based load balancing solution can be used, as long as it supports sticky sessions. For the best results, use a Microsoft Load Balancer or Apache Tomcat for load balancing.

The Thin Client Server cluster requires sticky sessions to be enabled on the load balancer, as user sessions are not replicated inside the cluster. Sticky sessions are needed to ensure that an established connection between a user and the server always redirects http requests from one particular user to the same server within the cluster. This ensures that the user is always directed back to the correct batch and document they are correcting, validating, and verifying.



## Install the Thin Client Server

The following section provides instructions for installing Kofax Transformation Toolkit - Thin Client Server.

**Note** If you are upgrading from a previous version, some of these steps may have already been performed. If this occurs, skip the step and continue with the next relevant step.

These instructions assume that you have installed all necessary [prerequisites](#).

You can install the Kofax Transformation Toolkit - Thin Client Server by following these steps:

1. On the workstation where Kofax Transformation Toolkit is installed, shut down any applications (including Control Panel, virus detection software, and toolbars) that are running.
2. Start the installation by running **KTS.msi** in the Thin Client Server folder of the product files. If you are running the installation from removable media, the installation should start automatically.
3. After the Setup Wizard confirms that there is enough space on your computer, click **Next**.  
The **End-User License Agreement** step is displayed.
4. On the **End-User License Agreement** step, select **I accept the terms in the License Agreement** and then click **Next**.  
The **Destination Folder** step is displayed.
5. Optionally, edit the installation path by clicking **Change**.  
The **Change destination folder** step is displayed.
  - a. Using **Browse** button, navigate to the path to where you want to install the Thin Client Server. Create folders as needed.
  - b. Optionally, edit the **Folder name** field directly
  - c. Click **OK**.The installation path is updated.
6. Click **Next**.  
The **Ready to install Kofax Transformation Toolkit - Thin Client Server 6.4** page is displayed.
7. Click **Install**  
Kofax Transformation Toolkit - Thin Client Server is installed.
8. [Integrate](#) your system to use IIS for Kofax Transformation Toolkit - Thin Client Server.

## Integrate the Thin Client Server with IIS

After installing Kofax Transformation Toolkit - Thin Client Server, it is necessary to integrate your installation using IIS so that the individual Thin Clients work as expected.

You can configure your Kofax Transformation Toolkit - Thin Client Server installation by following these steps:

1. Open the **Internet Information Services (IIS) Manager**.

2. Configure the Kofax Transformation Toolkit - Thin Client Server feature delegation.
  - a. In the **Connections** pane, select the Home node for your server.  
The central panel is updated to include a list of settings for your Home node.
  - b. In the central panel, under the **Management** group, double-click **Feature Delegation**  
The Feature Delegation page is displayed.
  - c. In the **Group by** drop-down list at the top of the page, select **Delegation**.  
The list of settings is updated and the authentication settings are read-only.
  - d. From the list of read-only settings, select **Authentication - Windows**.  
A list of settings for the selection is displayed in the right panel.
  - e. Select **Read/Write**.  
The setting is move to the Read/Write category.
3. Create an application pool for the Kofax Transformation Toolkit - Thin Client Server Web site.
  - a. From the Connections page, select **Application Pools**.
  - b. In the right pane, select **Add Application Pool**.  
The Add Application Pool window is displayed.
  - c. Enter a name for the new Application Pool, such as "ThinClientServer\_AppPool."  
Leave all other settings with their default values.
  - d. Click **OK**.  
The new application pool is created.
4. Configure the Kofax Transformation Toolkit - Thin Client Server Web site.
  - a. From the Connections pane, expand the **Sites** folder.
  - b. Right-click the Default Web Site and select **Add Application** from the menu. This launches the Add Application window.
  - c. Type an Alias for your application, such as "ThinClientServer."
  - d. Select the Application Pool that you created in step 3 and click **OK**.
  - e. Browse to the location where you installed Kofax Transformation Toolkit - Thin Client Server earlier in step 5 to set the path for this Web site, and click **OK**.
5. From the left **Connections** pane, select your newly added site a second time. A list of features is displayed in the middle pane.
  - a. From the IIS section, double-click the **Authentication** feature. A list of authentication types is displayed in the middle pane.
  - b. Select the ASP.NET Impersonation option and ensure it is **Disabled**.
  - c. Restart the World Wide Web Publishing Service.

