

Kofax Communication Server

KCS Document Conversion Technical Manual

Version: 10.2.0



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Introduction

1.1 Purpose

This manual describes the document conversion features of KCS links and KCS web services (TWS). Document conversion means the conversion of a file to one of the formats TCI (KCS fax image), TIFF or PDF.

Document conversion is needed if further processing of a file requires one of these formats. For example, KCS fax channels need TCI format, Kofax Capture needs TIFF or PDF files.

This manual describes the following main conversion methods:

- Image conversion to TCI using imgio
- Document conversion via printer driver
- Document conversion via Kofax Converter

1.1.1 Third Party Licenses

The Kofax Communication Server (KCS) offers an open interface that enables the integration of any third party application for format conversion (e.g. MS Office, PDF) but Kofax is not responsible for support and licensing of any product that has not been purchased from Kofax.

1.2 Usage

The document converter is currently part of the following applications:

- TC/LINK (TC/LINK Document Converter – TCDCLINK)
- TWS (TWS Document Converter – TWS DocConv)

The operation and configuration of the document converter modules in TC/LINK and TWS is independent from each other. For compatibility reasons, TWS can be configured to use TCDCLINK for certain document types. In this case, the document is handed over to TCDCLINK and its configuration applies.

	TWS	TC/LINK
Converter module	TWS DocConv; (can be configured to use TCDCLINK)	TCDCLINK
Configuration	TWS Configuration Utility (if TCDCLINK is used, TCDCLINK's configuration applies)	Windows registry
Supported output formats (direction to KCS)	TCI, TIFF, PDF	TCI, TIFF, PDF
Supported output formats (direction from KCS)	TIFF, PDF	-
Conversion tools	Imgio, ImageMagick, ImageToTiff, KfxConverter	Imgio, KfxConverter

Third party applications	Microsoft Office (Save as PDF)	Microsoft Office, Internet Explorer, IrfanView (Printing to TCI, TIFF, PDF)
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1.3 Feature Comparison (Links Versus TWS)

The following feature matrix compares features supported with links and TWS.

Feature	Supported with links	Supported with TWS
Setup for background document conversion	Yes	Yes
JetForm Integration	Yes (1)	No
Rich text conversion	Yes	No
Image to TCI (native formats)	Yes	Yes
PS, PCL to TCI (Lincoln Converter)	Yes	Yes
PDF to TCI (Datalogics)	Yes	Yes

(1) Supported on Windows Server 2008, 32bit version.

1.4 Conversion Tools

KCS supports a variety of tools for document conversion. Each tool converts documents in a distinct way, assumes different defaults for unspecified parameters, etc. As a result, two different conversion tools converting the same document will not produce identical results (for example, document margins or fonts can be different). Keep this in mind when you decide to switch to a different conversion tool.

Converter (input formats)	Description	Output formats
Imgio (5) (Images, PDF, PS, PCL)	The ImgIo (TCIMG32.DLL) is an internal library that can perform conversion operations with some basic image types to convert to TCI and black & white TIFF. Additionally it uses the following third party components: Datalogics for PDF; Lincoln Converter for PS, PCL to TCI <i>See Image to TCI Conversion.</i>	TCI, TIFF
ImageMagick (Images)	ImageMagick is called by TWS via image2pdf.bat. It converts image formats to PDF.	PDF
ImageToTiff (Images)	ImageToTiff (ImageToTiff.exe) is an internal tool called by TWS via image2tif.bat. It is using ImageMagick and the LibTiff library. It converts image formats to TIFF.	TIFF
KfxConverter (MS Office, HTML, PDF; MSG, EML, XPS, Open Office)	Kofax Converter (KfxConverter.exe) is an internal tool using the Aspose library. It converts Office and HTML documents to PDF. Additionally it converts between MSG and EML formats, can normalize PDF to PDF/A and calls Adobe LiveCycle Server (4) to flatten PDF XFA forms. Note: For Open Office document conversion, only ODT, ODS and ODP formats are supported.	PDF, PDF/A MSG, EML
Microsoft Office (1) (MS Word, MS Excel, MS PowerPoint)	The Microsoft Office applications can be used to "Save as PDF" or to print their supported documents. TWS DocConv (TNC_DocConv.dll) uses "Save as PDF". TCDCLINK prints and creates either TCI, TIFF or PDF depending on the used printer.	PDF TCDCLINK: TCI, TIFF
Internet Explorer (3)	TCDCLINK can use the Internet Explorer to print documents to TCI,	TCI, TIFF, PDF

(HTML)	TIFF or PDF. This is only supported on Windows 2008 R2 and earlier.	
IrfanView (2) (Images)	TCDCLINK can use IrfanView to print image documents to TCI, TIFF or PDF.	TCI, TIFF, PDF

Notes:

- (1) Microsoft Office has to be installed separately; TWS DocConv uses “Save As PDF” scripts; TCDCLINK uses scripts that print to TCI, TIFF or 3rd party PDF printer.
- (2) External application, has to be installed separately.
- (3) Using the Internet Explorer for conversion is only supported on Windows 2008 R2 and earlier.
- (4) For flattening (converting) PDF XFA forms access to an Adobe LiveCycle Server is necessary.
- (5) PDF files with the document restrictions “Content Copying: Not Allowed” and “Page Extraction: Not Allowed” cannot be converted from PDF to TIF using the integrated Datalogics converter. Such files result in document conversion failure.

Depending on the requested output format, an additional conversion step might be necessary. For example, the resulting PDF will be further converted to TIFF or TCI by the Imgio.

1.4.1 Imgio

Formats that can be converted by Imgio to TCI are handled by this internal tool. Only if the conversion using Imgio fails, one of the other methods is used. The file extensions handled by Imgio are configured for TWS with the TWS Configuration Utility, for TC/LINK this can be done in the registry (TCLINK<xx>\General\Fmt<xx>).

Imgio is further used to convert PDF to TIFF or TCI in a second step.

1.5 File Formats

The following table explains which converters are used by KCS applications for various input formats.

Input file types (extensions)	Imgio	TWS DocConv (Applications: Save as PDF)	TCDCLINK (Applications: Print to TCI, TIFF, PDF)
Image formats (bmp jpg jpeg tif tiff pcx dcx) to TCI	X	-	IrfanView (2)
Printer languages (PS, PCL5, PCL6) to TCI	X (TCI only, via Lincoln Converter)	-	-
Image formats (bmp gif jpg jpeg png tif tiff) to TIFF	-	ImageToTiff	IrfanView (2)
Image formats (bmp gif jpg jpeg png tif tiff) to PDF	-	ImageMagick	IrfanView (2)
Text (txt)	X (TCI only)	KfxConverter MS Word (1)	KfxConverter MS Word (1)
Text (log)	-	KfxConverter MS Word (1)	KfxConverter MS Word (1)
Web formats (html, htm, mhtml, mht)	-	KfxConverter MS Word (1)	KfxConverter MS Word (1) Internet Explorer (3)

MS Word (doc, docx, dot, dotm, dotx, docm, rtf)	-	KfxConverter MS Word (1)	KfxConverter MS Word (1)
MS Excel (xls,xlsx, xlm, xlt, xlsx, xltm, xlsx, xlam, csv)	-	KfxConverter MS Excel (1)	KfxConverter MS Excel (1)
MS Powerpoint (ppt, pptx, pot, pptm, potx, potm, pps, ppsx, ppsm, sldx, sldm)	-	KfxConverter MS PowerPoint (1)	KfxConverter MS PowerPoint (1)
PDF (except with Java Script, PDF Portfolio and PDF XFA forms)	X (Datalogics, to TCI, TIFF)	-	-
PDF with Java Script	Not supported		
PDF Portfolio	Not supported		
PDF XFA forms		Adobe LiveCycle Server (via KfxConverter) (4)	Adobe LiveCycle Server (via KfxConverter) (4)
PDF Normalization to PDF/A	-	KfxConverter (TWS ReceiveMessage only)	KfxConverter
Zip files	Not supported		
Message formats (msg, eml)	-	KfxConverter	-
XML Paper Specification (xps)	-	KfxConverter	KfxConverter
Open Office (ODT,ODS and ODP)		KfxConverter	KfxConverter

Notes:

- (1) Microsoft Office has to be installed separately; TWS DocConv uses "Save As PDF" scripts; TCDCLINK uses scripts that print to TCI, TIFF or third party PDF printer.
- (2) External application, has to be installed separately.
- (3) Using the Internet Explorer for conversion is only supported on Windows Server 2008 R2 and earlier.
- (4) For flattening (converting) PDF XFA forms access to an Adobe LiveCycle Server is necessary.

1.6 Document Conventions

Most KCS applications use configuration values stored in the Windows registry. The location of the main KCS registry key is different on 32-bit and 64-bit Windows. Therefore, this manual refers to registry locations via the following short name:

Short name	Location (32-bit Windows)	Location (64-bit Windows)
...\	HKLM\Software\TOPCALL\	HKLM\ Software\Wow6432Node\TOPCALL\

Overview

2.1 Image to TCI Conversion

Some image file types can be converted to fax image format (TCI) without starting the application that created the file. Instead, the TCIMG32.DLL (plus optional third-party components) does the conversion. The list of file types that can be processed via this fast and simple conversion includes TIFF, Postscript, PCL and PDF. See chapter 3 *Image to TCI Conversion* for the complete list of supported file types.

2.2 Document Conversion

All other conversions either use the built-in conversion tool Kofax Converter, use the function Save as PDF, or they need a printer driver that produces the expected output format (TCI, TIFF or PDF) and an application capable of printing the input file. Printers for TCI and TIFF output are part of the KCS Document Converter. For PDF output, third party PDF printers can be integrated.

The application capable of printing a file is typically the application that created the file. For MS Office documents, this must be the MS Office application (e.g. Word, Excel) itself.

The document converter process (TCDCEXE.EXE) starts the application and lets it print the file to the appropriate printer.

This type of document conversion is only supported in a server environment, as actions of a locally logged-on user can disturb the automatic file processing and printing.

Chapter 3

Image to TCI Conversion

3.1 Purpose

The document converter includes an in-process component (TCIMG32.DLL) that can convert simple graphic files to TCI (KCS fax image) format. This conversion is fast because it does not involve printing.

Conversion of Postscript, PCL and PDF files is done via third-party components (optional items in document converter setup). A separate license is needed for conversion of Postscript and PCL files.

This chapter explains the image conversion capabilities of TCIMG32.DLL.

It depends on the configuration of the client application (TC/LINK, TWS), whether TCIMG32.DLL or the printer driver is used for a given input file. Both client applications use the extension of the input file for this decision. If conversion via TCIMG32.DLL fails, the client application will usually attempt real document conversion as a fallback (this is also configurable).

3.2 Components

Image to TCI conversion is done via the following modules:

Filename	Used for
TCIMG32.DLL	Converts black and white image files to TCI format. Uses third-party add-ons for intermediate conversion of Postscript, PCL and PDF to TIFF, which is then converted to TCI format.
Lincoln Postscript Converter	Consists of several executable files and fonts. Is used by TCIMG32.DLL for intermediate conversion of Postscript files to TIFF format.
Lincoln PCL Converter	Consists of several executable files and fonts. Is used by TCIMG32.DLL for intermediate conversion of PCL files to TIFF format.
Datalogics PDF Library	Consists of several executable files and fonts. Is used by TCIMG32.DLL for intermediate conversion of PDF files to TIFF format.

3.3 File Types

The following image file types can be processed:

Format	Restrictions	Additional License
TIFF	Black and white only	
BMP	Black and white only	
DCX	Black and white only	
PCX	Black and white only	
MDA	Black and white only	
JPG	Black and white only	
TCI (KCS Fax Image)	Some ++ directives are resolved.	

Format	Restrictions	Additional License
Text	ANSI text files only. ++ directives not resolved.	
Postscript	Lincoln PS Converter must be installed.	Postscript Converter
PCL5, PCL6	Lincoln PCL Converter must be installed.	PCL5 Converter
PDF	Datalogics PDF Library must be installed.	

3.4 PDF Files

TCIMG32.DLL uses the Datalogics PDF Library to perform an intermediate PDF to TIFF conversion, the result of which is then converted to TCI.

This library supports the PDF 1.7 specification.

After installing links or TWS, the Datalogics library is automatically available. No extra selection for PDF conversion is required during setup.

Links only: PDF-to-TCI conversion via VRS

If VRS is enabled for a link instance, the PDF-to-TCI conversion will be done by VRS and not by the Datalogics PDF Library. Please note that these two PDF rendering methods are fairly different, and so the resulting TCI images can also be different in case of non-searchable color/grayscale PDFs. The Datalogics PDF Library uses the “dithering” method, whereas VRS uses “thresholding” to convert the colored PDF elements to black-and-white bitmap pattern. On the one hand, VRS maintains the readability of texts (OCR or human), whereas on the other hand, the Datalogics PDF Library achieves a good quality of photo/picture elements (e.g. passport photograph).

VRS is currently not supported with TWS.

3.5 Postscript and PCL Files

Postscript and PCL5 files can be converted to TCI image format, using a third-party product called Lincoln Converter.

For PCL conversion, it is possible to install Japanese fonts or Greek fonts additionally. When installed with KCS links, this special font selection is an option in the setup GUI. When installed as part of TWS, the fonts are set automatically depending on the operating system language.

This section contains error codes, configuration settings and other information specific to the Lincoln Converter.

Further information may be available at the Lincoln web site: <http://www.lincolngo.com>.

3.5.1 Input Formats

The Lincoln converter itself supports PostScript Levels 1 and 2, PCL6, PCL5e and earlier PCL versions, HP-GL/2, and PDF Version 2.0. Although stated as one of the possible formats EPS is not implemented by Lincoln.

The KCS Image Converter supports only PostScript and PCL input.

3.5.2 Output Formats

Image conversion uses the Lincoln Converter to create TIFF G3/G4 output, which is then converted to TCI format via native TCIMG32.DLL functions.

Lincoln supports other possible output formats (PCX/DCX, Brooktrout Infopacket), which are not used by KCS software.

3.5.3 Error Codes

The following tables are taken from the Lincoln API documentation. TCIMGIO reports errors concerning the Lincoln converter by adding 2000 to the original code. For instance, Lincoln error 5 is displayed as error 2005 in the trace file!

3.5.3.1 Postscript Errors

PostScript error	Description
1	dictionary full
2	dictionary Stack Overflow
3	dictionary Stack Underflow
4	execstackoverflow
5	external interrupt request
6	invalidaccess
7	invalidexit, "exit" in improper context
8	invalidfileaccess, unacceptable file access mode
9	invalidfont, font is bad
10	Invalidrestore
11	error in I/O
12	limits exceeded
13	No current point, current point undefined
14	operand out of bounds
15	operand stack overflow
16	operand stack underflow
17	syntax error
18	timeout exceeded
19	incorrect operand type
20	name not known
21	file name not known
22	Undefined result, overflow or meaningless result
23	unmatched mark
24	internal error
25	VM exhausted, internal VM error
26	password incorrect
27	manual feed timeout error

PostScript error	Description
28	configuration error
29	improper use of context operator
30	invalid identifier for external object
31	resource instance not found

3.5.3.2 RBIOS Errors

RBIO error	Description
64	RBBUFOVF
65	RBDEVERR
66	RBEOF
67	RBFAOPEN
68	RBFILENF
69	RBFNOREAD
70	RBFNOWRITE
71	RBINVDID
72	RBINVMODE
73	RBINVPAR
74	RBINVSIGOP
75	RBINVSTATE
76	RBINVTYPE
77	RBMATHNP
78	RBMATHUNFL
79	RBMATHOVFL
80	RBMATHZERO
81	RBMINVTYPE
82	RBNOALLOC
83	RBNODEALLO
84	RBNORAND
85	RBNVRFAIL
86	RBTIMEOUT
87	RBTIMINV
88	RBUNKFID
89	RBNOGETBUF

RBIOS error	Description
90	RBFINVBUF
91	RBATHAN
92	RBATHNCOMP
93	RBATHDOM
94	RBLEABORT
95	RBLEBACKUP
96	RBLERESHOW
97	RBENDLINE
98	RBUNREG

3.5.3.3 EPFaxAPI Errors

Error	Description
2048	Invalid handle passed to API function
2049	LincPage already busy
2050	sourceType not supported yet
2051	outType not supported yet
2052	nPlanes out of range
2053	conttone not supported yet
2054	rleRaster not supported
2055	overlay not supported
2056	invalid K value for G3-2D encoding
2057	LincJet already busy
2058	Invalid attempt to modify the converter
2059	The converter is busy rasterizing a page

3.5.3.4 PCL Errors

1	Communication line error
2	Input buffer overflow
3	Cartridge has been removed
4	Band too complex to print
5	Page exceeds page buffer memory
6	Not enough memory to rotate font
7	Not enough memory to download font
8	Bad data in downloaded font

9	Character not in selected font
10	Can't select required font
11	No font present
12	Non-fatal lower RAM error
13	Too many fonts for table
14	Font table has been damaged
15	Loading middle without beginning
16	Loading char code outside indexes
17	Parallel loopback test failure
18	Serial loopback test failure
19	Glyph exceeds buffer size
20	Fatal lower RAM error
21	CRC error on firmware ROM
22	Error in one of the system timers
23	CRC error on a ROM or cart font
24	No room for a form
25	No memory during memory reorganization
26	Bad RLE code
27	Unknown type of ROM region
28	Bad summary sheet request
29	Unable to allocate memory for graphics
30	Graphics procedural error
31	Need bigger scratch area
32	Graphics record overflow
33	Font rotation wait
34	Not enough memory for full page mode
35	Not enough memory for duplex page
36	Memory pool has become too fragmented
37	Insufficient RAM for scalable font
38	Logical error in code
39	Can't allocate initializing buffers
40	Logical error in adding extra bands
41	Cannot download characters to a hard font in UFST
42	Bad extraction string

43	Could not open bitmap fonts
44	Could not open scalable fonts
45	Could not open stick fonts
46	Could not open arc fonts
47	Could not open patterns

3.5.3.5 Various Errors

Note that all above 999 are considered fatal.

999	FATAL_ERR
1000	INF_ERR
1001	PIPE_ERR
1002	FORK_ERR
1003	EXEC_ERR
1004	LOGIC_ERR
1005	FILE_ERR
1006	PCX_ERR
1008	STD_ERR
1009	WAIT_ERR
1010	TEMPLATE_ERR
1011	COM_ERR
1012	DIR_ERR
1013	DUP_ERR
1014	SYSTEM_ERR
1015	TIMEOUT_ERR
1016	DOC_TIMEOUT_ERR
1017	PAGE_TIMEOUT_ERR
1018	MEM_ERR
2000	KILL_ERR
2048	MAXLINE

3.5.4 EPFAX.INI File

The ini file EPFAX.INI is situated in the Windows directory. It contains the settings for the Lincoln Converter and also for the GUI application EPfaxW.exe. This application can be found in the BIN subdirectory of the Lincoln directory.

The following list of settings is also taken from Lincoln API description. Please be careful if you change the settings. Always check the outcome by using EPFax for Windows.

