

Kofax Communication Server

Capture Connector Administrator's Guide

Version: 10.2.0



© 2018 Kofax. All rights reserved.

Kofax is a trademark of Kofax, Inc., registered in the U.S. and/or other countries. All other trademarks are the property of their respective owners. No part of this publication may be reproduced, stored, or transmitted in any form without the prior written permission of Kofax.

Contents

1	Introduction.....	6
1.1	Use Cases	6
1.1.1	Kofax Communication Server – Advanced Email Capture.....	6
1.2	Feature Matrix	6
2	Overview	8
2.1	Architecture	8
3	Capture Connector	9
3.1	Capture Connector – Import	9
3.1.1	Sample Message Import Scenarios	10
3.1.2	KCS Capture Connector System Fields.....	11
3.1.3	Preventing Duplicate Message Import	12
3.2	Capture Connector – Export.....	13
3.2.1	Notification	13
3.2.2	Export to KCS	13
3.2.3	Export Data Example	13
3.3	Capture Connector – Notification	15
3.3.1	Notification	15
4	Installation	17
4.1	Prerequisites.....	17
4.2	Installing Capture Connector	17
4.3	Licensing	19
5	Configuration	20
5.1	Configuration Overview	20
5.2	Configuration in Kofax Communication Server	20
5.2.1	Creating a KCS Queue User.....	20
5.2.2	Configuring TWS.....	21
5.3	Configuring Processing in Kofax Capture	22
5.3.1	Importing Batch Classes	22
5.3.2	Configuring XML Types	23
5.3.3	Configuring Destinations for Imported Documents.....	23
5.3.4	Sending Notifications	25
5.3.5	Using XSL Transformation to Map Metadata and XML Data	25
5.3.6	Rendering XML Documents	28
5.3.7	Configuring VRS	29

5.3.8	Configuring Connections to TWS.....	31
5.3.9	Configuring Rules	31
5.3.10	Configuring Multiple Document Converter Instances	32
5.3.11	Manage Conversion Time for Large Files	32
5.3.12	Importing XFA Files	33
5.3.13	Import MSG and EML Files from Folder	34
5.4	Configuring SSL Connection	34
5.4.1	Securing Connection Between TWS and Capture Connector – Import.....	34
5.4.2	Example: Requesting a Certificate for TWS Using Microsoft Active Directory Certificate Services.....	34
5.4.3	Example: Requesting a Certificate for Import Module Using OpenSSL	35
5.5	Configuring Capture Connector Web Service Interface	36
5.6	Configuring Kofax Capture Integration	36
5.7	Enabling SecurityBoost	37
5.8	Customizing Additional Parameters	38
5.9	Configuring Export Connector in Kofax Capture	39
6	Use Case: Advanced Email Capture	43
6.1	Components	43
6.2	Prerequisites.....	43
6.3	Installation	44
6.3.1	TCfW Communication Server Client	45
6.3.2	TC/LINK-SM.....	45
6.3.3	TCOSS and KCS Capture Connector	46
6.4	Configuration	47
6.4.1	TCOSS	47
6.4.2	Licenses.....	49
6.4.3	TCfW Communication Server Client	50
6.4.4	KCS User for Kofax Capture	51
6.4.5	TCOSS Web Services	52
6.4.6	TC/LINK-SM.....	53
6.4.7	KCS Capture Connector	53
6.4.8	Restart Processes.....	55
6.5	Test Sending Email	55
6.6	Migrating from TC/LINK-CCD to KCS Capture Connector	57
6.6.1	Batch Classes	57
6.6.2	Export Connector/Release Script.....	58
6.6.3	KCS KofaxCapture User	58
6.6.4	Document Conversion	58
6.6.5	Batch Collector.....	59
6.6.6	Other TC/LINK-SM Considerations.....	59
6.6.7	Removing TC/LINK-CCD	59
7	Operation and Maintenance.....	60
7.1	Starting and Stopping the Import Service.....	60
7.2	Logging.....	60

7.3	Support for Other Languages	60
8	Hints and Restrictions.....	62
8.1	Hints	62
8.1.1	Tag Names of Exported Data.....	62
8.1.2	Kofax Capture Folders	62
8.1.3	Notification to KCS/Confirmation of KCS Message	62
8.1.4	Export Connector Errors	63
8.1.5	Image Normalization	63
8.1.6	PDF Normalization.....	64
8.2	Restrictions	65
8.2.1	Deletion of Batch Jobs	65
8.2.2	Single-Page Image Formats and “Use Original File Name”	65
8.2.3	Multipage Handling	66
8.2.4	Restrictions for Windows Server 2008 64-Bit Version.....	66
8.2.5	Process Documents as Independent Batches	66
8.2.6	Coversheets.....	66
8.2.7	Conversion of Text Body.....	66
9	Performance.....	67
9.1	Environment	67
9.2	Test Result	68
9.3	Conclusions	68
10	References	70

Introduction

This manual describes the solution for connecting Kofax Communication Server (KCS) with Kofax Capture (KC). KCS and KC connection works in both ways, i.e. from KCS to KC and vice versa.

Additional information about advanced topics related to KCS – Capture Connector can be found in the *Capture Connector Developer's Guide*.

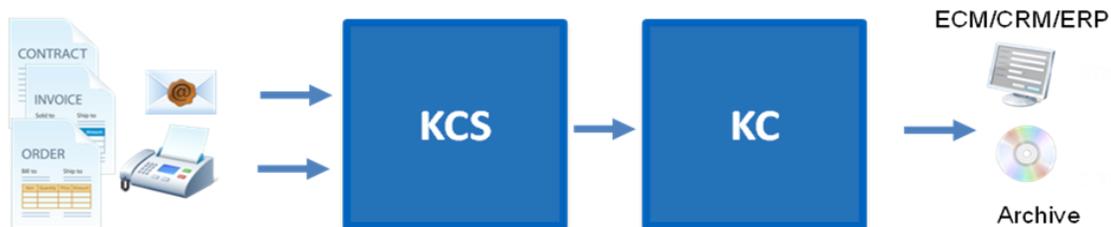
1.1 Use Cases

1.1.1 Kofax Communication Server – Advanced Email Capture

The Kofax Communication Server – Advanced Email Capture is based on a use case where enterprises receive high volume of emails, convert all relevant content, including the body of the message and all attachments, into consistent TIFF images and deliver the images to Kofax Capture for automated capture and enablement of business processes.

Different document types are sent through email, for example orders where the line items are stored in an excel file, invoices which are received as PDF files, contracts within word files or expense reports which are scanned and therefore attached as images like JPG or TIFF files.

KCS enables Kofax Capture to classify incoming emails, extract and validate relevant information from the header, body text and any attachments and deliver the information into an ECM, CRM, ERP or other business application for immediate, appropriate processing.



By automating this process and streamlining the routing and processing of incoming email, enterprises have reduced manual input and data errors, reduced processing costs per customer contact, and at the same time improved customer service with faster processing and shorter response times.

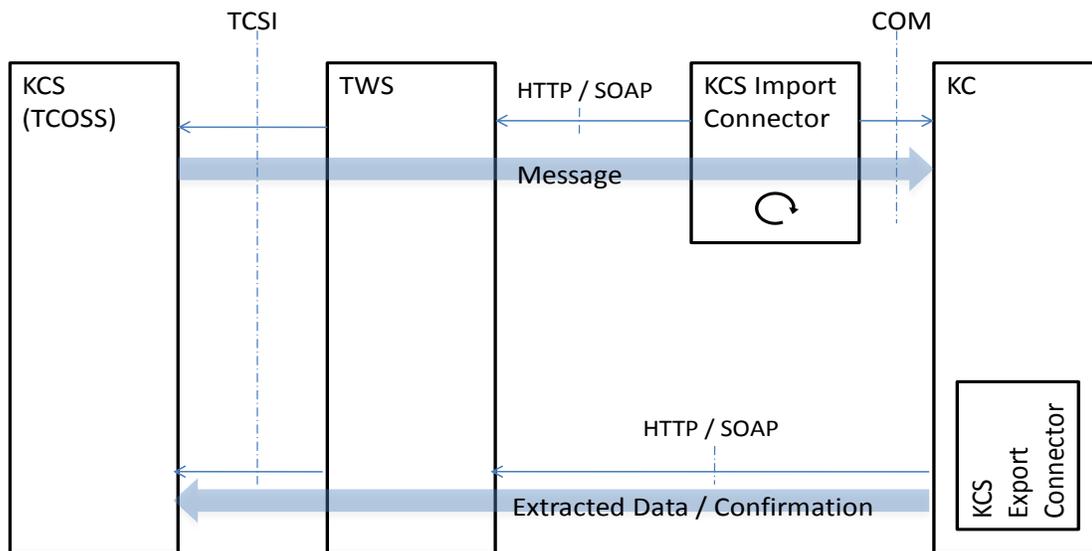
1.2 Feature Matrix

The following feature matrix compares features supported with Kofax Capture Import Connector – Fax, TC/LINK-CCD, and Capture Connector.

Feature	Supported with KCIC - Fax	Supported with TC/LINK-CCD	Supported with Capture Connector
API interface	Yes	No	Yes
File interface / export (release) to file	No	Yes	No
Export to KCS	No	Yes	Yes
Export of data, image, full text OCR, PDF	-	Yes	Yes
Export: Configuration of exported data	-	Yes	No - all data fields are exported
Export: Transformation of data	-	Yes	Yes
Export: Split per table row	-	Yes	Yes
Export: Configuration of Notification	-	Yes	No - Automatically done depending on configuration of Import Connector
Export: Configuration of Recipient	-	Yes	Yes
Export: Configuration/Mapping of additional message parameters	-	No	Yes
Import: KC Folder Support	No	No	Yes
Import: Error handling (Empty batch in QC in case of import failure)	No	No	Yes
Import: Error handling (Import exception page if document conversion fails)	No	No	Yes
Import: Error handling (Send batch to QC if document conversion fails)	No	No	Yes
Import: Import alternative content (TIFF and PDF) converted by Link SM	No	Yes	Yes
Import: Perform document conversion in TWS when importing into KC	No	No	Yes
Import: Option to convert all content or only non image content when importing into KC	No	No	Yes
Import: Group messages into KC batches (Batch Collector)	Yes	Yes	Yes
Import: Create folder for each message + map message meta data fields to folder fields	No	No	Yes
Import: Save originals to batch folder (instead of importing into KC)	No	No	Yes
Import: Destination mappings depending on recipient number and service	No	No	Yes
Import: Create KC document for each attachment	-	Yes	Yes
Notification: Send notification to KCS if a message has been deleted in KC workflow	No	Yes	Yes

Overview

2.1 Architecture



The Kofax Communication Server Capture Connector has to be installed on the Kofax Capture computer. It can be either a Kofax Capture server or a Kofax Capture workstation. Kofax Capture Network Server (KCNS) is supported as well.

The transport between Kofax Capture and KCS Web Services (TWS) is HTTP/HTTPS based; between KCS and TWS it is TCP/IP based (using proprietary TCSI interface). So TWS can be installed on the KCS computer, on the Kofax Capture computer, or on a separate computer - it only must be possible to reach them via the mentioned transports. It is also possible to install all three components on the same computer.

The Capture Connector - Import runs as an own process and it is controlled by the TCSRVR master process. Starting, stopping and viewing the status of the Capture Connector - Import is performed through the KCS Monitor application or from the KCS Capture Connector configuration screen.

The Capture Connector - Export runs within the Kofax Capture release module.

The Capture Connector - Notification runs within the Scan, Quality Control, Validation, and Verification modules.

Capture Connector

KCS – Capture Connector allows to connect Kofax Communication Server with Kofax Capture. In the configuration plug-ins for the Kofax Capture Administration, you can very simply set up the connection to import messages to and export them from Kofax Capture. The messages can be imported in original format or transformed using KCS document conversion, converting the content of KCS messages to TIF or PDF format before importing them to Kofax Capture. Messages can be grouped into Kofax Capture batches, TIF image resolution is configurable, and message fields can be mapped to document index fields, folder fields or batch fields. It is also possible to import into KC or save to batch folder, the original documents together with the converted content.

For faster and easier configuration, the KCS – Capture Connector comes with two predefined batch class templates and two connection configuration templates:

- KcsSingleMessageBatch for connections that map one message to one Kofax Capture batch and store the message values into batch fields,
- KcsMultiMessageBatch for connections that group multiple messages into a single Kofax Capture batch and store the message values into document index fields.

The KCS Capture Connector – Import provides also various error handling options if the import to Kofax Capture fails or if the document conversion fails.

The Capture Connector – Import module contains also a custom scripting module that allows customizing how messages are imported into Kofax Capture via C# scripts. When configured, scripts run just before the content is imported into Kofax Capture. Scripts can modify or add field values or alter the binary content of the files, discard or add new binary content, or do any other alteration to the message fields or content. Additionally, scripts can e.g. make a call to a database to validate or look up data and then add looked up values to document or batch fields.

The Capture Connector – Export Connector allows releasing the extracted data to KCS or simply sending a confirmation to KCS if the document was successfully processed or in case of failure. E.g., when releasing extracted data to an ERP, the export connector can be configured to send the confirmation to KCS after the data has been successfully exported. In the export connector one can also select various export formats for images, for example group all content to a multi-tiff or export one image per attachment. In addition, an XSLT transformation script can transform data before export.

Upon deleting a batch in the Quality Control, Validation, or Verification module, the Capture Connector – Notification module notifies the KCS.

3.1 Capture Connector – Import

Capture Connector – Import connects KCS and Kofax Capture through TWS, polls KCS queue(s) for messages and retrieves them. Messages are then imported into Kofax Capture using its module COM interface. Several messages can be grouped into one batch or one batch per message is created.

3.1.1 Sample Message Import Scenarios

3.1.1.1 Single Message per Batch

With this mode, it is possible to create one Kofax Capture batch for a single message.

- Use default batch class KcsSingleMessageBatch.
- Only the batch class has to be configured.
- One KCS message becomes one batch job.
- Each attachment of the KCS message can be added as a separate Kofax Capture document to the batch or one Kofax Capture document can be created for the message.
- The document class can be set or the documents can be created as unclassified (e.g. if you want your documents to be classified later by KTM). You can also select to not create Kofax Capture documents, but create loose pages if you want Kofax Capture to separate your documents.
- Document recognition has to be done by Kofax Capture (batch class property "Kofax page recognition" or similar has to be used).
- Optionally, create a Kofax Capture folder for the message.
- Message meta data information is by default mapped to batch fields or/and folder fields.

3.1.1.2 Multiple Messages per Batch (Batch Collector)

With this mode, it is possible to add multiple messages to one batch job.

- Use default batch class KcsMultiMessageBatch.
- The document class can be set or the documents can be created as unclassified (e.g. if you want your documents to be classified later by KTM). You can also select to not create Kofax Capture documents, but create loose pages if you want Kofax Capture to separate your documents.
Note: If you create loose pages in this scenario, all your message content will be imported as one batch with loose pages, thus you will not be able to track which page belongs to which file or which message any more.
- Each attachment of the KCS message can be added as a separate Kofax Capture document to the batch or one Kofax Capture document can be created for the message.
- Multiple messages are merged into a single batch.
- Optionally, create a Kofax Capture folder for the message if you want to keep track which attachment belongs to which message.
- Message meta data information is by default mapped to document fields or/and folder fields.
- For a multi-message batch, do not map message fields to batch fields. If messages have different values mapped for the same batch field, the values would be overwritten. To prevent data loss, KCC detects possible overwriting of the batch fields and splits the messages into separate queues. In cases like these, the message fields should be mapped to document fields instead of the batch fields.

Restrictions:

- For the Export module to work properly, the document class has to be set (should not be loose pages).
- Automatic document recognition/separation in Kofax Capture is not possible if loose pages are not used. However, you can redirect your messages to different Destinations depending on recipient number and service and you can use unclassified document type if e.g. you would like to classify your documents in KTM.

3.1.1.3 No Message Information

With this mode, different document types can be added to a batch job and Kofax Capture can automatically recognize the different types. However, KCS message meta information are lost.

- Use default batch class KcsSingleMessageBatch.

- Only the batch class has to be configured in Capture Connector.
- The batch fields are mapped by default.
- The document class has to be set to loose pages.
- Multiple messages are grouped into one Kofax Capture batch.
- Message information of the last message is added to batch fields (there are no index fields available if no document class and form type is configured).
- Document recognition has to be configured in Kofax Capture.

Restrictions:

- If you group messages into one Kofax Capture batch and document loose pages is selected and the separation is configured in Kofax Capture, KCS message information is lost, as only one set of information is possible per batch job.
- Notification from Quality Control or Export is not possible (as the necessary correlation information is also part of the KCS message information).

3.1.2 KCS Capture Connector System Fields

The provided batch and document classes contain all the required document and batch fields. However, you can add new custom fields to the class as necessary.

If you decide to create your own batch and document classes from scratch, please make sure that your batch or document class contains at least the KCS – Capture Connector system fields described in the table below (provided you need the described functionalities). If these fields are not defined, this information will not be added by KCS Import Connector to the document or batch fields and the some functionality might not be available for the Notification and Release modules. Note that these fields are not visible in KCS Capture Connector configuration and need not to be mapped in import. You can create these fields in batch, folder and document fields. They will be populated in import and the notification and export connector will search for the fields in order: document fields=> folders fields => batch fields.

Depending on the configuration that you use, these fields should be in the batch, folder or document fields. Typically:

- For one-message-per-batch batch classes they could be in document, folder or batch fields
- For multiple-messages-per-batch batch classes, the fields should be in the folder or document index fields. However, the KcsConnectorNotificationTwsUrl could be a batch field as well, because all the messages in a batch are coming from the same URL.

KCS – Capture Connector system fields:

KcsConnectorNotificationTwsUrl	Required for sending notifications from Notification and Export module	String (255)
KcsConnectorNotificationCorrel	Required for sending notifications from Notification and Export module	String (255)
KcsConnectorCaptureFileNames	Required for exporting files with original KCS file names to KCS	String (5120)
KcsConnectorKcsFileNames	Required for exporting files with original KCS file names to KCS	String (5120)
KcsConnectorHierarchicalPos	Required if you need information about hierarchical positions of the files within your data (e.g. if you are writing your own custom or export module)	String (5120)
KcsConnectorKcsMessageID	Required if you need information about KCS	String (255)

	message ID within your data (e.g. if you are writing your own custom or export module)	
KcsConnectorKcsMessageFileName	Required if you need information about original KCS message file name within your data (e.g. if you are writing your own custom or export module)	String (255)

3.1.3 Preventing Duplicate Message Import

To avoid duplicate message import, Capture Connector provides a locking mechanism. In this, Capture Connector create files named with a unique ID returned by TWS in the ViewMessage call. The files are created on a local or network folder as configured. This folder must be common for all the configured KCCs that polls the same TCOSS.

By default, KCC will use the folder defined in the Kofax Capture's registry key "ServerPath" as root path and under the root path it will create a folder "ImportConnectorLockStore".

Additionally, the path will be configurable in KCC configuration under the registry key LockFileStorePath. If this registry is configured, Capture's "ServerPath" will be used only if KCC configuration parameter is empty (default).

KCC first checks if the file with the received ID already exists. If the file does not exist, it will create the lock file and continue processing the message. The message gets the status "Retrieved and queued". If the file already exists, KCC will check if the file is exclusively locked. If it is locked, this means that another KCC instance is processing the message, therefore KCC will do nothing with this message and continue fetching the next message.

Following is the list of codes and corresponding description of message status in the lock file.

Code	Description	Result
10	Retrieved and queued	Message has been retrieved from MC and is in KCC in the message queue waiting to be processed into Capture
20	Processing into Capture	The message is being imported into Capture. This status is set after the create batch operation when the message files are being imported
30	Closing batch	All messages have been imported and the close batch operation is in progress
50	Import OK	Close batch has successfully completed
100	OK	Close batch and Confirm message back to TCOSS have successfully completed
60	Retry confirm - Confirm failed and the Confirm call is scheduled for retry (for example, TCOSS server is down when KCC tries to confirm the message)	Close batch succeeded, but Confirm message failed. KCC instance that imported the message schedules 5 more retries every 5 minutes.
70	Confirm Pending	Retry Confirm did not succeeded for 5 times. The status is updated to Confirm Pending and any KCC instance that eventually receives a message with this ID will retry to confirm it.