6. Click the **Application Pools** option from the Connections pane. A list of application pools is displayed on the right.
  - a. Right-click the application pool you selected when adding your application and select **Advanced Settings**.  
The **Advanced Settings** window is displayed.
  - b. In the General group, set **Enable 32-Bit Applications** to True.
  - c. In the Process Model group, set the **Maximum Worker Processes** option to **1**. This is the default setting.
  - d. Optionally, if you are using an encrypted file system, you also need to click the **Identity** option from the Process Model group and change it to a custom account. This custom account needs to have the same permissions as the NetworkService account.  
Click the button to the right of Identity value. The **Application Pool Identity** window is displayed.  
Select the Custom account option, and click **Set**.  
Type a User name, Password, and Confirm password, and click **OK**.  
Click **OK** to close the Application Pool Identity window, and again to close the Advanced Settings window.
  - e. Double-click the selected application pool.  
The **Edit Application Pool** window is displayed.
  - f. From the .NET CLR version list, select **.NET Framework v4.0.30319**.
  - g. Click **OK** to close the **Edit Application Pool** window.
7. Ensure that the IIS user account `IUSR` is part of the `IIS_IUSRS` group and grant that group full control for the `BatchListRootFolder` that is configured in the web.config file.
8. Create a `KTSUsers` group. You can add Microsoft "default users" to that group as needed.
9. Open **Services** and ensure that the **World Wide Web Publishing Service** is set to start automatically.
10. Test that users can connect to the server by going to one of the following locations.
  - `http://localhost/<VirtualDirectory>/Validation.html`
  - `http://localhost/<VirtualDirectory>/Verification.html`
  - `http://localhost/<VirtualDirectory>/Correction.html`

## Silent installation

If you do not want to perform an interactive installation of the Thin Client Server by using the installer, you can use a silent installation via the Command Prompt. This type of installation does not display configuration, progress, feature information, or warning windows.

**Important** Ensure that you run the Command Prompt as an Administrator.

You can install the Thin Client Server using the command prompt by following these steps:

1. From the **Start** menu, select **Run**.

2. Enter **cmd** and then press **Enter**.  
The Command Prompt window is displayed.
3. Change to the folder that contains the Thin Client Server MSI file.
4. Run the installer from the command line using the following command.  

```
msiexec /I KTS.msi /quiet /log <filename>
```

  
The Thin Client Server installs quietly.

## Configure Thin Client Server

To configure the Thin Client Server so that it works correctly for your environment, edit any of the following settings in the Web.config file that is located in the installation location.

### **AjaxTimeout**

Enables you to define how long the Web browser waits for a response from the Thin Client Server before the request expires. The default value is two minutes.

### **AllowRejection**

Enables you to control whether users are able to reject documents in Thin Client Validation or Thin Client Verification. This is set to True by default, meaning users are able to reject documents.

### **AuthenticationAsSingleSignOnOnly**

By default, the value for this node is set to True. This means that a single sign-on is attempted and no additional log on windows are displayed.

For more information, see [Disable user credential requests in web.config](#).

### **ConfigSetName property**

This property defines the name of the configuration set when loading the project. If this string is left empty, the default settings of the project are used.

Refer to the Project Builder help for more information about configuration sets.

### **Debug**

Defines the level of batch logging. The value is set to False by default. The logging level must be set to "Information" in order for the logs to generate debug output.

For more information on logging see [Log Thin Client web server errors](#).

### **ForceDictionaryUpdate**

When enabled, this setting reloads the project when a dictionary is updated so that any combo boxes are updated accordingly. The value for this option is set to "False" by default.

Set this value to True in the following circumstances.

- You dictionary is configured for auto-update.
- Your dictionary is updated regularly.
- You have combo boxes that use your dictionary on your customized validation form.

Otherwise, leave this value False. This is because a True value can negatively impact performance when dictionaries are reloaded unnecessarily.