3.5.4.1 Section [Options] (General Settings)

Element	Description																																							
nCols	The number of pixel columns in the raster image.																																							
nRows	The number of scan lines in the raster image.																																							
rowsPerBand	The rasterizer works on a band or group of scan lines at a time. This parameter is the number of scan lines in each group (or band). If rowsPerBand is greater than nRows or rowsPerBand is 0, only one band is processed per page. The rowsPerBand parameter also determines how many strips are placed in a TIFF file if the output type is TIFF. The rowsPerBand in the TIFF file can be overridden and forced equal to the image size if the singleStrip parameter is set to 1.																																							
offsetX,offsetY	The horizontal and vertical offset, in pixels, from the upper left corner of the logical paper to the start of the bitmap. These are default settings that can be overridden by special settings (offsetX, offsetY) for PCL5 conversion (section LincJet) and PS conversion (section LincPage).																																							
ixPaper	<p>A value between 0 and 11 indicating which paper size to use as the default paper. Note that ixPaper value of 11 corresponds to custom paper size. In that case, the default paper size is determined by the customSize[] parameter.</p> <table><tr><td>name</td><td>value</td><td>size in points</td></tr><tr><td>Letter</td><td>0</td><td>612x792</td></tr><tr><td>A4</td><td>1</td><td>595x842</td></tr><tr><td>B5</td><td>2</td><td>516x729</td></tr><tr><td>Legal</td><td>3</td><td>612x1008</td></tr><tr><td>Executive</td><td>4</td><td>522x756</td></tr><tr><td>Monarch</td><td>5</td><td>540x279</td></tr><tr><td>Com10</td><td>6</td><td>684x297</td></tr><tr><td>C5</td><td>7</td><td>649x460</td></tr><tr><td>Dl</td><td>8</td><td>624x312</td></tr><tr><td>11x17</td><td>9</td><td>792x1224</td></tr><tr><td>A3</td><td>10</td><td>842x1191</td></tr><tr><td>Custom</td><td>11</td><td>user specified</td></tr></table>	name	value	size in points	Letter	0	612x792	A4	1	595x842	B5	2	516x729	Legal	3	612x1008	Executive	4	522x756	Monarch	5	540x279	Com10	6	684x297	C5	7	649x460	Dl	8	624x312	11x17	9	792x1224	A3	10	842x1191	Custom	11	user specified
name	value	size in points																																						
Letter	0	612x792																																						
A4	1	595x842																																						
B5	2	516x729																																						
Legal	3	612x1008																																						
Executive	4	522x756																																						
Monarch	5	540x279																																						
Com10	6	684x297																																						
C5	7	649x460																																						
Dl	8	624x312																																						
11x17	9	792x1224																																						
A3	10	842x1191																																						
Custom	11	user specified																																						
Policy	<p>The default policy for page sizes that are not supported</p> <table><tr><td>0</td><td>ConfigurationError</td></tr><tr><td>1</td><td>ignore change</td></tr><tr><td>2</td><td>operator</td></tr><tr><td>3</td><td>select nearest and scale to fit</td></tr><tr><td>4</td><td>select next larger size and scale to fit</td></tr><tr><td>5</td><td>select nearest size</td></tr><tr><td>6</td><td>select next larger</td></tr></table> <p>This option does not apply to PCL files.</p>	0	ConfigurationError	1	ignore change	2	operator	3	select nearest and scale to fit	4	select next larger size and scale to fit	5	select nearest size	6	select next larger																									
0	ConfigurationError																																							
1	ignore change																																							
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4	select next larger size and scale to fit																																							
5	select nearest size																																							
6	select next larger																																							

Element	Description																																	
outType	<p>This describes the format of the output file:</p> <table><tr><td>otBinary</td><td>0</td><td>binary file</td></tr><tr><td>otTiffU</td><td>1</td><td>TIFF uncompressed file</td></tr><tr><td>otTiffH</td><td>2</td><td>TIFF compressed Modified Huffman</td></tr><tr><td>otTiffF</td><td>3</td><td>TIFF-F file (Group3/Group4)</td></tr><tr><td>otTiffPack</td><td>4</td><td>TIFF Pack Bits compression</td></tr><tr><td>otPCXDCX</td><td>5</td><td>PCX/DCX</td></tr><tr><td>otDIB</td><td>6</td><td>DIB</td></tr><tr><td>otBt301</td><td>7</td><td>Brooktrout “301”</td></tr><tr><td>otBtIpk</td><td>8</td><td>Brooktrout InfoPacket (IPK)</td></tr><tr><td>otTemplate</td><td>9</td><td>Template file (output file can be used later as template)</td></tr><tr><td></td><td>>9</td><td>reserved</td></tr></table> <p>Currently, only TIFF-F and PCX/DCX are supported.</p>	otBinary	0	binary file	otTiffU	1	TIFF uncompressed file	otTiffH	2	TIFF compressed Modified Huffman	otTiffF	3	TIFF-F file (Group3/Group4)	otTiffPack	4	TIFF Pack Bits compression	otPCXDCX	5	PCX/DCX	otDIB	6	DIB	otBt301	7	Brooktrout “301”	otBtIpk	8	Brooktrout InfoPacket (IPK)	otTemplate	9	Template file (output file can be used later as template)		>9	reserved
otBinary	0	binary file																																
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otTiffPack	4	TIFF Pack Bits compression																																
otPCXDCX	5	PCX/DCX																																
otDIB	6	DIB																																
otBt301	7	Brooktrout “301”																																
otBtIpk	8	Brooktrout InfoPacket (IPK)																																
otTemplate	9	Template file (output file can be used later as template)																																
	>9	reserved																																
CustomSizeX, CustomSizeY	The x and y dimensions of the custom paper size. The units are in pixels.																																	
otherResX, otherResY	The horizontal and vertical resolution in pixels per inch or pixels per mm, depending on the value of unitsMM.																																	
GroupType	<p>The encoding standard (applies only if outType is TIFF-F):</p> <table><tr><td>00</td><td>Group 3</td></tr><tr><td>01</td><td>Group 3-two dimensional</td></tr><tr><td>10</td><td>Group 4</td></tr></table>	00	Group 3	01	Group 3-two dimensional	10	Group 4																											
00	Group 3																																	
01	Group 3-two dimensional																																	
10	Group 4																																	
Uncompressed	If Uncompressed is true, then the Group3/4 encoder is allowed to use uncompressed data where necessary.																																	
fEOL	If fEOL is true, then the encoder will append an EOL to the data for each scan line.																																	
ByteAlign	This parameter applies only if fEOL is also true. If both are true, then the encoder will add padding to force the EOL to end on a byte boundary for each scan line.																																	
fEOB	If fEOB is true, then the encoder will append EOB to the end of the image data.																																	
BlackIs1	If this is false, then the image will be inverted. LincPage produces images with 1’s for Black and 0’s for White.																																	
ReverseFill	This parameter controls the order that the G3/G4 data is encoded into bytes. If ReverseFill is set, then the most significant bit of the code goes into bit 0 of the byte.																																	
InputWords	This parameter must be set to 1 to produce the correct output. It indicates that the raster image formed by LincPage is organized by 16-bit words, not 8-bit bytes. The G3/G4 encoder recognizes the word organization or byte organization of the data according to this parameter.																																	
K	If the GroupType parameter is set to 01, then the K parameter applies and instructs the G3 encoder how many scan lines to encode 2-dimensionally before outputting a new root scan line. The permitted values are 2, 3, and 4. K-1 scan lines are encoded 2-dimensionally after each root scan line.																																	
MultiPage	If MultiPage is true, then all page images in a call to convertFile() are placed in the same file.																																	

Element	Description
bigEndian	If bigEndian is true then multi-byte numbers and offsets in the header and sub headers of TIFF output files will be written with the most significant byte first, and the header will start with "MM". If bigEndian is false, then the header will start with "II" and numbers and offsets will be stored with the least significant byte first.
faxRes	<p>This parameter indicates the resolution of the raster image. The application should specify 0 for fax normal, 1 for fax fine, and 2 for custom resolutions. If custom resolution is specified, then the resolution is determined by the contents of the otherRes array.</p> <p>Note: For both fax normal and fax fine resolutions, the horizontal resolution will be 204.0 pixels per inch or approximately 8.03 pixels per mm. For fax normal, the vertical resolution will be approximately 3.86 scan lines per mm (98.0 scan lines per inch). For fax fine, the vertical resolution will be approximately 7.72 scan lines per mm (196.0 scan lines per inch).</p>
unitsMM	Normally parameters are in units of inches or pixels per inch. If unitsMM is set, then parameters are in units of mm or pixels per mm. The parameters that are affected are: otherRes. This parameter also affects the Units Tag in the TIFF sub header.
singleStrip	If this parameter is set, then all images produced in TIFF output files are forced to have only one strip. Otherwise, each image in the TIFF file will have one strip per band. The band size is determined by the rowsPerBand parameter.
binaryInput	If this parameter is set, then all data processed by convertFile() will be treated as binary data. Normally data is treated as ASCII data, and preparsed for EOJ characters (^D).
longEdgeScan	If longEdgeScan is true, then the raster image is formed in "landscape" orientation.
nPlanes	This parameter represents the number of color planes in the raster image. The values supported by LincPage are: 1 or Monochrome, 3 or RGB, and 4 or CMYK. This API currently only supports monochrome bitmaps, so nPlanes must be set to 1.
contone	This parameter indicates that the interpreter/converter should form continuous tone bitmaps. If it is set, LincPage will construct bitmaps with 8 bits per pixel per color. If the bit is not set, LincPage will use halftone screens and 1 bit per pixel per color. This API currently only supports 1 bit per pixel outputs, so contone must be set to 0.
rleRaster	If rleRaster is set true and contone is true, then LincPage will construct the raster image in RLE format. This API currently does not support continuous tone raster images, so this parameter must be set to 0.
unloadAtEOJ	If this parameter is set, then the LincPage interpreter or LincJet converter will be unloaded from memory at the end of each job. This will free up resources to be used elsewhere, but will cost extra overhead time for successive calls to convertFile().
fixedWidth	True to force raster image width to be constant at nCols.
fixedHeight	True to force raster image height to be constant at nRows.
bOPI	True to enable OPI (Open Prepress Interface) Image substitutions.
bWriteLog	True to write log file
LJ_prn600	True to force printer to 600 dpi for PCL input files.
printToEdge	True to force edge to edge printing for PCL input files (emulates IBM printer)

Element	Description
OverlayOffX, OverlayOffY	The x and y offsets in pixels relative to the top left edge of the bitmap, used to locate the Overlay bitmap. The API does not currently support this feature.
JobTimeout	Maximum number of seconds to allow for a single job. The API does not currently support this feature.
PageTimeout	Maximum number of seconds to allow per page in a job. The API does not currently support this feature.
MaxVM	Maximum PostScript virtual memory size in bytes. If value is 0, the API substitutes the default value of 1,048,576 bytes.
maxCache	Maximum font/screen cache size in bytes. If value is 0, the API substitutes the default value of 2,097,152 bytes.
maxDList	Maximum display list size in bytes. If value is 0, the API substitutes the default value of 8,388,608 bytes.
NObjectsExecuted	Number of PostScript objects executed between calls to the ReportProgress call back function.

3.5.4.2 Section [LincJet] (PCL5 Conversion)

Element	Description
FontSource	0=internal font, 1 = left font cartridge, 2 = right font cartridge, 3 = soft font; The default source for fonts.

Element	Description
ParseMethod	<p>MultiByte encoding scheme:</p> <ul style="list-style-type: none"> 0 single byte encoding 1 JIS X0208 (Japan) 2 GB 2312-80 (China) 7-bit 3 KS C 5601-1992 (Korea) 7-bit 4 Other "Group 1" encoding 5 Shift-JIS 6 Other "Group 2" encoding 7 Big Five 8 TCA 9 KS C 5601-1992 (Korea) 8-bit 10 GB 2312-80 (China) 8-bit 11 Other "Group 3" encoding <p>Group 1: Character codes in the range 0x21-0xFF are processed as the first byte of a two-byte character. The following byte is processed as the second byte of the two-byte character. All character codes outside this range are processed as one-byte values. This method can be used for parsing characters in Asian 7-bit encoding specifications, including JIS X0208(Japan), GB 2312-80(China), and KS C 5601-1992(Korea).</p> <p>Group 2: Character codes in the range 0x81-0x9F and 0xE0-0xFC are processed as the first byte of a two-byte character. The following byte is processed as the second byte of the two-byte character. All character codes outside this range are processed as one-byte values. This method can be used for parsing characters in the Shift-JIS encoding specification.</p> <p>Group 3: Character codes in the range 0x80-0xFF are processed as the first byte of a two-byte character. The following byte is processed as the second byte of the two-byte character. All character codes outside this range are processed as one-byte values. This method can be used for parsing Asian 8-bit encoding specifications, such as the Big Five and TCA encoding specifications (Taiwan), and KS C 5601-1992 and GB 2312-80 which can be 7 or 8 bit.</p>
TextPath	0-horizontal text path; 1-vertical text path
FontNumber	0..999; 1000 to write list of fonts and their assignment numbers to the log file
Pitch	0.1 - 576 is valid range
PointSize	0.25 - 999.75 is valid range
SymbolSet	Default symbol set
LeftCartridge	path of left font cartridge
RightCartridge	path of right font cartridge
offsetX, offsetY	<p>The horizontal and vertical offset, in pixels, from the upper left corner of the logical paper to the start of the bitmap. Applies only to PCL5 conversion.</p> <p>Values must be positive, e.g.:</p> <p>OffsetX=100</p> <p>OffsetY=100</p> <p>If missing, the general settings defined in section Options are used.</p>

3.5.4.3 Section [LincPage] (PS Conversion)

Element	Description
offsetX, offsetY	<p>The horizontal and vertical offset, in pixels, from the upper left corner of the logical paper to the start of the bitmap. Applies only to PS conversion.</p> <p>Values must be negative, e.g. :</p> <p>OffsetX=-100</p> <p>OffsetY=-100</p> <p>If missing, the settings defined in section Options are used.</p>

3.5.5 Supported Font Types

For PostScript: Type 1, 3, and 0/4 (including Asian)

For PCL5e and PCL6: Intellifont, TrueType, bitmap, and vector ("Stick" and "Arc")

3.5.6 Provided Fonts

For PostScript: 35 printer-standard Type 1 fonts

For PCL5e and PCL6: 35 Intellifont fonts, 10 TrueType fonts, 2 vector fonts

3.5.7 Installation of Additional Postscript Fonts

Copy the fonts in the ...\\LINCOLN\\LINCAGE\\PSFONTS directory, open the command line and change to the \\LINCOLN\\LINCAGE directory.

Then execute the following command line

```
..\\BIN\\EPFAXCL -*i...\\LINCOLN\\LINCAGE\\PSFONTS -!fp
```

As EPFAXCL registers the font files with LincPage, the console display window will show the name of each font file in the directory, and then after all font files have been examined, the program will display the names of all of the fonts. If the console display remains blank, you have probably indicated the wrong directory.

3.5.8 Output Resolution

For PostScript input, all resolutions from 0.1 to 4000 dpi are supported. For PCL input, 204x196 dpi, 300 dpi, 400 dpi and 600 dpi are supported.

Note: This is the output resolution for the intermediate TIFF file. The output resolution of the TCI image is limited to fax normal mode (204*98) and fax fine mode (204*196).

3.5.9 Option to Reject Invalid PCL Files

The following registry value enables rejection of invalid PCL files.

```
...\\TCIMG32\\ValidPCLOnly (REG_DWORD)
```

Possible values: 0 (default) or 1.

If this option is enabled (=1), conversion of the input PCL file is only attempted if its header holds a PJJ description. If there is no PJJ description, no conversion is done and the image converter returns error 1151 (FXC_ERR_LINCOLN_INVFORMAT).

If this option is disabled (=0), no PJJ description check is performed, and conversion of the PCL file is always attempted. This method has the risk, that the conversion algorithm produces wrong result or even crashes during the conversion. Therefore, this option is only recommended if the administrator is sure that all incoming PCL files are convertible to TIFF format even if they do not hold a PJJ description.

3.5.10 PCL Conversion Performance

According to the complexity of the document, normally: 6 – 9 pages / second. (Test PC: Intel Xeon 2,8 GHz, 1 GB RAM, 100 % CPU usage during the conversion.)

3.6 Output Resolution

The resolution of the resulting TCI image can be either 204 * 98 dpi (fax normal mode) or 204 * 196 dpi (fax fine mode).

For a given conversion, the resolution depends on the settings of the calling application (TC/LINK, TWS).

3.7 Configuration

TCIMG32.DLL takes its configuration options from the registry. Options defined for an individual application (e.g. link instance) can be set in registry key TCIMG32 below the application's registry key.

Examples:

TC-LINK-FI: ... \TCLINKFI \TCIMG32

TWS: ... \TWS \TCIMG32

It is also possible to define global settings below registry key ... \TCIMG32. A globally defined setting is only used if the corresponding option is not defined for the application.

Registry Key	Type	Default	Description
AdditionalTopMargin InPixel	DWORD	0	Number of additional pixel lines on the top margin of image pages created by TCIMG32.DLL. Subsequent images are downsized. Not applicable to text blocks.
AllowOpeningXFA	DWORD	0	If AllowOpeningXFA is set to 1, then TCIMG32.DLL will not verify and restrict conversion for XFA documents. In this case, TCIMG32.DLL will force the Datalogics library to convert XFA documents. However, in some XFA forms conversion, there might be some data loss. If AllowOpeningXFA does not exist or by default AllowOpeningXFA is considered as 0.
Clockwise	DWORD	0	This setting applies only to to-TCI conversions and only in connection with RotateIfLandscape. It defines the direction of the rotation. 0: RotateIfLandscape rotates the image anti-clockwise by 90 degrees. 1: RotateIfLandscape rotates the image clockwise by 90 degrees.
DatalogicsFontDir	REG_SZ	c:\tcoss\tclp\datalogics\font	Specifies the path to fonts used by Datalogics. Should not be modified.
Default_xres	DWORD	0	If tcimgio is configured to put more than one image on a page, and no resolution was specified for an image, this key specified which x resolution in dpi shall be used. If it is set to 0, 204 dpi are used.

Registry Key	Type	Default	Description
Default_yres	DWORD	0	If tcmgio is configured to put more than one image on a page, and no resolution was specified for an image, this key specified which y resolution in dpi shall be used. If it is set to 0, 98 dpi are used.
DefInputXRes	DWORD	100	Default X-resolution (in dpi) assumed by TCIMGIO in case of corrupted or no resolution data in the image header. Resolution data considered to be corrupted, if it is greater than a certain limit (2000 dpi by default). This limit can be redefined by the registry setting 'MaxInputResolution'.
DefInputYRes	DWORD	100	The same as DefInputXRes, but in the Y-direction.
force_NoPageFormatScaling	DWORD	0	0: TC/LINK default behavior. 1: Overrides TC/LINK default behavior. Forces image page size in output image not to be scaled to A4/letter page size.
Halftonedither	DWORD	1	0: Halftone dithering is disabled (when converting PDF to a black and white image). Resulting image is faster to fax, but the quality of graphics is lower. 1: Halftone dithering is enabled.
MaxInputResolution	DWORD	2000	Resolution-limit in dot-per-inch (dpi). If a TIFF / BMP / PCX / DCX / MODCA image contains a resolution-value greater than 2000 dpi in its image-header, than this value will be considered by TCIMGIO as corrupted and x-resolution = y-resolution = 100 dpi will be then assumed instead. With this optional registry setting, however, you can redefine this limit.
NoScaleTolerance	DWORD	25	Tolerance for image page length (in thousandths, compared with standard page length) 25 means: no extra scaling if page length is between 97.5 and 102.5 % of standard page length.
OutputDespiteOfError	DWORD	1	If 0, partial conversion of image leads to an error. Fixes error # 8012
PerfLogDir	SZ	"" (disabled)	If defined, a performance log file called "tcmgio_perflog.txt" will be created in the given directory. It contains input/output and duration information for each performed conversion.
PdfScalePercent	DWORD		Possible values 1%...100% Used for conversions from PDF. The PDF content will be displayed shrunk and centered aligned on the output image. E.g. 50% means that the output image will be displayed half sized.
ProblemPath	SZ	"" (disabled)	Directory where TC/LINK stores image files that could not be converted.
ProblemSize	DWORD	1000	Maximum size (in KB) of this directory.

Registry Key	Type	Default	Description
RotatelfLandscape	DWORD	1	Only for to-TCI conversion: landscape pages of the input image are automatically rotated to portrait orientation to use the maximal page surface and to avoid the down-scaling of the page. Corresponding setting: "Clockwise": direction of the rotation.
TolerateFaultyTiffOffset	DWORD	0	(from-TIFF conversions) Allows conversion of TIFF files with faulty offset in its TIFF-header. (Fixes error # 7388)
ToleratePSError, TolerateFatalPSError, ToleratePCLError, TolerateFatalPCLError	DWORD	0	(from-PS/PCL conversions) If set to a value other than 0, tcimg32.dll ignores errors/fatal errors reported by the Lincoln converter for ps/pcl conversion and tries to finish the conversion process. If the appropriate registry key is 0 tcimg32 stops the conversion process and reports to the container that an error occurred.
TraceLevel	DWORD	0	Set to 50 to get some information (input/output info, rescale-info, duration) on the performed image conversion in the process trace file
ValidPCLOnly	DWORD	0	(from-PCL conversions) Activates PCL-validity-check performed by the Lincoln Converter. If ValidPCLOnly = 1, only the PCLs with existing PJI header will be converted. (Some printer creates PCL without this header, so the setting ValidPCLOnly = 0 could also make sense.)
PDFLInitFlags	DWORD	0	Specifies where Datalogics searches for fonts. The default search order is: 1. Fonts known to the system (from %WinDir%\Fonts, etc.) 2. Fonts in common areas ("program files\Common\Adobe") 3. Fonts below the current working directory 4. Fonts specified in user defined path (DatalogicsFontDir) If set to 1, Datalogics searches for fonts only in the user defined path (DatalogicsFontDir). This can prevent problems with default Windows fonts. Multi-Master fonts from Adobe are used instead; these are installed with the Datalogics library.
PdfToTiffPageScaling	DWORD	0	This parameter enables/disables the scaling of TIFF images to the page size that is configured in the preferences of the "Topcall TIFF to TCDC" printer. This scaling is only supported for PDF to TIFF conversions.