By default, the locking mechanism is disabled. To enable it, do the following:

- 1 Start KCC configuration, open any connection and click **OK**.
- 2 Close KCC configuration.
- 3 Edit the file C:\ProgramData\Kofax\KCS\CaptureConnector\Config\KCSConnector2.xml and search the parameter 'LockStoreEnabled'. In <LockStoreEnabled>>false</LockStoreEnabled> replace 'false' with 'true'.

It should look similar to: <LockStoreEnabled>>true</LockStoreEnabled>

- 4 Save the XML file.
- 5 Restart Kofax Capture Connector.

Important: The lock folder path (excluding the filename length) must not exceed 200 characters.

3.2 Capture Connector – Export

A Kofax Capture Export Connector is used to transfer messages from Kofax Capture to Kofax Communication Server. TWS interface is used to send messages.

3.2.1 Notification

Depending on the configuration of the Capture Connector – Import part, a notification is sent back to KCS.

3.2.2 Export to KCS

You can configure to send a message to KCS consisting of the captured data or of the images in various formats.

The data may be sent as an attachment or in the text body part of the message. You may specify an XSLT script to transform the data to a customized format.

3.2.3 Export Data Example

Here is an example of the data exported by Capture Connector Export.

The first part consists of the Kofax Capture values, the XML elements remain the same. The attribute "Name" shows the Kofax Capture value name. Note that this name is localized depending on the used language version of Kofax Capture.

The second and third part consists of the batch and index fields as defined by the batch and index class.

Note: Blanks will be removed from the tag names.

```
<?xml version='1.0' encoding='UTF-8'?>
<Data DocClassName="KcsSingleDocument">
  <KofaxCaptureValues>
    <KofaxCaptureValue Name="Batch Class Name">KcsSingleMessageBatch</KofaxCaptureValue>
    <KofaxCaptureValue Name="Batch Creation Date">4/13/2010</KofaxCaptureValue>
    <KofaxCaptureValue Name="Batch Creation Time">6:13:08 PM</KofaxCaptureValue>
```

```

<KofaxCaptureValue Name="Batch Creator's Station ID">VMMSEC4</KofaxCaptureValue>
<KofaxCaptureValue Name="Batch Description">
</KofaxCaptureValue>
<KofaxCaptureValue Name="Batch ID">217</KofaxCaptureValue>
<KofaxCaptureValue Name="Batch Name">4/13/2010 6:13:08 PM</KofaxCaptureValue>
<KofaxCaptureValue Name="Current Date">4/13/2010</KofaxCaptureValue>
<KofaxCaptureValue Name="Current Time">6:16:21 PM</KofaxCaptureValue>
<KofaxCaptureValue Name="Document Class Name">KcsSingleDocument</KofaxCaptureValue>
<KofaxCaptureValue Name="Document Count">1</KofaxCaptureValue>
<KofaxCaptureValue Name="Document Form Name">NWestSingle</KofaxCaptureValue>
<KofaxCaptureValue Name="Document GUID">{9c87150a-66ab-430b-927a-
a90dbd3c8865}1</KofaxCaptureValue>
<KofaxCaptureValue Name="Document ID">180</KofaxCaptureValue>
<KofaxCaptureValue Name="First Page Endorsing String">
</KofaxCaptureValue>
<KofaxCaptureValue Name="First Page Image Address">
</KofaxCaptureValue>
<KofaxCaptureValue Name="First Page Original File Name">IMAGEIO.tif</KofaxCaptureValue>
<KofaxCaptureValue Name="First Page Roll Number">0</KofaxCaptureValue>
<KofaxCaptureValue Name="Index Operator's Station ID">{Index Operator's Station
ID}</KofaxCaptureValue>
<KofaxCaptureValue Name="Operator Description">
</KofaxCaptureValue>
<KofaxCaptureValue Name="Operator Name">Administrator</KofaxCaptureValue>
<KofaxCaptureValue Name="Operator User ID">Administrator</KofaxCaptureValue>
<KofaxCaptureValue Name="Remote Validation User ID">{Remote Validation User
ID}</KofaxCaptureValue>
<KofaxCaptureValue Name="Repository Document ID">
</KofaxCaptureValue>
<KofaxCaptureValue Name="Scan Operator's Station ID">VMMSEC4</KofaxCaptureValue>
<KofaxCaptureValue Name="Scan Operator's User ID">SYSTEM</KofaxCaptureValue>
<KofaxCaptureValue Name="Sequence Number">207</KofaxCaptureValue>
<KofaxCaptureValue Name="Site ID">1</KofaxCaptureValue>
<KofaxCaptureValue Name="Station ID">VMMSEC4</KofaxCaptureValue>
<KofaxCaptureValue Name="User Name">Administrator</KofaxCaptureValue>
<KofaxCaptureValue Name="UTC Offset">(+2:00)</KofaxCaptureValue>
<KofaxCaptureValue Name="Validation Operator's Station ID">{Validation Operator's Station
ID}</KofaxCaptureValue>
</KofaxCaptureValues>
<BatchFields>
  <KcsConnectorNotificationTwsUrl>http://vm-ms-ec4</KcsConnectorNotificationTwsUrl>

<KcsConnectorNotificationCorrel>Mx6qDRvg3NqLveBN0auzzbWkjc50BFDgQogFAMsCwPLaMTFaiRTPgg==</KcsConn
ectorNotificationCorrel>
  <KcsOriginatorService>TOPCALL</KcsOriginatorService>
  <KcsOriginatorNumber>ms</KcsOriginatorNumber>
  <KcsOriginatorAddressBook>+TECH</KcsOriginatorAddressBook>
  <KcsOriginatorShortName>ms</KcsOriginatorShortName>
  <KcsOriginatorName>
</KcsOriginatorName>
  <KcsOriginatorTitle>
</KcsOriginatorTitle>
  <KcsOriginatorCompany>ReplaceIfPresent</KcsOriginatorCompany>
  <KcsOriginatorDepartment>STYP</KcsOriginatorDepartment>
  <KcsOriginatorFreeText>100310:145820</KcsOriginatorFreeText>
  <KcsOriginatorCorrel1>
</KcsOriginatorCorrel1>
  <KcsConnectorCaptureFileNames>1.tif,2.tif</KcsConnectorCaptureFileNames>
  <KcsOriginatorCorrel2>
</KcsOriginatorCorrel2>
  <KcsOriginatorCorrel3>
</KcsOriginatorCorrel3>
  <KcsOriginatorCorrel4>
</KcsOriginatorCorrel4>
  <KcsRecipientService>TOPCALL</KcsRecipientService>
  <KcsRecipientNumber>ms-kc</KcsRecipientNumber>
  <KcsRecipientAddressBook>
</KcsRecipientAddressBook>
  <KcsRecipientShortName>
</KcsRecipientShortName>
  <KcsRecipientName>

```

```

</KcsRecipientName>
<KcsRecipientTitle>
</KcsRecipientTitle>
<KcsRecipientCompany>
</KcsRecipientCompany>
<KcsConnectorKcsFileNames>IMAGEIO.TIF,nwest.tif</KcsConnectorKcsFileNames>
<KcsRecipientDepartment>
</KcsRecipientDepartment>
<KcsRecipientFreeText>
</KcsRecipientFreeText>
<KcsRecipientCorrel1>
</KcsRecipientCorrel1>
<KcsRecipientCorrel2>
</KcsRecipientCorrel2>
<KcsRecipientCorrel3>
</KcsRecipientCorrel3>
<KcsRecipientCorrel4>
</KcsRecipientCorrel4>
<KcsConnectorHierarchicalPos>0,1</KcsConnectorHierarchicalPos>
<KcsConnectorKcsMessageID>000FEF6520812AAF</KcsConnectorKcsMessageID>
<KcsConnectorKcsMessageFileName>00001044324</KcsConnectorKcsMessageFileName>
<KcsMessageSubject>CCD Classic 1</KcsMessageSubject>
<KcsMessageOwnerReference>
</KcsMessageOwnerReference>
<KcsMessageDeliveryCostCenter>
</KcsMessageDeliveryCostCenter>
</BatchFields>
<IndexFields>
  <Firstname>MARTIN</Firstname>
  <Lastname>JANEWAY</Lastname>
</IndexFields>
</Data>

```

3.3 Capture Connector – Notification

The Capture Connector – Notification module sends a notification to KCS if a batch has been deleted in the Kofax Capture Scan, Quality Control, Validation, or Verification module.

3.3.1 Notification

A notification is sent to KCS to confirm a message if the following conditions are met:

- A batch is deleted from the Kofax Capture Scan, Quality Control, Validation, or Verification module
- If a batch contains more messages, each message must contain document or folder index fields with the field name `KcsConnectorNotificationCorrel`, containing the correlation information for the message
- If a batch contains only one message, either a batch, folder or document field named `KcsConnectorNotificationCorrel` exists and contain valid correlation information
- A batch, folder or document field named `KcsConnectorNotificationTwsUrl` must exist, containing the URL to TWS from which the message has been retrieved

Note: The fields must be defined in the batch class. The Capture Connector – Import populates them automatically with required information.

Restriction:

- The notification will run only if a complete batch has been deleted, by clicking the delete batch button, in any of the following modules: Scan, Quality Control, Validation, Verification.

The notification will not run, if:

- A single document has been deleted.
- A batch has been deleted from the batch manager.

Installation

4.1 Prerequisites

Information about supported operating systems and other KCS requirements is available on the Kofax Support Web pages at www.kofax.com.

Required software:

- Kofax Capture 9.0 or higher installed (including Kofax Capture Network Server)
- TCOSS and TWS from KCS 10.0.0 or higher available locally or on the network
- Depending on configuration, the TWS Document Converter has to be configured to transform the required file formats. Third party applications might be necessary to do the conversion. Please see the *KCS Document Converter* manual for details.

You can now install KCS Capture Connector and KC Plug-In component of the following products on the same computer:

- Kofax Capture Import Connector – Advanced Email and Fax
- Kofax Import Connector

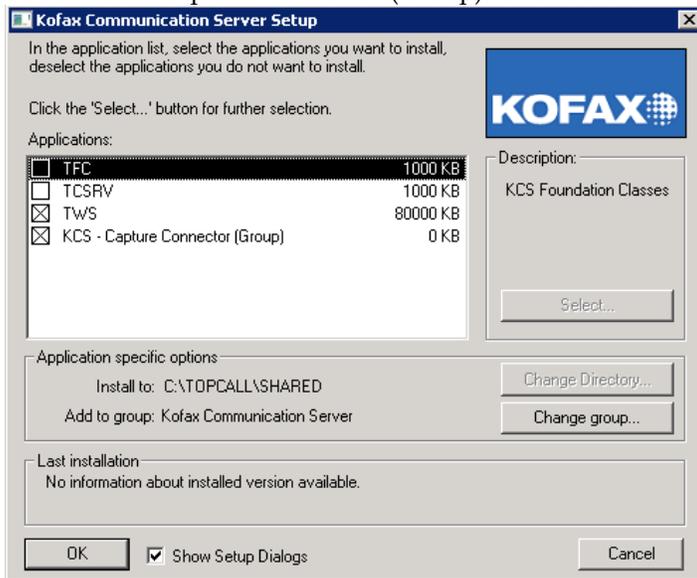
4.2 Installing Capture Connector

Perform the following steps to install Kofax Capture Connector:

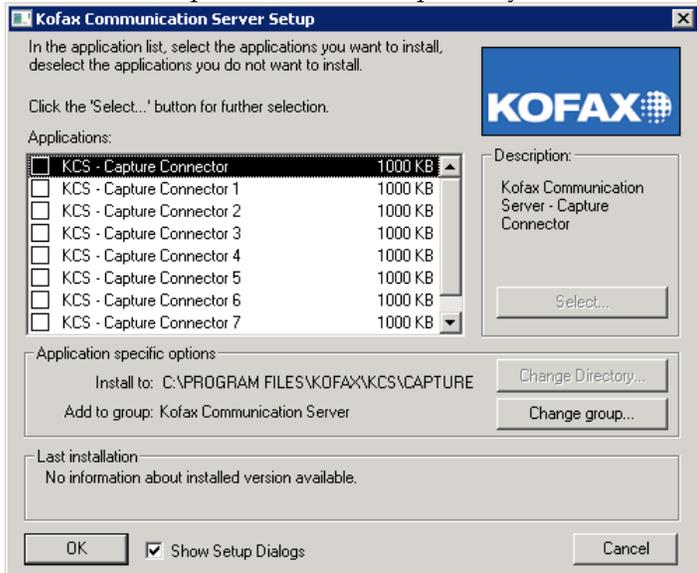
Note If you have one instance of Kofax Capture Connector already installed and you need to create multiple instances, then run the setup again.

- 1 Start Kofax Communication Server setup.
- 2 Select Common (Group). Click **Select**.
- 3 Select Application Interfaces and Services (Group). Click **Select**.

- 4 Select KCS - Capture Connector (Group). Click **Select**.



- 5 Select KCS - Capture Connector. Optionally, select additional instances. Click **OK**.



Additional instances allow Capture Connector to process multiple documents in parallel. This can result in performance increase, particularly on computers with multiple CPU cores.

- 6 If you want to install TWS on the same computer, select that as well. Click **OK**.
- 7 Optionally, you can install KCS Monitor from the Administrative Tools (Group).
- 8 Click **Install**.

- 9 If you need Capture Connector – Import to run with a specific user, you have to specify it during setup.

- 10 Click **OK** to continue with setup.

After installing Capture Connector, if you want to start Capture Connector automatically when the computer starts, start “services.msc” and change the TCSR service startup type from Manual to Automatic.

Note KCS Capture Connector does not start until you configure at least one active connection.

When Kofax Capture uses client-server architecture and its modules are distributed, the Kofax Capture user cannot run under the local system account. The user needs additional user rights:

- Read/write access to the folder \\%SERVER%\capturesv (and subfolders)
- "Local Activation", "Local Access", "Local Launch" COM permissions
COM permissions can be modified with Control Panel | Administrative Tools | Component Services. Select COM Security tab in properties of Console Root\Component Services\Computers\My Computer. Select the user and modify the permissions.

4.3 Licensing

KCS Capture Connector requires a specific license. You also need a license for Kofax Communication Server. Additional licenses are needed in Kofax Capture. KCS – Capture Connector service does not start without a proper license. At least the following licenses are needed:

- Scan/Import page count
- Kofax Capture workstation license

Configuration

This chapter lists the most common tasks necessary to configure Capture Connector.

The tasks below do not mention all parameters; you can configure much more than what's listed here. The TWS configuration utility shows a brief description of all parameters inline. The Import module offers tooltips and its parameters are described in the online help.

5.1 Configuration Overview

- 1 Configure Kofax Communication Server:
 - Create a KCS queue user. Capture Connector imports the messages from this queue to Kofax Capture. See *Creating a KCS Queue User*.
 - Configure the TWS connection to KCS core (TCOSS) and select your document conversion options. See *Configuring TWS*.
- 2 Add at least one batch class to Kofax Capture and publish it. See Kofax Capture documentation for information about batch classes. If you want to use sample batch classes, see *Importing Batch Classes*.
- 3 Optionally, if you want to differentiate between XML documents and handle them differently, you can define XML types. Capture Connector can identify XML documents with a particular namespace and root element. See *Configuring XML Types*.
- 4 Create a destination using a batch class and, optionally, an XML type. See *Configuring Destinations for Imported Documents*.
- 5 Connect Capture Connector to TWS. See *Enabling VRS Multithreading*
- 6 If you are using VRS exclusively for processing TIF files, you can enable VRS to work with multiple connections.
- 1 Open the file KCSCConnector2.xml from the folder C:\ProgramData\Kofax\KCS\Capture Connector\Config in the text editor.
- 2 Change the value of the parameter VRSMultiThreadingSupport from false to true.

Option	Description
False (default)	If you are using a single connection, you can use VRS for both TIF and PDF. If you are using multiple connections, VRS fails for both TIF and PDF.
True	For TIF, VRS can now be used with multiple connections. However, for PDF, VRS always fails.

- 3 Save the file and close it.
- 4 Configuring Connections to TWS.
- 5 Optionally, if you want to differentiate how to handle specific messages, add rules that change the default destination. See *Configuring Rules*.
- 6 Start the Capture Connector – Import service. See *Starting and Stopping the Import Service*.

5.2 Configuration in Kofax Communication Server

5.2.1 Creating a KCS Queue User

You must create a special queue user on Kofax Communication Server. Messages to Kofax Capture are sent via this user.

- 1 Start TCfW Communication Server Client.
- 2 Log on to your Kofax Communication Server as an administrator.
- 3 On the Admin menu, select **User profiles**.
- 4 Click **New** and fill in the details on the General tab.

User Profile - KofaxCapture

Queue Length/Age/Pages alerting | Queue Length/Age/Pages logging | TC/WEB | TC/WEB Identity Rights

General | Address | Event | Rights | Manual Fax | Distributor | Authorize/Sign

User ID: Password:

Group: Retype password:

Location:

Representative:

Company:

Department:

Full name:

Salutation:

Free Text:

Default template:

User belongs to:

VRS Profile:

Language:

Visible in outbox

Media Type:

Application Name:

Change own password

Password never expires

Password will never expire

Change password at next login

Lock account

Account is not locked

Cost center:

Dirsync allowed

Reject all messages

Logging of all send attempts

Number locking

OK Save Cancel

- 5 Optionally, select **Visible in outbox**, if you want to monitor messages using TCfW.
- 6 On the Address tab, create a new address for the user and click **Save Addr**.

User Profile - KofaxCapture

Queue Length/Age/Pages alerting | Queue Length/Age/Pages logging | TC/WEB | TC/WEB Identity Rights

General | Address | Event | Rights | Manual Fax | Distributor | Authorize/Sign

Service: Addr. no.: Active

User ID:

Node:

Active	No	Service	Number:
X	1	TOPCALL	KofaxCapture

OK Save Cancel

- 7 Click **Save**.

5.2.2 Configuring TWS

The TWS interface has to be configured to connect to the local KCS core (TCOSS). You also configure the document conversion options here.

- 1 Start “Configure TCOSS Web Services”.
- 2 On the TCOSS tab, enter Message Server Path.

TCOSS		
Message Server Path	<input type="text" value="TCP/IP,localhost"/>	Path to your actually used TCOSS Server e.g. TCP/IP,MyServer
Archive Server Path	<input type="text"/>	Path to your actually used TC/Archive Server e.g. TCP/IP,MyServer:ARCHIVE
Server Codepage	<input type="text" value="0"/>	TCOSS system codepage, 0 = Western Europe, 1 = Eastern Europe, 932 = Japan, 65001 = Unicode
User ID	<input type="text"/>	The user ID can be configured for automatic log in to TCOSS or TC/Archive without HTTP basic authentication
Password	<input type="password"/>	Password of user set above
Fax Service	<input type="text" value="FAX"/>	The TCOSS service for outgoing faxes, used by the SendFax function

- 3 On the Document Conversion tab, select the tools for converting the messages to your selected format.

Document Conversion			
MS Office Documents	<input type="text" value="KFXConverter"/>	Select the tool for converting MS Office and plain-text documents	KFXConverter
MHTML and HTML Documents	<input type="text" value="KFXConverter"/>	Select the tool for converting MHTML and HTML documents	KFXConverter
MS Office User	<input type="text" value="This user:"/>	Microsoft Office DCOM automation user (only Windows 2008, Vista and later)	InteractiveUser
Name	<input type="text" value="Administrator"/>	Microsoft Office DCOM user name; for productive mode with no one logged in it is necessary to specify an administrator user	KofaxDocConv
Password	<input type="password" value="••••••"/>	Microsoft Office DCOM user password	
Custom Extension List	<input type="text"/>	Blank separated list of extensions for file types that can be converted by a customizable script to PDF. The script has to be created in the Scripts subfolder with the name "CustomToPdf.bat".	