### ForceHttpsHosting

This setting controls how web pages are served by the Thin Client Server. By default, this setting is set to False, which means pages are served over HTTP. If you want to use HTTP Strict Transport Security (https), set this value to True.

In addition, use the following information to configure HSTS bindings in the web.config:

```
<security mode="Transport">
  <transport clientCredentialType="Windows"/>
</security>

<httpsTransport authenticationScheme="Negotiate" allowCookies="True">
  <webSocketSettings transportUsage="Always" createNotificationOnConnection="true"/>
</httpsTransport>
```

### HandleImagesBitonal

If this option is set to TRUE, color images are converted to black and white. This decreases the amount of memory used to load a batch because color images require more memory than black and white images.

### HelpIsFileBased

By default, the value for this node is set to False. This means that the documentation is web-based. When set to True, the documentation is file-based. For more information see [Access Thin Client Server documentation](#).

### HelpLanguagesSupported

This setting is needed only when the `HelpIsFileBased` is set to True.

By default, the `<value>` attribute for this node is set to `<value>de_DE,en_US</value>`. This attribute controls what languages are available for the documentation. If you install one or more language packs, it is necessary to edit the `<value>de_DE,en_US</value>` string to include the language codes for the installed language packs. The `<value>` attribute is a comma-separated list of languages with no spaces. Use the commented out sample and copy the necessary language codes to your `<value>` attribute.

### ImageExpirationTime

Enables you to define how long images are cached inside the browser before they expire. This configuration setting is set to 30 minutes by default.

You can disable this setting using the [Browser cache configuration](#).

### LogoutRedirectPage

By default, this node is set to "message.html", that defines what a users a user sees when the log out from the Thin Clients. If you want to change this to a custom html file, specify it here.

For more information, see [Configure log out redirection](#).

### LogPerformance

The default value for this node is set to False. When set to True, the server call timings are recorded in a log that contains the START entry for when a call is initiated. The END entry includes the duration of the call. Both are measured in milliseconds. Logging must be enabled and set to "Information" to use this feature.

For more information on logging see [Log Thin Client web server errors](#).



**MaxImageSizeBitonal / MaxImageSizeGrayscale / MaxImageSizeColor**

These settings determine if an image of the corresponding type is scaled and then sent to one of the Thin Clients.

A value of -1 means that there are no restrictions on the size of an image and no scaling occurs. This is the default value for this option.

If you specify a positive value such as 4000, this means that an image that has a height or width that is larger than 4000 pixels is scaled down so that the larger side of the image is now set to 4000 pixels.

**Important** After changing any of the above settings, restart your server for the changes to take effect.

## Log Thin Client web server errors

In order to troubleshoot errors with the web server that occur when using the Thin Client Server, you can enable trace logging by editing the `Web.config` file that is located in the installation directory.

You can enable web server trace logging in the Thin Client Server by following these steps:

1. Open the `Web.config` configuration file and remove the comments around the following code:

```
<system.diagnostics>
  <trace autoflush="true">
    <listeners>
      <add name="delimitedListener"
        type="System.Diagnostics.DelimitedListTraceListener" delimiter=","
        initializeData="<path>" traceOutputOptions="ProcessId, DateTime">
          <filter type="System.Diagnostics.EventTypeFilter"
            initializeData="Warning"/>
        </add>
      </listeners>
    </trace>
  </system.diagnostics>
```

2. Edit the `initializeData="<path>"` of the added listener to modify the file system location and name of the log file.

**Important** The logging folder security settings need to be modified so that the configured IIS user (IIS\_USR by default) has full control over the folder. Without this change, no log files are written because the IIS user does not have permissions to write to that folder.

3. By default, the `initializeData` value of the filter is set to "Warning." You can change this attribute to one of the following values, keeping in mind that some options are a combination of the previous values.

**Error**

Outputs Critical messages as well as any recoverable errors, to the log file.

**Warning**

Outputs Critical messages, Error messages, as well as any noncritical problems, to the log file.

**Information**

Outputs Critical messages, Error messages, Warning messages, as well as informational messages, to the log file.

4. **Save** your changes and restart the IIS Server.