3.8 Error Handling

You can configure a problems directory for image conversions. TCIMG32.DLL will store graphic files that could not be converted in this directory. The overall size of the problems directory is limited via a configurable size limit.

This feature must be enabled explicitly via the registry values TCIMG32\ProblemPath and TCIMG32\ProblemSize (below the application's registry key). If the ProblemPath is empty or the ProblemSize is 0, no problem files are created.

Notes:

TCIMG32.DLL does not overwrite existing files. If the problem folder already contains a file with the same name, a unique number is added to the base name of the file (e.g. filename_0.ext, filename_1.ext etc.)

If a file is not copied to the problems directory because the problem size limit is reached, an event with ID 1034 is written to the Application Event Log.

If the configured problems directory does not exist, it is created automatically.

3.9 Troubleshooting

3.9.1 Trace Files

Trace output is written to the trace file of the client application.

Trace file	Referred to as	Client application
C:\TCOSS\TRACE\TCLINKxx.TRC	Client trace	TCLINK.EXE
C:\TOPCALL\TWS\00\TRACE\TCSIx.TRC	Client trace	TWS

The amount of information written to the trace can be configured by registry value TraceLevel below the TCIMG32 registry key.

Document Conversion

4.1 Purpose

This section describes the type of document conversion involving a printer driver that produces the expected output format (TCI, TIFF or PDF) and an application capable of printing the input file.

Additionally it includes information about Kofax Converter, the built-in tool used for document conversion.

4.2 Components

This is done via the following modules:

Filename	Used for
KFXCONVERTER.EXE	This command line tool can be used for document conversion without most dependencies on third party software. Documents are converted directly, without printing.
TCDC32.DLL	This module is loaded and invoked by the client application (TCLINK or TWS). It communicates with the stand-alone program TDCCEXE (to start the printing application) and with the printer (to receive the print output). TCDC32.DLL writes its trace output to the client application's trace file.
TDCCEXE.EXE	This is the stand-alone document converter program. It is normally started via TCSRVR (background mode). TDCCEXE.EXE has a RPC connection to the client process (TCDC32.DLL loaded by TCLINK or TWS) and to TCSRVR. It controls the printing application according to the orders of the TCDC32.DLL
TCDCKEY.DLL	This module surveys the printing applications, decides to use automation or normal printing, records and plays back keystrokes and mouse clicks if necessary.
TCSHOST.DLL	This module is the implementation of the so-called script host needed by the so-called script engine (in our case VBScript but each script engine that meets certain standards could be used).
TCDCTEST.EXE	This program is used for keyboard emulation learn mode. It simply starts the conversion and waits that it correctly receives a print-output.
TC_OLE.EXE	This program takes an OLE attachment (as produced by MS Exchange) starts the application responsible for this document type and uses keyboard emulation to start printing.

The following printer drivers are installed with the product:

Printer name	Used for
TOPCALL Fax to TCDC	Conversion to TCI (KCS Fax) format
TOPCALL Tiff to TCDC	Conversion to TIFF format

Additionally, the product contains conversion scripts for WinWord, Excel, PowerPoint and Html documents.

4.3 Operation Mode

4.3.1 Background Mode

The document converter runs in background, under the control of the TCSRv service. The printing applications are also started in background via service.

Foreground mode, supported in previous KCS releases, is no longer available.

4.3.2 Test Mode vs. Productive Mode

On Windows 2008/2012 only background mode is possible. Here however we differ between the following modes:

- **Test Mode**

Microsoft Office is able to interact with the desktop; other applications are able to interact on the Session 0 desktop via "Interactive Services Detection". The TcdcLink-User has to be logged in and is not allowed to log off.

- **Productive Mode**

The applications do not interact with the desktop and cannot show any dialogs. No user has to be logged in.

The following table shows the differences of configuration between Test Mode and Productive Mode:

	Test Mode	Productive Mode
	MS Office Applications are shown during printing, other applications are shown on Session 0; it is not allowed to log off	Printing applications do not interact with desktop; it is possible to log off
Windows 2008 x32 ...\TCDCLINK\LogonType	+N	+N
Windows 2008/2012 x64 ...\TCDCLINK\LogonType	+N	B
...\TCDCLINK\User	TcdcLink-User	TcdcLink-User
...\TCDCLINK\UserMode This setting changes the DCOM user configuration of the MS Office applications, as done by the DcomCnfg tool	1 Interactive	2 TcdcLink-User

On Windows 2008/2012 64-Bit with TC/LINK-LN using RTF conversion, the TC/LINK-LN instances have to be configured similar to the Document Converter:

	Test Mode	Productive Mode
Windows 2008/2012 x64 ...\TCLINKLN\LogonType	+N	S (or B)
...\TCLINKLN\User	Void or TcdcLink-User	TcdcLink-User

Note: It is also possible to use only Test Mode; the only restriction is that the TcdcLink-User is not allowed to log off.

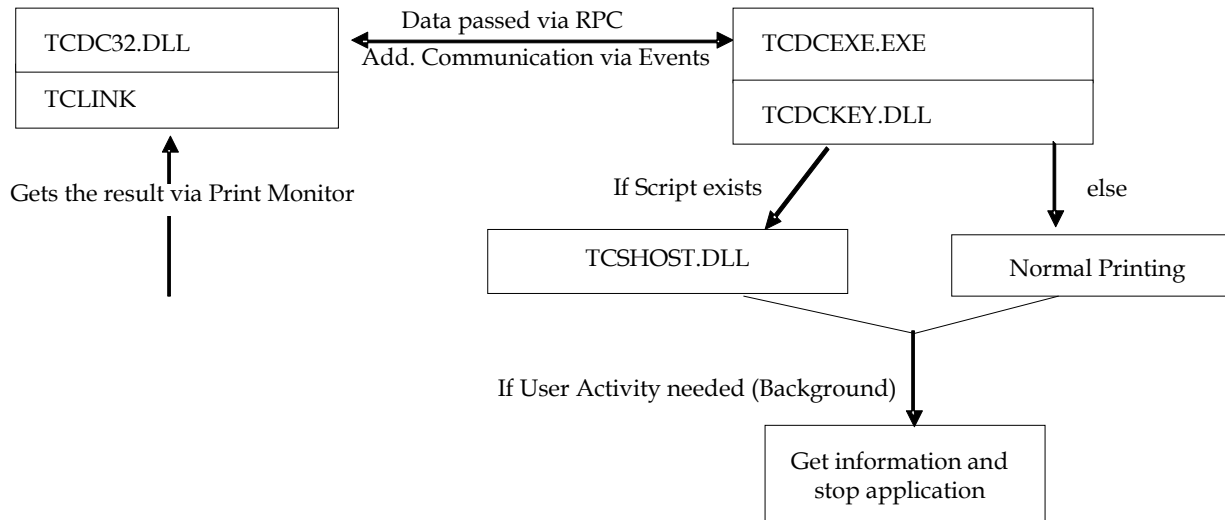
See section *Quick Deployment Guide for Windows 2008* on how to install, configure and to switch between modes.

Warning: If the Document Converter and TC/LINK are not configured correctly or if switching between Test Mode and Productive Mode is not done correctly document conversion will fail.

4.4 Application Control

Note: Information in this section describes mostly the legacy document conversion using printing. It does not apply when using the default conversion tool, the Kofax Converter, or the Microsoft Office function Save to PDF.

The document converter starts and controls the printing application. This can be done via different methods.



4.4.1 Overview

There are three methods how document conversion applications can be defined; all depend on the file extension of the document to be converted.

- Automation via Script
A set of registry values maps the extensions with scripts. See section *Script Files*.
- Associating a file type via TCDCLINK configuration
In the registry sub key "...\\TCDCLINK\\ShellExecPrint" a value "<EXT>" exists with the print command; Additional applications (like IrfanView for converting TIFF files) can be used like this.
- File type associated via Windows Explorer Shell Execute
Some applications register themselves so that their documents can be printed via right-click print from the context menu; Notepad and Wordpad work automatically that way with the Document Converter; if it does not work automatically, it is recommended to use the "...\\TCDCLINK\\ShellExecPrint" configuration.

These possibilities are checked in listed order.

4.4.2 Applications

The following applications are supported on Windows Server 2008 x32 and x64 Version:

- Microsoft Office 2007 SP1 or later
- Internet Explorer 7 or later
- IrfanView 4.23 or later (for TIFF)

The following applications are supported on Windows Server 2012:

- Microsoft Office 2007 SP1 or later

- IrfanView 4.23 or later (for TIFF)

TWS DocConv and TCDCLINK are designed that additional applications can be configured and used. Other applications might work with methods further mentioned, but are not supported. Such an application needs the following capabilities:

- For TWS DocConv: Convert and save to PDF
- For TCDCLINK: Print to the default printer (VBS script) or create a PDF file (Batch)
- Silent operation without user interaction, also in case of exceptions
- Operation from a service process with no user logged on

4.4.3 Controlling an Application via Shell Execute

Document types not supported via scripts are converted by starting the printing application via the Windows Shell.

See also: *Script Files*.

4.4.3.1 Associating a File Type Manually via TCDCLINK Configuration

If no script exists for a special file type, the document converter checks if a registry value with the file type extension exists at "...\\TCDCLINK\\ShellExecPrint", e.g. ".tif". As default an example is installed as this would work with the application IrfanView:

...\\TCDCLINK\\ShellExecPrint

Name	Type	Value
.filetype	SZ	"C:\\Program Files (x86)\\IrfanView\\i_view32.exe" "%1" /print

If you want to use IrfanView e.g. with the file type TIFF, make sure that the path to the application is correct and configure the command line for the file type extensions that are used for TIFF:

...\\TCDCLINK\\ShellExecPrint

Name	Type	Value
.tif	SZ	"C:\\Program Files (x86)\\IrfanView\\i_view32.exe" "%1" /print
.tiff	SZ	"C:\\Program Files (x86)\\IrfanView\\i_view32.exe" "%1" /print

4.4.4 Stopping Applications

After document conversion, it is essential that the printing application will be available again for the next conversion. Therefore, the default handling is to close the application after each conversion. If the application does not terminate by itself (e.g. due to the code in the automation script), TCDCEXE attempts to close it. For this purpose, TCDCEXE maintains a list of processes and windows that were started during the conversion.

By default, only the printing application is closed.

But TCDCEXE can be configured to stop all new processes that started during the conversion. This is configured by setting registry value StopAllNewProcesses to 1.

Applications configured in the registry value Allowed are NOT terminated automatically.

Exact behavior if StopAllNewProcesses=0 (default)

- If document conversion is done using a script, TCDCLINK checks the {WATCH=xxx} statement within the script. The WATCH statement typically contains an executable name, for example

“Iexplore.exe”. After the conversion, TCDCLINK terminates those newly created processes, which are listed in the WATCH statement.

- If document conversion is done without a script (for example using ShellExecPrint), TCDCLINK takes a process snapshot before and after document conversion. All new processes are terminated after document conversion, except processes listed in the Allowed list.

Exact behavior if StopAllNewProcesses=1

- In this mode, TCDCLINK compares the processes running before and after conversion and terminates all new processes except those listed in the Allowed list. The WATCH statement in the script is not considered.

Exact behavior of the Allowed\Name0 to Name20

- Enter a list of allowed modules without file extension. The check is case-insensitive.
- We recommend to include the following processes:
- TCDCLINK\Allowed\Name0=csrss
- TCDCLINK\Allowed\Name1=WmiPrvSE
- TCDCLINK\Allowed\Name2=splwow64
- TCDCLINK\Allowed\Name3=spoolsv

4.4.5 Exclusive Locking

The document converter can only do one conversion at a given time. While a conversion is active, the converter is locked and not available for further conversions. Other applications must wait until the current conversion is finished, or until a timeout occurs. This can cause a performance reduction.

Exclusive locking is done via a Mutex object. Maximum wait time for document converter availability can be configured via registry value MutexRetries.

There are three reasons for this exclusive locking:

- It must be guaranteed that the correct printer is used for each conversion. Document conversion uses the default printer. For every conversion, the default printer is changed according to the required target format (TCL, TIFF, PDF).
- It must be guaranteed that the printing application is under the sole control of a single document conversion process. Document conversion actively controls the printing application, including a forced stop of the application (if needed).
- It must be guaranteed that each conversion returns its own print output.

4.4.6 Default Printer Changes

TCDCEXE always uses the default printer. If necessary, it changes the default printer before the conversion. Any application that is configured to stay open all the time (via registry keys below ... \TCDCLINK\Run) must be informed when the default printer has been changed. Otherwise, document conversion will fail as the wrong printer will be used.

Information about default printer changes is sent as a broadcast message to all windows of all running applications on the local computer..

Printer change broadcast is enabled via the following registry value:

```
... \TCDCLINK\General\BroadcastPrinterChange = 1
```

As some processes might not react to such a broadcast, document conversion can be seriously delayed. It is possible to exclude processes from the broadcast if the process is not used for printing with the Document Converter.

An example for such a process is TCOSS.EXE (when the document converter and KCS server components are installed on the same computer). Generally, TCOSS does not have any windows (the command prompt you see when allowing interact with desktop is no window in that sense), so there are no problems. However, when creating RTF cover sheets, there are (hidden) windows where the printer change broadcasts are sent to. These windows do not react on the broadcast and document conversion is delayed. To prevent this, you can set the following registry key:

```
...\TCDCLINK\General\ExcludeFromBroadcast = "tcss.exe"
```

You can use this multi-string registry value to configure other or additional processes that make similar problems and that are not used for printing by the Document Converter.

In addition, the number of broadcast messages sent to non-responsive processes is limited automatically: When the windows of a process fail to answer the broadcast for several message conversions (defined by "BroadcastTimeoutTolerance") the process is added to an internal exclusion list. The default wait timeout until a window reacts is 15 seconds. As the default values are rather high, and processes typically have lots of (hidden) windows, and this can lead to serious delays of several minutes, you may want to limit the delays by reducing the timeout and retries by e.g. the following values:

```
...\TCDCLINK\General\BroadcastTimeout = 3000
...\TCDCLINK\General\BroadcastTimeoutTolerance = 1
```

The internal exclusion list is cleared after a restart of the TCDCEXE or (for RTF printing) the TCLINK process.

4.5 Output Formats

Note: Information in this section describes mostly the legacy document conversion using printing. It does not apply when using the default conversion tool, the Kofax Converter.

Possible output formats of document conversion are TCI, TIFF, PDF and (for some document types) plain text.

4.5.1 TCI

TCI (KCS Fax Image) format is created by printing to the printer "Topcall Fax to TCDC", which is installed with KCS links or TWS.

The output resolution is defined by the client application (TCLINK, TWS), and can be one of the following:

Name	Description
Fine 204 dpi	204 * 204 dpi
Normal 204 dpi	204 * 204 dpi, pixel lines duplicated
Fine 200 dpi	200 * 200 dpi
Normal 200 dpi	200 * 200 dpi, pixel lines duplicated
Fine	204 * 196 dpi
Normal	204 * 98 dpi

4.5.2 Plain Text

Customers using the KCS Archive often want to do a full text search including file attachments, in order to find received or sent documents in a comfortable way. The document converter can provide a text alternative for several document types.

This is only possible if document conversion is done via automation. This feature is not available with application started via Shell Execute.

Before printing, the automation script causes the native application (e.g. Word, Excel) to save a copy of the file as plain text.

Saving as plain text is done in the same pass as image conversion (printing the document), this means an attachment is only opened once and impact on performance is kept to a minimum.

Only attachments for which an application exists that is able to convert to plain text and save to file are supported. The customer must provide these applications. Scripts for WinWord and Excel are delivered together with the Document Converter.

4.5.2.1 TCLINK Only:

When installing links, you can specify if text alternatives are created or not. TCLINK creates text alternatives only for documents that are converted to TCI format.

4.5.3 TIFF

TIFF image format is created by printing to the printer "Topcall TIFF to TCDC", which is installed with KCS links or TWS. All file types are converted this way, even files that are already in TIFF format (in order to have the correct resolution and TIFF subtype). In this case, the original TIFF content is replaced by the file created by the TIFF printer.

The output compression, color mode and resolution are defined in the printer preferences. The following values are supported:

Compression	Color mode	Resolution
TIFF G4, TIFF JPEG, TIFF Packbits, TIFF no Compression	Black & White, Grayscale, Color	200 dpi, 300 dpi

4.5.4 PDF

PDF conversion is done via a PDF printer of customer choice installed on the operating system. A PDF printer creates a PDF file instead of printing on a real printer. This PDF printer is not part of KCS, it must be chosen (there are many PDF printers on the market), obtained and installed separately.

Note: The document converter does not try to build a PDF alternative for files that are already in PDF format. These files are taken just as they are, no check is done whether the PDF attachment meets the configuration settings for PDF conversion.

If the document converter works in background mode, the TCSRVR service must be allowed to interact with desktop. Otherwise, printing to the PDF printer is not possible.

When using Acrobat PDFWriter 5.0: Conversion of national character sets (e.g. Greek, Japanese) is only possible if the installed Acrobat PDFWriter supports the character set. With an English version of Acrobat PDFWriter 5.0, these character sets are not supported.

4.5.4.1 PDF Printer Driver Requirements

There are many PDF printers available on the market, also some freeware. However, the PDF printer has to meet certain conditions to be usable for document conversion:

- 1) The PDF printer must support non-interactive (silent) mode. (=no popups / no waiting for user input during the printing) Most PDF printers meet this condition.
- 2) The method to define/set the output PDF file name on the PDF printer driver is of relevance, too. (The different PDF printers on the market use slightly different methods to take over the output file

name in non-interactive mode.) The PDF printer driver must support one of the following three methods of output file name definition: (Actually, a PDF printer driver which supports non-interactive mode most probably meets this condition.)

Method 1) The output file name can be configured by writing the full path name into a given registry setting.

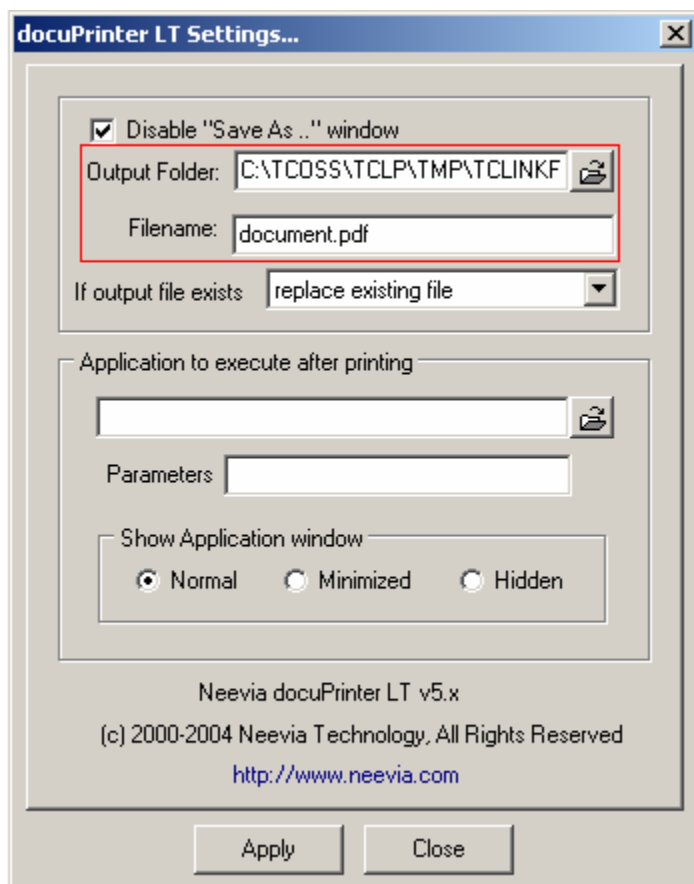
Example: Acrobat PDFWriter (part of Adobe Acrobat 5). The output file name must be set in the registry setting

HKEY_CURRENT_USER\Software\Adobe\Acrobat PDFWriter\PDFFileName

This configuration of the output PDF file is not necessarily permanent, e.g. in case of Acrobat PDFWriter, the printer driver deletes this registry setting immediately after printing.