KFXConverter is the built-in tool and requires no additional licenses or third party software for most conversion tasks.

- 4 Click **Save**.
- 5 Click **Exit configuration**.

5.3 Configuring Processing in Kofax Capture

Unless you are on Kofax Capture Network Server (KCNS) remote site, the Capture Connector – Import module is configured using Kofax Capture Administration.

On a KCNS remote site, the Capture Connector – Import module is configured using a standalone application.

Do **one** of the following:

- On a KCNS remote site, start Kofax Capture Connector.
- On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.

5.3.1 Importing Batch Classes

Two sample batch classes are installed with Import module. You can use the sample batch classes, or you can create your own. The benefit of the sample batch classes is that they already have the message metadata provided by with Capture Connector mapped to Kofax Capture fields. Either way, a batch class is necessary for successfully running Capture Connector.

Note If you are using Kofax Capture Network Server, you can only to perform batch class configuration on the central site.

- 1 Point to the Kofax Capture program folder and click **Administration**.
- 2 On the Home tab, click **Import**.
- 3 Browse to <programs>Kofax\KCS\Capture Connector\BatchClass\.
- 4 Open KcBatchClass.cab.
- 5 Wait until the batch classes are unpacked, then click **OK**.
- 6 Click **Add All**, then click **Import**.
- 7 Wait until importing is completed, then click **OK**.
- 8 Publish the new batch classes.

5.3.2 Configuring XML Types

Capture Connector can be configured to identify XML documents with a particular namespace and root element. The combination of a namespace and root element is referred as an XML type. Importing of each XML type can be handled differently.

To define an XML type, you need to provide the XML schema definition file and a sample XML document. XML types can be used in the following situations:

- The values of XML elements can be mapped to the batch / folder / document index fields of your batch class. See *Using XSL Transformation to Map Metadata and XML Data*.
- The values of XML elements can be rendered as a TIFF or PDF. See *Rendering XML Documents*.
- Additionally, XML types are used as filters in rules. See *Configuring Rules*.

Note There is a built-in XML type called ImportSession. The purpose of this XML type is to support the standard Kofax Capture XML Import Connector compatible XML format. You do not need to import this XML type, it is available automatically.

- 1 Start **Kofax Capture Connector** configuration:
 - On a KCNS remote site, start Kofax Capture Connector.
 - On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.
- 2 Click the **XML Types** tab.
- 3 On the XML Type Tasks menu, click **Add XML Type**.
- 4 Browse to your XML schema definition file (.xsd) and click **Open**.
- 5 Browse to a sample XML file that uses the specified schema and click **Open**.

Now you can create a destination that uses this XML type. See *Configuring Destinations for Imported Documents*.

Additional information about custom XML types can be found in the *Capture Connector Developers Guide*.

Capture Connector does not change the logical structure of the XML documents, but the text presentation is often modified:

- The XML code page is changed to UTF-8.
- Insignificant whitespace can be removed or changed.
- Character quotes or CDATA sections can be removed or changed.

5.3.3 Configuring Destinations for Imported Documents

Destinations tell Kofax Capture how it should handle documents received by Capture Connector.

1 Start **Kofax Capture Connector** configuration:

- On a KCNS remote site, start Kofax Capture Connector.
- On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.

2 On the **Destination Tasks** menu, click **Add Destination**.

3 On the **Import settings** tab, enter a Name of this destination. Optionally, add a description.

4 Optionally, select an **XML Type** if you want to restrict the destination to that particular XML type (i.e., only XML documents with matching namespace and root element are accepted by this destination).

Note The default destination cannot have an XML type.

5 Select the **Import content** of this destination, i.e., what parts of a document should be imported, and their order. Optionally, you can select to import the original content or the complete message as EML.

6 Configure the Import mode.

- Select what content do you want to convert (images versus non-image content), into which format (TIFF, PDF), and select the scaling, resolution, and color of the converted image.
- Select **Message rendering** if you want to convert XML documents or metadata as images. See *Rendering XML Documents*.
- Select **VRS** to preprocess incoming documents. This option is recommended for improving the quality of scanned images. See *Configuring VRS*. You can also process PDF documents in VRS.

7 On the Import mappings tab, select the **Batch class** and **Document class**. Optionally, select a **Folder class** and **Form type**.

Note The selected batch class can be overwritten if you are importing XML documents that contain batch class information. If the batch class from the XML document does not exist in Kofax Capture, the following error message is displayed in the Message Connector storage: Batch class required for XmlAutoImport or generic Xml mapping does not exist.

8 Optionally, you can map metadata of the imported document to Kofax Capture batch /folder / document fields. Do one of the following:

- Set XML mapping to **None** and use the table below to map metadata. For each batch /folder / document field defined in the batch class, you can select a value.
- Select XML mapping if you want to map metadata for XML documents using XML types. See *Using XSL Transformation to Map Metadata and XML Data*.

9 Optionally, on the Additional settings tab you can use custom scripts and configure error handling options.

10 Optionally, on the **Email Notifications** tab you can configure sending notifications.

- 11 Click **OK** to create the destination.
- 12 On the Assistance Tasks menu, click **Restart Service**.

Note If you modify a batch class or form type used in an existing destination, the mappings might be lost. You have to remap the fields.

5.3.4 Sending Notifications

Capture Connector can send notifications about incoming documents to a fixed address or to the originator of the message.

- 1 Create or edit a destination.
- 2 Click the **Email Notifications** tab.
- 3 Decide what notifications do you need and select the appropriate option:
 - Click **Successfully imported** for successfully created batches.
 - Click **Partially imported** for batches created with problems (e.g. errors during document conversion, faxes with reception error, documents failed during XML schema validation when the option “Do not apply XML handling” is selected).
 - Click **Not imported** when no batch has been created (e.g. invalid batch name, fax message without image pages, invalid XML documents when “Reject Message” is selected, etc.).
- 4 Select **Send message to originator** if you want to send notifications to the message originator.
- 5 Select **Send message to** and enter an address if you want to send notifications to a fixed address.
- 6 Enter the message originator (**Message From**), subject (**Subject**) and the body (**Message text**) of the notification message. You can use metadata from the original message when populating subject and body. Double-click a line from the Fields table to insert it into message text or subject.
- 7 Repeat steps 3 to 6 for other types of notification as needed.
- 8 Click **OK**.

Capture Connector tries to deliver the notification email messages via KCS.

5.3.5 Using XSL Transformation to Map Metadata and XML Data

Capture Connector can parse incoming XML documents and/or the metadata of incoming messages and use the information from them to populate message fields. XML documents can also include links to other documents to be imported. There are three types of mapping:

- XML Import Connector compatible is a specific variant of the generic mapping. It is compatible with the Kofax Capture XML Import Connector. It is only available if you select ImportSession as the XML type for the destination. It maps the input XML data in the same way as XML Import Connector would do.
- Simple mapping maps metadata and/or XML document data to the particular fields of the batch/folder/document classes that are configured for the destination where the mapping occurs. It is not possible to control the batch/folder/document class names through the input XML data.
- Generic mapping takes into account that the information on batch/folder/document classes may come in along within the customer’s XML document (and the class names configured for the destination are only used as fallback if the particular class name is missing). The XML format in generic mapping is not restricted and it can be configured for virtually any customer XML data structures.

The mapping itself (for both simple and generic methods as well) is performed by the means of an XSL transformation. The transformation file can be written manually by an XSLT expert or it can be generated by the visual tool called Altova MapForce. This tool offers a user-friendly GUI, can perform even complex XML mappings and the XSL transformation is generated automatically. MapForce can be installed on any computer. Capture Connector does not need it at run time.

- 1 Before setting up XML mapping, at least one XML type must be defined; unless you are using the XML Import Connector schema <ImportSession> - that is available automatically. See *Configuring XML Types*.

Note You don't need to specify an XML type if you only want to map document metadata.

- 2 Edit a destination. See *Configuring Destinations for Imported Documents*.
- 3 On the **Import settings** tab, select an **XML Type** (not necessary if you only want to map document metadata).
- 4 On the **Import mappings** tab, configure **XML mapping**:
 - Select **XML Import Connector compatible** for XML documents compatible with Kofax Capture XML Import Connector. Continue with step 12.
 - Select **Simple** to map XML data and message metadata to the batch/folder/document fields assigned to the destination that you are currently editing.
 - Select **Generic** if the information about batch/folder/document classes is included in the XML document. The information from the XML overrides the destination settings.

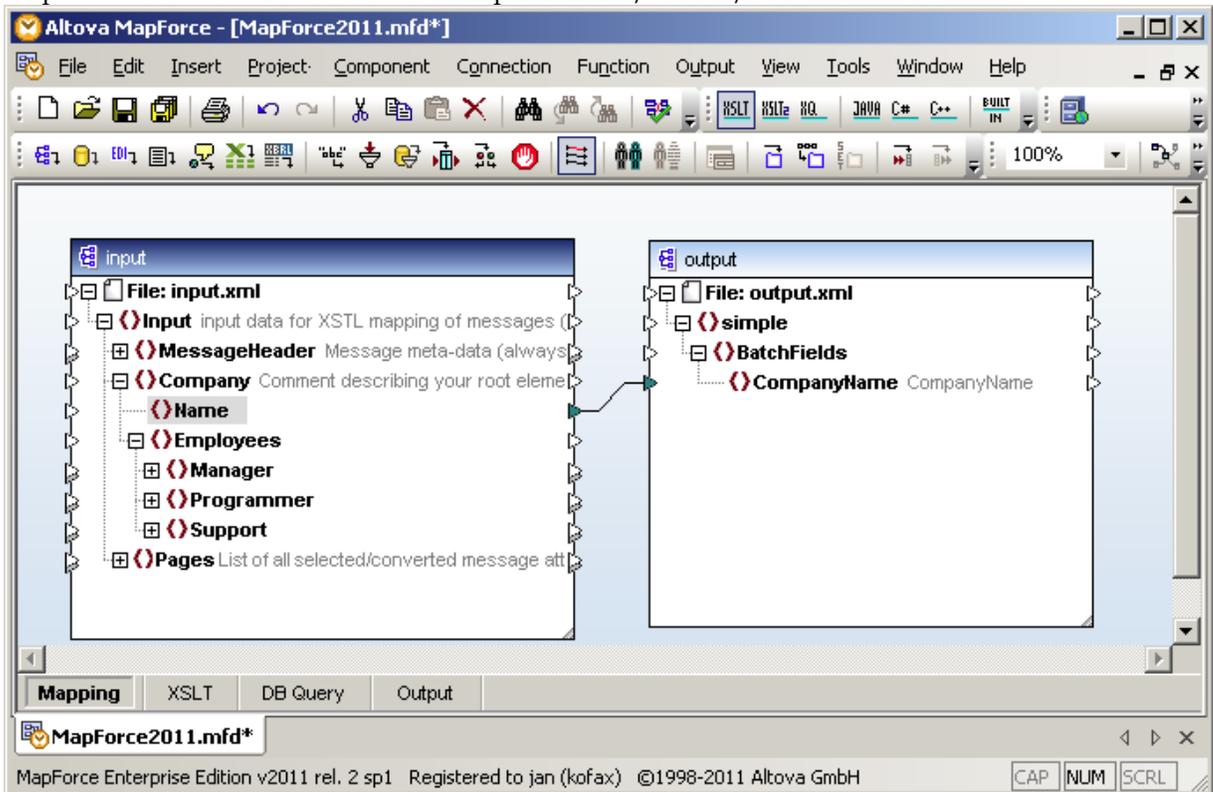
If the class names are not specified in the XML, the settings of the destination are used. Generic is also necessary in the following use cases:

- Kofax Tables should be filled with the content of the input XML.
 - The content of any index field should be evaluated by an expression.
 - Other features possibly supported by the Kofax XML Import Connector format.
- 5 Click **Show files for Visual Designer** to display the folder where Capture Connector stores the files required for mapping.

Note It is the same folder that contains the files for XML rendering.

- 6 If Altova MapForce is not installed locally, copy the entire folder to the Altova MapForce computer.
- 7 Open the .mfd project file in Altova MapForce.

- 8 Map XML data and metadata to Kofax Capture batch / folder / document fields.



- 9 Save the project file. On the File menu, click **Save**.
- 10 Save the result to an XSLT file. On the File menu, expand **Generate code in** and select **XSLT 1.0**. You must save the file to the same directory where the .mfd file is located. Change the file name to XmlMapping.xslt.
- 11 If Altova MapForce is not installed locally, copy the entire folder back to Capture Connector computer (to the original location).
- 12 Close the **Destination configuration** window and restart Capture Connector.

You can use other tools to generate the necessary XSL transformation file that governs metadata mapping. Simple transformations can also be written using a text editor. Alternatively, you can also contact Kofax to create the mapping for you. For additional information, see *Capture Connector Developer's Guide*.

Note When using the XML type "ImportSession", you do not need to create any XSL transformation. The mapping is available automatically.

There is a significant difference in importing of document's body and attachments (including XML document itself) between simple and generic mapping:

- With simple mapping all parts of a document are automatically handled according to the destination's configuration (e.g., converted to TIF, ...) and then imported as pages into the same folder/document class (or loose pages) of the batch. The XML document itself may be imported as original XML (if Include Original Content is selected) or rendered as TIF or PDF (if rendering is configured).
- With the XML Import Connector compatible generic mapping, the attachments are only imported if they are explicitly linked in the XML file. The controlling XML file is never imported.

- When using the generic mapping, attachments (and the XML document itself) are only imported if explicitly instructed so in the XSL transformation. For additional information, see *Capture Connector Developer's Guide*.

Altova MapForce is a third-party software that requires a license. This software is not included with Capture Connector. Also, the licenses for Capture Connector will not help you operating Altova MapForce.

5.3.6 Rendering XML Documents

Capture Connector can be configured to render structured XML data as PDF and/or TIFF. Two basic use cases are foreseen:

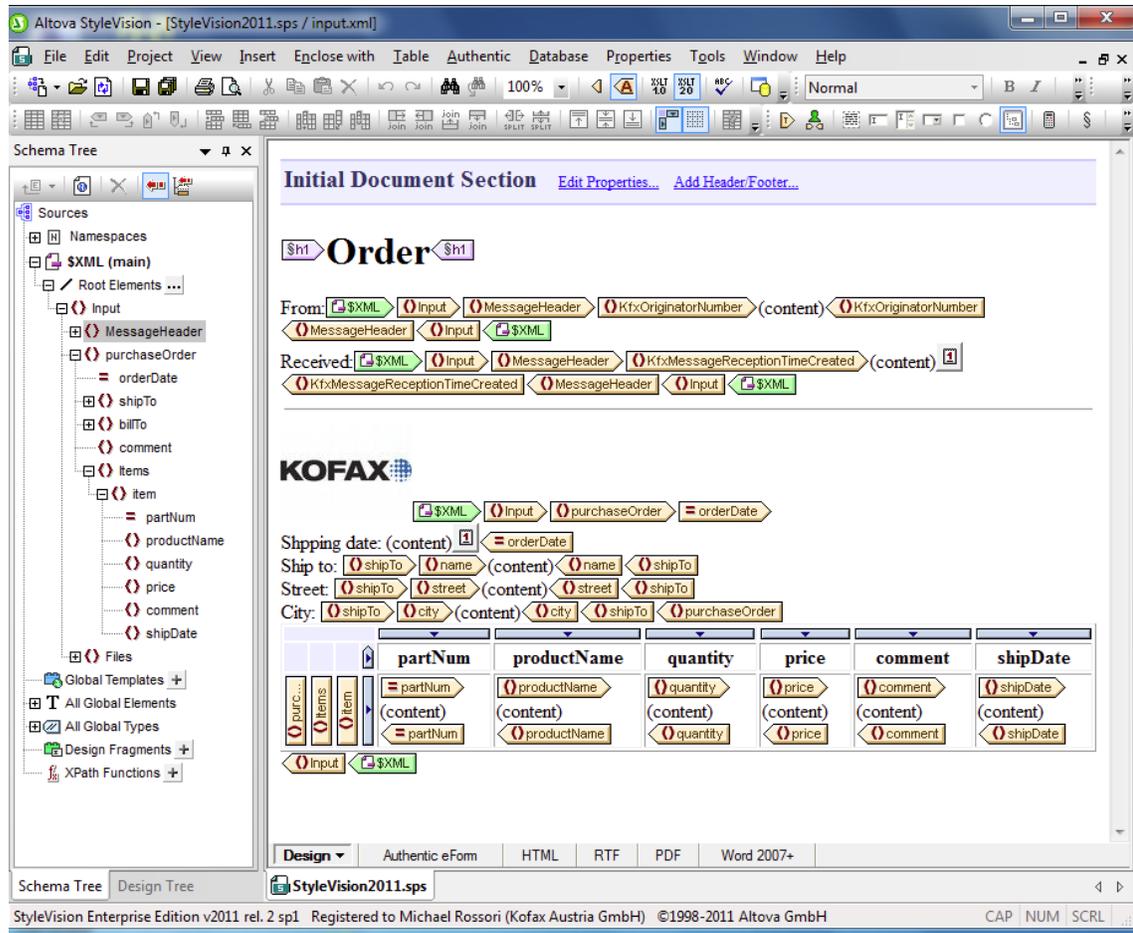
- Render incoming XML documents.
- Render only the metadata of any document as some kind of cover sheet.

The rendering itself is performed via an XSL transformation that has to be generated by the visual tool called Altova StyleVision. This tool can be installed on any computer. It is not required during run time of Capture Connector.

- 1 Edit a destination. See *Configuring Destinations for Imported Documents*.
- 2 Click the **Import settings** tab.
- 3 If you want to render XML documents, select **XML Type**. (If you only want to create cover sheets from document metadata, this is not required.)
- 4 Select **Message rendering**.
- 5 Select the preferred image type (TIFF or PDF), resolution and color.
- 6 Click **Show Files for Visual Designer** to display the folder where Capture Connector stores the files required for XML rendering.

Note It is the same folder that contains the files for XML mapping.

- 7 If Altova StyleVision is not installed locally, copy the entire folder to the Altova StyleVision computer.
- 8 Open the .sps project file in Altova StyleVision.
- 9 Use the XML elements from the Schema Tree to create an XSLT style sheet that defines how information should be organized in PDF/TIFF format.



Note If Altova StyleVision is not installed locally and you add graphics (images) to the style sheet, copy them to the folder where the project file (*.sps) is located. When importing the graphics, make sure that you are using relative paths (clear the Absolute Path checkbox).

- 10 Save the project file. On the File menu, click **Save**.
- 11 Save the result to an XSLT file. On the File menu, expand **Save Generated Files** and select **Save Generated XSLT RTF File**. You must save the file to the same directory where the .sps file is located. Change the file name to Render.xslt.
- 12 If Altova StyleVision is not installed locally, copy the entire folder back to the Capture Connector computer (to the original location).
- 13 Optionally, click **Preview** to view how a rendered XML document (or metadata) will look like.
- 14 Close the destination configuration window and restart Capture Connector.

Altova StyleVision is a third-party software that requires a license. This software is not included with Capture Connector. Also, the licenses for Capture Connector will not help you operating Altova StyleVision.

5.3.7 Configuring VRS

VRS is used to improve the quality of incoming images in order to make it easier for Kofax Capture to understand them. In Kofax Import Connector, each destination can have its own VRS settings.

However, you can use the image conversion of import connector to modify the resolution/color of an image and then use VRS for further processing.