## Configure log out redirection

By default, when a user logs out of one of the Thin Client modules or there is an error, the user is redirected based on the `message.html` file that is part of the Thin Client Server installation. If an error is encountered, that error is displayed. A button to log back into the Thin Client module is always displayed.

If you do not want this default behavior, you can create your own redirection behavior that determines where a user is sent when they log out, by following these steps:

1. Open the Thin Client `web.config` configuration file and locate the following code:

```
<setting name="LogoutRedirectPage" serializeAs="String">
  <value>message.html</value>
</setting>
```

The `message.html` file is located in the root of the Thin Client Server installation location.

2. Edit this `web.config` entry one of the following ways.

- Edit the existing `message.html` file for your needs.

For example, with your own corporate branding and redirection path.

- Create your own html file and point to it in the `<value>` tags.

This file contains all of the necessary information needed for your redirection needs.

3. Save the `web.config` file.

## Browser cache configuration

If you do not want to store data in the client Browser cache, it is possible to edit the `web.config` to disable this feature.

By default, the following content is found in the `<httpProtocol>/<customHeaders>` XML node of the `web.config`. If you want to disable the client Browser cache, edit the `web.config` file so that this content is no longer commented out.

```
<httpProtocol>
  <customHeaders>
    ...
    <!--<add name="Cache-Control" value="no-cache, no-store, must-revalidate" />-->
    <!--<add name="Pragma" value="no-cache" />-->
    ...
  </customHeaders>
</httpProtocol>
```

## Multiple steps of Thin Client Validation

If you have configured multiple validation steps, you can use Thin Client Validation for any of them. To connect to the individual steps, use the following format for your URL:

```
http://<server>:<port>/Validation.html?step=<step>
```

Where `<server>` is the name of the server where the Thin Client Server is installed, `<port>` is the assigned number when IIS is configured, and `<step>` is the number of the current step.

**Important** The first step of Thin Client Validation does **not** require a step number to be included in the Web address.

Note that the `FileAccessBackendSample` does not contain any code for using multiple validation steps.

The best practice is to create a bookmark or a desktop shortcut for your Thin Client Validation operators. This ensures that operators validating a specific step are able to open the correct Web page. You can use the following examples to create the bookmarks:

#### Links for Thin Client Validation Steps

Step	URL Link
1	<code>http://&lt;server&gt;:&lt;port&gt;/&lt;virtualdirectory&gt;/Validation.html</code>
2	<code>http://&lt;server&gt;:&lt;port&gt;/&lt;virtualdirectory&gt;/Validation.html?step=2</code>
3	<code>http://&lt;server&gt;:&lt;port&gt;/&lt;virtualdirectory&gt;/Validation.html?step=3</code>
n	<code>http://&lt;server&gt;:&lt;port&gt;/&lt;virtualdirectory&gt;/Validation.html?step=n</code>

## Open batches directly via a URL

It is possible to open a batch directly by specifying the necessary information within a URL.

The syntax used is `http://<server>:<port>/Validation.html?batchid=<batchid>`, where `<batchid>` is the unique batch identifier.

Using this method of opening batches restricts the users so that they cannot open other batches. They are able to suspend or close the open batch only.

## Single sign-on authentication

By default, users are automatically logged on to the Thin Clients using single sign-on, without having to manually provide user credentials.

### Disable user credential requests in web.config

It is possible to configure how the Thin Client Server behaves with respect to single sign-on. The default behavior is to use single sign-on and no additional log on windows are displayed.

If the `web.config` entry is set to `False`, an additional log on window is available when single sign-on fails. This enables users to log on directly when necessary.

You can disable the single sign-on behavior by following these steps:

1. Open the `Web.config` file, that is located in the installation directory.

For example, the default installation path for the Thin Client Server is `<Program Files>\Kofax\Transformation\ThinClientServer`.

2. Locate the `AuthenticationAsSingleSignOnOnly` parameter and set it to True or False as required.
3. Save the web.config file.
4. Launch one of the Thin Client modules to test the log on behavior.

## Chapter 3

# Upgrade Thin Client Server

If you upgrade from Kofax Transformation Toolkit - Thin Client Server 6.0 or earlier, you need to remove the earlier version before installing Kofax Transformation Toolkit - Thin Client Server 6.4.0.