Method 2) It is possible to configure a permanent output PDF file name on the PDF printer driver with some configuration utility program, normally on the printer properties dialog. Once configured by the technician, all printed output will have this (same) name.

Example: docuPrinter from Neevia offers the following manual configuration possibility: (Start -> Settings -> Control Panel and clicking the docuPrinter icon)

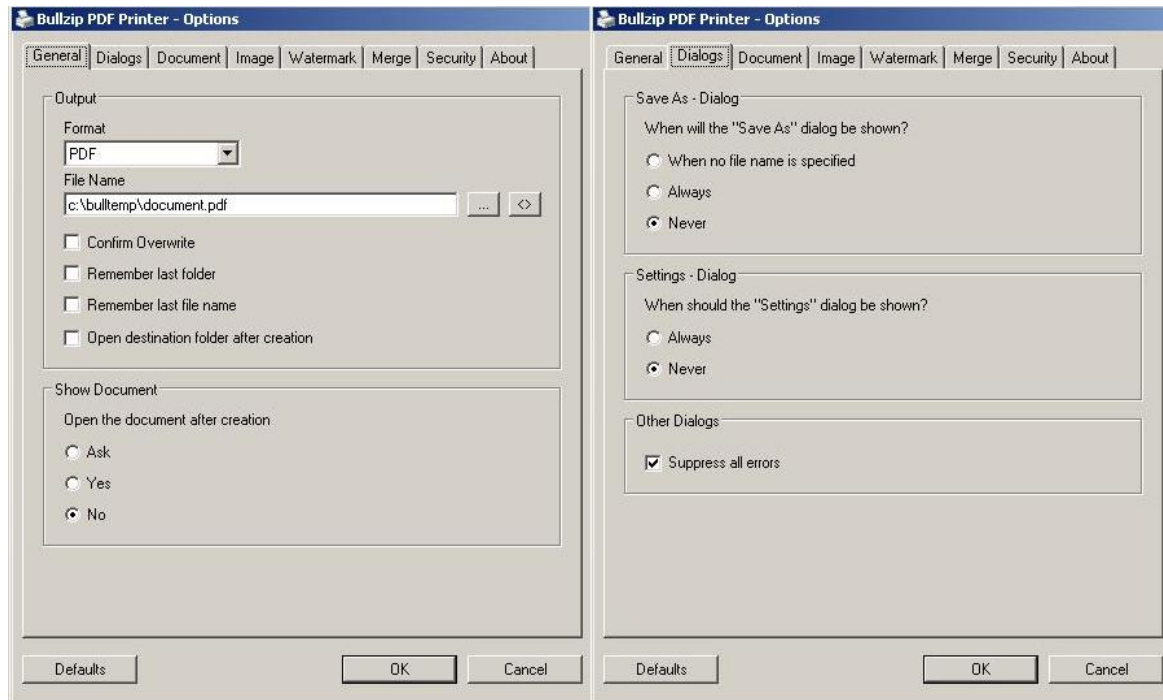


Note: These settings are valid for the logged in user account. If TCDCEXE uses the system account, the changes must be done in the registry:

Registry value	Type	Value
HKEY_USERS\DEFAULT\Software\NEEVIA\Neevia docuPrinter\FileMask	SZ	document.pdf

HKEY_USERS\DEFAULT\Software\NEEVIA\Neevia docuPrinter\OutputPath	SZ	C:\TCOSS\TCLP\TMP\TCLINKFI\
HKEY_USERS\DEFAULT\Software\NEEVIA\Neevia docuPrinter\Option_SaveAs_Visible	DWORD	0

Example: The Bullzip PDF printer has a configuration application where you can set the output file name and disable dialogs.



These settings are stored per user in a file called settings.ini. If TCDCEXE uses the system account, you need to copy the settings file to a different folder.

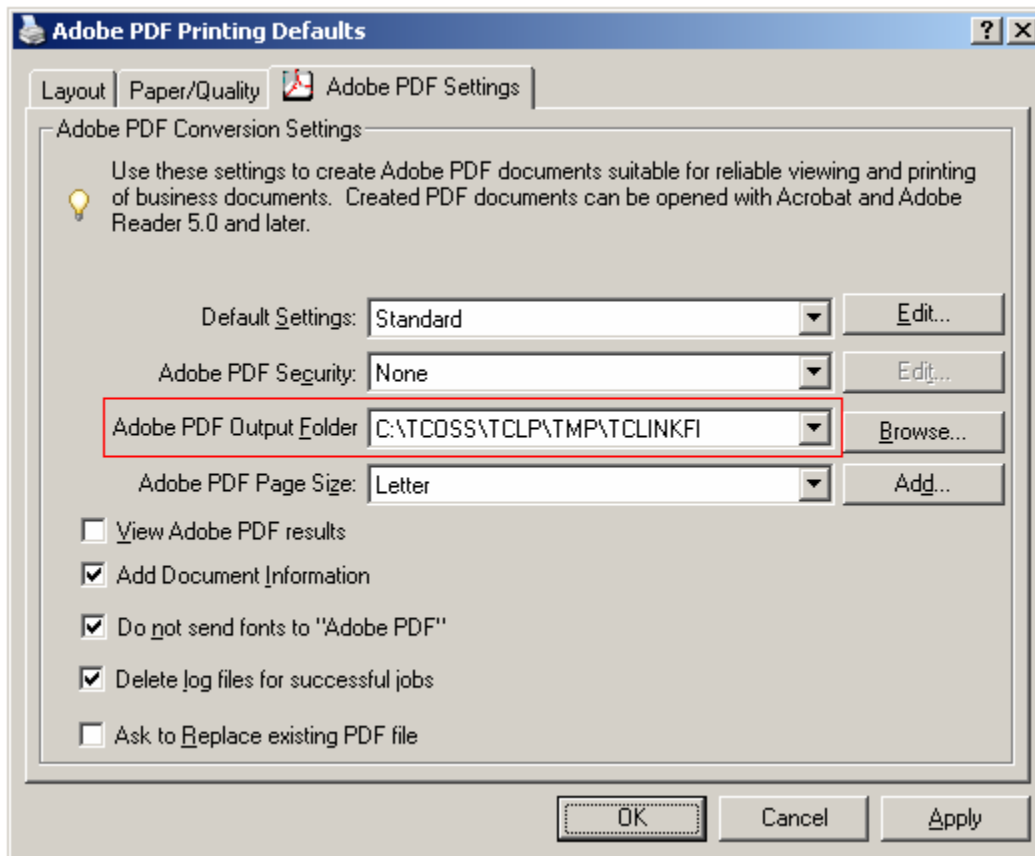
The default path for Bullzip version 7.1.0007 is {CSIDL_APPDATA}\PDF Writer\Bullzip PDF Printer\.. E.g., on Windows Server 2008 R2, user Administrator, this is C:\Users\Administrator\AppData\Roaming\PDF Writer\Bullzip PDF Printer\. For older Bullzip versions, refer to http://www.biopdf.com/guide/configuration_files.php.

The required path depends on the operating system:

Windows 2008 32-bit	%windir%\config\systemprofile\AppData\Roaming\ PDF Writer\Bullzip PDF Printer
Windows 2008 R2	%windir%\SysWOW64\config\systemprofile\AppData\Roaming\PDF Writer\Bullzip PDF Printer

Method 3) The name of the output PDF will be the same as the input file name, but with .PDF extension. The permanent output folder can be configured on the PDF printer driver with some configuration utility program, normally on the printer properties dialog.

Example: Adobe PDF (part of Adobe Acrobat 7) offers the following configuration possibility: (Printer Properties / Advanced tab / Printing Defaults... button)



4.5.4.2 TCLINK Configuration

With TC/LINK, PDF printer usage is configurable separately for every link instance.

TC/LINK does not automatically recognize the installed PDF printer, and it has no built-in knowledge about PDF printer types. Therefore, the following attributes of the PDF printer have to be configured:

- PDF printer name
- The method of defining the output file name
- The method of printer configuration

These definitions have to match the actual behavior of the PDF printer and its settings, e.g. output file name or output folder.

...\[LinkXY]\PDFPrinter (contains information about the PDF printer itself) and

...\[LinkXY]\PDFPrinter\Parameter (contains options for printing)

If no PDF printer is configured for the link instance, a default Acrobat PDFWriter configuration is created automatically at the first PDF printing after the TC/LINK start, regardless which PDF printer type is really installed.

Note:

Older link versions (TCDC32 < V2.19.00, TC/LINK < 2.17.03) supported only Acrobat PDFWriter, and used a different registry sub key (PDFWriter) for the PDF printer settings. If TCLINK finds an old Acrobat PDFWriter configuration, the old configuration will be copied automatically into the new registry structure (PDFWriter to PDFPrinter/Parameter) during the first PDF printing after TC/LINK start.

Registry values (below ...\[LinkName](#)\PDFPrinter):

Key	Type	Values
PrinterName	SZ	Free string
OutFileNameSetMethod	SZ	"registry", "fixed" or "same_as_input"
OutFileNameDef	SZ	Free string
OutFileNameRegPath	SZ	Free string
PrinterConfigSetMethod	SZ	"registry" or "no_config"
PrinterConfigRegPath	SZ	Free string
Parameter\ parameter-name	SZ or DWORD	PDF printer driver specific

Sample configurations:

The registry settings in the following samples were taken from 32-bit Windows systems.

Registry export file for Adobe PDF (Adobe Acrobat 7):

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCLINKFI\PDFPrinter]
"PrinterName"="Adobe PDF"
"PrinterConfigSetMethod"="no_config"
"OutFileNameSetMethod"="same_as_input"
"OutFileNameDef"="C:\\TCOSS\\TCLP\\TMP\\TCLINKFI"
```

Registry export file for Acrobat PDFWriter (Adobe Acrobat 5):

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCLINKFI\PDFPrinter]
"PrinterName"="Acrobat PDFWriter"
"OutFileNameSetMethod"="registry"
"PrinterConfigSetMethod"="registry"
"PrinterConfigRegPath"="HKEY_CURRENT_USER\\Software\\Adobe\\Acrobat PDFWriter\\"
"OutFileNameDef"="PDFFileName"
"OutFileNameRegPath"="HKEY_CURRENT_USER\\Software\\Adobe\\Acrobat PDFWriter\\"

[HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCLINKFI\PDFPrinter\Parameter]
"colorqual"="3"
"compatibility"="1"
"cpheightwhole"="792"
"cpmarginwhole"="18"
"cpwidewhole"="612"
"custom"="0"
"monotype"="0"
"orient"="1"
"paper"="0"
"res"="2"
```

Registry export file for Redmon (Rumborak) PDF printer:

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCLINKFI\PDFPrinter]
"PrinterName"=" Rumborak PDF-Writer Plus 1.0RC9"
"PrinterConfigSetMethod"="no_config"
"OutFileNameSetMethod"="fixed"
"OutFileNameDef"="C:\\TCOSS\\TCLP\\TMP\\TCLINKFI\\doc.pdf"
```


Registry export file for Neevia "docuPrinter":