- 1 Edit a destination. See *Configuring Destinations for Imported Documents*.
- 2 Click the **Import settings** tab.
- 3 Optionally, configure color conversion or image scaling that should occur before VRS.
- 4 Select one of the VRS options:
 - Select VRS **only original image content** if want to apply VRS processing to documents that reached the import connector in image format (but not to documents that were converted to image format by import connector).
 - Select **VRS all images** if you want to apply VRS settings to all images. This means that also those documents that were converted to image format by import connector are processed by VRS. Usually, this is not recommended for Word or Excel documents. Also, use this option if you want to apply VRS to PDF documents.
 - Select **None** to disable VRS for all content.
- 5 Select **Apply VRS to PDF files** if you want to convert PDF documents to TIFF format using VRS.

Note You must select **PDF** as your **Convert to** format to use this feature. Otherwise the PDF is converted to TIFF before reaching VRS.

This option allows you to process larger PDF documents.

- 6 Click **VRS Settings**. The **VRS Settings** window is displayed.

The window is divided into four main parts:

- The top left part shows a sample image.
- The top right part shows the sample image after VRS processing.
- The bottom left part shows the menu.
- The bottom right part lists the various VRS parameters.

- 7 Configure the VRS parameters and test them:
 - a Click **Open File for Testing** and select an image.
 - b Modify the VRS parameters.
 - c Click **Test Current Settings** to see the results of VRS processing.
 - d Use the commands from the View menu to modify the zoom and switch pages (for multipage TIF documents).
 - e Repeat steps b to d until you are satisfied with the results.
- 8 Click **Save VRS Parameters** to apply the changes for this destination.
- 9 Optionally, click **Save VRS Parameters to Profile** if you want to reuse the same settings in other destinations; or for backup.
- 10 Click **Exit** to conclude VRS configuration.

Note All VRS profiles are stored in the file KCSCconnector-VRSPfiles.xml in the folder %ALLUSERSPROFILE%\Kofax\KCS\Capture Connector\Config\. Take this file if you need to transfer your profiles to another computer.

5.3.7.1 Enabling VRS Multithreading

If you are using VRS exclusively for processing TIF files, you can enable VRS to work with multiple connections.

- 11 Open the file KCSConnector2.xml from the folder C:\ProgramData\Kofax\KCS\Capture Connector\Config in the text editor.
- 12 Change the value of the parameter VRSMultiThreadingSupport from false to true.

Option	Description
False (default)	If you are using a single connection, you can use VRS for both TIF and PDF. If you are using multiple connections, VRS fails for both TIF and PDF.
True	For TIF, VRS can now be used with multiple connections. However, for PDF, VRS always fails.

- 13 Save the file and close it.

5.3.8 Configuring Connections to TWS

A single instance of Capture Connector – Import can connect to multiple TWS.

At least one destination must exist before connecting to TWS. See *Configuring Destinations for Imported Documents*.

- 1 Start **Kofax Capture Connector** configuration:
 - On a KCNS remote site, start Kofax Capture Connector.
 - On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.
- 2 On the Connection Tasks menu, click **Add Connection**.
- 3 Enter a descriptive **Connection name**.
- 4 Change the **Server URL** to your installed TWS host name.
- 5 Enter the TCOSS server credentials in **Server User name** and **Server Password** where TWS is running.
- 6 Click **Test Connection** to verify that Capture Connector can connect to TWS.
- 7 Select your Default destination. Messages from this TWS connection will use your selected destination settings. You can use rules to modify the default destination. The default destination must not have an XML type specified.
- 8 Click **Add queue** and select at least one KCS queue user. Messages from this queue will be imported to Kofax Capture.
- 9 Click **OK** to save changes.
- 10 Click **Restart Service**.

5.3.9 Configuring Rules

Each configured TWS connection has a default destination. Rules are used to filter documents and assign them to different destinations. For example, email messages from a particular recipient can be handled differently than faxes.

- 1 Start **Kofax Capture Connector** configuration:
 - On a KCNS remote site, start Kofax Capture Connector.
 - On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.
- 2 On the **Connection Tasks** menu, click **Add Rule**. Alternatively, select one of the existing rules and click **Edit Rule**.

- 3 In the **Service filter** field, enter one of the KCS services. You can use asterisk wildcard * to specify all services.
- 4 In the **Recipient list** field, enter the original recipient (as specified by the message sender). You can use the asterisk wildcard * to specify all addresses. You can add multiple recipients, separated by comma.
 - For emails, specify an email address from the To or Cc list, such as john@kofax.com.
 - For faxes, specify the extension number on the fax server, such as 555*, 444*, 3333.
 - For other import connectors, this filter is not available.
- 5 In the **Address** field, enter the KCS queue of the message. You can use asterisk wildcards at the beginning or at the end of the string.
- 6 In the **Destination** field, select the destination that should be used for the documents matching the specified criteria.

Note If you select a destination with an XML type, the XML type becomes an additional filter criterion. I.e., if the document is not an XML file or the namespace/root element don't match, the rule does not apply.

- 7 Click **OK** to save changes.
- 8 Optionally, select a rule and click **Move Rule Up** or **Move Rule Down** on the **Connection Tasks** menu to establish rules priority. The following applies to rules priority:
 - Rules higher on the list take precedence over lower rules; first matching rule wins.
 - If none of the filter criteria match, the default destination is used.
- 9 Optionally, select a rule and click **Remove Rule** on the **Connection Tasks** menu to delete it.
- 10 Click **Restart Service** to apply the configuration changes.

5.3.10 Configuring Multiple Document Converter Instances

To convert several documents in parallel, when multiple instances of Capture Connectors are running, multiple instances of converters should be run simultaneously. These converters are KfxConverter, image2tiff.exe, convert.exe, tcimgio datalogics. Number of instances for each converter per computer can be configured in the file Create_Config.xslt available at C:\topcall\tws\00\xcd (assuming default installation path on a 64-bit operating system.)

To set the total number of parallel conversions for each type of converter, MaxInstances and SyncObject properties are used. By default, the value of MaxInstances property is three for each converter.

Note Running more than three instances of a converter can impact the system performance.

5.3.11 Manage Conversion Time for Large Files

The default time specified for processing files may be less to process some large size files. In such scenarios, to avoid timeout, user can increase the default conversion time.

Note In case of multiple instances of Capture Connector, longer conversion time may cause duplicate imports. To avoid duplicate import, refer [locking mechanism](#).

To increase the timeout value, do the following:

1. Open the Create_Config.xslt file from C:\topcall\tws\00\xcd (default installation path on a 64-bit operating system.)
2. Increase the value of the <MaxTimeout> parameter under the <ConversionOptions> element.
3. If the <MaxTimeout> or <ConversionOptions> parameter is not available in the file, add these parameters under the <TncDocConv> as shown in the following example.

```
<TncDocConv>
    ...
    <ConversionOptions>
    <MaxTimeout>1200000</MaxTimeout>
    </ConversionOptions>
    ...
</TncDocConv>
```

4. Save and close the Create_Config.xslt file.
5. Restart Message Connector.

5.3.12 Importing XFA Files

PDF documents with Adobe XML Forms Architecture (XFA forms) can be imported and converted using Capture Connector.

Adobe LiveCycle Server is required. The following prerequisites apply:

- Adobe LiveCycle server must be installed, configured, and accessible to Capture Connector. The Output service must be running and its web service enabled and working properly.
- Adobe LiveCycle software must be on a different computer than Capture Connector. However, we recommend to install it in the same network LAN segment (to decrease the probability of timeouts and retries).
- The minimum supported version is ES3. Please contact Kofax Support before upgrading to a new version.
- You must acquire the Adobe LiveCycle product through an appropriate Adobe Sales Channel. Kofax does not ship, install, support or troubleshoot the Adobe LiveCycle server. The customer using this feature is responsible any licensing requirements and maintenance contract and/or agreements required by Adobe and any of third party vendor that may be involved.

Configure the following:

1. In TWS, enter the information about connecting to the LiveCycle server on the **Adobe LiveCycle** tab.
2. In Capture Connector, configure a destination: On the **Advanced Conversion and Import** tab, select **Convert XFA forms using Adobe LiveCycle**.

Note Enabling this feature can negatively impact the performance. Each PDF document is sent to document converter to determine if it is XFA form or standard PDF.

All limitations imposed by Adobe apply. For example, only XFA PDFs with no rights, signature, or certification can be converted to PDF or PDF/A. See your Adobe LiveCycle documentation.

When an exception occurs while using Adobe LiveCycle, Capture Connector reports the same exception in its log file and the document is treated as a standard document conversion error.

5.3.13 Import MSG and EML Files from Folder

When you import MSG and EML files from a folder, these email messages are treated as received emails. The metadata (such subject, to, from, date) are extracted directly from the email message. All content selection and conversion options (for example, converting to TIFF, adding a message header, importing only body or attachments) apply to the MSG or EML file.

Note If you are not importing MSG and EML files from a folder directly, but you are using a controlling XML file which links these email documents, only the email body is converted and imported. The attachments are discarded, unless you select to include original content.

5.4 Configuring SSL Connection

Capture Connector can be configured to operate in a secure environment, using SSL connections.

- 1 Create a SSL certificate for each Capture Connector component that you want to connect securely. You can use for example the following tools:
 - Microsoft Active Directory Certificate Services
 - OpenSSL
- 2 Configure each Capture Connector component that you want to connect securely.
 - For TWS, you need to convert the certificate to .pem format so that you can copy the private key and the certificate to the configuration utility.
 - For Capture Connector – Import module, you must install the certificate via MMC (local account) and copy the thumbprint to the configuration utility.
- 3 Install the certificates on all computers that connect to a secure server.

5.4.1 Securing Connection Between TWS and Capture Connector – Import

- 1 In TWS configuration, HTTP tab, select **Use SSL** and enter the necessary certificates.
- 2 In Capture Connector configuration, edit a connection to a TWS. In the Server URL field, enter the prefix “https” instead of “http”.
- 3 Enter the TCOSS server credentials in **Server User name** and **Server Password** where TWS is running.
- 4 Click **Test connection** to verify the connection.

5.4.2 Example: Requesting a Certificate for TWS Using Microsoft Active Directory Certificate Services

In this example, we are using Microsoft Active Directory Certificate Services to generate a certificate for TWS and OpenSSL to extract the private key and certificate.

Review the following requirements and tips.

Microsoft Certification Services

- Server must be configured for https binding ([https://\[CAName\]/certsrv/](https://[CAName]/certsrv/))
- Server must be configured to archive the key.
- Create a template which allows to export the private key.

OpenSSL is used for exporting a decrypted private key and creating a PKCS#12 file.

- 1 Use Microsoft Certification Services to request a certificate:

- a Use a web browser to connect to the CA Server (<https://CAName/certsrv>).
 - b Click "Request a certificate".
 - c Click "advanced certificate request".
 - d Click "Create and submit a request to this CA".
 - e Fill out the form, select the correct Certificate Template and select "Mark keys as exportable". Enter the correct Capture Connector server name in the Name field (for Windows Failover Cluster configuration, use the name of the clustered service).
 - f Click **Submit**. Wait until the certificate is issued.
 - g Click "Install this certificate". Wait until the certificate is installed.
- 2 Use Internet Explorer to export the certificate:
 - a Go to Tools > Internet Options > Content > Certificates > Personal tab.
 - b Select your certificate and click **Export**.
 - c Select to export the private key. Select PKCS #12 as the format.
 - d Enter a password to protect the key.
 - e Enter the location and file name. Click **Finish**.
 - 3 Use OpenSSL to extract the private key and the certificate to .pem format, for example:


```
openssl.exe pkcs12 -in "c:\certif.pfx" -out "c:\certif.pem" -nodes
```

You will need to provide the password you used in step 2d.
 - 4 Open the pem file in a text editor. In the file you will find the certificate and private key needed for configuring TWS.

5.4.3 Example: Requesting a Certificate for Import Module Using OpenSSL

In this example, we are using OpenSSL to generate a certificate for Capture Connector – Import. Use OpenSSL to request a certificate (assuming Windows binary distribution of OpenSSL):

- 1 Generate an RSA private key.

```
C:\Openssl\bin\openssl.exe genrsa -out my_key.key 2048
```

This command generates a private key file with the file name my_key.key and the key length of 2048 bits.

- 2 Generate a Certificate Signing Request (CSR).

```
C:\Openssl\bin\openssl.exe req -new -key my_key.key -out my_request.csr -config C:\Openssl\bin\openssl.cnf
```

This command uses the my_key.key to create the CSR my_request.csr.

- 3 Generate a self-signed public certificate based on the request.

```
C:\Openssl\bin\openssl.exe x509 -req -days 3650 -in my_request.csr -signkey my_key.key -out my_cert.crt
```

This command uses the private key and certificate signing request to create a selfsigned public certificate (my_cert.crt).

- 4 Generate a PKCS#12 file.

```
C:\Openssl\bin\openssl.exe pkcs12 -keypbe PBE-SHA1-3DES -certpbe PBESHA1-3DES -export -in my_cert.crt -inkey my_key.key -out my_pkcs12.pfx -name "my-name"
```

Start Certificates MMC Snap-In for computer account:

- 1 Start MMC, e.g. by running mmc.exe.

- 2 On the File menu, select **Add/Remove Snap-In**.
- 3 Click **Add** and select **Certificates**. Click **Add** again.
- 4 Select "Computer account". Click **Next**.
- 5 Select "Local computer". Click **Finish**.
- 6 Click **Close**, then click **OK**.

Install the certificate:

- 1 Install the certificate to the Personal\Certificates folder for computer account.
- 2 Display the details of the certificate and copy the value of its thumbprint into clipboard.
- 3 Start Kofax Capture Connector configuration.
- 4 On the Assistance Tasks menu, click **Webservices Configuration**.
- 5 Select **Use SSL**.
- 6 Paste the content of the clipboard into the **Thumbprint** Field.
- 7 Click **OK**, then click **Restart Service**.

5.5 Configuring Capture Connector Web Service Interface

The web service interface of Capture Connector – Import module is used by Kofax Monitor. For details about the web service functions, see *Capture Connector Developer's Guide*.

- 1 Start **Kofax Capture Connector** configuration:
 - On a KCNS remote site, start Kofax Capture Connector.
 - On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.
- 2 On the Assistance Tasks menu, click **Webservices Configuration**.
- 3 In the Port Number field, type the port number of the web services interface of Capture Connector – Import module.
- 4 Select **Use SSL** if you want to use SSL for connecting to the web services interface.
- 5 In the Thumbprint field, copy the thumbprint of your SSL certificate.
- 6 Click **OK** to save changes.
- 7 Click **Restart Service**.

5.6 Configuring Kofax Capture Integration

Use this window to specify details about how Kofax Capture and Capture Connector interact.

- 1 Start **Kofax Capture Connector** configuration:
 - On a KCNS remote site, start Kofax Capture Connector.
 - On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.
- 2 On the Assistance Tasks menu, click **Kofax Capture Settings**.
- 3 If you are using the User Profiles feature of Kofax Capture, enter **User ID** and **Password**. Click **Test credentials** to verify that you can correctly connect.

Note If you select a Kofax Capture linked (domain) user, then you should configure KCS Capture Connector to run under this user (during setup or in the registry):

HKLM\Software\TOPCALL\CaptureConnector\UserId, Domain, Password) and all your connections should use that user as well. The user must have the "Logon as a service" right. Run secpol.msc, go to Security Settings > Local Policies > User Rights Assignment; double-click "Logon as a service" and add the user.

- 4 If you want to keep Capture Connector connected to Kofax Capture and log off only on service shutdown, select **Cache import process instance**. Selecting this option improves performance. If not selected, Capture Connector logs on to Kofax Capture each time a batch is imported, and it logs off afterwards.
- 5 If you want to use UTC time for all imported documents, select **Use UTC time**. When not selected, the local time of Kofax Capture is used.
- 6 The selection in **Time Base in KCS** field must match with the time base settings in KCS. In KCS,
 - If the key "HKLM\Software\Topcall\TCOSS\TimeBase" is set to UTC, then select "UTC" in **Time Base in KCS**.
 - If the key "HKLM\Software\Topcall\TCOSS\TimeBase" is set to LOCAL or if the key does not exist, then select "Local" in **Time Base in KCS**.

Following table show the behavior of KCC for various combinations of time base values

TCOSS Time base	KofaxCaptureSettings window\Use UTC Time	Behavior
Local	Unchecked	KCC uses TCOSS time without modification #1
Local	Checked	KCC converts Local time from TCOSS to UTC #2
UTC	Unchecked	KCC converts UTC time from TCOSS to Local time
UTC	Checked	KCC uses TCOSS time without modification

#1: TCOSS time zone is used

#2: Assumes that TCOSS and KCC are using the same time zone (limitation)

5.7 Enabling SecurityBoost

SecurityBoost is a feature that improves the safety of the connection between the Kofax Capture server and workstation.

- 1 Enable SecurityBoost in Kofax Capture. Refer to Kofax Capture documentation for details.
- 2 Set a log on user account for the Capture Connector – Import service. This user must have read access to the following folders:
 - \\%SERVER%\capturesv\config
 - \\%SERVER%\capturesv\BatchDb (and subfolders)
 - \\%SERVER%\capturesv\PubTypes (and subfolders)
- 3 If the Save to Disk option in destination configuration is selected, write access is also necessary to the following folder: \\%SERVER%\capturesv\images.
- 4 The user to be used with the SecurityBoost option requires the "Local Launch" and "Local Activation" COM permission. COM permissions can be modified with Control Panel > Administrative Tools > Component Services. Select COM Security tab in properties of Console Root\Component

Services\Computers\My Computer. Click **Edit Default** under Launch and Activation Permissions. Select the user and modify the permissions.

- 5 The user requires Full Control access to the following registry key:
HKEY_LOCAL_MACHINE\SOFTWARE\Kofax\KIC-ED\KCPlugIn
- 6 If you want to use Capture Connector – Import web service interface (for Kofax Monitor), additional steps are necessary:
 - Reserve the namespace http://+:<port>/KIC-Electronic-Documents
 - Reserve the namespace https://+:<port>/KIC-Electronic-Documents and register the thumbprint of the certificate for the IP address:port (if you want to use SSL)

For example, on Windows Server 2008, use the command netsh:

Namespace reservation syntax:

```
Netsh http add urlacl url=URL user= User
```

The url parameter specifies the fully qualified Uniform Resource Locator (URL). The user parameter specifies the user or user-group name.

- For port 8001:

```
netsh http add urlacl url=http://+:8001/KIC-Electronic-Documents/ user=\EVERYONE
```

- For port 8002 if SSL is enabled:

```
netsh http add urlacl url=https://+:8002/KIC-Electronic-Documents/ user=\EVERYONE
```

SSL thumbprint registration syntax:

```
netsh http add sslcert iport= IPAddress:port certhash=CertHash appid=GUID
```

The iport parameter specifies the IP address and port for the binding. A colon character (:) is used as a delimiter between the IP address and the port number. The certhash parameter specifies the SHA hash of the certificate. This hash is 20 bytes long and is specified as a hexadecimal string. The appid parameter specifies the GUID to identify the owning application.

- For port 8002

```
netsh http add sslcert iport=0.0.0.0:8002 certhash=a9f05807bb757c41ba2e1c457ac2a78f00395a69  
appid={4f38c942-c7e7-421b-bcec-bd3290c3b921}
```

If SecurityBoost is not enabled, the folder access permissions should be set according to the Kofax Capture documentation.

5.8 Customizing Additional Parameters

The Capture Connector – Import contains advanced configuration parameters that cannot be configured through the configuration user interface, but can be configured manually in the configuration file. These parameters already contain a default value, but this value can be changed in order to optimize the Capture Connector – Import operation.