If you upgrade from Kofax Transformation Toolkit - Thin Client Server 6.1 or later, you can install the new version over top of the existing installation.

When upgrading a previous version of Kofax Transformation Toolkit - Thin Client Server, a backup copy of your existing `Web.config` [configuration](#) file is created automatically. This means that you can change the default settings of the newly installed file according to the customized settings stored in the backup file.

**Important** Before you can upgrade the Thin Client Server, Websockets and HTTP Redirection in IIS must be installed. The HTTP Redirection feature is needed to access the hosted documentation. Without HTTP Redirection you cannot access documentation for the Thin Clients.

1. Follow the [installation instructions](#) to upgrade the Thin Client Server.
2. Compare the new `Web.config` file with the automatic `_ORIG` backup copy. Manually edit the new configuration file to contain any existing customizations.

The `Web.config` files is located in:

```
<install path>\backup_<Major>.<Minor>_web.config
```

3. Optionally, apply the customized settings once again to the newly installed `Web.config` file so the Thin Client Server behaves as it did before the upgrade.
4. Clear the browser cache before you start a client module.

## Chapter 4

# Uninstall Thin Client Server

You can repair or remove (uninstall) Kofax Transformation Toolkit - Thin Client Server using the Kofax Transformation Toolkit - Thin Client Server Setup Maintenance program.

Alternatively, you can remove Kofax Transformation Toolkit - Thin Client Server using Add or Remove Programs from Control Panel.

1. On the workstation where Kofax Transformation Toolkit is installed, shut down any applications including Control Panel, virus detection software, and toolbars that are running.
2. Remove the Kofax Transformation Toolkit - Thin Client Server Web site from IIS:
  - a. Open IIS, right-click the Kofax Transformation Toolkit - Thin Client Server virtual directory, and select **Remove**.
  - b. Click **Yes**.
3. Double-click **KTS.msi** in the Kofax Transformation Toolkit - Thin Client Server installer, and click **Remove**.
4. Click **Remove** to delete Kofax Transformation Toolkit - Thin Client Server.
5. When complete, click **Finish** to exit the installation.

## Chapter 5

# Thin Client Server source code sample

Kofax Transformation Toolkit - Thin Client Server provides a source code sample `FileAccessBackend` that allows you to access and store batches processed by the Thin Clients modules. This sample is written in C# and is compatible with Microsoft Visual Studio 2010 that can be used to guide you in creating your own file back end solution. The Thin Client Server example is located in the Kofax Transformation Toolkit Examples folder:

```
<Program Files>\Kofax\Transformation Toolkit\Resources\Examples
```

This sample is used with the `Web.config` settings file so that batches can be processed by Thin Client Correction, Thin Client Validation and Thin Client Verification. The `Web.config` file contains information about the location where batches are stored, created during installation.

For reporting, the source code sample shows how batch details are set during logon and batch selection. However, the reporting is done by the central process (`WFCValidationServer`) that gathers and sends all statistical data to the reporting platform. The central process also manages the batch restructuring actions in the `Batch_Open` and `Batch_Close` events. This means that no further implementation is needed to use this feature. For more details about the statistical data that is reported, see *Kofax Reporting for KTT Getting Started Guide*.

The `FileAccessBackend` sample does not provide a workflow integration or a batch locking mechanism for multiuser processing. In addition, it does not check the option whether a batch is enabled for thin clients (see Project Builder Project Settings - General Tab - Thin Clients group) or whether it is processed for multiple validation instances. That means that all batches are listed in the Available Batches window though not all can be used together with thin client modules. Any batch that is not enabled for Thin Clients cannot be loaded instead an error message is displayed.

In order to run the Thin Client Server sample the following prerequisites have to be considered and special settings need to be defined in the `Web.config` file.

### User management

In order to log on to a thin client module a `KTSUsers` group is required. You can add Microsoft "default users" to that group as needed. To log on to a client module, open the web site and type the user name and password.