```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCLINKFI\PDFPrinter]
```


```
"PrinterName"="docuPrinter"
"PrinterConfigSetMethod"="no_config"
"OutFileNameSetMethod"="fixed"
"OutFileNameDef"="C:\\TCOSS\\TCLP\\TMP\\TCLINKFI\\doc.pdf"
```


4.5.4.3 TWS Configuration


The TWS configuration contains similar settings (see also section Configuration via TWS Utilities)




TCOSS Web Services Configuration



 **TCOSS**

 **HTTP Settings**

 **File Types Converted via TCIMGIO**

 **PDF Printer Settings**

Name	<input type="text" value="Bullzip Pdf Printer"/>	
Output File Name	<input type="text" value="fixed"/>	Defines how the output file name is built
Fixed Output File Path	<input type="text" value="c:\\bulltemp\\document.pdf"/>	Full path name of output file
Registry Subkey	<input type="text"/>	Registry subkey
Registry Value	<input type="text"/>	Registry value holding output file name
Output Folder	<input type="text"/>	Full path name of output folder
Printer Configuration Registry Path	<input type="text"/>	Location of printer configuration

 **PDF Printer Parameters**

The following table shows how the input fields are correlated with the configuration parameters that are used internally:

Field caption	Configuration Parameter
Name	PrinterName
Output File Name (fixed, from registry, same as input)	OutFileNameSetMethod
Fixed Output File Path	OutFileNameDef (for fixed output file name)
Registry Subkey	OutFileNameRegPath (for output file name from registry)
Registry Value	OutFileNameDef (for output file name from registry)
Output Folder	OutFileNameDef (for output file name same as input)
Printer Configuration Registry Path	PrinterConfigRegPath

4.5.4.4 Configuration Parameter Details

PrinterName

Name of the installed PDF printer to be used (see Start | Settings | Printers and Faxes).

OutFileNameSetMethod

This setting indicates the method to define the name of the output file. Possible values:

- “registry” must be used for PDF printers using **Method 1** to define the output file name as described in the *PDF Printer Driver Requirements* section.

The PDF printer takes the output file name from a registry value. The name of this registry value is defined in parameter OutFileNameDef, and its parent registry key is defined in parameter OutFileNameRegPath. Before using the PDF printer, the document converter writes the expected output file name to the registry value defined by these two parameters.

OutFileNameSetMethod = “registry”

OutFileNameDef = <name of registry setting used to configure the output PDF file name>

OutFileNameRegPath = <registry path for the above registry setting>

- “fixed” must be used for PDF printers using **Method 2** to define the output file name as described in the *PDF Printer Driver Requirements* section.

The printer can only print to a previously specified, “fixed” file. Parameter OutFileNameDef has to contain the complete path name of the output file. With TCLINK, it is recommended to use the TMP directory of the individual link instance. The resulting file name would be e.g. C:\TCOSS\TCLP\TMP\TCLINKxy\doc.pdf. Please note that you have to configure this name on the PDF printer as output file name.

With this configuration, parameter OutFileNameRegPath is not used.

OutFileNameSetMethod = “fixed”

OutFileNameDef = <output PDF file name with full path, must be the same as configured on the PDF printer driver!>

- “same_as_input” must be used for PDF printers using **Method 3** to define the output file name as described in the *PDF Printer Driver Requirements* section.

The PDF printer has a fixed output folder, where it creates a PDF file with the same base name as the input file. Parameter OutFileNameDef defines the output folder configured on the printer. With TCLINK, it is recommended to use the TMP directory of the individual link instance, i.e. C:\TCOSS\TCLP\TMP\TCLINKxy. Please note that you have to configure this folder on the PDF printer as well.

With this configuration, parameter OutFileNameRegPath is not used.

OutFileNameSetMethod = “same_as_input”

OutFileNameDef = <output folder, must be the same as configured on the PDF printer driver!>

OutFileNameDef

Depending on parameter OutFileNameSetMethod, this parameter holds either the name of a registry value, or the complete path name of the output file or the output folder. See the description of parameter OutFileNameSetMethod for detailed configuration instructions.

OutFileNameRegPath

This parameter is used only if parameter OutFileNameSetMethod is set to “registry”. It holds the parent registry key below which the printer expects the registry value defining the output file name. See the description of parameter OutFileNameSetMethod for detailed configuration instructions.

PrinterConfigSetMethod

Some PDF printers can be configured to define some printing options, e.g. orientation, color mode, resolution, etc. It is possible to define these configuration settings in TCLINK / TWS configuration, via individual Parameter values. The document converter transfer these parameters onto the PDF printer. The advantage is that each link instance can have its own PDF printer settings. There is, however, the restriction that this is possible only with PDF printers that use the registry for its configuration. In this case, all parameter settings are simply copied to the relevant PDF printer configuration registry folder. Acrobat PDFWriter is an example of such a PDF printer, and its configuration registry folder is: “HKEY_CURRENT_USER\Software\Adobe\Acrobat PDFWriter\”.

Possible values:

- “registry”: this setting can be used only for PDF printers that can be configured in the registry. In this case, parameter PrinterConfigRegPath must define the PDF printer’s configuration registry folder, e.g. HKEY_CURRENT_USER\Software\Adobe\Acrobat PDFWriter\ for Acrobat PDFWriter. The individual Parameter values hold the print options, each consisting of the PDF printer specific parameter name and value. For instance, Acrobat PDFWriter uses parameter names like “colorqual”, “compatibility”, “cpheightwhole”, and many more.
- “no_config”: indicates that printing options cannot be defined in TCLINK or TWS configuration. You can still use the Printer Properties dialog for this kind of configuration, but once set, it applies to all applications using this PDF printer.

Parameter\<parameter-name>

These configuration values are only valid if parameter PrinterConfigSetMethod is set to “registry”. These are the printer driver specific printing options that are used for the PDF printing.

Possible settings in case of “Adobe PDFWriter”:

For this printer, all parameters are string values (even if they are interpreted as numbers).

Note: If these parameters are not defined, TCLINK writes the default values to the registry.

Key	Values	Default	Description
Colorqual	0 = JPEG High, 1 = JPEG Medium-High, 2 = JPEG Medium, 3 = JPEG Medium-Low, 4 = JPEG Low, 5 = LZW	3	Compression type used for color and grayscale images.
compatibility	0 = 1.1, 1 = 2.1	1	Indicates compatible version of the PDF specification.
cpheightwhole	points, > 0	792	Document height, whole part.
cpmarginwhole	points, ≥0	18	Margins, whole part.
cpwidewhole	points, > 0	612	Document width, whole part.
custom	0 = no, 1 = yes	0	Custom paper size.

Key	Values	Default	Description
monotype	0 = CCITT3, 1 = CCITT4, 2 = LZW, 3 = RLE	0	Compression type used for monochrome images.
orient	1 = Portrait, 2 = Landscape	1	Portrait or Landscape.
paper	0 = Letter, 1 = Legal, 2 = Tabloid, 3 = A4, 4 = A3, 5 = Executive, 6 = B4, 7 = B5, 8 = Screen	0	Size of the paper if not using custom paper size.
res	dots per inch 0 = Screen, 1 = 150, 2 = 300, 3 = 600	2	Resolution used for images.

For a detailed description of the available options, please see the documentation of Acrobat PDF Writer.

Restrictions: Some of these options are ignored when printing via certain applications.

4.6 Kofax Converter

Kofax Converter (or KfxConverter) is the default built-in tool for converting Microsoft Office and HTML documents. Microsoft Office and Internet Explorer are not necessary when converting such documents using Kofax Converter.

Documents that Kofax Converter fails to convert are treated just like other *Failed Documents*.

Note 1: The maximum system memory usage limit for KofaxConverter is up to 4GB. The limit of the input file size may vary depending on the number of pages in a document, type of document, and type of conversion.

Note 2: Currently, KfxConverter cannot create text alternatives.

4.6.1 Multiple Instances

Multiple instances of Kofax Converter can run simultaneously, if various TC/LINK or TWS instances request a conversion.

In TC/LINK, the default number of instances is 1. You can modify this in the registry value TCDCLINK\Conversion\ConverterInstances. The maximum value is 3.

In TWS, you can modify the number of instances using KCS Capture Connector configuration. The maximum value is 8.

4.6.2 Normalize PDF Documents to PDF/A

Kofax Converter can convert documents to an ISO-standard version of PDF documents, the PDF/A format.

In KCS Capture Connector, you can enable this feature in the destination settings, parameter "Normalize PDF documents to PDF/A".

PDF/A standard has multiple variants. The default variant used by document conversion is PDF/A1B. You can change to a different PDF/A variant by editing the conversion script and replacing PDF/A1B with PDF/A2B.

To enable the PDF/A conversion in TC/LINK, set the following registry keys to the specified values:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\TOPCALL\TCDCLINK\Conversion\NormalizePdfType to "PDF/A" and
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\TOPCALL\<LinkName>\General\AltForceBinToPDFI to "2"

4.6.3 PDF XFA Forms

Conversion of XFA forms to PDF/TIFF is supported by KCS Capture Connector (TWS) and TC/LINK (TCDCLINK) via Adobe LiveCycle Server. Access to an Adobe LiveCycle Server is necessary for this purpose. This is not provided by Kofax.

KCS Capture Connector (TWS) and TC/LINK use the web service provided by Adobe LiveCycle to convert XFA Forms to static PDF. The web service converts (flattens) the XFA form to a flat PDF document and the returned static PDF is further converted to TIFF using the Kofax Document Converter functionality.

Adobe LiveCycle Server has to be installed on any computer and its web service has to be exposed in a way that TWS or TC/LINK can access it.

Note: 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.

4.6.3.1 Configuration in TC/LINK

During link setup, enable Adobe LiveCycle Server and specify the URL, user name, and password for connecting to the server.

Alternatively, you can perform the configuration in the registry: see section *Location*:
...\TCDCLINK\Conversion\10.

Name	Type	Default
Enabled	DWORD	Default is 0. If conversion with OpenOffice.org is required, do the following: 1. Install OpenOffice.org 3.2.x. 2. To install the conversion to PDF extension for OpenOffice.org, run \\kcs\OpenOfficeExtension\install.bat from KCS setup folder. 3. Set the value of Enabled to '1'.
Extension	REG_SZ	odp otp sti sxi odg otg std sxd odt ott stw sxw ods ots stc sxc doc docx dot dotm dotx docm xls xlsx xlm xlt xlsx xltm xlsx xlam csv ppt pptx pot pptm potx potm pps ppsx sldx sldm txt rtf
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	OoToPdf.bat (SourceFile) (TargetFile)

Location: ... \TCDCLINK\Conversion\11.

Name	Type	Default
Enabled	DWORD	1
Extension	REG_SZ	odt ods odp
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	KfxConverter.bat (SourceFile) (TargetFile) (TargetFolder) (ConverttoType)

Adobe LiveCycle Parameters.

4.6.3.2 Configuration in TWS

See section *Adobe LiveCycle Server*. Configure the parameters, save the configuration, then restart TWS.

4.6.3.3 Using Kofax Converter Directly

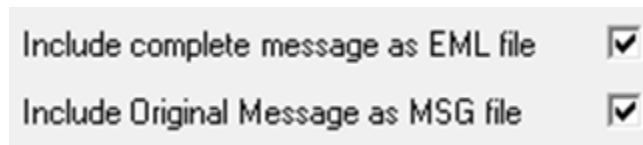
The KFXConverter batch file and executable can be called with the following parameters for Adobe LiveCycle Server support:

- Adobe LiveCycle Server web service URL,
- Authentication
- User Name
- Password
- Enable ALC Conversion (This can be set by a checkbox in KCS Capture Connector).

4.6.4 MSG and EML Format

TWS document conversion can convert between MSG and EML format. Documents are converted using the tool Kofax Converter.

In KCS Capture Connector, the following configuration parameters are used to manage this function:



4.6.5 Advanced Configuration

You can configure some parameters of Kofax Converter by editing the file KFXConverter.ini in a text editor. This ini file is located in the same folder as the Kofax Converter executable, by default:

C:\TCOSS\TCLP\script\bin\KfxConverter\

KCS setup installs the file KFXConverter_Default.ini to the same folder. When document conversion starts and KFXConverter.ini does not exist, the file is created (a copy of KFXConverter_Default.ini). An existing KFXConverter.ini is not modified by setup.

The following parameters are available:

Group	Parameter name	Default Value	Description
EML2PDF	EnableMargin	False	KFXConverter will consider the Margin parameters and the parameter PgNmDistFromHeader only if this value is set to true.
	LeftMargin	3.175 cm	Left margin of page (in centimeters).

	RightMargin	3.175 cm	Right margin of page (in centimeters).
	TopMargin	2.54 cm	Top margin of page (in centimeters).
	BottomMargin	2.54 cm	Bottom margin of page (in centimeters).
	PgNmDistFromHeader	1.3 cm	Page number distance from header (in centimeters).
	EnableFontSize	False	KFXConverter will consider "FontSize" parameter only if this value is set to true. Note: All the text in the converted PDF file will be of same font size, if this parameter is set to true
	FontSize	12	Font size in points.
	DateFormat		Defines the date format. If empty, the default date format is used. Examples: DateFormat="dd-MMM-yy" DateFormat="yyyy-MM-dd" For more information, see http://msdn.microsoft.com/en-us/library/8kb3ddd4(v=vs.110).aspx
	ResizeLargeImages	2	Resize the images that are larger in size. The following options are available: 0 - Image is not resized. 1 - The image size is compared with the section size of the document. If the image size is larger than the section size, image is resized to fit the section. 2 - Free space is calculated based on whether an image is inline or floating. The image resize ratio to fit the page size is calculated as per the longer side of the image, and then the image is resized. Note: If ResizeLargeImages is set to 0 when the input file contains large size images, file conversion may result in data loss.
	FitTableWidthToPage	True	Resize the table width in an output PDF file when converting EML files (including body with message header). If set to true, KFXConverter sets the table width based on the page size in output PDF files.
PDF2PDF	ALCWebServiceTimeout	1200 sec	Adobe LiveCycle web service

			timeout in seconds
TEXT2PDF	FontType	Arial Unicode MS	Can specify the font type for the generated pdf Specified font should be installed in the machine in which KFXConverter is used.
EXCEL2PDF	FitAllColumnsToOnePage	True	All the columns are set to one page if this value is set to true
	PaperOrientation	-1	Defines the paper orientation. Default is -1, for Landscape 0, for Portrait 1
	PaperSize	Default	If set to default, this will disable the papersize setting.
	ConvertSheets	All	KFXConverter will convert the pages according to the values specified in field. Possible values are All, Active, 1, 2, 3 etc. Specify the values as comma separated values. For example: ConvertSheets=Active,1 This is will convert the first page and the active page. ConvertSheets=All This is will convert all the pages. Note: If a blank page is selected for conversion and no printable area is selected in excel, this page will be ignored at the time of conversion. But, if a blank page with defined printable area is selected for conversion, KFXConverter will convert this page into pdf.
	EnableMargin	False	KFXConverter will consider the Margin parameters only if this value is set to true.
	LeftMargin	1 cm	Left margin of page (in centimeters).
	RightMargin	1 cm	Right margin of page (in centimeters).
	TopMargin	1 cm	Top margin of page (in centimeters).
	BottomMargin	1 cm	Bottom margin of page (in centimeters).
HTML2PDF	EnableMargin	False	KFXConverter will consider the Margin parameters only if this value is set to true.
	LeftMargin	0.3528 cm	Left margin of page (in centimeters).
	RightMargin	0.3528 cm	Right margin of page (in

			centimeters).
	TopMargin	2.54 cm	Top margin of page (in centimeters).
	BottomMargin	2.54 cm	Bottom margin of page (in centimeters).
MHT2PDF	EnableMargin	False	KFXConverter will consider the Margin parameters only if this value is set to true.
	LeftMargin	3.175 cm	Left margin of page (in centimeters).
	RightMargin	3.175 cm	Right margin of page (in centimeters).
	TopMargin	2.54 cm	Top margin of page (in centimeters).
	BottomMargin	2.54 cm	Bottom margin of page (in centimeters).
EXTERNALRESOURCELOADING	LoadExternalResources	True	If set to False, when converting EML or MSG documents, KFXConverter will not download any externally linked resource. For example, if LoadExternalResources = false, KFXConverter will not download an image from an internet hyperlink.
GENERAL	OriginalDocumentFolder		If document conversion is failed and path is valid, original file is saved at this path.
	EnablePageHeader	True	If EnablePageHeader=false, it will disable the page number displayed on top of each page.
	EncodingType	UTF-8	If encoding type is defined in the input files, KFXConverter uses the same for converting the documents; otherwise, the default encoding type or the value specified for the EncodingType parameter is used. The encoding type is only applicable for HTML, MHT and EML file formats.
TryFlattenXFA	TryFlatteningXFAWithoutALC	False	If set to true, enables flattening of XFA forms when Adobe LiveCycle is not available. Make sure the Legacy option is selected in the PDF to PDF/A conversion engine field in TWS. Note: Kofax recommends that you use Adobe LiveCycle for flattening of XFA forms; use of any other tool may result in an unpredictable output.

4.6.6 Trace Files

The default name of the log file is KFXConverter.log. The default location is the same folder as the executable, by default:

C:\TCOSS\TCLP\script\bin\KfxConverter\

The maximum log file size is 5 MB. The file is overwritten when the maximum size is reached. You can specify another log file using the command line option - logFile <path>\<filename>, for example - logFile C:\temp\mylog.log.

4.7 Error Handling

4.7.1 Failed Documents

Documents that could not be converted are stored in a folder where they can be analyzed by the system administrator.

If a document conversion fails in Background Mode, the document is written to the Problems folder.

The folder location is defined in registry value *ProblemPath* below ... \TCDCLINK\General. The maximum folder size is defined in registry value *ProblemSize*.

A maximum size of 0 disables usage of the folder. With other values, an event log message is written as soon as the maximum folder size is reached, and no more files are copied to the folder.

To prevent overwriting of existing files, TCDC adds an underscore together with a serial number to ensure unique filenames.

Example:

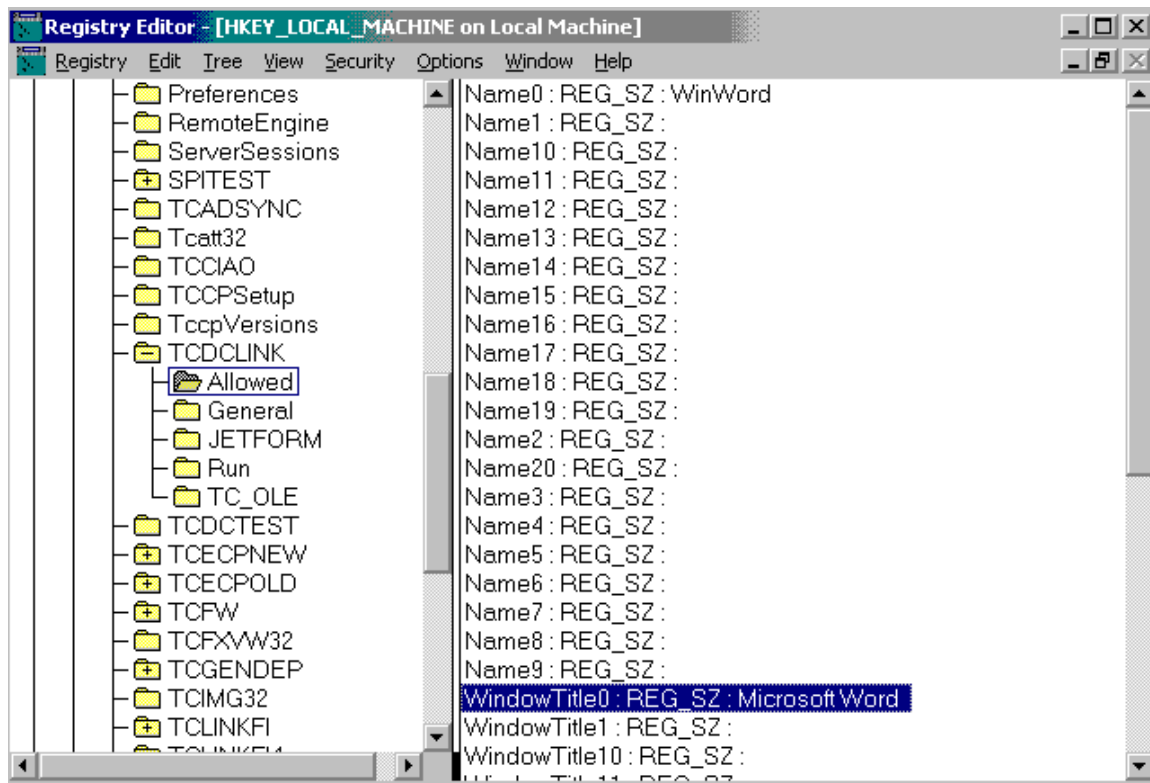
The directory contains a file named word.doc. If now another document fails with the same name, it is written to this directory as word_0.doc. The next occurrence is called word_1.doc, the next word_2.doc etc.

If the filename exceeds the maximal length of 256 characters, the file is not put to this directory.

4.7.2 Applications

If document conversion failed and the new windows could not be closed, TDCCEXE terminates all processes that were started due to Run entries in the registry. Afterwards these applications are restarted automatically.

The following screen shot shows the registry entry for Microsoft Word:



4.7.3 Temporary Files

As the Document Converter uses various applications for printing documents, it may happen that applications hang/wait for user input and therefore have to be terminated ungracefully. In these cases temporary files may be left over and eventually fill up the disk, leading to decreased system performance.

For this reason the Document Converter observes the system temp folder (typically: c:\windows\temp). If during the printing process additional files are put there, they are removed (by default only if an application hang and had to be terminated by using "TerminateProcess").

On Windows 2008 (or higher) additionally the user temp folder of the configured TcdcLink/DcomUser (registry ... \TCDCLINK\UserId) is observed. This is necessary as the Microsoft Office Applications run under the context of this user and put their temporary files in the temp folder of this user.

Attention:

- Document Converter Temp File Monitoring assumes that no other processes leave unlocked temporary files in the monitored folders. If any files are put there while the Document Converter is printing, they may be removed.
- You should check that there are not too many files in the monitored folders, as this might decrease performance of the Document Converter.

4.8 Configuration

4.8.1 Registry Keys

The document converter settings are stored below registry key ... \TCDCLINK. If you change these settings you need only to restart the application TDCCEXE and not the calling application (e.g. TCLINK.EXE, TWS).

4.8.1.1 Parameters for Tracing and Process User

Parameter TraceLevel affects TCDCLINK trace file and client trace file. All other parameters control only the TCDCLINK trace file.

Location: ... \TCDCLINK

Name	Type	Default	Description
MaxTraceFileSize	DWORD	1024	Maximum size of a single trace file. Trace data gets added to the current file until the file size reaches this value. Then the trace is continued in a new trace file.
MaxTraceFiles	DWORD	2	Maximum number of TCDCLINK trace files. The trace files are numbered from 0 to MaxTraceFiles-1. When the maximum number is reached, trace output continues in trace file number 0.
TraceToFile	DWORD	1	Enables output to trace file.
AppendTrace	DWORD	1	If this value is zero, the current trace file is truncated when TCDCEXE starts. If this value is non-zero, TCDCEXE appends trace data to the current trace file after a restart. If this value is non-zero, it automatically changes during run-time to store the number of current trace file.
TraceLevel	DWORD	2	This value determines how much logging information is written to the trace files. For troubleshooting, it should be increased to 200.
TraceToScreen	DWORD	0	Enables/Disables the output of trace information to the screen. This value must be 0, as TCDCEXE does not have a console window.
UserId	SZ		TcdcLink-User id (needed on Windows 2008+). The TCDCLINK process runs with this user. Several configurations on Windows 2008+ (Office Dcomcnfg user, TC/LINK-LN user, logged on user during tests) have to match this user. This user must be a member of the local Administrators group.
UserMode	DWORD		User mode for DCOM user of Microsoft Office applications (only Windows 2008 or higher): 0 - Current configuration - the DCOM user settings are not changed (for Windows versions before 2008, for updates of previously configured systems, or for manual DCOM configurations) 1 - Test Mode - the DCOM user settings are set to "Interactive" 2 - Productive Mode - the DCOM user settings are set to the TCDCLINK user specified by the following keys
Domain	SZ		TcdcLink-User domain
Password	SZ		TcdcLink-User password
LogonType	SZ		Logon type (+N for Windows 2008 and later)

4.8.1.2 Parameters for Application Control

Document types not supported via Automation are converted by starting the printing application via the Windows Shell. For each file extension you have to create a registry value with path and printing command for the application.

Location: ... \TCDCLINK \ShellExecPrint

Name	Type	Description
.filetype	SZ	Default example for printing with IrfanView: "C:\Program Files (x86)\IrfanView\i_view32.exe" "%1" /print
.<EXT>	SZ	Create a registry value for each file type with the print command.

4.8.1.3 Configuration Parameters for Printer Broadcast Messages

Location: ... \TCDCLINK \General

Name	Type	Default	Description
BroadcastPrinterChange	DWORD	1	0: do not send broadcast message when changing default printer (to be used on Exchange server) 1: Send notification message to each window individually with timeout from regkey BroadcastTimeout. Processes which timeout more often than allowed in key BroadcastTimeoutTolerance do not longer have their windows notified See also the "Hints" of the "Binary Format Conversions (TC/DC)" section.
BroadcastTimeout	DWORD	15000	Used only if BroadcastPrinterChange is 1. Timeout in ms for sending a printer change notification to a window
BroadcastTimeoutTolerance	DWORD	5	Used only if BroadcastPrinterChange is 1. Specifies in how many document conversions a process may exceed the timeout (specified by the BroadcastTimeout registry key) when one of his windows is notified of a default printer change.
ExcludeFromBroadcast	MULTI_SZ		Used only if BroadcastPrinterChange is 1. Processes configured in this key will not receive broadcast messages after change of the default printer. Enter the module name of the process, without the path. For example: winword.exe
NotifyChildWindows	DWORD	1	Used only if BroadcastPrinterChange and NotifyWindowsOnAllDesktops are set to 1. If set to 0 only the main window of each process is notified of a default printer change. Otherwise all child windows are also notified.

NotifyWindowsOnAll Desktops	DWORD	1	Used only if BroadcastPrinterChange is 1. If set to 1, all desktops of the process' Windows Station are scanned for windows which are notified of the default printer change. If set to 0 only the windows of the current desktop are notified.
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4.8.1.4 Other General Parameters

Location: ... \TCDCLINK \General

Name	Type	Default	Description
HtmlOfflineMode	DWORD	0	0: Remote parts of the HTML are loaded 1: No remote parts of the document are loaded
IgnoredExtensions	MULTI_SZ	PRN PCL PS WAV TCS	The document converter ignores these file types and does not return an error. The calling application (e.g. TCLINK) uses only the binary file. In addition to this list, COM, EXE, BAT, and REG are ignored in any case. unconverted. Note: Document converter installation always adds the default extensions to this list.
RejectedExtensions	MULTI_SZ		The document converter rejects these file types and causes an error for the calling application. With TCLINK default settings, a non-delivery notification is returned.
MutexRetries	DWORD	100	During a conversion, the document converter is locked and unavailable for other applications. This is done via a Mutex object. This parameter determines how many retries are made to take over control.
MultiTimeOut	DWORD	0	Wait timeout (in seconds) for multiple print jobs. Important if whole workbooks shall be printed in Excel (Excel starts a separate print job for each worksheet). Note: This setting is obsolete, see section Hints - Printing the Entire MS Excel Workbook
PageOrientation	DWORD	0	Default page orientation for TCI output. This registry entry only affects documents with undefined page orientation. 0: portrait 1: landscape
ProblemPath	SZ	C:\TEMP\HELPME\PROBLEMS	Path name of a directory where the background TCDC and the HelpMe mode puts documents that cannot be converted. If the directory does not exist it is created automatically.
ProblemSize	DWORD	100000	Size in KByte of the Problem Directory. If this limit is reached, no more files are put in this directory and an event log message is written. To disable usage of the problems folder, set this value to zero.

SkipOLEAttachments	DWORD	1	If set to 1, this parameter disables conversion of OLE files (with the extension defined in OLEExt). This is necessary in background more, because processing of OLE files needs keyboard emulation.
StopAllNewProcesses	DWORD	0	This parameter determines which applications are automatically stopped after a conversion. 1: TCDCEXE stops all applications that started during the conversion and are not part of the Allowed modules list. 0: TCDCEXE stops only the printing application. Administrative actions during document conversion are possible. <i>See Stopping Applications.</i>
TempPathWatch	DWORD	1	Defines if left over files are removed after printing. 0: No check for left-over files. 1: If TCDCEXE must terminate an application via "TerminateProcess", it removes new files from the temporary folders. 2: After each conversion, TCDCEXE removes new files from the temporary folders.
TempPathUser	SZ	C:\Users\ %USER%\ AppData\ Local\Temp	Path of the user temp folder. The placeholder "%USER%" is replaced by the configured TcdcLink-User (registry ... \TCDCLINK\UserId). Only Windows 2008 (or higher).
TextDisabled	STRING	0	Configuration for scripts (DOC.TXT and XSL.TXT) if a text alternative is to be created. Note: For TC/LINK this is an per instance configuration; TWS however sets this per message (independent of how this key is set; afterward it is set back)
TimeOut	DWORD	300	Wait timeout (in seconds) for a reaction of the printer driver. It must be large enough that the application can load and start printing.

4.8.1.5 Parameters for JetForm Integration

JetForm integration is only supported for links installations on 32-bit Windows. The feature is described in the TCLINK manual. The following table with registry values is included only for the sake of completeness.

Location: ... \TCDCLINK\General

Name	Type	Default	Description
JFMultipleExtensionsEnable	DWORD	0	Enables (1) or disables (0) the support for multiple JetForm configuration
JFMultipleExtensions	MULTI_SZ		List of possible JetForm Extensions (if enabled). The settings for each possible extension are searched at ... \TCDCLINK\JETFORM.<EXTENSION>.

4.8.1.6 Allowed Modules

The document converter controls the starting and ending of processes during the conversion. To keep special processes alive in every case, the entries of the subtree Allowed are used. The maximum number of processes in this list is 21. The check is case-insensitive.

Location: ... \TCDCLINK \Allowed

Name	Type	Default	Description
Name<0 to 20>	SZ		Process name. Use the name of the executable rather than the name of application. Omit the extension.
Windows<0 to 20>	SZ		16-Bit applications are recognized by the window captions. Example: "Write-"

4.8.1.7 Script Files

Setup writes the configuration for TCDCLINK to the registry. The mapping between file extensions and conversion script is defined in the subtree "Conversion".

Location: ... \TCDCLINK \Conversion.

Name	Type	Default	Description
ConverterInstances	DWORD	1	Number of simultaneous KfxConverter instances. The allowed maximum value is 3.
CustomConfiguration	DWORD	0	Set this key to 1 if you don't want setup to change any of the Conversion subtree configuration after you customized it
NormalizePdfType	REG_SZ	PDF	This setting specifies the type of PDF that is created. This setting is only for conversion from other formats to PDF. Possible values are: PDF, PDF/A, PDF/A2B.
ScriptPath	REG_SZ	C:\TCOSS\TCLP\SCRIPT	Path to conversion script files

The conversion subkeys 01 - 09 define the mapping between the file extension ("Extension" key) of the file to be converted and the conversion script to be called. Additionally the "Enabled" key defines if the subkey mapping is activated. The first enabled matching mapping will be used.

The "Enabled" key might be used for switching between conversion methods. For advanced customization you might want to update the "Extension" keys. The key "ScriptCall" defines which script is called.

The key "Method" defines a mode for the script call. The following values are possible:

Value	Description
BatchToPdf	Batch file creating a PDF file. The setting for KfxConverter.
VbsPrint	Visual Basic Script file that prints to the default printer. The setting for Internet Explorer.
VbsPrintDcomUser	Visual Basic Script file that prints to the default printer via a Windows Component Object that has an DCOM user configured. The setting for Microsoft Office applications. This setting differs from "VbsPrint" only if printing to TCI in Test Mode.

Section TCDCLINK Configuration - Converting Additional Document Types describes how an additional script can be configured.

The default setting on a new installation enables the KfxConverter for both Office and HTML documents. For update installations Microsoft Office and Internet Explorer are the defaults. On

Windows 2012 and later Internet Explorer is no longer supported, here Office is the update default for all formats.

Location: ... \TCDCLINK\Conversion\01.

Name	Type	Default
Enabled	DWORD	1
Extension	REG_SZ	html htm mhtml mht
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	KfxConverter.bat (SourceFile) (TargetFile) (TargetFolder) (ConverttoType)

Location: ... \TCDCLINK\Conversion\02.

Name	Type	Default
Enabled	DWORD	1
Extension	REG_SZ	doc docx dot dotm dotx docm txt log rtf xls xlsx xlm xlt xlsx xltm xlsx xlam csv ppt pptx pot pptm potx potm pps ppsx ppsm sldx sldm xmlw Note: If you are upgrading from KCS 10.1.0 or lower version to a latest version of KCS, please add the 'xmlw' extension manually in this registry key. For fresh installations, 'xmlw' extension is added by default.
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	KfxConverter.bat (SourceFile) (TargetFile) (TargetFolder) (ConverttoType)

Location: ... \TCDCLINK\Conversion\03.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	html htm mhtml mht
Method	REG_SZ	VbsPrintDcomUser
ScriptCall	REG_SZ	MsWord.txt

Location: ... \TCDCLINK\Conversion\04.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	doc docx dot dotm dotx docm txt log rtf
Method	REG_SZ	VbsPrintDcomUser
ScriptCall	REG_SZ	MsWord.txt

Location: ... \TCDCLINK\Conversion\05.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	xls xlsx xlm xlt xlsx xltm xlsx xlam csv
Method	REG_SZ	VbsPrintDcomUser

ScriptCall	REG_SZ	MsExcel.txt
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Location: ... \TCDCLINK\Conversion\06.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	ppt pptx pot pptm potx potm
Method	REG_SZ	VbsPrintDcomUser
ScriptCall	REG_SZ	MsPowerpoint.txt

Location: ... \TCDCLINK\Conversion\07.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	pps ppsx ppsm sldx sldm
Method	REG_SZ	VbsPrintDcomUser
ScriptCall	REG_SZ	MsPowerpointSlideShow.txt

Location: ... \TCDCLINK\Conversion\08.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	html htm mhtml mht
Method	REG_SZ	VbsPrint
ScriptCall	REG_SZ	InternetExplorer.txt

Location: ... \TCDCLINK\Conversion\09.

Name	Type	Default
Enabled	DWORD	0
Extension	REG_SZ	pdf
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	KfxConverter.bat (SourceFile) (TargetFile) (TargetFolder) (ConverttoType) (ALCServer) (ALCUser) (ALCPassword)

Location: ... \TCDCLINK\Conversion\10.

Name	Type	Default
Enabled	DWORD	<p>Default is 0.</p> <p>If conversion with OpenOffice.org is required, do the following:</p> <ol style="list-style-type: none"> 4. Install OpenOffice.org 3.2.x. 5. To install the conversion to PDF extension for OpenOffice.org, run \\kcs\OpenOfficeExtension\install.bat from KCS setup folder. 6. Set the value of Enabled to '1'.

Extension	REG_SZ	odp otp sti sxi odg otg std sxd odt ott stw sxw ods ots stc sxc doc docx dot dotm dotx docm xls xlsx xlm xlt xlsx xltx xltm xlsb xlam csv ppt pptx pot pptm potx potm pps ppsx sldx sldm txt rtf
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	OoToPdf.bat (SourceFile) (TargetFile)

Location: ... \TCDCLINK\Conversion\11.

Name	Type	Default
Enabled	DWORD	1
Extension	REG_SZ	odt ods odp
Method	REG_SZ	BatchToPdf
ScriptCall	REG_SZ	KfxConverter.bat (SourceFile) (TargetFile) (TargetFolder) (ConverttoType)

4.8.1.8 Adobe LiveCycle Parameters

TCDCLINK needs the following information to access the Adobe LiveCycle Server.

Location: ... \TCDCLINK\General

Registry Key	Type	Default	Description
ALCConversion	DWORD	0	Set to 1 to enable Adobe LiveCycle conversion
ALCServerOutputURL	REG_SZ	""	URL to Adobe LiveCycle web service
ALCUserName	REG_SZ	""	User name
ALCUserPassword	REG_SZ	""	Password

In TC/LINK configuration, the registry value AltForceBinToPDF determines which portions of a message are subject to document conversion.

Location: ... \TCLINKxy\General

Registry Key	Type	Default	Description
AltForceBinToPDF	DWORD	0	1: create a PDF alternative for every file attachment and message body 2: process PDF attachments via document converter, according to the settings of TCDCLINK

4.8.2 Converting Additional Document Types

4.8.2.1 Additional Script

You might add an additional VBS script or batch file to customize conversions.

A VBS script file has to print to the default printer, a batch file has to create a PDF file. Silent operation without user interaction, also in case of exceptions must be possible, and running as a service process with no user logged on.

To add a script or batch file follow these steps:

- Create a new Conversion subkey following the last one, e.g. "10"
- Create the keys there as in the existing subkeys, set the "Extension" you want to convert and the script ("ScriptCall") you want to use
- Create the script or batch file, set "Method" accordingly to "VbsPrint", "VbsPrintDcomUser" or "BatchToPdf"
- Set "Enabled" to 1, make sure that your extension is not used by a previous Conversion configuration
- If you changed any of the existing Conversion settings, set TCDCLINK\Conversion\CustomConfiguration = 1 so that setup does not change your customization

4.8.2.2 Example: Converting XPS Files via VBS Script

To convert XPS files with Sumatra PDF 2.5.1, follow these steps:

- Download and install SumatraPdf from:
<http://blog.kowalczyk.info/software/sumtrapdf/free-pdf-reader.html>
- Create the following new configuration:
Location: ... \TCDCLINK\Conversion\10.

Name	Type	Default
Enabled	DWORD	1
Extension	REG_SZ	xps
Method	REG_SZ	VbsPrint
ScriptCall	REG_SZ	SumatraPrint.txt

- Create the script "C:\TCOSS\TCLP\SCRIPT\SumatraPrint.txt" with following content:

```
'Example script for converting XPS via SumatraPDF
'#####
'{WATCH=SumatraPDF.exe}

Sub main(filename)

    Dim objShell
    Set objShell = CreateObject( "WScript.Shell" )
    objShell.Run("""C:\Program Files (x86)\SumatraPDF\SumatraPDF.exe"" -print-to-
default -exit-on-print " & filename)
    Set objShell = Nothing

End Sub
```

- Restart TCDCLINK and TC/LINK processes.

This will enable TCDCLINK to convert XPS files via the application Sumatra PDF.

For converting via TWS, you have to set the Compatibility KCS 9.x:

- Start the TWS Configuration Utility.
- In the Document Conversion tab, set Compatibility KCS 9.x to On.
- Save, Exit and restart TWS.

4.8.2.3 Additional Shell Execute Command

Similar to using IrfanView as additional converting application you can configure additional extensions for applications to print via Shell Execute.

4.8.2.4 Example: Converting XPS Files via Shell Execute

To convert XPS files with Sumatra PDF 2.5.1, follow these steps:

- Download Sumatra PDF from:
<http://blog.kowalczyk.info/software/sumatrapdf/free-pdf-reader.html>
- Configure the following command line for the file type extensions you want to convert:
Location: ... \TCDCLINK\ShellExecPrint

Name	Type	Value
.xps	STRING	"C:\Program Files (x86)\SumatraPDF\SumatraPDF.exe" -print-to-default -exit-on-print "%1"

- Restart TCDCLINK and TC/LINK instances.

This allows TCDCLINK to convert XPS files via the application Sumatra PDF.

Note: The extension xps must not be found within the enabled “Conversion” extensions – in this case the script/batch configured there will be used.

For converting via TWS, you have to set the Compatibility KCS 9.x:

- Start the TWS Configuration Utility.
- In the Document Conversion tab, set Compatibility KCS 9.x to On.
- Save, Exit and restart TWS.

4.9 Troubleshooting

4.9.1 Trace Files

4.9.1.1 Location/Names

As TCDC consists of several modules, trace output is written to several files:

Trace file	Referred to as	Module names
C:\TCOSS\TRACE\TCDCLINKx.TRC	TCDLINK trace	TCDC.exe, TCDCKEY.DLL, TCSHOST.DLL
C:\TCOSS\TRACE\TCPDDx.TRC	Printer trace	TCDDI40.DLL, TCDDIUI.DLL, TCDDIMON.DLL
C:\TCOSS\TRACE\TCLINKxx.TRC	Client trace	TCDC32.DLL, TCDDIMCL.DLL, if used by TCLINK.EXE
C:\TOPCALL\TWS\00\TRACE\TCSIx.TRC	Client trace	TCDC32.DLL, TCDDIMCL.DLL, if used by TWS
C:\TOPCALL\TWS\00\TRACE\TWS_xxx.TRC	Client trace	TNC_DOCCONV.DLL, if used by TWS

4.9.1.2 Trace Level

The document converter provides different amounts of trace information at different trace levels.

The document converter trace level is configured in registry key ... \TCDCLINK\TraceLevel.

Level	Meaning
0	Fatal errors
1	Fatal errors, most important warnings, events Examples: missing components, errors encountered in vital functions, or when the printing application did not finish after printing
99	Major information.

	This level reports information useful for tracking the conversion process.
255	Minor information. Highest level of information, reports the most detailed information about the conversion, may also lead to a quick overflow of the two trace files and thus to loss of information about previous errors.

4.9.1.3 Printer Trace

The optional printer trace file can provide additional information about printer problems. Printer trace can be enabled via the following registry key:

...\TCPDD\PDDTracelevel

This configuration value is a bit field with the following meaning:

Bit	Meaning
1 (LSB)	Rendering module (TCDDI40.DLL)
2	Port monitor module (TCDDIMON.DLL)
4	Driver UI module (TCDDIUI.DLL)
16	Port monitor client module (TCDDIMCL.DLL)

For full trace (including bits defined in the future), set the PDDTracelevel to 0xff.
Changing the printer trace level becomes effective immediately.

4.9.1.4 Error Codes

The following error codes can be found in the client trace file and in the TCDCLINK trace file.

Code	Meaning	Reason	How to correct
below 2034	Error starting print application	The printing application could not be started via ShellExecute.	Check if the file can be printed via context menu Print in the Explorer.
2034	Cannot convert .exe,.bat,.reg,.com files	Attachments with these extensions are not printed, as they are executable files.	Tell the users not to send such file attachments.
2035	Problems with DDE		
2036	Timeout waiting for printer driver	It takes too much time to start printing.	Increase Timeout parameter.
2037	Cannot install hook for client application	Unable to install callback routines needed for keyboard emulation.	Check operating system load.
2038	Unable to copy file	Error creating a copy of the file attachment.	The path name of the file can be found in the TCDCLINK trace file. Delete all files in this directory. if this is impossible (e.g. file lock), try closing the applications running and then delete the files. If it is still impossible, reboot the computer and then delete all files.

Code	Meaning	Reason	How to correct
2039	EACCESS cannot remove file (access)	Unable to delete the temporary file after document conversion. The file may be locked by an application.	The path name of the file can be found in the TCDCLINK trace file. Close the offending application (e.g. WinWord in case of DOC-files), then delete all files in the TMP-directory. If no application is running, you must reboot the computer and then delete the files.
2040	TCDC was aborted while converting this file.		No action needed. Next conversion should work.
2041	Not enough memory to record keystrokes	Can happen in learn mode, or if a user is working on the link computer while TCDC prints in foreground.	In learn mode: Try to use less keystrokes for printing. Else: Tell users not to work on the link computer while TCDC is running in foreground.
2042	App was killed the hard way!	The printing application refused to terminate and is therefore terminated by TCDC.	No action needed.
2043	App terminated before timeout.	Printing application stopped but no print output received.	Check the script or the DDE settings for this application.
2044	tcpd_attach to TCDDIMON.DLL failed	The document converter could not establish a connection to the print driver.	May be caused by a wrong printer driver version. Be careful when installing a new version of KCS Client Applications on the system. Reinstall your application (TCLINK or TWS).
2045	error loading TCDDIMON	See 2044	See 2044
2046	error launching printing application	The printing application (or script) could not be started.	Check the script or the DDE settings for this application.
2047	error stopping printing application	The printing application could not be stopped after conversion.	
2048	No file associated to document	There is no script and no file type association (including print action) for the attachment file.	Check if the application offers a way to print files via command line options or DDE. If this is possible, use Explorer to create a file type association and a print action. Otherwise, tell users not to send these files to destinations that require conversion.
2049	No 16 Bit application is allowed in background.	Obsolete, only used in TC/LP 1.06.xx	

Code	Meaning	Reason	How to correct
2050	Printing callback returned error	Rich text message body (from TC/LINK-LN, TC/LINK-MX or TC/LINK-MX7) could not be converted	No action needed, TC/LINK takes text alternative.
2051	Error creating / opening mutex	The document converter is locked because a conversion is active.	For TCLINK: Increase MutexRetries parameter For TWS: increase the WaitTimeSec parameter
2052	Ignore Files with the extension %1	The file has an extension which is in the IgnoredExtensions list	Tell users not to send such files or remove extension from registry value IgnoredExtensions
2053	Unable to duplicate the passed TCSI Object for RTF printing	Should not happen, indicates program error or memory allocation problem.	
2054	A document could not be converted for any reason (macro, layout, etc). TCDC is in HelpMe Mode.		Either train the keys necessary to print this document or notify users not to send documents of this type.
2055	JFMERGE failed to print.	Problem in JetForm conversion.	Please check the trace file
2056	A document could not be converted and is saved for further checking.	A file was copied to the Problems directory.	
2057	A document could not be converted, and the size limit of the Problems directory is reached.		Please check the content of the Problems directory and remove files.
2058	A document could not be converted, and the size limit of the Helpme directory is reached.		Please run TCDC Learn mode or remove files manually.

4.9.2 Common Errors and Solutions

Document converter could not convert some files

The document converter is unable to convert files of certain file types. If there is no script doing the conversion, the following reasons may be responsible for this error:

Reason	Check	Solution
No application installed for this file type.	Try to open the file on the document converter workstation.	Install the responsible application.
The application associated has invalid registry settings, and is unable to print.	Try to print the document manually via Explorer: Set the default printer to "Topcall TIFF to TCDC". Right click the file in Windows Explorer and choose context menu item "Print". Check if the right application opens and if printing is	Either reinstall the application or change the file type association manually, as described in section "Starting an Application via Shell Execute".

	successful. Also check the TCDCLINK trace file to see if the application is reported correctly.	Attention: Only make changes if you are sure about their outcome.
--	--	---

Office document needs certain templates

The document converter is unable to convert specific documents, although other files of the same type can be converted.

Reason	Check	Solution
A document uses templates stored on a network drive.	Try opening the document on the TCDC workstation and check which templates it needs.	1) Map the network drive with the templates (same drive letter as on the client PCs) on the document converter workstation. 2) Copy the templates (*.dot files) to a local directory, share this local directory and map it, using the same drive letter as in 1.

Password protected document

The document converter is unable to convert specific documents, although other files of the same type can be converted.

Reason	Check	Solution
A document is protected via a password.	Try opening the document on the TCDC workstation. Check if the application asks for a password.	Tell the user to never send password protected files.

Converting Word Docs without scripts fails with 'Ambiguous Name detected: TmpDDE'

Reason	Check	Solution
Word creates a temporary Macro TmpDDE for processing DDE requests (DDE is the mechanism which is used to print "Explorer-like"). Sometimes this macro is not deleted correctly afterwards and is saved to the NORMAL.DOT. The next time Word tries to create this macro it fails because it already exists.	Printing with the explorer should not work at all! The same error message appears.	Open WinWord and select menu item "Tools Macro Macros" or press ALT-F8. In the macros list you should see a macro named TmpDDE. Delete this macro and close WinWord. Remember to acknowledge if you are asked to save changes of the NORMAL.DOT file. If this does not work: Open the template NORMAL.DOT, delete the macro and save the file afterwards.

4.10 Advanced Topics

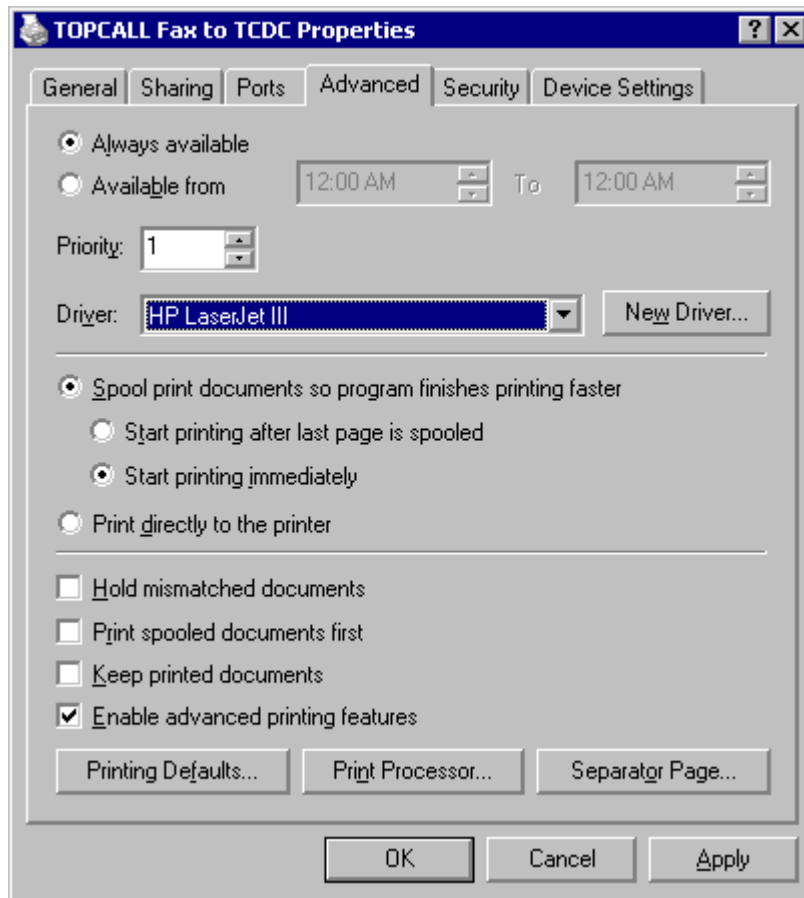
4.10.1 Alternative Printer Drivers for TCI

(only 2008 x32)

Document Conversion Using a PCL5 Printer

If the Lincoln PCL5 converter is installed, the document converter can be configured to use the PCL5 printer driver "HP LaserJet III" printer instead of the KCS printer driver. The conversion to TCI is done after creating the PCL5 image. The users can be sure that the layout of their documents will not be changed if they are using the same printer.

To enable this feature, open the properties of the “TOPCALL Fax to TCDC” printer, go to the “Advanced” tab and change the “Driver” parameter to “HP LaserJet III”. If you have not installed the driver already, use the “New Driver...” button and follow the wizard.



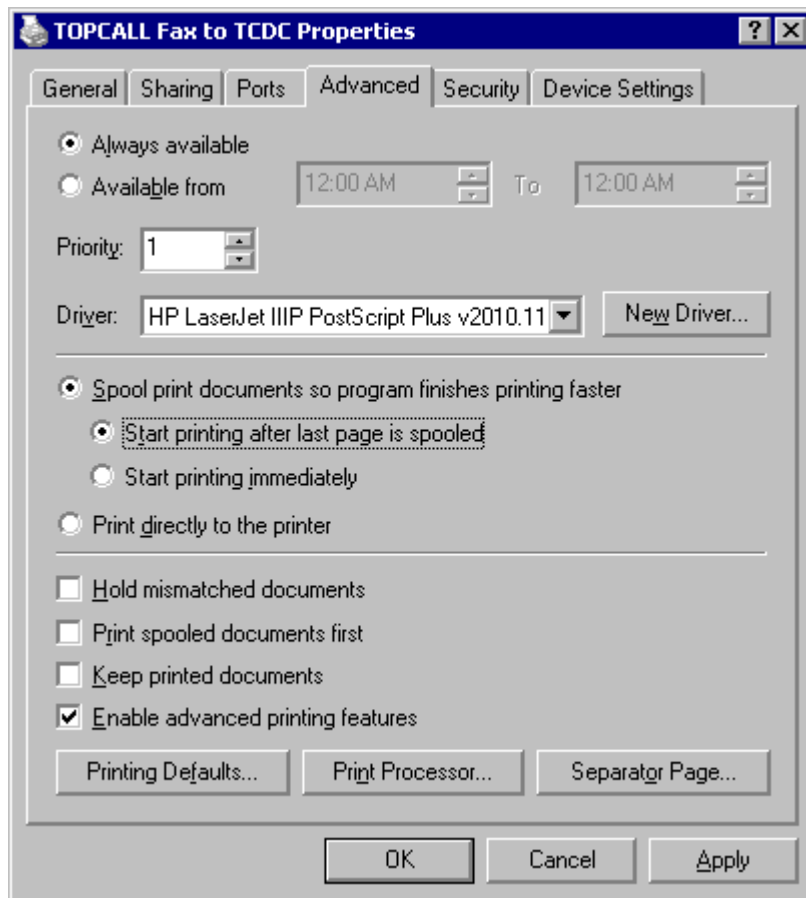
Note:

- After you have changed the printer driver the first time, you will have to rename the printer again to its original name “TOPCALL Fax to TCDC”, as Windows automatically renames the printer to the newly chosen printer driver name.
- Only the PCL5 printer driver “HP LaserJet III” is supported.
- The format is exactly the same as printed, but the quality is reduced because of conversion from 300 dpi to a lower resolution. With the TOPCALL Fax printer the quality is optimized, but the format can be slightly different to the printed document.

Document Conversion Using a Postscript Printer

If the Lincoln Postscript converter is installed, the document converter can be configured to use the Postscript printer driver “HP LaserJet IIIP PostScript Plus v2010.11” instead of the KCS printer driver. The conversion to TCI is done after creating the Postscript image. The users can be sure that the layout of their documents will not be changed if they are using the same printer.

To enable this feature, open the properties of the “TOPCALL Fax to TCDC” printer, go to the “Advanced” tab and change the “Driver” parameter to “HP LaserJet IIIP PostScript Plus v2010.11”. If you have not installed the driver already, use the “New Driver...” button and follow the wizard.

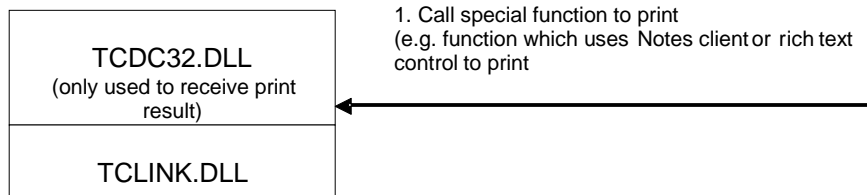


Note:

- After you have changed the printer driver the first time, you will have to rename the printer again to its original name "TOPCALL Fax to TCDC", as Windows automatically renames the printer to the newly chosen printer driver name.
- Only the Postscript printer driver "HP LaserJet IIIIP PostScript Plus v2010.11" is supported.
- The format is exactly the same as printed, but the quality is reduced because of conversion from 300 dpi to a lower resolution. With the TOPCALL Fax printer the quality is optimized, but the format can be slightly different to the printed document.

4.10.2 Rich Text (RTF) Conversion

Conversion of RTF message bodies is only supported in TC/LINK-MX7 (Windows 2008 x32) and TC/LINK-LN. In this case, TCDC32.DLL invokes a link-specific callback function that prints the rich text message body. With TC/LINK-LN, this is done via a locally installed Notes client. With the other two link types, a hidden rich text window is used for printing.



4.10.3 JetForm Integration

(only Windows 2008 x32)

JetForm integration is a message-centric feature that is only available with TC/LINK. It is therefore covered in detail in the TCLINK manual.

4.11 Custom Scripts

The scripts provided with the product are copied to a folder SCRIPT below the document converter installation directory. For links installations, this is C:\TCOSS\TCLP.

Changing a script is allowed, but not supported. This means if a modified script causes problems, it is your own responsibility to find the error reason.

VBScript is very similar to Microsoft's VBA Language. If you are experienced in writing applications in that language you can easily write document converter scripts.

More information about VB Script is available in the VBScript Language Reference on the MSDN web site.

4.11.1 WATCH Statement

For the special needs of document conversion the original syntax of the VBScript language is enhanced. A WATCH statement tells the document converter which application or processes it has to survey and to stop in case of an error. New instances of the listed applications are killed if left behind after finishing printing. The maximum number of WATCH statements is 20.

In the WATCH statement, specify the name of the executable rather than a window title (e.g. POWERPNT.EXE, WinWord.EXE).

The Watch statement is the only statement which must be located behind ' or REM.

Example: The following statement tells the document converter to watch WinWord.