The configuration file can be found at:

- C:\Program Files\Kofax\KCS\Capture Connector\Import\Kofax.Kcs.KcImport.exe.config (assuming default installation on 32-bit operation systems)
- C:\Program Files (x86)\Kofax\KCS\Capture Connector\Import\Kofax.Kcs.KcImport.exe.config (assuming default installation on 64-bit operation systems)

Parameters list:

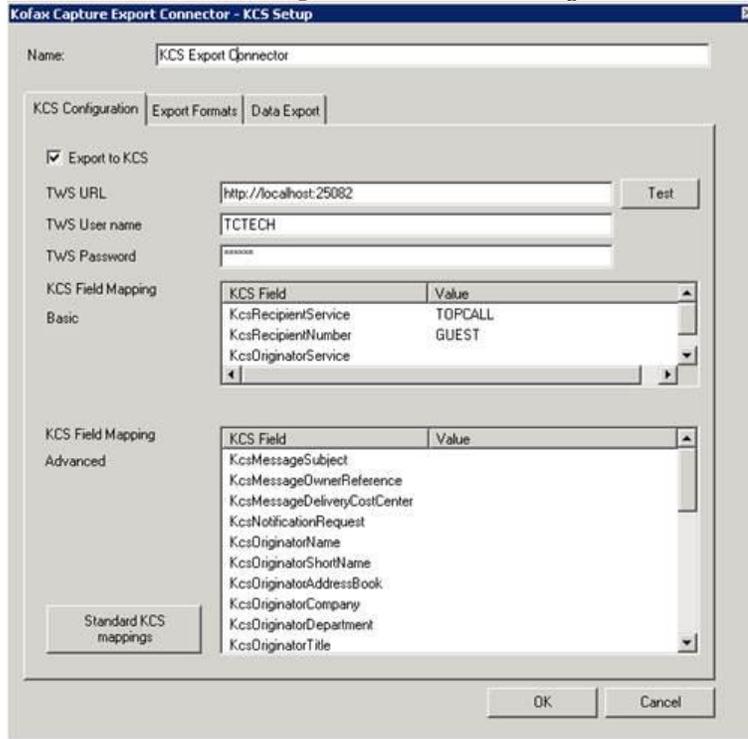
Kofax_DocConversion_Timeout_Seconds	The timeout in seconds that TWS uses for document conversion if configured. In case document conversion is configured and a timeout occurs, it is probably due to document conversion timeout. In that case it makes sense
-------------------------------------	---

	to increase the value of this parameter to allow the document converter to use more time for document conversion.
Kofax_FetchAlternativeIfAvailable	If this is set to true, the KCS Capture Connector will look for a TIFF or PDF alternative when retrieving documents from KCS, in case TIFF or PDF conversion has been configured. Use this setting in combination with "Convert only non image content" (destination configuration) e.g. if you convert images in Link SM.
Kofax_KCImport_RemainingMessages	<p>This parameter enables you to configure what Capture Connector will do with the messages that are currently queued for being retrieved from KCS and imported to Kofax Capture, in the moment that Capture Connector is shutting down.</p> <p>It is recommended not to change this value and use the default (0).</p> <p>Possible values:</p> <p>0 - The remaining messages will be delayed (Default)</p> <p>1 - Capture Connector will try to process the messages</p> <p>2 - Capture Connector will do nothing and the remaining messages will remain on "Sending" (if /when the message will be resent to the queue depends on KCS configuration)</p> <p>Note: Setting 1 is not recommended with installations that have connection configurations that contain TIFF or PDF document conversion, because the conversion could take longer time, in that case the shutdown process would last too long and TCSRVR could kill the Capture Connector process.</p>

5.9 Configuring Export Connector in Kofax Capture

- 1 Start Kofax Capture Administration.
- 2 Right-click a document class and assign select **Export Connectors...** (in older versions of Kofax Capture, select "Release Scripts...")
- 3 Select **KCS Export** and click **Add**.

- 4 Double-click the **KCS Export** connector to configure it. Click the **KCS Configuration** tab.



Name: You may specify a name for the Export Connector instance.

Export to KCS: Select if you want to send the captured data or the image file to KCS. If you do not select this option, the export connector will only send a notification to KCS when a message is exported. This depends on the configuration of the Capture Connector – Import.

TWS URL: The default assumes a local installation of TWS. If TWS is installed on a different computer you have to specify the path.

KCS Field Mapping Basic: Set the recipient and originator service and number:

- Select the line you want to configure and click the button displayed on the right
- Select a Kofax Capture value, a batch or index field or a fixed value

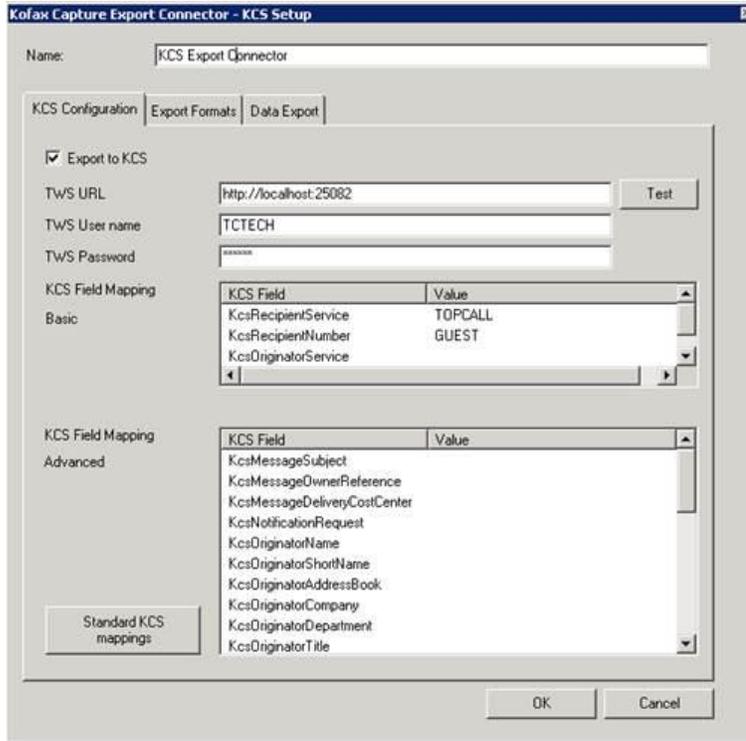
Note: If you do not set these fields to valid users and services of your KCS, export will fail.

KCS Field Mapping Advanced: Same as above, however the values have not to be set necessarily.

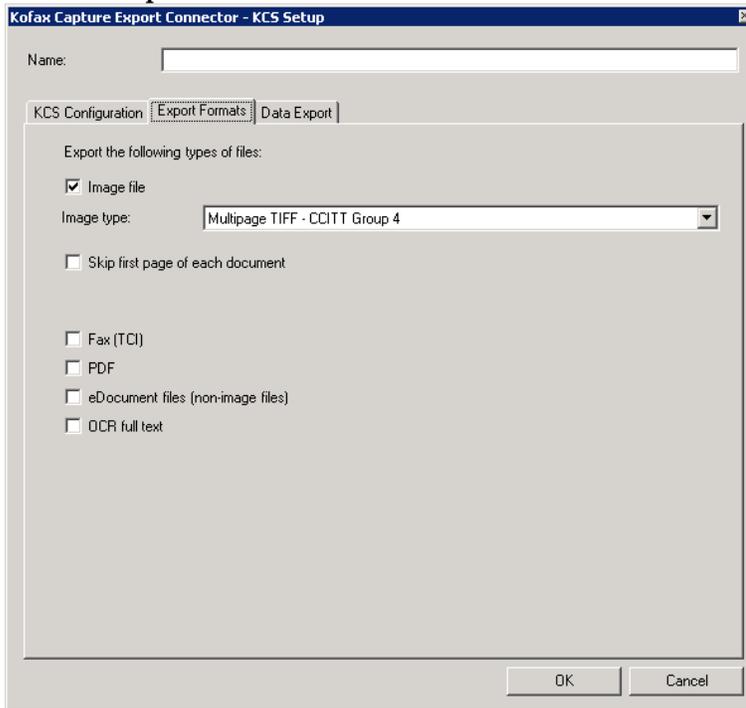
Standard KCS mappings: Click if you want to use standard mappings. Existing configuration is overwritten. The exported message will have the KCS parameters set as the imported message. Nevertheless you have to set the KCS recipient and service to valid values.

Note: On the import configuration, you also have to use the standard field mapping to get the values from the imported message.

The standard KCS mappings are shown in the following screenshot.



5 Click the **Export Formats** tab.

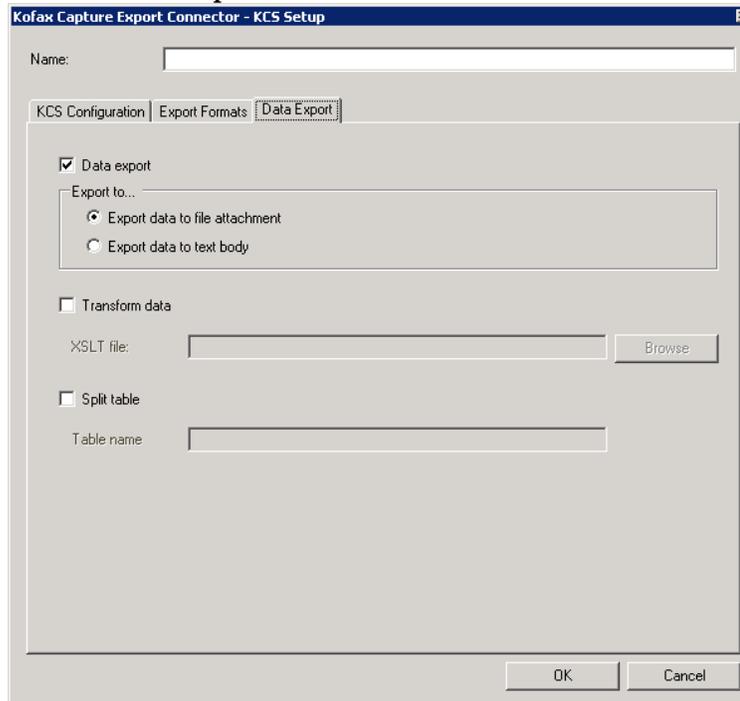


Select what files you want to export. For PDF, eDocument, and OCR full text you have also to configure the appropriate Kofax Capture queues and settings. See Kofax Capture documentation.

Note: The KCS message body (text) is also a non-image file. Therefore, it is only exported if eDocument is selected.

Regarding configuration of single page image formats, please see section *Single-Page Image Formats and "Use Original File Name"*.

6 Click the **Data Export** tab.



The screenshot shows the 'Kofax Capture Export Connector - KCS Setup' dialog box. The 'Data Export' tab is selected. The 'Name' field is empty. The 'Data export' checkbox is checked. Under 'Export to...', the radio button for 'Export data to file attachment' is selected. The 'Transform data' checkbox is unchecked, and the 'XSLT file' field is empty with a 'Browse' button. The 'Split table' checkbox is unchecked, and the 'Table name' field is empty. 'OK' and 'Cancel' buttons are at the bottom.

Data export: Select if you want to export the captured data to an XML file. You may write it to a separate attachment or to the text body of the export message to KCS.

Transform data: Select if you want to specify an XSLT file to transform the exported data before it is sent to KCS

Split table: Select if the captured document consists of a table and you want to create a KCS message per table entry; you have to specify the table name.

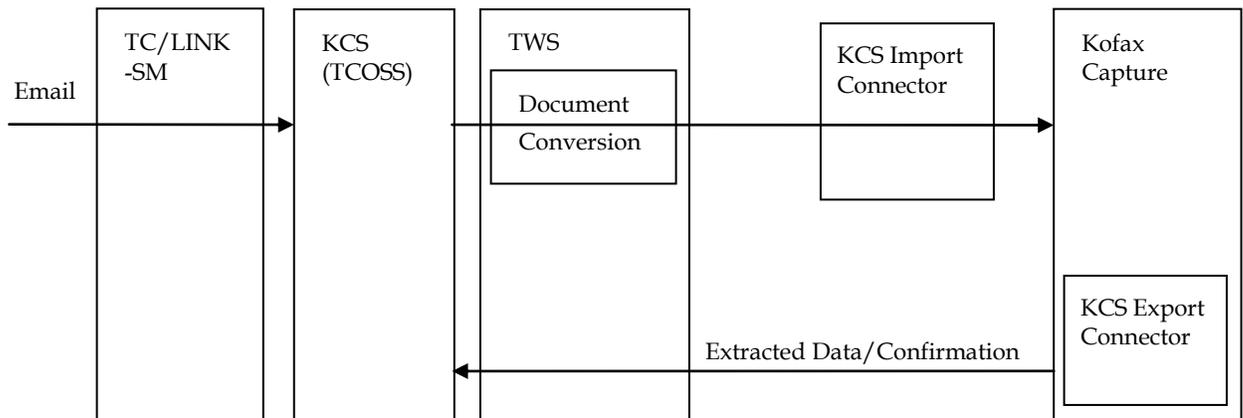
7 Publish the batch class again.

8 Start Kofax Capture Connector.

Use Case: Advanced Email Capture

This chapter shows the steps required to install a complete Advanced Email Capture solution on a Kofax Capture computer.

The diagram shows the components of the solution and the message flow.



TC/LINK-SM receives an email and forwards the message to TCOSS. The KCS Import Connector polls a TCOSS queue via TWS, picks up the message, converts it to TIFF and imports it to Kofax Capture.

The KCS Export Connector sends back the extracted data to TCOSS where it can be further routed to various message systems. Additionally it sends back a confirmation.

6.1 Components

- TC/LINK-SM: This link receives the email either from the Internet or from an internal mail server
- KCS (TCOSS): It is used as a temporary storage and a forwarding hub
- TWS: KCS Web Service interface with document conversion
- KCS Import Connector: Gets KCS messages via TWS and imports them to Kofax Capture
- KCS Export Connector: Kofax Capture plug-in to export data to KCS and send confirmations

Additional components for configuration and monitoring:

- KCS Monitor: This application is used to monitor the KCS components
- TCfW Communication Server Client: This application is needed for configuring the routing from email to Kofax Capture

6.2 Prerequisites

Supported Kofax Capture versions:

- Kofax Capture 9.0 with VRS 4.5 SP1 or higher (KC 9.0 without VRS 4.5 SP1 does not support TIFF with JPEG compression)

Necessary KCS licenses:

- KCS-KCC (Kofax Capture Connector)
- TC/LINK-SM (TC/LINK for SMTP)

Additional prerequisites from TC/LINK-SM:

- For the identification of TC/LINK-SM, select a **full hostname** (e.g. <vm-ms-aec.kofax.com>) first. This must be unique in the area TC/LINK-SM is reachable (for the Internet, you obtain this mail domain name from your ISP (Internet Service Provider); for Intranets, contact the network administrator).
- Make sure that the firewall (if installed) allows SMTP connections to and from the designated TC/LINK-SM server IP address. You can check this with Telnet to "smtp"; if this does not work, contact the local firewall administrator.

Additional prerequisites for document conversion:

- For each document type, an application is necessary that can open and print this document type. Standard document types that are supported are the Microsoft Office documents (Word, Excel, and PowerPoint) and HTML. In order to convert them, Microsoft Office has to be installed. HTML is supported via Internet Explorer.
- This section assumes a currently support Windows Server version computer with Microsoft Office and Internet Explorer installed and each application started at least once. For configuration of document conversion on Windows Server 2008 please see the KCS Document Conversion manual.

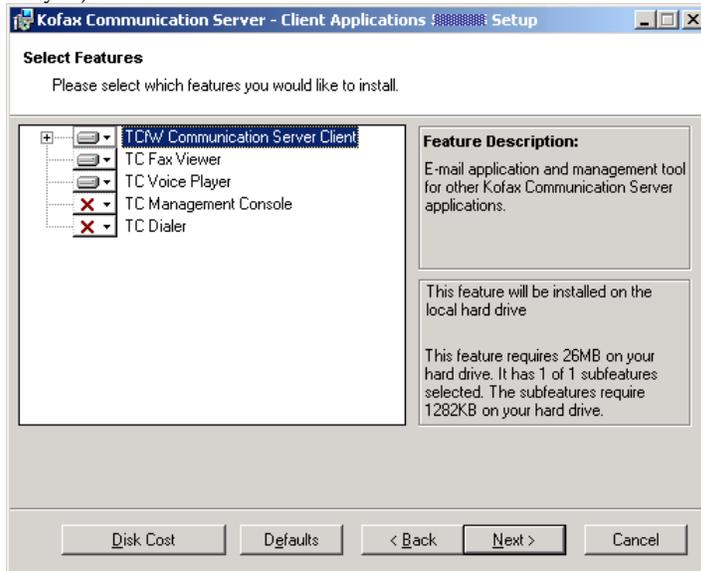
Note: For more details about supported operating systems, refer to Platform System Manual.

6.3 Installation

The following steps guide you through the installation of TCfW, TC/LINK-SM, TCOSS and the KCS Capture Connector. For special requirements please consult the appropriate manual. During our guide, we will use "vm-ms-aec" as the host name which will then also be the name of the KCS server.

6.3.1 TCfW Communication Server Client

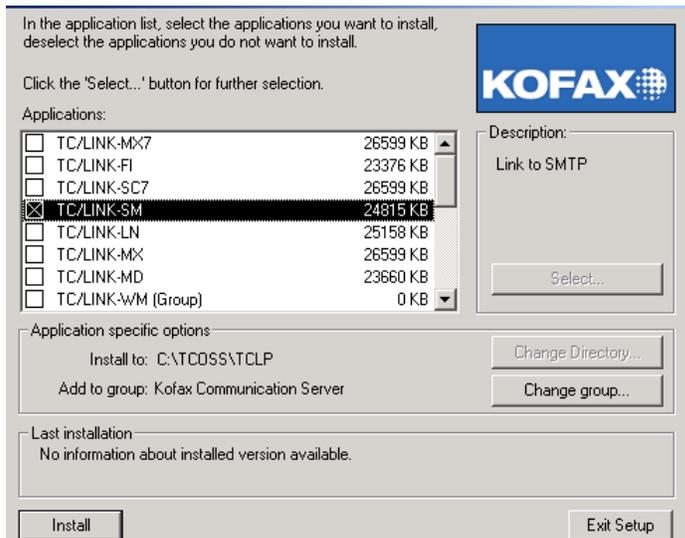
Start the setup of KCS Client Applications setup. Keep the default selection (TCfW, Fax Viewer and Voice Player).



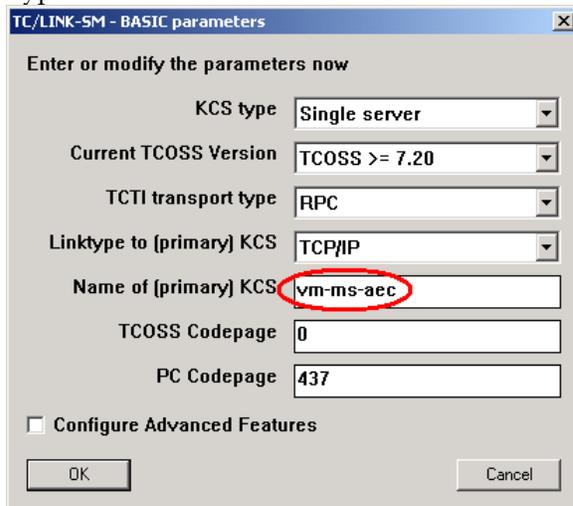
Click Next and finish the installation.

6.3.2 TC/LINK-SM

Start the setup of Kofax Communication Server. Go to Links (Group). Select "TC/LINK-SM". Click Install.

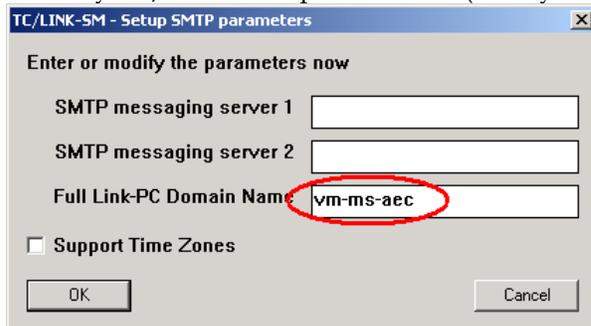


Type “vm-ms-aec” as the name of KCS server. Click OK.