### BatchRoot properties

This sample uses a predefined folder structure for the batches that are processed using a thin client module. Therefore, the `BatchRoot` folder is created during installation in the `<ProgramData>\Kofax\Transformation Toolkit\Thin Client Server\` location. The `Web.config` file enables you to define the input and the output folder for each thin client module. In addition, you can configure an

error folder for batches that are terminated abnormally or a ready folder for those that are processed completely.

The Web.config file contains the following properties that relate to batch handling when using the fileAccessBackend.

```
<setting name="BatchListRootFolder" serializeAs="String">
  <value>C:\XDocSamples</value>
</setting>
<setting name="ErrorOut" serializeAs="String">
  <value>Error</value>
</setting>
<setting name="CorrectionIn" serializeAs="String">
  <value>ForCorrection</value>
</setting>
<setting name="CorrectionOut" serializeAs="String">
  <value>ForValidation</value>
</setting>
<setting name="ValidationIn" serializeAs="String">
  <value>ForValidation</value>
</setting>
<setting name="ValidationOut" serializeAs="String">
  <value>ForVerification</value>
</setting>
<setting name="VerificationIn" serializeAs="String">
  <value>ForVerification</value>
</setting>
<setting name="VerificationOut" serializeAs="String">
  <value>Ready</value>
</setting>
```

The folders that are available for each module are located in the `In` and `Out` folders for the corresponding user module. The `Out` folder is used when `SaveData="True"` only. In this case, the batch is handled similar to a basic queue, providing a very basic workflow.

The batch folders are placed inside these `In` and `Out` folders using the following structure.

- BatchFolder
  - Project
  - Docs

The contents of the `Docs` folder must be `.xfd`, `.xdc`, or subfolders containing `.xdc` files.

### Project files

The project file that corresponds to a batch must be located in the `BatchFolder` folder as described above.

### SaveData property

The `SaveData` property in the Web.config file defines whether changes applied by a thin client module are stored when the batch is closed or suspended. By default, no changes are saved. If the property is set to `True` the changes are stored and the completed batch is moved to the output folder so that it can be processed by the next module.

**Important** You need to assign the IIS user the necessary permissions to save the batches to the `Thin Client Server\BatchRoot` folders.



**Main steps for FileAccessBackend**

Step	Description	Location in Example Code
1	Log on a thin client module	See <code>Login</code>
2	User has logged on successfully: Get batch list from the server	See <code>GetBatchList</code>
3	User requests a batch from the batch list: Gets a batch for processing and sets the batch details for reporting	See <code>GetBatch</code>
4	Process all documents of that XFolder object; in case the document or folder is changed or reclassified calls are made to store the changes	See <code>NotifyDocumentIsReclassified</code> , <code>NotifyDocumentIsValid</code> , <code>NotifyDocumentIsVerified</code> , <code>NotifyDocumentIsChanged</code> and <code>NotifyFolderIsChanged</code>
5	Commit batch; only if the property <code>SaveData</code> in the <code>Web.config</code> file is set to <code>TRUE</code> the <code>folder.xfd</code> file is stored and the batch is moved to the output folder	See <code>CommitBatch</code>
6	Log off the thin client module	See <code>Logout</code>

Refer to the `IBackendDataLayer` interface in the `WCFValidationServer.Backend.chm` file for more information about what needs implemented when you create your own back end.

## Chapter 6

# Access Thin Client Server documentation

By default, the Kofax Transformation Toolkit - Thin Client Server documentation is available online. However, if necessary you can also configure the Thin Client Server to use help offline.

## Default online documentation

The full documentation set for Kofax Transformation Toolkit, including documentation for the Thin Client Server is available from <https://docshield.kofax.com/Portal/Products/KTT/6.4.0-uuxag78yhr/KTT.htm>.

To launch the online help for the installed version of the Thin Client Server, click Help from the menu of one of the Thin Clients.

## Use help offline

If you do not want to use the online hosted documentation, it is possible to configure the Thin Client Server to use help offline on your corporate network.

For Thin Client Server, implementing and configuring offline help is less complicated. As a result, there is only one step for the Thin Client Server, but that step depends on how you want to implement offline help.