```
' {WATCH=WinWord.EXE}
```

4.11.2 Functions Not Allowed in Script Files

Document Converter scripts must be able to control applications without user interaction. Therefore, the functions *MsgBox* and *InputBox* are not supported. Using them causes a script error.

4.11.3 Script Writer Tutorial

The entry point of each script is the function *main*. The *main* function is passed the filename as a parameter. It is recommended to store the filename in a global variable (e.g. *TCInFilename*) as the first statement in function *main*. Then all other functions that need the filename can access the global variable *TCInFilename*.

Since you want to drive an application via Automation you must connect to the desired application.

There are two functions, *CreateObject(class)* and *GetObject([pathname] [, class])*, for establishing a connection.

CreateObject always creates a new instance of the desired application while *GetObject* connects to an already running instance.

The following generic function is used in each script to connect to either a running instance with [GetObject](#) or to a new instance with [CreateObject](#). Depending on the return value of the application the instance should be terminated after printing or not.

```
'Returns 0 if new instance is created 1 otherwise
Function InitApplication(AppObject,AppName)
    On Error Resume Next
    'Get running application

    Set AppObject = GetObject(,AppName)
    If Not IsObject(AppObject) Then
        Set AppObject = CreateObject( AppName)
        bUsedRunning = 0
    Else
        bUsedRunning = 1
    End If

    InitApplication = bUsedRunning
End Function
```

After you have successfully created the application object, load the file. If you followed the steps above, you stored the filename in global variable [TCInFilename](#). Try to set each parameter of the corresponding open method to ensure that the errors are avoided or found as soon as possible!

For example opening a Word Document with a dummy password fails but prevents the unnecessary waiting for a timeout:

```
Function OpenDocument(AppObject,DocObject)
    'The Method Open and the used parameter
    'FileName ... The name of the document (paths are accepted).
    'ConfirmConversions ... False, prevents dialog box
    'ReadOnly ... True
    'AddToRecentFiles ... False
    'PasswordDocument ... PWD (dummy password)

    On Error Resume Next
    Set DocObject = AppObject.Documents.Open (TCInFilename, False, True, False, "PWD")
    If DocObject Is Nothing Then
        OpenDocument = 0
    Else
        OpenDocument = 1
    End If
End Function
```

Until now named parameters as used in VBA are not supported in VBScript. So the following function call is not allowed and creates a script error:

```
Set DocObj = WordObj.Documents.Open FileName:= TCInFilename
```

To pass one or more parameters to a method call, simply separate them with a colon.

The following line opens a Excel Chart without updating linked OLE objects:

```
ExcelApp.Workbooks.Open TCInFilename,0
```

Most applications have the possibility to print in background. Since closing application is not possible until the printing is finished, please disable this feature when writing your own scripts.

The following line does the foreground printing of WinWord:

```
DocObj.PrintOut FALSE
```

After printing you must close the file, so that the document converter can delete the temporary file. To prevent that the application asks for the save of changes, please refer to the manual or the help files.

The following line closes a WinWord – document without asking about saving:

```
WordObj.ActiveWindow.Close wdDoNotSaveChanges
```

Although the document converter stops the application anyway after printing, it is a good style to quit the application after finishing scripting. However, as stated above, close only applications started by the script.

For example closing Word only if started by the script:

```
If bUsedRunning = 0 Then
    'Close Word
    WordObj.Quit
End If
```

Each object you have created should be released by setting it to Nothing. So all allocated memory could be released properly.

```
Set WordObj = Nothing
```

If an error occurred and is recognized by the script (for example opening of the file failed), report this error to the document converter via the Raise Method of the Err Object:

```
If IsOpen = 0 Then
    Err.Raise 1004, "Microsoft Word", "Unable to open " + TCInFileName
End if
```

4.11.4 Using Macro Recorder

To make new scripts it is recommended to use the macro recorder (or something similar) in the application you want to drive via VBScript. Just record the action you want to do. In our case Open, Print and Close of the document

Now take a look at the code generated and try to generalize the actions. Refer to your manuals or to your help files to get known with the methods and the required parameters. Remember you cannot pass named parameters via VBScript.

The first object you will get with e.g. `CreateObject("Word.Application")` is the application object. So you can use the object variable in subsequent calls as a placeholder for the application object.

4.11.5 Using the DOC Script for Graphic Formats

The Microsoft Word script can be used to convert graphic files as well. This is possible for all graphic formats that can be added manually in MS Word via menu item "Insert | Picture | From File".

Restriction: For multi page graphic files, only the first page is converted.

For this purpose, rename a copy of the script DOC.TXT according to the graphic file type, e.g. JPG.TXT for JPG files, GIF.TXT for GIF files.

The standard DOC.TXT script delivered with links supports only GIF and JPG files. For other formats supported by MS Word, you have to extend the following line:

```
If extension = "gif" Or extension = "jpg" Or extension = "jpeg" Or extension = "tif"
Or extension = "tiff" Then
```

To convert also bmp-files with Microsoft Word change the line to:

```
If extension = "gif" Or extension = "jpg" Or extension = "jpeg" Or extension = "tif"
Or extension = "tiff" Or extension = "bmp" Then
```

Attention: Some graphic formats, like BMP and JPG, are normally converted via TCIMGIO. Special configuration is needed to force conversion via the document converter.

For TCLINK document conversion, this means that the extension must be removed from registry value ...\<<LinkName>\General\FmtXXX\InputExtensions.

For TWS document conversion, the extension must be removed from the TWS configuration (section "File Types Converted via TCIMGIO" in the TWS configuration utility).

4.11.6 Script Errors

Script Errors are reported in the TCDCLINK trace file.

Installation

5.1 Prerequisites

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

The document converter must be installed on a dedicated server computer, where only administrators have access. During document conversion, applications are started and stopped automatically, and the default printer can be changed on the fly. This is not compatible with typical user activity.

.NET Framework 4 is required for Kofax Converter. Kofax Converter is the default converter for new installations. Even if you are generally converting your documents using a different tool, Kofax Converter is always necessary in the following use cases:

- Conversion of PDF documents with XFA forms using Adobe LiveCycle Server
- PDF normalization to PDF/A
- Conversion of MSG and EML documents

5.2 Document Converter Installation

The document converter (including KCS printer drivers and automation scripts) can be installed via KCS Setup as an implicit part of any link type and is automatically used during a TWS installation.

Installation with links is described in detail in the TC\LINK Manual.

5.3 Configuration via TWS Utilities

The configuration tools described in this section are only available if you installed TWS/KCS via KCS Setup.

5.3.1 TWS Configuration Utility

The TWS Configuration Utility starts automatically during setup. You can also start it later via Start | All Programs | Kofax Communication Server | Configure TCOSS Web Services.

Please note that any changes you make via this utility are only applied after closing the configuration utility.

5.3.2 Document Conversion Parameters

The most important document conversion parameters are grouped in this tab.

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="TCDCLINK"/>	Select the tool for converting MHTML and HTML documents	KFXConverter
MS Office User	<input type="text" value="Interactive user"/>	Microsoft Office DCOM automation user (only Windows 2008, Vista and later)	InteractiveUser
Name	<input type="text" value="KofaxDocConv"/>	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"/>	Microsoft Office DCOM user password	
Compatibility KCS 9.x	<input type="text" value="Off"/>	If you need TC/LINK Document Converter (TCDCLINK) to print via an application or to create text or tci alternatives if needed you will have to enable TCDCLINK here. If you want to use TCDCLINK for all Office or HTML Off documents as in KCS 9.x, you have to set "MS Office Documents" or "MHTML and HTML Documents" to TCDCLINK.	
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".	

Value	Description
MS Office Documents	Select the tool you want to use for converting Microsoft Office and plain text documents: KfxConverter, Microsoft Office, TCDCLINK
MHTML and HTML Documents	Select the tool you want to use for converting HTML documents: KfxConverter, Microsoft Office, TCDCLINK
MS Office User	Select a Windows user account for Microsoft Office DCOM automation (necessary for document conversion via Microsoft Office). <ul style="list-style-type: none"> "Interactive user" means that the user must be logged in on the TWS computer. During document conversion, you can observe Office windows opening and closing. This mode is useful for advanced troubleshooting. "Current configuration" means that Office applications should start with the user account which is specified in DCOM Config tool. "This user:" allows you to type a name and password directly.
Name	Type a Microsoft Office DCOM user name; for productive mode with no one logged in it is necessary to specify an administrator user.
Password	Type a Microsoft Office DCOM user password.
Compatibility KCS 9.x	Files of unknown extension may be handed over to TCDCLINK if you turn this setting on.
Custom Extension List	Allows you to specify a blank separated list of extensions (without the leading dot). Documents with these extensions will be converted as defined in the custom script file, CustomToPdf.bat.

5.3.2.1 Custom Conversion Script

TWS document conversion knows many document types and selects the appropriate conversion tools and options automatically. Optionally, you can define a custom list of document extensions that should be converted to PDF.

To enable this feature, edit the TWS configuration and configure the parameter Custom Extension List on the Document Conversion tab.

Then create the batch file CustomToPdf.bat in the Scripts subfolder of your TWS installation.

A simple template for the CustomToPdf.bat script is shown here; instead of converting to PDF the source file is only copied to the target.

```
@ECHO OFF
```

```

REM A simple custom conversion script example.
REM The source file is copied to the destination file.
REM A productive script has of course to create a PDF file from the source file.
REM For examples see the files of the Scripts folder.
REM Parameters:
REM %1 SourceFile
REM %2 TargetFile
REM %3 Utf8TextFile (0 - Other, 1 - Utf8)