Use default values for all other parameters. Click OK.

The only TC/LINK-SM specific screen (in easy installation mode) is the following:



Type the fully qualified domain name of the computer used when forwarding mails from the customer mail-server to Capture Connector.

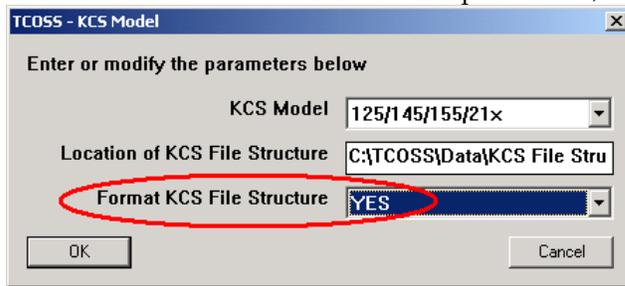
6.3.3 TCOSS and KCS Capture Connector

Start the Kofax Communication Server setup.

Select the following components:

- From the Common (Group) > Administrative Tools (Group): select KCS License Tool – TC/LT and KCS Monitor.
- From the Server Applications (Group) > MAKETCOSS (Group): select default components.
- From the Server Applications (Group) > TCOSS (Group): select default components.
- From the Common (Group) > Application Interfaces and Services (Group): select TWS and KCS – Capture Connector.

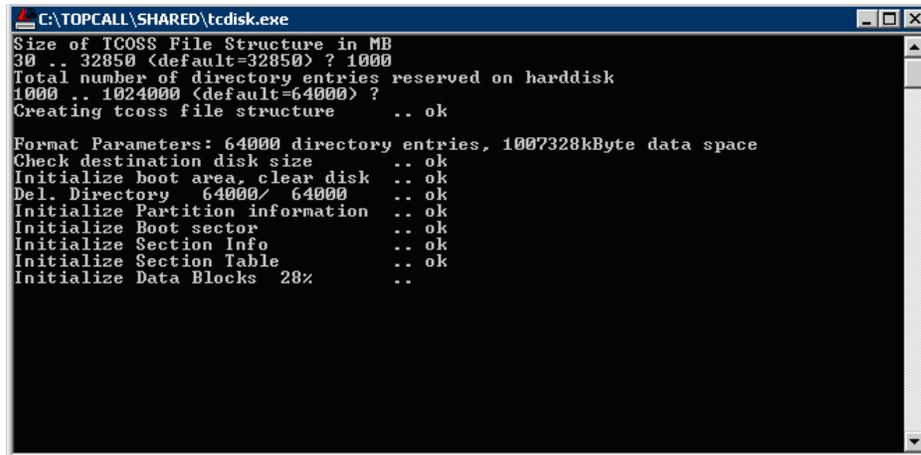
Click OK. Click Install. In the next setup windows, use the default values, except here:



For a first installation, select "YES" in the "Format KCS File Structure" field.

Warning: If you format an existing KCS file structure, all content is lost!

Before the KCS file structure is formatted, specify the size of the file structure. A recommended value would be 1000 MB.



The computer must be restarted after the setup is complete.

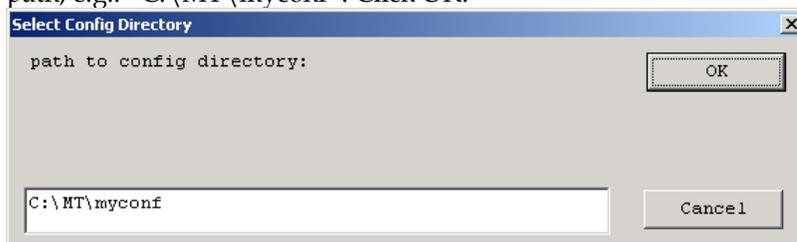
6.4 Configuration

The following steps guide you through the configuration of TCOSS, TWS, TC/LINK-SM, and TCfW. For special requirements please consult the appropriate manual.

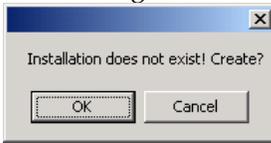
6.4.1 TCOSS

Create a new directory under "C:\MT", e.g., "myconf".

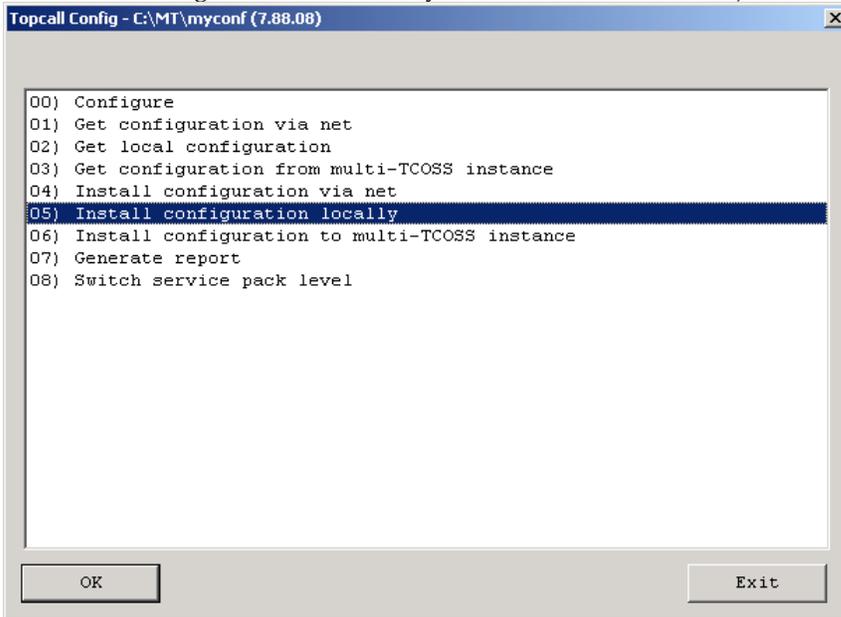
Start WCONFIG (in the Start menu, under Kofax Communication Server) and type the created directory path, e.g.: "C:\MT\myconf". Click OK.



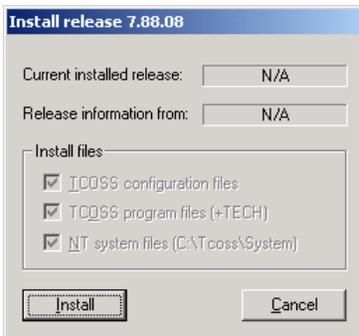
Click OK again to create an installation.



No further configuration is necessary in WCONFIG. Select "05) Install configuration locally".

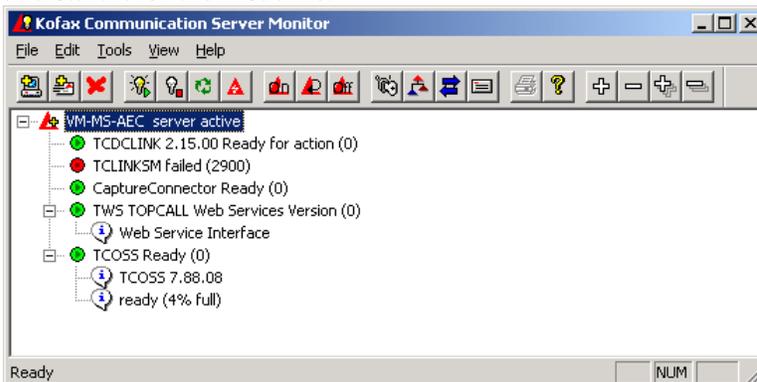


Click Install.



After having installed the configuration, click Exit to leave WCONFIG.

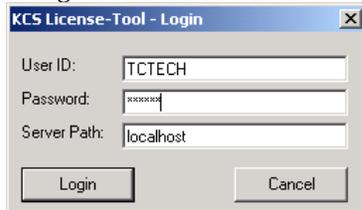
Next, start KCS Monitor (in the Start menu, under Kofax Communication Server). Add your local server and start it for the first time.



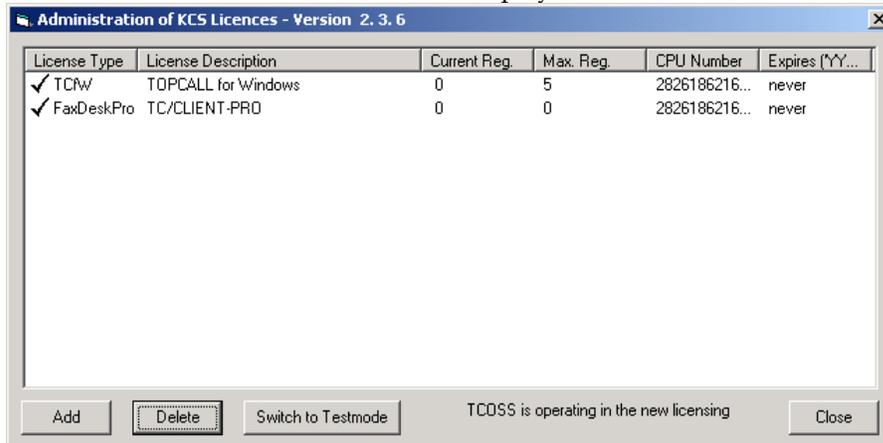
Note: As the licenses are still missing, not all processes will start now.

6.4.2 Licenses

TCOSS must be running to install licenses. Without licenses, system can run in a test mode for 7 days. Start the KCS License Maintenance tool (in the Start menu, under Kofax Communication Server). Log in using the default user “TCTECH”, password “tctech”:

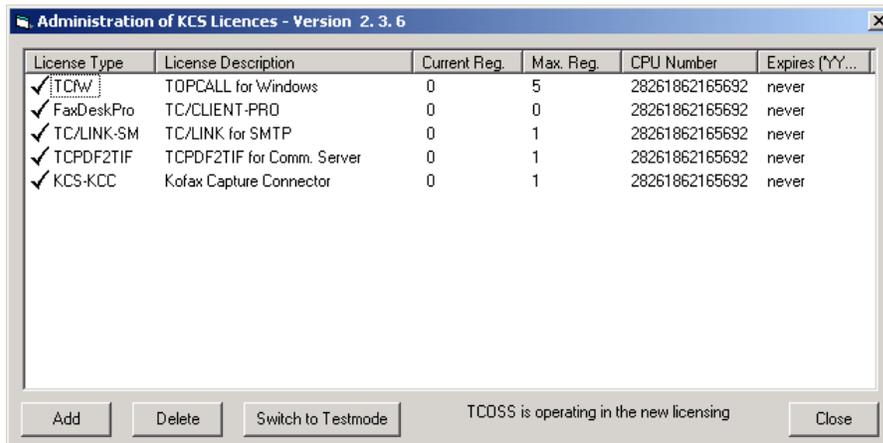


The main window of the license tool is displayed.



Now select one of the options below:

- To activate test mode, click “Switch to Testmode”
- To install proper KCS licenses, click Add and provide licenses for TC/LINK-SM and KCS-KCC.



6.4.3 TCfW Communication Server Client

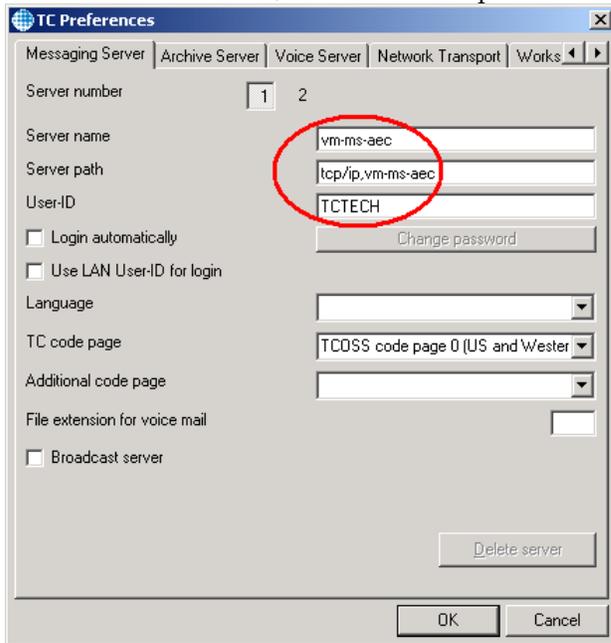
In TCfW Communication Server Client, you have to create a user that receives and forwards messages to Kofax Capture.

Start TCfW (in the Start menu, under Kofax Communication Server).

If this is the first time you start TCfW and no TCOSS server is configured, click OK.

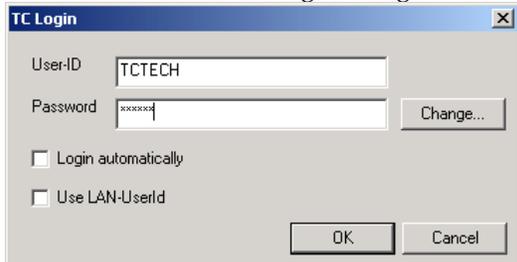


From the Admin menu, select Common preferences and configure your local TCOSS messaging server.



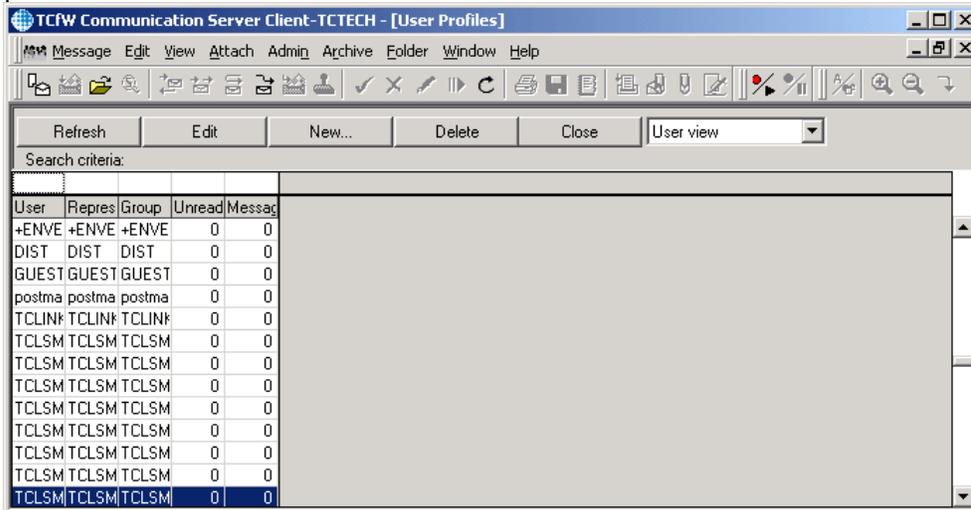
Note If your messages have Umlaut characters in the body of messages, that are imported in Kofax Capture, select "UTF-8" in "TC code page".

Close TCfW and start it again. Log in as the "TCTECH" user (default password "tctech").

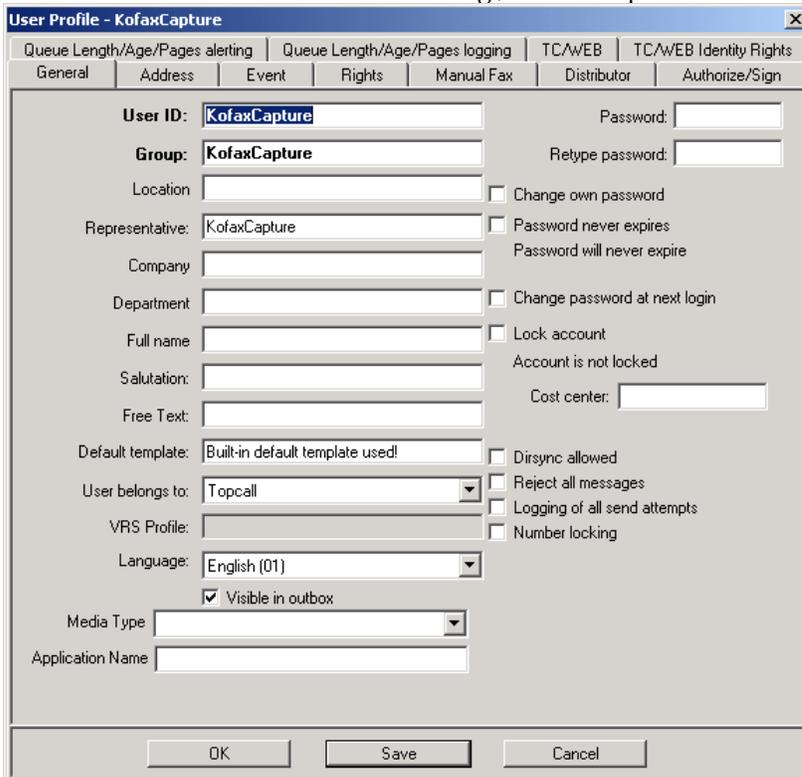


6.4.4 KCS User for Kofax Capture

You need to create a queue user on KCS who receives messages for Kofax Capture. In TCfW, select User profiles from the Admin menu.



Click New to create a new user. Call it e.g., "KofaxCapture". Select "Visible in outbox".



In the Address tab, create a TOPCALL address with the same name. Click Save Addr.

User Profile - KofaxCapture

Queue Length/Age/Pages alerting | Queue Length/Age/Pages logging | TC/WEB | TC/WEB Identity Rights

General | **Address** | Event | Rights | Manual Fax | Distributor | Authorize/Sign

Service: **TOPCALL** | Addr. no.: 1 | Active

User ID: | Delete Addr

Node: | Save Addr

Active	No	Service	Number
X	1	TOPCALL	KofaxCapture

OK | Save | Cancel

Click OK and close TCfW.

6.4.5 TCOSS Web Services

The TWS interface has to be configured to connect to the local TCOSS.

Start Configure TCOSS Web Services (from the Start menu, under Kofax Communication Server).

Configure the Message Server Path. Clear the Archive Server Path.

KOFAX | **TCOSS Web Services Configuration**

Save | Exit | Advanced

TCOSS

Message Server Path: Path to your actually used TCOSS Server e.g. TCP/IP,MyServer

Archive Server Path: Path to your actually used TC/Archive Server e.g. TCP/IP,MyServer:ARCHIVE

Server Codepage: TCOSS system codepage, 0 = Western Europe, 1 = Eastern Europe, 932 = Japan, 65001 = Unicode

User ID: The user ID can be configured for automatic log in to TCOSS or TC/Archive without HTTP basic authentication

Password: Password of user set above

Fax Service: The TCOSS service for outgoing faxes, used by the SendFax function

HTTP Settings

File Types Converted via TCIMGIO

Document Conversion

PDF Printer Settings

Advanced

100%

Click Save and Exit configuration.



6.4.6 TC/LINK-SM

Start the Windows registry editor.