1. [Web-based offline help](#) that is visible to your intranet only.  
Kofax recommends this method.
2. [File system-based offline help](#) that is visible by all Thin Client Server users.  
If you cannot use the web-based implementation, you can use this method to install the help on a file system visible to all Thin Client Server users.  
Change the web.config `HelpIsFileBased` setting to True.

To access the help offline, download it from the [Kofax Fulfillment Site](#).

For example, download the `KofaxTransformationToolkitDocumentation_6.4.0_EN.zip` file. These files include the Thin Client Server documentation.

## Web-based offline help

Kofax recommends this method for offline documentation because it mimics the behavior of the hosted site. The Thin Client Server documentation is designed to use the web-based hosted site, so if you require

offline documentation, an internal web-based solution is best. If this is not possible, you can use [File system-based offline help](#).

**Important** If you have already implemented a web-based solution for the Kofax Transformation Toolkit offline help, there is no need to set up another solution for the Thin Client Server. Instead, skip to step 6 below.

You can configure the Thin Client Server offline help to use an internal web server by following these steps:

1. If you have not done so already, download and extract the `KofaxTransformationToolkitDocumentation_6.4.0_EN.zip` file from the [Kofax Fulfillment Site](#).

The contents of the English zip file include three folders.

- **help.** This directory contains help for one or more modules.
- **print.** This directory contains administrative documents. Copy these manually to any suitable location on your network.
- **redirection.** This directory contains files necessary to implement web-based localization redirection for Kofax Transformation Toolkit.

2. Open **Internet Information Services (IIS)**.
3. The following step adds an application to the **Default Web Site** that displays the documentation on your network.

**Tip** Even though the following steps add an application to the Default Web Site, if necessary, you can create your own dedicated web site for the documentation. Modify the steps accordingly. Modifying the web site is useful if you have applications using the Default Web Site already.

- a. Expand the **Default Web Site** and add an **Application**.  
The **Add Application** window is displayed.
- b. To **Add Application** enter a value into the **Alias** field.  
The name of this application should be memorable and easily referenced. For example, `KTSDocs`.
- c. Choose an **Application pool**.  
Unless you have created a special application pool for the documentation, select the **DefaultApplicationPool**.
- d. Select the physical path for your help files.  
For example, `/inetpub/wwwroot/<Alias>`
- e. Click **OK**.

The Add Application window closes and your newly added application is listed under the Default Web Site.

4. Optionally, if you are using help in any of the supported languages other than English, perform the following steps to enable language redirection.
  - a. Navigate to the **redirection** folder included in the `KofaxTransformationToolkitDocumentation_6.4.0_EN.zip` file.
  - b. In a separate window, navigate to the application path that you just created.
  - c. Copy the `web.config` from the **redirection** folder to the root of your website.  
For example, `C:/inetpub/wwwroot`.
  - d. Copy the **bin** folder from the **redirection** folder to the **bin** folder at the root of your website.  
For example, `C:/inetpub/wwwroot/bin`.

Language redirection is now configured.

5. From the `KofaxTransformationToolkitDocumentation_6.4.0_EN.zip` file copy the entire directory called **help** to the physical path used by the application that you just created.

If you are planning on using the English files only, copy the extracted **help** directory directly to `/inetpub/wwwroot/<Alias>/`.

If you would prefer to have your English files located in its own language directory or you are planning on using additional languages, you need to create an **en\_US** directory and then copy the **help** directory to the language directory. You can copy additional language zip files using information in [Localized offline help](#).

**Note** If you set up the help for English only, and then decide to add other languages at a later time, it is necessary to reorganize the documentation into language directories.

Now that you have implemented the mechanism for offline help, you need to configure it.

6. In IIS, select your Thin Client Server application, and then select the **docs** folder.
7. From the central panel, under the **IIS** group, double-click on **HTTP Redirect**.  
By default, this points to [https://docshield.kofax.com/KTT/6.4.0-uuxag78yhr\\$\\$Q](https://docshield.kofax.com/KTT/6.4.0-uuxag78yhr$$Q).
8. Edit the URL so that it points to your application, including the **\$\$Q** suffix.  
For example, `http://<WebServer>/<Alias>$$Q`.  
No matter what URL you use here, always use the **\$\$Q** suffix at the end of the URL.
9. In the **Actions** panel to the right, click **Apply**.  
The help application is set up.
10. Test the help by opening one of the Thin Clients and then pressing the Help button.  
If there are issues, restart the World Wide Web Publishing Service and try again.