KCS Capture Connector takes always the original representation of the message content (Except if there is a TIFF or PDF alternative and KCS Capture Connector is configured to check the alternative content and to convert to TIFF or PDF). Make sure you set the registry value HTMLAsAlternative is set to "1". This will set the HTML body representation as original content:

```
HKLM\Software\TOPCALL\TCLINKSM\TCMIME\HTMLAsAlternative = 1
```

In order to set the messages that cannot be forwarded to Kofax Capture to "Invalid - Problems" rather than "Cancelled", set the following registry values:

```
HKLM\Software\TOPCALL\TCLINKSM\Topcall\DelEntNeg = 0
HKLM\Software\TOPCALL\TCLINKSM\Topcall\DelEnvNeg = 0
```

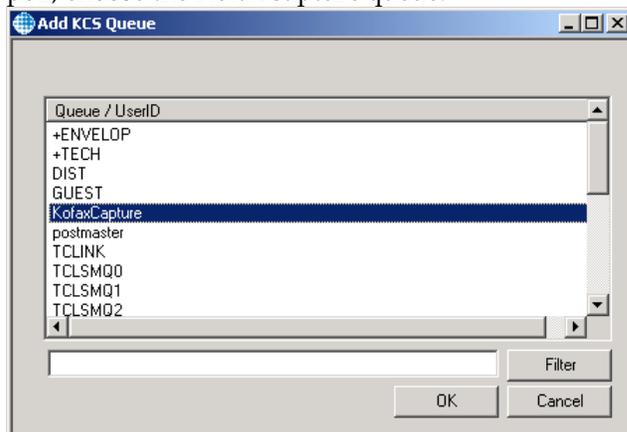
If cover sheets should be used, configure TC/LINK-SM to start the HTML message body on the cover page, by adding the following lines to registry value General\AltImgOnFirstPage:

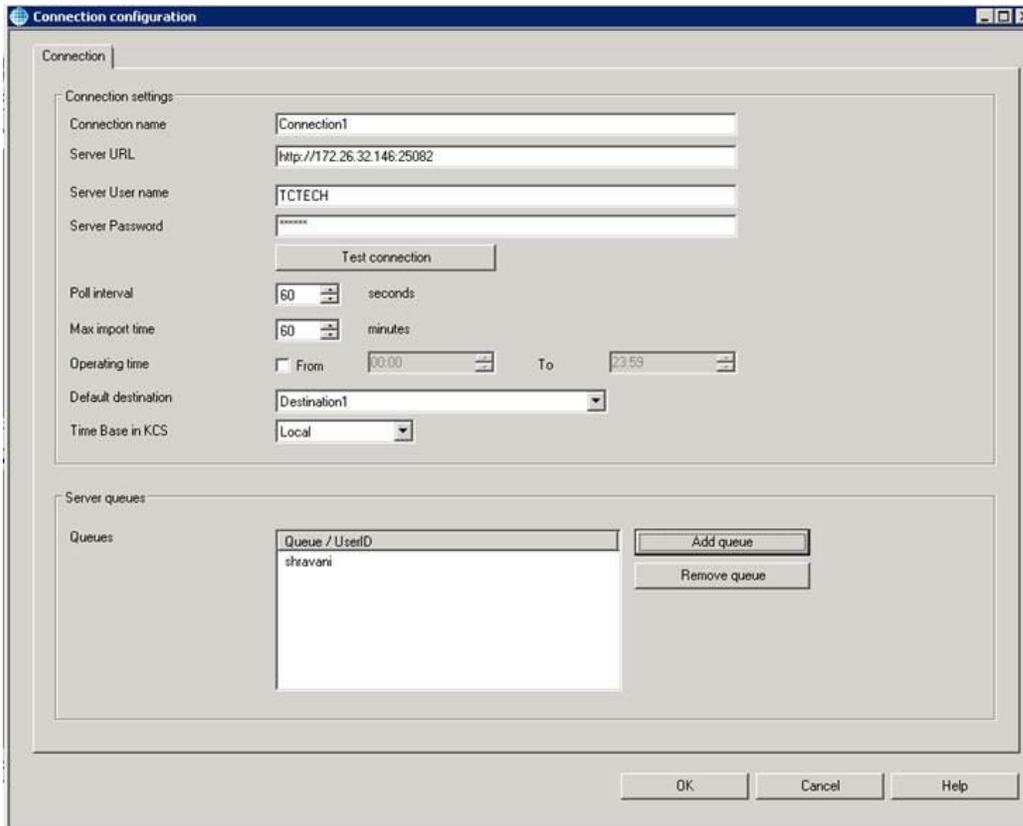
```
HTML,100,100,4
HTM,100,100,4
```

6.4.7 KCS Capture Connector

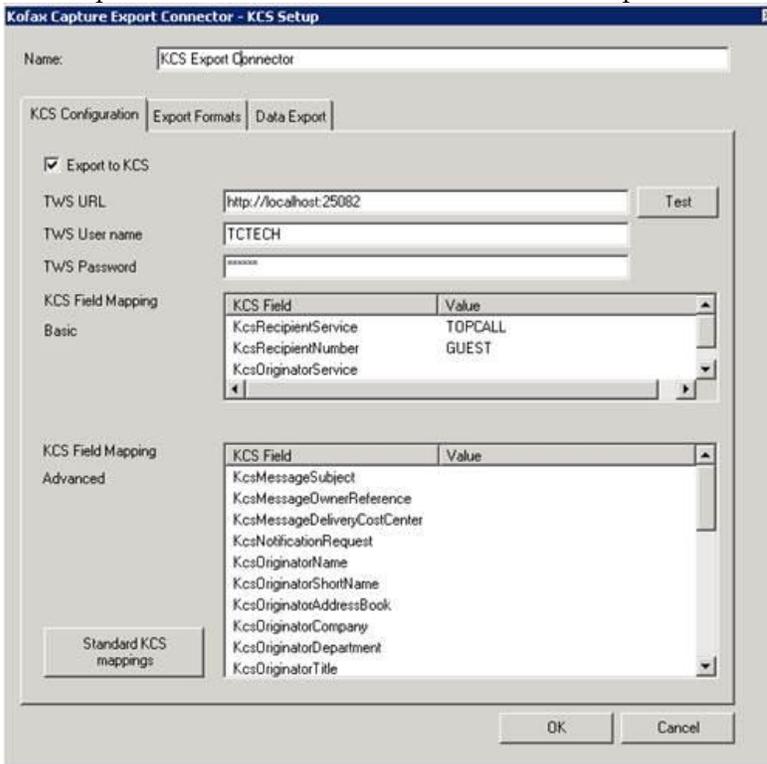
Use the following basic configuration of the KCS Capture Connector. For importing the example batch classes and further information see chapter *Configuration* in this manual.

KCS Import Connector: Use the SingleMessageConnection template and configure the KCS queues to poll; choose the KofaxCapture queue.





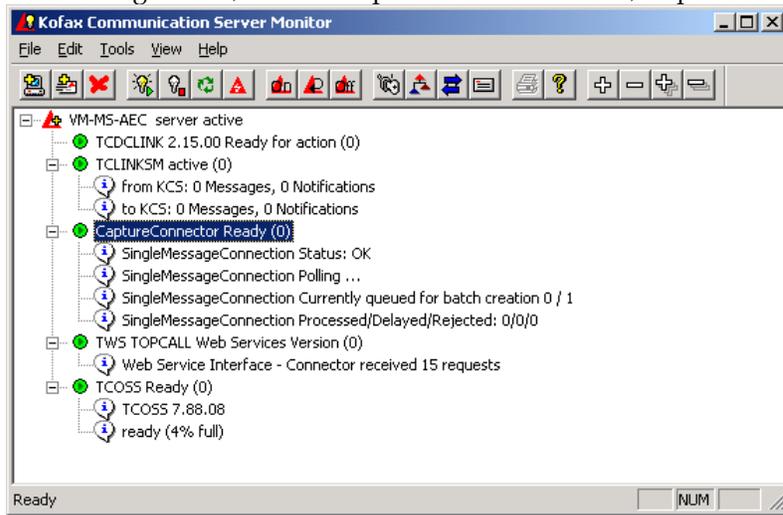
From the KcsSingleMessageBatch batch class, configure the KCS Export Connector; set the KcsRecipientService to “TOPCALL” and the KcsRecipientNumber to “GUEST”.



Publish the KcsSingleMessageBatch batch class.

6.4.8 Restart Processes

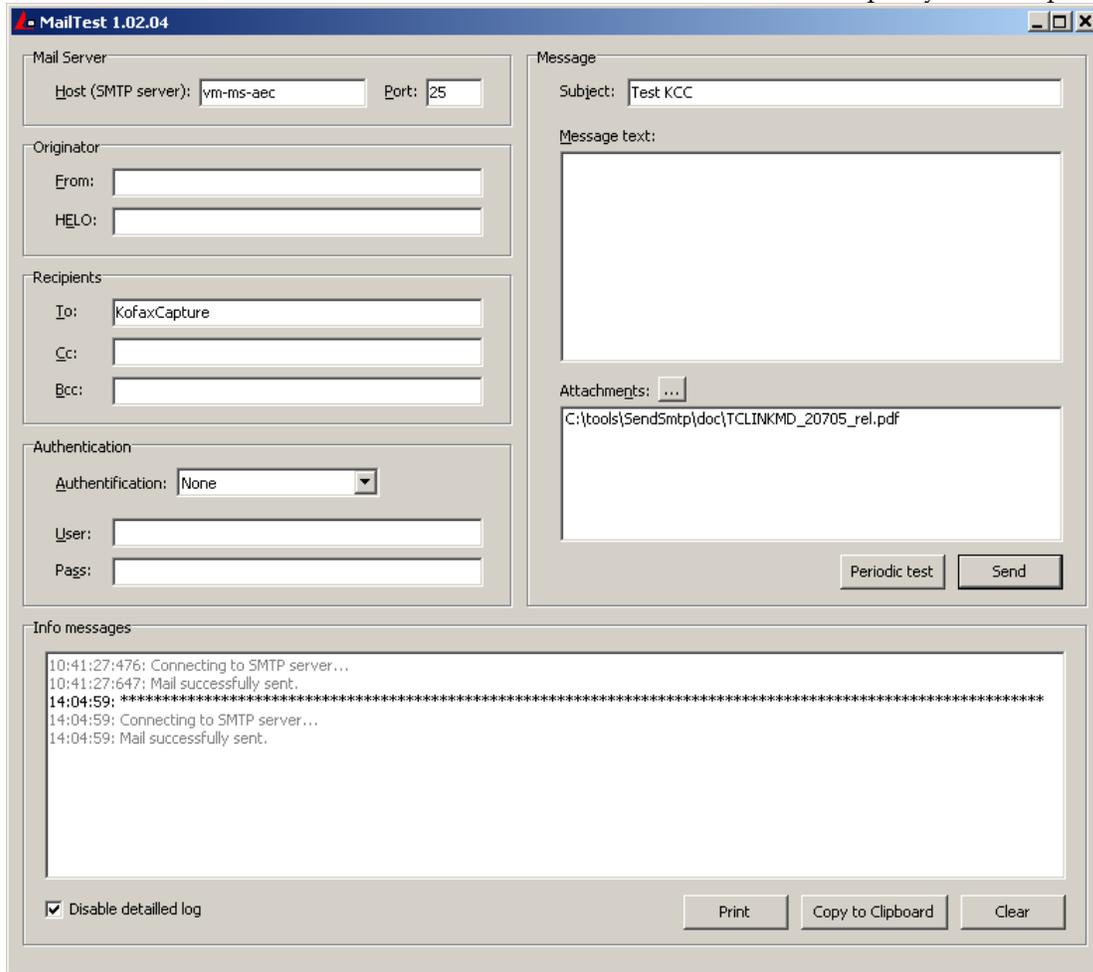
After configuration, restart the processes TCLINKSM, CaptureConnector, and TWS via KCS Monitor.



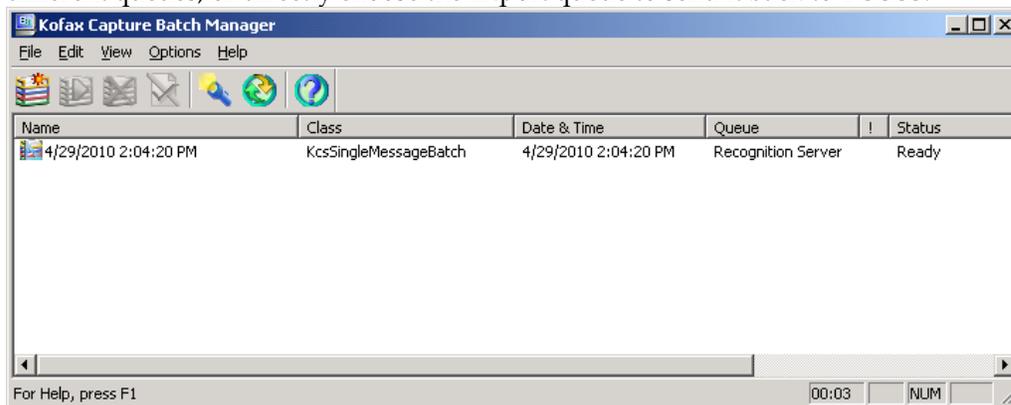
6.5 Test Sending Email

Now you can send a test email with one of the attachment types the document converter supports (TIFF, WinWord, Excel, PowerPoint, HTML, and with the PDF license also PDF). You can use any email tool to send the email.

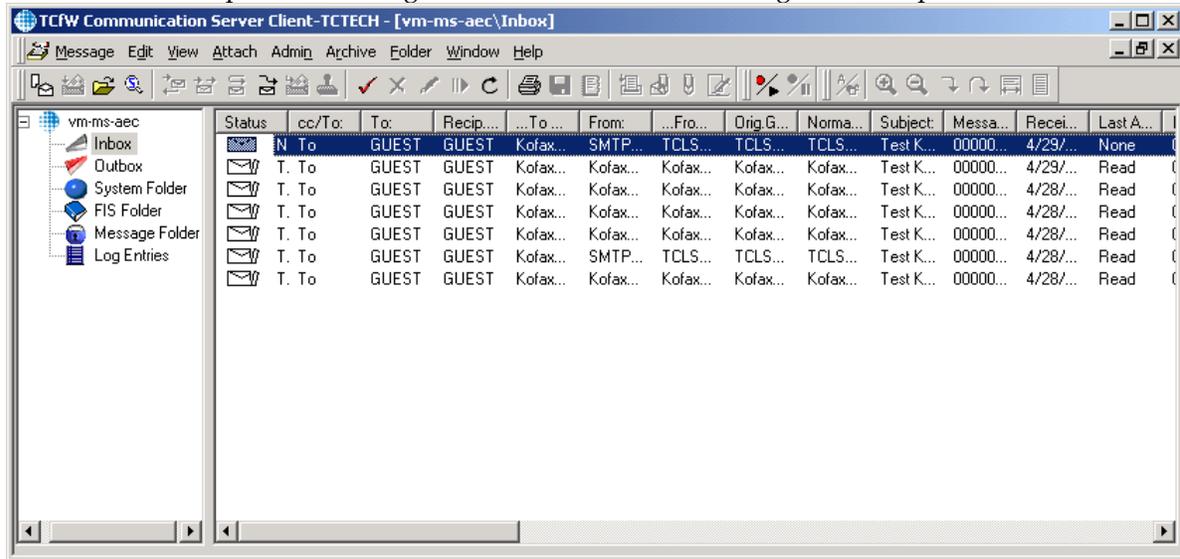
Send an email with attachment to the SMTP host vm-ms-aec; as address specify KofaxCapture.



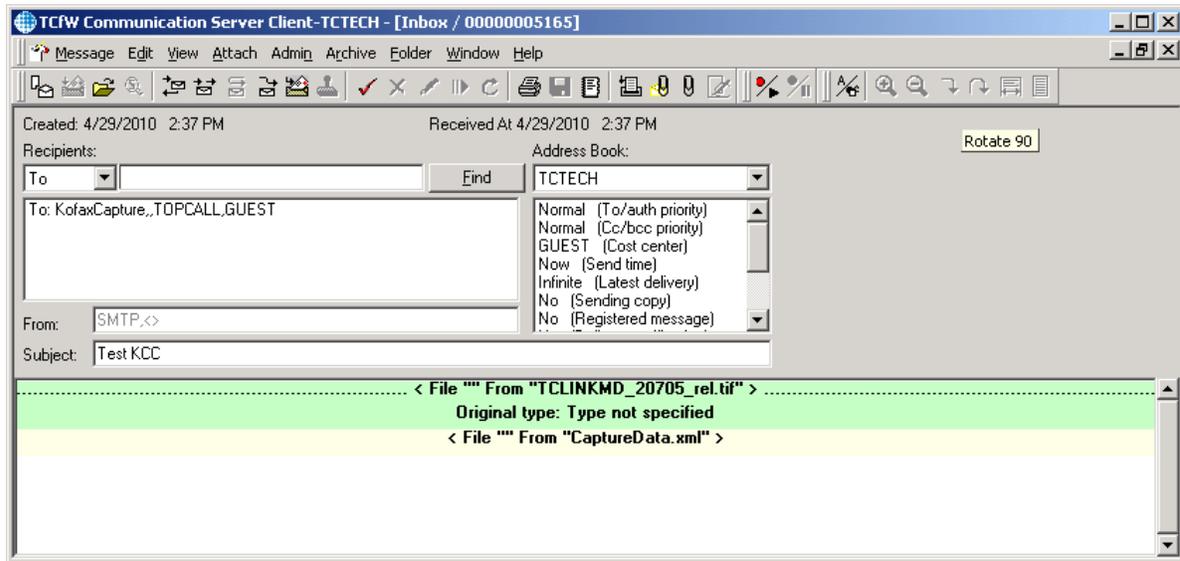
In the Kofax Capture Batch Manager, you see the new batch job. You may route it now through the different queues, or directly choose the Export queue to send it back to TCOSS:



After successful export, the message arrives at TCOSS in the configured user queue.



The message consists of an image file and an XML file containing the Kofax Capture values, batch and index field values.



6.6 Migrating from TC/LINK-CCD to KCS Capture Connector

6.6.1 Batch Classes

If you plan to use your own batch classes (old Link CCD batch classes), make sure to check if you need the KCS Capture Connector system fields. See *KCS Capture Connector System Fields* for more details. The old Link CCD system fields (e.g. C1 and C2) are not used anymore and have to be removed.

Note: The fields C1 and C2 of the TC/LINK-CCD example batch are by default set to “required” – so if they still are present batch import with KCS Import may fail. Make sure that you configure your batch and document classes appropriately.

6.6.2 Export Connector/Release Script

Reconfigure the batch classes to use the new Export Connector. Remove the TC/LINK-CCD TC Release Script for each document class you are using and add KCS Export instead.

If you do not use the example batch classes, make sure that you map valid fields – using the standard KCS mappings will not work. For successful export to KCS, “KCS Field Mapping Basic” has to be set to correct values.

See *Configuring Export Connector in Kofax Capture* for configuration details.

6.6.3 KCS KofaxCapture User

When using the same KCS user for forwarding messages from TC/LINK-SM to KC, then you have to remove the In-Event that forwards messages to this user.

6.6.4 Document Conversion

KCS Capture Connector provides a configuration option that allows to check for TIFF or PDF alternatives. So, you can continue using UCIDTIFF at the TC/LINK-SM side and/or you can convert documents at the KCS Capture Connector side. Further, you can choose at the KCS Capture Connector

side to convert any non-image document and/or to “normalize” tiff images as well. See *Configuring Destinations for Imported Documents* for more details.

To continue using the document conversion in TC/LINK-SM, set the `Kofax_FetchAlternativeIfAvailable` parameter in the Import Connector to true. See *Customizing Additional Parameters* for more details.

Otherwise, the Import connector will not check for alternative already converted content, but start the Document Converter for binary files if conversion to TIFF or PDF is requested. In this case you may want to disable Document Conversion of TC/LINK-SM if no other destination needs it.

Disabling conversion to Fax image (TCI):

```
HKLM\Software\TOPCALL\TCLINKSM\General\AltForceBinToTci = 0
```

Disabling conversion to PDF:

```
HKLM\Software\TOPCALL\TCLINKSM\General\AltForceBinToPDF= 0
```

Disabling conversion to TIFF:

```
HKLM\Software\TOPCALL\TCLINKSM\General\PrintUsecaseFile = ""
```

Alternatively you can change the destination addresses in the referenced use case file for TIFF printing.

6.6.5 Batch Collector

If you want to use the batch collector functionality in KCS Capture Connector, configure the number of messages in a batch and a timeout in the KCS Capture Configuration. See *Configuring Destinations for Imported Documents* for more details.

6.6.6 Other TC/LINK-SM Considerations

See *TC/LINK-SM* for further specific TC/LINK-SM settings.

6.6.7 Removing TC/LINK-CCD

Finally you may want to deactivate TC/LINK-CCD. You can do that by removing the string “TCCCD” from the following Multi-String registry key:

```
HKLM\Software\TOPCALL\Boot\Startup
```

From the next start of TCSRVR, TC/LINK-CCD will not be part of the KCS service processes any longer.

Operation and Maintenance

7.1 Starting and Stopping the Import Service

The Capture Connector – Import service must be restarted after each configuration change to make the changes effective.

- 1 Start **Kofax Capture Connector** configuration:
 - On a KCNS remote site, start Kofax Capture Connector.
 - On other Kofax Capture installations, start Kofax Capture Administration. On the KCS tab, click **Kofax Capture Connector**.
- 2 On the **Assistance Tasks** menu, click one of the commands:
 - Restart Service
 - Start Service
 - Stop Service

Note If no connection is marked active, the Capture Connector – Import service does not start.

7.2 Logging

For logging the standard library log4net is used. By default, log files are written in the Application Data part of the All Users section: <appdata>\Kofax\KCS\Capture Connector\log

On Windows Server 2008 and later, <appdata> is C:\ProgramData.

There is a log file for each module, additionally separated also by configuration and operation.

The configuration file for the log library can be found here:

<appdata>\Kofax\KCS\Capture Connector\LogConfig\log4net.config

By default the log level is set to “INFO”. For debugging change the line

```
<level value="INFO" />
```

to

```
<level value="DEBUG" />
```

Additionally, you may change size and number of log files. The log file size is limited by size and number. There is only one configuration for all Capture Connector modules.

7.3 Support for Other Languages

KCS Capture Connector is available in nine languages: English, French, German, Italian, Japanese, Portuguese (Brazilian), Russian, simplified Chinese, and Spanish.

- 1 Install a localized version of Kofax Capture.
- 2 Install KCS Capture Connector.

- 3 Start KCS Capture Connector configuration and click **Language** on the Assistance Tasks menu to select your preferred language. The language of Windows and Capture Connector must be the same.
- 4 To support characters not included in default code page in TC/LINK-SM, modify the following registry keys:

- TCLINKSM\Topcall\CodePage
- TCLINKSM\General\PCCodePage

Recommended values are

- "0" - default; western European languages
 - "1" - eastern European languages
 - "932" - Japanese
 - "936" - simplified Chinese
 - "1251" - Russian
- 5 To support characters not included in default code page in TCOSS, use WConfig's line editor to modify config line 10, position 3 and 4. Recommended values are:
 - "00 00" - TCOSS 0 (default; western European languages)
 - "00 01" - TCOSS 1 (eastern European languages)
 - "03 A4" - Japanese (decimal 932)
 - "04 E3" - Russian (decimal 1251)
 - "03 A8" - Chinese (decimal 936)
 - 6 To support characters not included in default code page in TWS, start "Configure TCOSS Web Services" and modify Server Codepage. Recommended values are:
 - "0" - default; western European languages
 - "1" - eastern European languages
 - "932" - Japanese
 - "936" - simplified Chinese
 - "1251" - Russian
 - 7 To change the language of the user interface in TCfW and to display message content properly:
 - In Windows Control Panel | Regional and Language Options, configure the settings on tabs "Regional Options" and "Advanced" (on Windows 7, it is "Location" and "Administrative" tabs)
Note: For Windows 10, go to "Start Menu" and select Settings | Time & Language and select Region & language on the left pane, and then click "Add a language" on the right pane. You may need to install the respective language pack if the desired language is not available.
 - In TCfW, configure the language of user.
 - In Messaging Server preferences, configure the server language (and code pages, if appropriate)
 - In Workstation preferences, configure the PC code page (if appropriate)

For more information about language support in TCfW, see section *Language Files Overview* in the *Client Package Administration Manual*.

Hints and Restrictions

8.1 Hints

8.1.1 Tag Names of Exported Data

The batch and index field names are transformed to valid XML tag names. Invalid characters are removed. Allowed characters are letters, digits, ".", ":", "-", "_".

8.1.2 Kofax Capture Folders

Kofax Capture Folders may be used and are exported as index fields. The tag names have the format <FolderName.FieldName>; see the following XML snippet example:

```
<IndexFields>
  <Firstname>MARTIN</Firstname>
  <Lastname>JANEWAY</Lastname>
  <KcsFolderTest.FolderField1>Folder Value 1</KcsFolderTest.FolderField1>
  <KcsFolderTest.FolderField2>Folder Value 2</KcsFolderTest.FolderField2>
</IndexFields>
```

8.1.3 Notification to KCS/Confirmation of KCS Message

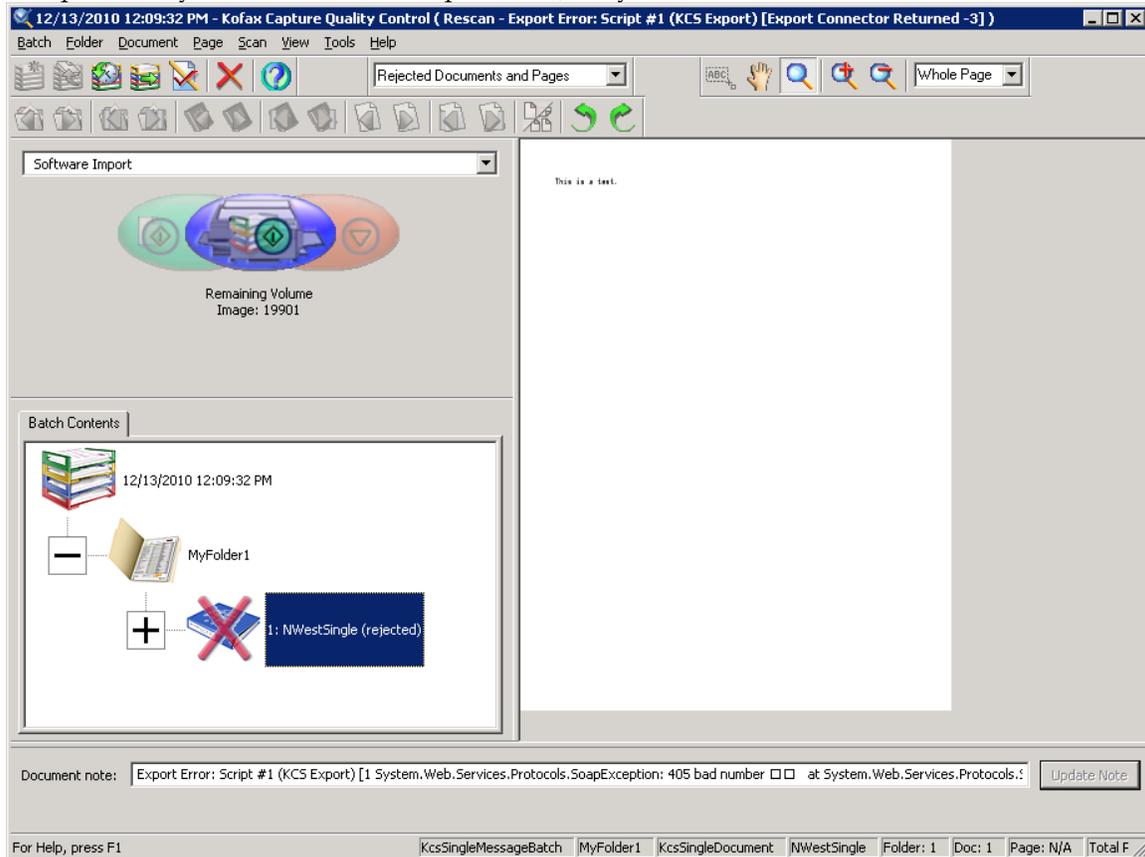
Depending on the configuration of the KCS Connector (KCS Import) it is either possible to confirm the message immediately after it is imported to Kofax Capture, or only after it is exported or deleted from one of the Kofax Capture Queues.

If you choose set leave messages unconfirmed setting checked, the KCS Export has to be configured (also if no file or data is exported to KCS); this is needed to confirm the KCS send order (message).

Note: For the confirmation of the KCS message by KCS Export or from one of the Kofax Capture Queues, the two batch or index fields "KcsConnectorNotificationTwsUrl" and "KcsConnectorNotificationCorrel" are necessary. They are present in the default batch classes of the KCS Connector and are filled automatically by KCS Import.

8.1.4 Export Connector Errors

If Export fails, you see an error description in Quality Control – Document note:



A typical error is that recipient or originator (number and service) are not set to valid users/services of your KCS. You have to correct that in the Export configuration – KCS Field Mapping Basic, publish again the batch class and import a new message.

8.1.5 Image Normalization

The following rules are used for handling the resolution and dimension. The first matching rule governs the conversion:

- 1 If the resolution of an incoming image matches the requested resolution, the image is not changed.
- 2 If the x and y resolutions differ, the image is resampled to the requested resolution (nonquadratic pixel case).
- 3 If the resolution value is most likely wrong, it is set to the requested value without resampling the image. This will change the printing size of the image. Such images are not resampled in order to avoid quality loss. A wrong resolution is expected if one of the following conditions are true:
 - The resolution is below 96 dpi. (ImageMagick returns 72 dpi if the resolution is not set.)
 - The resolution exceeds 200 dpi and the width is less than 1500 pixel (19.5cm@200dpi).
 - The resolution exceeds 200 dpi and the height is less than 2000 pixel (25.4cm@200dpi).
- 4 If the resolution is higher than requested, the image is down-sampled to the requested resolution.

- 5 If none of the listed rules applies, the image conversion depends on the configuration in the script file `image2tif.bat` in the folder `C:\Program Files (x86)\Kofax\KICED\MC\Scripts`. Open the file with a text editor and change the value in the line `Set ResetResolution=0`. The following values are supported:
- 0: Resample image and change resolution. This is the default option. Image file size is increased without improving image quality. Resampling can be a time-consuming operation that often results in lower performance.
 - 1: Change the resolution without resampling. This reduces the print size of the image.
 - 2: Image is not changed. Best performance.

8.1.6 PDF Normalization

In Destination Configuration feature of Capture Connector, the option to convert the message content to PDF actually converts all non-PDF parts of the message to an ISO-standardized version of PDF, the PDF/A. Additionally, Capture Connector can also convert PDF parts to PDF/A.

Note the following:

- If **Microsoft Office** is selected as conversion tool in **MS Office Documents**, conversion of excel documents will result in PDF documents rather than PDF/A documents.
- Conversion to PDF/A depends on the normalization capability of Aspose, the third-party tool used in Capture Connector. Given that and the complexity of the PDF/A document conversion in general, it cannot be guaranteed that compliance to PDF/A is achieved by 100 % for every converted document.

8.1.6.1 Enabling Conversion from PDF to PDF/A Documents

To normalize PDF documents to PDF/A format, do the following:

1. Configure a destination. See [Configuring Destinations for Imported Documents](#) for the general procedure.
2. On the **Advanced Conversion and Import** tab, select **Normalize PDF documents to PDF/A**.
3. Click **OK** to save changes.
4. Click **Restart Service**.

8.1.6.2 Configuring PDF Variant

You can select one of several supported PDF variants by editing a batch file.

1. Open the folder `C:\Program Files (x86)\Kofax\KCS\Capture Connector\Scripting` (assuming default installation path on a 64-bit operating system).
2. Edit the file `KFXConverter.bat` in a text editor.
3. Configure the type of PDF produced when converting non-PDF documents to PDF:

Note: This step requires if you are using Kofax Converter for the conversion. If you are using a different converter, for example Microsoft Office, this setting does not modify the converted PDF type.

- a. Find the line `IF %ConvertToType%=="PDF/A" (`.
- b. Edit the line immediately below `set ConvertToType="PDF/A1B"`. The following values are supported:
 - PDF
 - PDF/A1A
 - PDF/A1B (default)

- PDFA2B
4. Configure the type of PDF produced when normalizing existing PDF documents:
 - a. Find the line `IF %ConvertToType%=="PDFAn" (.`
 - b. Edit the line immediately below set `ConvertToType="PDFA1BN"`. The following values are supported:
 - PDF (disables PDF normalization)
 - PDFA1AN
 - PDFA1BN (default)
 - PDFA2BN
 5. Save the file and close it.

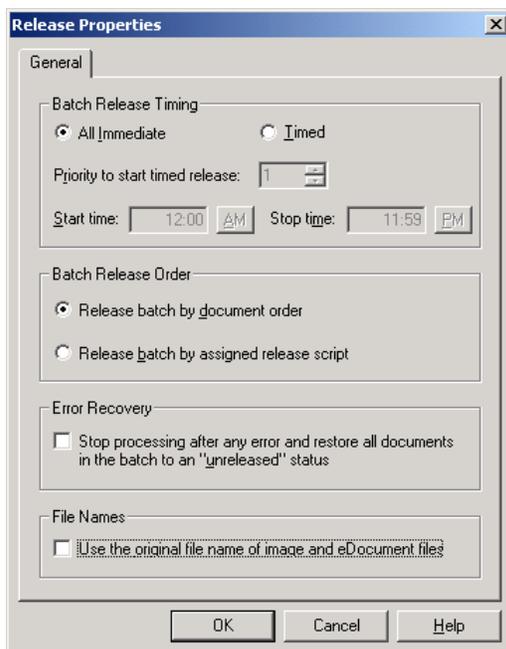
8.2 Restrictions

8.2.1 Deletion of Batch Jobs

If KCS Import is configured to leave KCS messages unconfirmed, KCS batch jobs must not be deleted from the Kofax Batch Manager. They have to be deleted from one of the Kofax Capture Queues. If you delete them from the Kofax Batch Manager, a notification cannot be sent to KCS as the batch deleted event is not supported in the Kofax Capture Batch Manager.

8.2.2 Single-Page Image Formats and “Use Original File Name”

The Kofax Capture setting “Use the original file name” is only allowed with Multipage TIFF formats. If you need to release single page image formats, please go to the Release Properties (Batch Class/Properties/Queues/Release/Properties) and unselect “Use the original file name of image and eDocument files”:



The files exported to KCS will no longer contain the original file name.

Background:

The Kofax Capture method Images.Copy does not work with “Use original file name” and single page TIFF formats, as files would be overwritten during export; this copy method is however necessary as this performs the conversion to other image formats.

8.2.3 Multipage Handling

Kofax Capture imports all image files as single page TIFF files. Depending on configuration and recognition multiple pages may be exported as one message. It is possible to export the images as single page image files, or as one multipage TIFF file in the message to KCS.

Consequently, if Capture Connector – Import puts one message with two attachments to Kofax Capture and no recognition is performed to split these documents, these documents are (depending on export configuration) either exported as single pages or as one merged multipage file attached to a KCS message.

8.2.4 Restrictions for Windows Server 2008 64-Bit Version

Please see the *KCS Document Converter* manual.

8.2.5 Process Documents as Independent Batches

When the “Process documents as independent batches” setting in the batch class configuration is checked, this implies that a separation method running in the scan module is used. Kofax Capture triggers the separation in the moment when an image is added to the batch and creates individual batches from the separated documents. After that, the reference to the original batch (batch before separation) is lost. Therefore, several restrictions apply when using this setting:

- Only one image per batch can be imported and this image is separated into Kofax Capture documents; If there are more images in a message KCS Capture Connector will turn off “Process documents as independent batches” for that batch
- Only single message batches can be created, and each message has to have only one image. If you configure a connection to have more messages per batch KCS Capture Connector will discard the setting and use the default of 1 message per batch
- With “Process documents as independent batches” turned on, KCS – Capture Connector has to log on and off from Kofax Capture after the creation of every batch and this will have also a significant performance impact to message processing

8.2.6 Coversheets

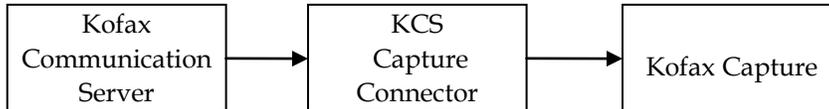
Coversheets are not supported by the KCS Import Connector.

8.2.7 Conversion of Text Body

Message body in text format ignores the configured conversion settings. It is always converted to a black and white image with fax resolution (204 x 196).

Performance

This chapter illustrates the document conversion performance for KCS Capture Connector.



Following configuration was used to perform the tests:

- The Kofax Communication Server sent emails with Microsoft Word attachments to a queue user configured in the KCS Capture Connector.
- In KCS Capture Connector, the attachments were converted to TIF or PDF. The tests include various output formats: 200x200 DPI and 300x300 DPI, black & white and color.
- In Kofax Capture, the messages were imported into a batch class and visible in the configured queues: scan, recognition and export.
- To measure the performance of Kofax Capture, the recognition service was started when all the messages were in the batch manager.

9.1 Test Environment

	Hardware	Operating system	Applications	Network
Kofax Communication Server	Intel® Xeon® CPU E5-2640 0@2.50GHz 2.49 GHz with 12 GB RAM	Windows Server 2008 R2 SP2	KCS 10.2 Single TCOSS server	Gigabit network
KCS Capture Connector I	Intel® Xeon® CPU E5-2640 0@2.50GHz 2.49 GHz with 12 GB RAM	Windows Server 2008 R2 SP2	KCS 10.2 TWS	
KCS Capture Connector II	Intel® Xeon® CPU E5-2640 0@2.50GHz 2.49 GHz with 12 GB RAM	Windows Server 2008 R2 SP2	KCS 10.2 with TWS installed on a Windows Server 2012 R2	
Kofax Capture	Intel® Xeon® CPU E5-2640 0@2.50GHz 2.49 GHz with 12 GB RAM	Windows Server 2008 R2 SP2	Kofax Capture Standalone 10.2.0 – KCS 10.2 Capture Connector Plug-in	

9.2 Test Result

Following table illustrates the document conversion throughput when one Capture Connector is installed on one computer and two Capture Connectors (load balancing scenario) installed on one computer.

Test document	Pages	Document size (in KB)	Output file resolution	Output file type	Throughput with one connector (pages/hour)	Throughput with two connectors (pages/hour)
Single page Word document	1	12	200 DPI B/W	TIF	726	744
Multi page Word document	5	172	200 DPI B/W	TIF	3840	4314
Single page Word document	1	12	200 DPI Color	TIF	704	719
Multi page Word document	5	172	200 DPI Color	TIF	2777	4104
Single page Word document	1	12	300 DPI B/W	TIF	734	722
Multi page Word document	5	172	300 DPI B/W	TIF	3494	4392
Single page Word document	1	12	300 DPI Color	TIF	707	780
Multi page Word document	5	172	300 DPI Color	TIF	2070	3582
Single page Word document conversion	1	12	NA	PDF	652	727
Multi page Word document conversion	5	172	NA	PDF	3909	4284

9.3 Conclusions

TIF: Single page versus multipage attachment

- It is possible to convert 3840 pages per hour (converted to 200 DPI B/W TIF) for multi-page DOCX files; whereas, the conversion throughput reduces by a factor of five for single page DOCX files.
- In a load balancing scenario, there is improvement in throughput.

TIF: Color versus Black & White

- The single page DOCX files conversion to TIF with 200 DPI B/W is almost same as compared to TIF with 200 DPI color (726 vs. 704 pages/hour);
- Multi-page DOCX files conversion to TIF with 200 DPI B/W is 1.3 times higher as compared to TIF with 200 DPI color (3840 vs. 2777 pages/ hour).
- In a load balancing scenario:
 - The multi-page DOCX files conversion to TIF with 200 DPI B/W is almost same as compared to TIF with 200 DPI color (4314 vs. 4104 pages/ hour).
 - The single page DOCX files conversion to TIF with 200 DPI B/W is almost same as compared to TIF with 200 DPI color.

TIF: 200 DPI versus 300 DPI

- For B/W TIF, the conversion throughput is almost the same.
- For color TIF, the conversion throughput for 200 DPI is 1.2 times higher than for 300 DPI.
- For color TIF, the conversion throughput in case of load balancing scenario is 1.3 times higher than for single instance.

Conversion to TIF versus conversion to PDF

- The PDF conversion throughput is almost same for TIF conversion. The output file resolution does not impact the overall conversion throughput.

References

Manual	Purpose
TWS Manual	TWS workflows
TNC DocConv Technical Manual	Technical details of TWS integration
TC/PDD User Manual	Printer driver issues