## File system-based offline help

If you do not want to use a web-based solution for your offline help, you can use a file system solution instead.

**Important** Ensure that each client system has a default browser configured on their machine.

You can configure the offline help to use a network directory by following these steps:

1. If you have not done so already, download and extract the `KofaxTransformationToolkitDocumentation_6.4.0_EN.zip` file from the [Kofax Fulfillment Site](#).

The contents of the English zip file include three directories.

- **help.** This directory contains help for one or more modules.
- **print.** This directory contains administrative documents. Copy these manually to any suitable location on your network.
- **redirection.** This directory contains files necessary to implement web-based localization redirection for Kofax Transformation Toolkit.

**Note** The redirection directory is not required for Thin Client Server offline documentation.

2. Select the docs folder inside the IIS Thin Client Server application and then select **HTTP Redirect**. The default URL for hosted documentation is displayed.
3. In the **Redirect requests to this destination** field, remove the URL for hosted documentation.
4. Clear your browser cache and then restart the **World Wide Web Publishing** service.
5. Navigate to the physical path where the Thin Client Server is installed.  
By default, the path is `<Program Files>\Kofax\Transformation Toolkit\ThinClientServer`.
6. In Windows Explorer, open the **docs** folder from the Thin Client Server application and then create a directory called **en\_US**.
7. Copy the **help** folder from the extracted zip file to the newly created directory.

**Tip** The copied help folder contains all help for all modules. All but the Thin Client Server (TC) are configured elsewhere. As a result, you can delete everything but the **TC** folder without affecting the Thin Client Server help.

8. If you want to use additional languages, create a folder for that language and then copy in the help folder for that language.

The following are the supported languages for the help.

- Czech - `cs_CZ`
- German - `de_DE`
- English - `en_US`
- Spanish - `es_ES`
- French - `fr_FR`
- Italian - `it_IT`
- Japanese - `ja_JA`
- Polish - `pl_PL`
- Portuguese (Brazilian) - `pt_BR`
- Russian - `ru_RU`
- Swedish - `sv_SE`
- Chinese (Simplified) - `zh_CHS`

9. Navigate to where you installed the Thin Client Server.

By default, the installation path is <Program Files>\Kofax\Transformation Toolkit\ThinClientServer.

10. Open the **Web.Config** file for editing and locate the following setting.

```
<setting name="HelpIsFileBased" serializeAs="String">
```

By default, the value of this setting is set to False.

11. To enable file system-based offline help, change the value of this setting to **True**.
12. If you are providing help in languages other than English, locate the following setting.

```
<setting name="HelpLanguageSupported" serializeAs="String">
```

13. Modify the value of this setting so that all languages you are using are included in a comma-separated list.

A list of supported languages is commented out below.

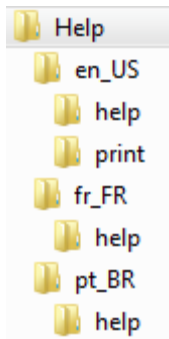
14. **Save** and close the Web.Config file.
15. Restart your server for these changes to take effect.
16. Once the server is back, test the help by opening one of the Thin Clients and then pressing the **Help** button.

If there are issues, review the above steps and then try again.

## Localized offline help

Localized help is available for the Thin Clients help.

An example of the hierarchy needed to support multiple languages is as follows. For supported languages other than English, there is no print folder.



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

- Czech - cs\_CZ
- German - de\_DE
- English - en\_US
- Spanish - es\_ES
- French - fr\_FR
- Italian - it\_IT
- Japanese - ja\_JA

- Polish - pl\_PL
- Portuguese (Brazilian) - pt\_BR
- Russian - ru\_RU
- Swedish - sv\_SE
- Chinese (Simplified) - zh\_CHS

Once the necessary files are copied, offline help uses the Browser language to open the corresponding localized help. If a browser is set to an unsupported language, the help redirects to English.