ECHO Called: Custom2pdf.bat %*
Setlocal

REM Copying source file to destination file
copy %1 %2

ECHO Error level=%errorlevel%








































```

You can find examples that actually perform a conversion in the Scripts folder.

5.3.2.2 File Types Converted via TCIMGIO

This configuration section defines which file types shall be converted to fax image format via image conversion (TCIMG32.DLL). Useful standard settings are preselected after TWS installation. Changes in this section will usually be done for text files, e.g. you can add file types like INI or CNF that shall be converted to fax image without starting a text editor.

Please note that these settings affect only the conversion to fax image format. TIFF and PDF output is always done via the printer driver.

File Types Converted via TCIMGIO		
Nr	File Extension	File Type
1  	TIF	TIFF 
2  	TIFF	TIFF 
3  	PCX	PCX 
4  	BMP	BMP 
5  	DCX	DCX 
6  	PCL	PCL 
7  	PDF	PDF 
8  	PS	PS 
9  	TXT	Text 
10  	JPG	JPG 
11  	JPEG	JPG 
12  	TCI	TCI 
13  		not set 

5.3.2.3 PDF Printer Settings

PDF Printer Settings

Name	<input type="text" value="Bullzip Pdf Printer"/>	
Output File Name	<input type="text" value="fixed"/>	Defines how the output file name is built
Fixed Output File Path	<input type="text" value="c:\bulltemp\document.pdf"/>	Full path name of output file
Registry Subkey	<input type="text"/>	Registry subkey
Registry Value	<input type="text"/>	Registry value holding output file name
Output Folder	<input type="text"/>	Full path name of output folder
Printer Configuration Registry Path	<input type="text"/>	Location of printer configuration

Here you can configure a third party PDF printer, for creating PDF alternatives for attachments.

For more details about the possible options, see section PDF / Configuration Parameter Details.

5.3.2.4 PDF Printer Parameters

PDF Printer Parameters

Nr	Parameter Name	Parameter Value	Parameter Type
1	<input type="text"/>	<input type="text"/>	String
2	<input type="text"/>	<input type="text"/>	String
3	<input type="text"/>	<input type="text"/>	String
4	<input type="text"/>	<input type="text"/>	String
5	<input type="text"/>	<input type="text"/>	String
6	<input type="text"/>	<input type="text"/>	String
7	<input type="text"/>	<input type="text"/>	String

The PDF Printer Parameters section is currently only useful for configuration of the Adobe PDFWriter. See section PDF / Configuration Parameter Details for a list of available parameters.

5.3.2.5 Adobe LiveCycle Server

Adobe Live Cycle

Adobe LiveCycle Output Server URL *	<input type="text"/>	Adobe live cycle Output server URL Ex: http://172.20.148.125:8080/soap/services/OutputService
Adobe LiveCycle User Name *	<input type="text"/>	Adobe Live Cycle user name
Adobe LiveCycle Password *	<input type="password"/>	Adobe Live Cycle user password

Configuring this section of TWS configuration is only necessary if you want to use your Adobe LiveCycle Server for converting (flattening) XFA PDF documents to static PDF.

If you are using Adobe LiveCycle Server, following prerequisites apply:

- Adobe LiveCycle server must be installed, configured, and accessible to Kofax Communication Server. The Output service must be running and its web service enabled and working properly.

- Adobe LiveCycle software must be on a different computer than Kofax Communication Server. 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.

5.4 Printing Applications

After installing an application that shall be used by TCDC (e.g. Word, Excel, etc), allow the TCDCLINK process to interact with the desktop (...TCDCLINK\LogonType = +N, this is the initial Test Mode default for Windows 2008), send a message with an attachment and watch if the printing application opens any message boxes. Respond to the message boxes.

Reason: Some applications (e.g. Word) ask for a user name when started for the first time by a user (with standard TCDC configuration, this will be the Local System account).

If you omit this step, TCDC may hang during the first conversion of a document type.

After changing the ...TCDCLINK\LogonType or ...TCDCLINK\UserId you have to restart the TCDCLINK process and all TC/LINK or TWS instances.

5.4.1 Microsoft Office

This chapter applies to Microsoft Office versions 2007 and later.

Conversion with Microsoft Office on Windows Server 2008/2012 is only possible if the Office DCOM-components are configured to start under a user who belongs to the local Administrators group (otherwise script errors occur). This is done automatically by the TCDCLINK process when HKLM\Software\TOPCALL\TCDCLINK\UserMode is set to 1 or 2.

First configure the Document Converter for test mode by setting the registry key HKLM\Software\TOPCALL\TCDCLINK\UserMode = 1 (this is already the setup default). After initial testing you can switch to productive mode. See section *Quick Deployment Guide for Windows 2008*.

Converting Additional File Types with Office

- If you use additional file-types to convert with Office (like JPEG, GIF, RTF, HTML), copy the doc.txt to e.g. jpg.txt, add the scripts to the SCRIPT folder below the TCDCEXE working directory, and add the file-extension to registry key "...TCDCLINK\General\DcomUserExtension"
- Restart TC/LINK (or TWS) and TCDCLINK process after the changes

Troubleshooting with Office Interactively

- Log in as the user configured to start TCDCLINK (TcdcLink-User)
- Set HKLM\Software\TOPCALL\TCDCLINK\UserMode = 1
- On Windows 2008 64-bit and Windows 2012, you have also to follow the steps described in section *Quick Deployment Guide for Windows 2008*.

-> That way conversion with user interaction is possible, the applications are shown on the desktop; however it is not allowed to log out – if no user is logged in, conversion is not possible, document conversion fails and non-deliveries are created.

5.4.2 Internet Explorer on Windows 2008

For Internet Explorer scripts are installed automatically for the file extensions “HTM” and “HTML”.

Start Internet Explorer at least once and answer initial dialogs/complete the startup wizard. Send a test message.

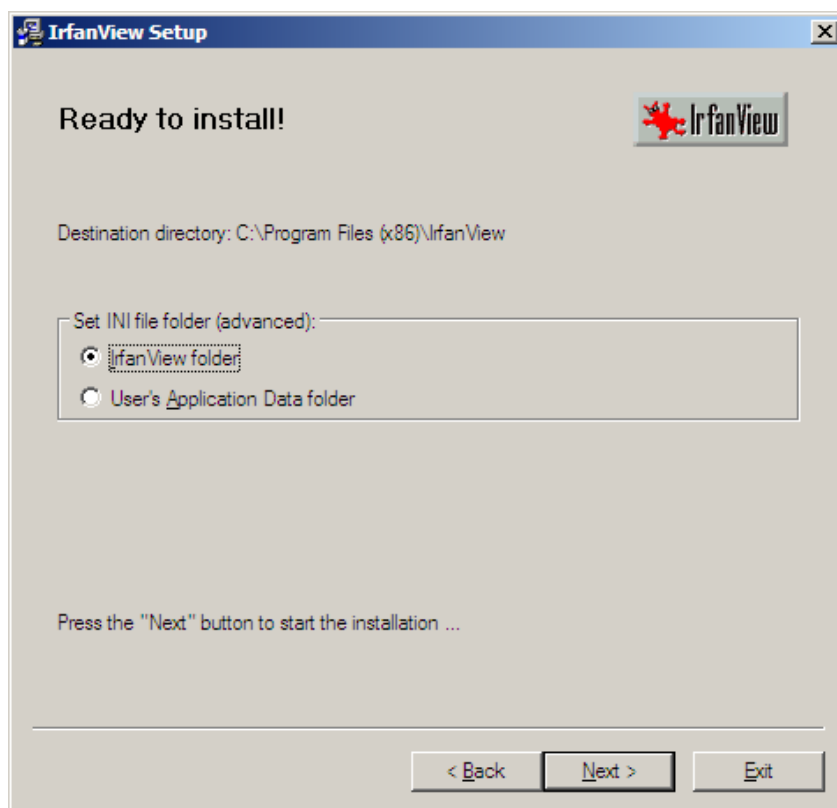
In order to gain performance you can disable loading of remote parts of the HTML document by setting HKLM\Software\TOPCALL\TCDCLINK\General\HtmlOfflineMode = 1.

In former link versions, scripts of the same name used WinWord for conversion. If you want to use WinWord for converting HTML files, see above section “Converting Additional File Types with Office”.

5.4.3 IrfanView 4.23

The document converter is additionally tested with IrfanView for converting TIFF image files. IrfanView is a compact image viewer that has especially the ability to easily print color and multipage TIFF files. For licensing and download please see <http://irfanview.tuwien.ac.at/>.

Install IrfanView and make sure you choose the following setting during setup:



Check “IrfanView folder”.

For printing Multipage TIFF, do the following:

Search the file “i_view32.ini” in the application directory of IrfanView; On English Windows 2008 x64 this is by default:

```
C:\Program Files (x86)\IrfanView\i_view32.ini
```

Set the following entry in the [Print] section (add it if does not exist):

```
[Print]
```

MultipageOpt=1

Configure the following command line for the file type extensions you want to convert. For TIFF that would be on an English Windows 2008 x64:

HKLM\Software\Wow6432Node\TOPCALL\TCDCLINK\ShellExecPrint

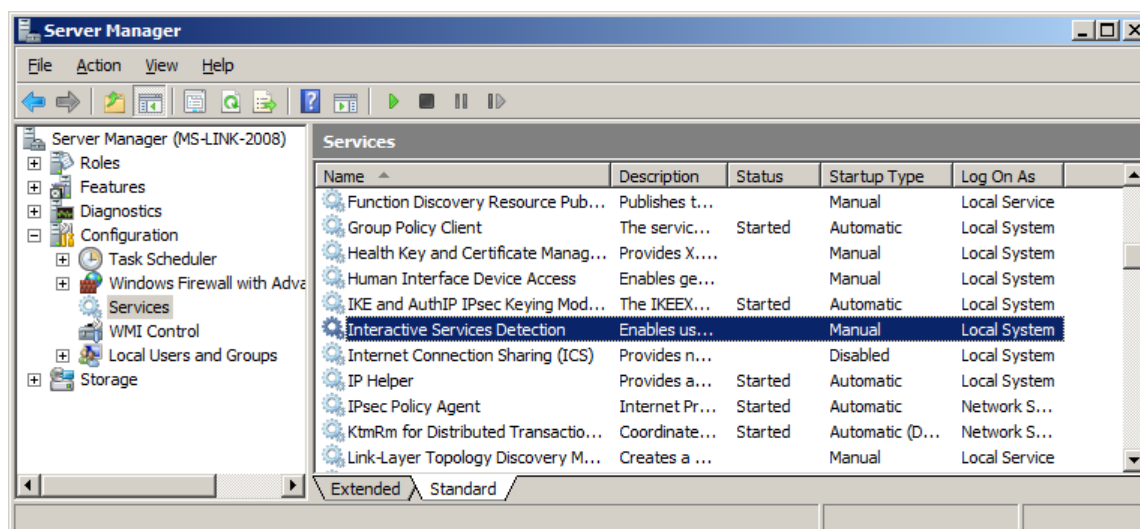
Registry Value	Type	Default
.tif	STRING	"C:\Program Files (x86)\IrfanView\i_view32.exe" "%1" /print
.tiff	STRING	"C:\Program Files (x86)\IrfanView\i_view32.exe" "%1" /print

5.4.4 Making Applications Visible on Windows 2008/2012

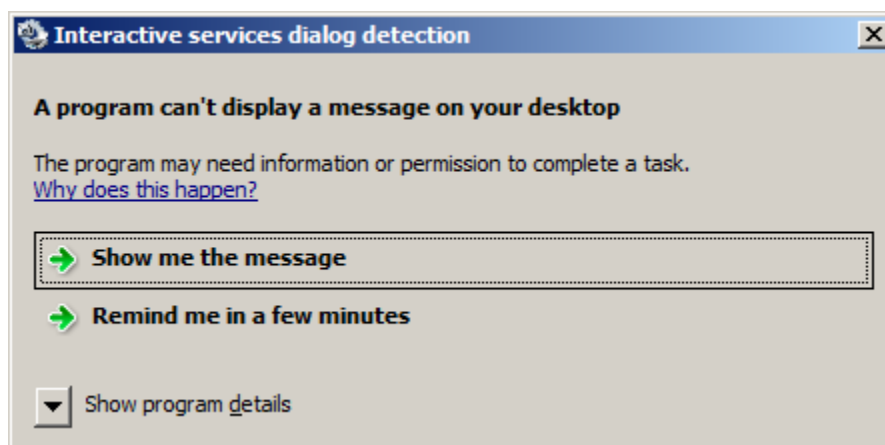
On Windows 2008/2012 applications that are started by the Document Converter cannot be seen as they run as service in Session 0. With the following steps it is possible to troubleshoot and to see if they are showing a dialog box.

Note: This is not necessary for the Microsoft Office applications.

- (Windows 2012 only) Set the registry value NoInteractiveServices (HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Windows\) to "0", to allow services to interact with users.
 - Start the service "Interactive Services Detection":



- Make sure the LogonType is set correctly for the Document Converter (... \TCDCLINK\LogonType = "+N") – that is the default value.
- Start TC/LINK (or TWS) and TCDCLINK process via TC/Monitor
- Send a message with the attachment of the application to troubleshoot
- Switch to services desktop by clicking "Show me the message"



- Check for open Windows and Dialogs; use <alt><tab> to see or switch between windows

For productive mode on a Windows 2008/2012 system (after initial testing or troubleshooting), it is recommended to either deactivate the service “Interactive Services Detection” again, or to set the LogonType = “N” (no interaction). If not, you will get an event-log entry every time an application is started on Session0.

5.5 PDF Printer

- Decide which PDF printer product will be used (see chapter “PDF Printer Requirements”)
- Obtain the license for the chosen PDF printer and install it.
- Configure the PDF printer. E.g.: Start / Settings / Printers and Faxes / Printer Properties of the installed printer (Setting output filename or output folder or printing options if necessary)
- Define PDF printer settings in the TCLINK registry (or TWS configuration).
- Allow the TCSRv service to INTERACT WITH DESKTOP.

5.6 Quick Deployment Guide for Windows 2008 and Higher

5.6.1 TCDCLink Installation & Test

- Install Microsoft Office 2007 SP1 or 2010
- Install TC/LINK or TWS with Document Converter
- Configure the TcdCLink-User during setup, the same you are logged in with during tests

Additionally on System with TC/LINK-LN using RTF Conversion:

- Set the registry setting “...\TCLINKLN\LogonType” = “+N”
- Test sending Lotus Notes with RTF text

All Systems:

- Test sending Office Documents and HTML files
- Install additional applications you want to use, e.g. IrfanView according to section “IrfanView 4.23 (TIFF)”
- Test sending the additional files, e.g. TIFF files

5.6.2 Switching to Productive Mode

64-Bit System:

- Change the registry setting “...\TCDCLINK\LogonType” to “B”

Additionally on Windows 2008, 64-Bit (not on Windows 2008 R2):

- Open the Task Manager, tab “Processes” and check for any “splwow64.exe” instances; Remove them by selecting and clicking “End Process”

Additionally on 64-Bit System with TC/LINK-LN using RTF Conversion:

- Stop all TC/LINK-LN instances and make also sure via Task Manager, that no Lotus Notes Client processes are running
- Change the registry setting “...\TCLINKLN\LogonType” to “S”
- Configure the TcdcLink-User for all TC/LINK-LN instances by setting “...\TCLINKLN\UserId”, “...\TCLINKLN\Domain” and “...\TCLINKLN>Password”

All Systems:

- Change the registry setting “...\TCDCLINK\UserMode” to 2
- Restart TCDCLINK and all TC/LINK or TWS instances
- Test sending all file types

5.6.3 Switching Back to Test Mode

64-Bit System:

- Change the registry setting “...\TCDCLINK\LogonType” to “+N”

Additionally on Windows 2008, 64-Bit (not on Windows 2008 R2):

- Open the Task Manager, tab “Processes” and check for any “splwow64.exe” instances; Remove them by selecting and clicking “End Process”

Additionally on 64-Bit System with TC/LINK-LN using RTF Conversion:

- Stop all TC/LINK-LN instances and make also sure via Task Manager, that no Lotus Notes Client processes are running
- Change the registry setting “...\TCLINKLN\LogonType” to “+N”

All Systems:

- Change the registry setting “...\TCDCLINK\UserMode” to 1
- Restart TCDCLINK and all TC/LINK or TWS instances

5.7 Update from KCS 9.2.0 or Earlier to KCS 10.0.0 or Later

5.7.1 TCDCLINK

With KCS 10.0.0, the install path for TCDCLINK is always C:\TCOSS\TCLP. The scripts are in subfolder SCRIPT (also if TCDCLINK is used by TWS DocConv). On update, binary files are removed from the obsolete location, scripts are renamed to *.old.

The names of the TCDCLINK script files have changed. Any customized changes have to be merged to the new files.

Script file names since KCS 10.0.0	Script file names before KCS 10.0.0	Capabilities
KfxConverter.bat	-	MS Office and HTML documents
InternetExplorer.txt	Htm.txt, html.txt, mht.txt (1)	HTML documents
MsWord.txt	Doc.txt, docx.txt, dot.txt (1)	MS Word documents, can also convert text, rtf and html
MsExcel.txt	xls.txt, xlsx.txt,	MS Excel documents
MsPowerpoint.txt	ppt.txt, pptx.txt	MS PowerPoint documents

Script file names since KCS 10.0.0	Script file names before KCS 10.0.0	Capabilities
MsPowerpointSlideShow.txt	pps.txt, ppsx.txt	MS PowerPoint slide shows

(1) The table shows the defaults of KCS 9.2.0 on Windows Server 2008 R2 and earlier. On Windows Server 2012, Internet Explorer is no longer supported. Instead, a copy of the MS Word script is also used for the HTML extensions, and for KCS 10.0.0 the script MsWord.txt is used.

Mapping between file extension and script is configured in the new registry subkey
...\\TCDCLINK\\Conversion.

5.7.2 TWS

By default, TCDCLINK is no longer used for document conversion. Instead, the tool KfxConverter is used for Microsoft Office and HTML documents. It is called directly from TNC_DocConv. Use the TWS Configuration Utility to change to MS Office “Save to PDF” method (also directly called by TNC_DocConv), or to switch to TCDCLINK conversion.

The scripts that are directly used by TNC_DocConv and create PDF files are located here:

C:\\TOPCALL\\TWS\\00\\Scripts

The install location of TCDCLINK is now always C:\\TCOSS\\TCLP. The scripts that call the applications for printing are located here:

C:\\TCOSS\\TCLP\\SCRIPT

On update, binary files are removed from the obsolete location. Scripts are renamed to *.old.

5.7.3 Installation Paths

This table gives an information on install locations and changes for KCS 10.0.0.

TWS Modules	KCS 10.0.0 and later	Before KCS 10.0.0
TWS	C:\\TOPCALL\\TWS\\00	C:\\TOPCALL\\TWS\\00
TWS Binaries	C:\\TOPCALL\\TWS\\00\\bin	C:\\TOPCALL\\TWS\\00\\bin
Scripts for TWS (Save as PDF)	C:\\TOPCALL\\TWS\\00\\Scripts	–
KfxConverter for TWS	C:\\TOPCALL\\TWS\\00\\bin\\KFXConverter	–
TCDCLINK	C:\\TCOSS\\TCLP	C:\\Program Files (x86)\\Kofax\\Document Converter
Scripts for TCDCLINK (Print)	C:\\TCOSS\\TCLP\\SCRIPT	C:\\Program Files (x86)\\Kofax\\Document Converter\\SCRIPT
KfxConverter for TCDCLINK	C:\\TCOSS\\TCLP\\SCRIPT\\bin\\KfxConverter	–
Lincoln Converter	C:\\TCOSS\\TCLP\\LINCOLN	C:\\Program Files (x86)\\Kofax\\Lincoln
Datalogics Main	C:\\TOPCALL\\TWS\\00\\BIN	C:\\TOPCALL\\TWS\\00\\BIN
Datalogics Subfolders	C:\\TOPCALL\\TWS\\00\\BIN	C:\\TOPCALL\\TWS\\00\\BIN

TC/LINK Modules	KCS 10.0.0 and later	Before KCS 10.0.0
TC/LINK	C:\\TCOSS\\TCLP	C:\\TCOSS\\TCLP

TC/LINK Modules	KCS 10.0.0 and later	Before KCS 10.0.0
TCDCLINK	C:\TCOSS\TCLP	C:\TCOSS\TCLP
Scripts for TCDCLINK	C:\TCOSS\TCLP\SCRIPT	C:\TCOSS\TCLP\script
KfxConverter	C:\TCOSS\TCLP\SCRIPT\bin \KfxConverter	–
Lincoln Converter	C:\TCOSS\TCLP\LINCOLN	C:\TCOSS\TCLP\LINCOLN
Datalogics Main	C:\TOPCALL\SHARED missing	C:\TOPCALL\SHARED
Datalogics Subfolders	C:\TCOSS\TCLP\DATALOGI CS missing	C:\TCOSS\TCLP\DATALOGICS

Chapter 6

Hints and Restrictions

6.1 Hints

6.1.1 Printing the Entire MS Excel Workbook

The default script for Excel documents (XLS.TXT) prints only the first worksheet. To print an entire workbook, edit the script file XLS.TXT:

Disable the call to `PrintOutFirstSheet` by inserting a comment character `'` at the start of the line. Enable the call to `SetPrintQuality` and `WBook.PrintOut` by removing the comment character `'` at the start of these lines.

```
'This method prints the first sheet with content and ignores the rest
'PrintOutFirstSheet Wbook

'Print using only first Sheet
'WBook.Sheets(1).PrintOut

'Another possibility is printing the active sheet (the sheet which is active after
opening)
'WBook.ActiveSheet.PrintOut

'Print all sheets; this is the save method to print all
SetPrintQuality WBook, 300 'set the print quality for all sheets; this makes setting
MultiTimeout unnecessary
WBook.PrintOut
```

Note:

Without setting the print quality ("SetPrintQuality") Excel may create more than one print job. By default TC/LINK (TWS) does not wait for the complete print output in this case. Therefore you would have to set the (now obsolete) "MultiTimeOut" registry value to an appropriate non-zero time. This has the disadvantage that every Document Converter job is delayed for this time.

6.1.2 TCDCLINK Error 2043 After Changing UserId or LogonType

If you change the registry value ...TCDCLINK\UserId or ...TCDCLINK\LogonType (e.g. from S to +N) and you only restart the TCDCLINK process, but not the TC/LINK or TWS processes, it might happen, that document conversion is not working anymore.

Background is that the TOPCALL FAX to TCDC printer driver uses named pipes for the communication with TC/LINK or TWS (sending back the print-output). If the LogonType or the UserId of the TCDCLINK process changes, also the pipe-name changes, so TC/LINK or TWS expects the print-output on a different pipe than really used by the printer driver/printer monitor and therefore the print-output is never received.

So if you change the LogonType or UserId of the TCDCLINK process, it is not sufficient to restart only the TCDCLINK process, you must restart also all TCLINKxx or TWS instances again.

6.1.3 Document Conversion – Windows 2008 x64

The process "splwow64" (spooler compatibility process for x32 applications on x64 system) can only run once per session. If an additional user tries to print in this session while it was already started by another user, printing fails. This might lead to Document Conversion errors (print job cannot be fetched from spooler) if the Document Converter is not configured correctly or switching from Test Mode to User Mode or vice versa is not done correctly.

The following table shows the context of the system process "splwow64" depending on Document Converter mode and the printing application:

	Test Mode	Productive Mode
Configuration Registry ... \TCDCLINK\UserMode ... \TCDCLINK\LogonType	1 +N	2 B
MS Office Applications	Session >0, TcdcLink-User	Session 0, TcdcLink-User
Other Applications	Session 0, System User	Session 0, TcdcLink-User

See also the Microsoft Knowledge Base article: <http://support.microsoft.com/?scid=kb%3Ben-us%3B923357&x=11&y=13>

Stopping the process "splwow64" with the Task Manager resets the problem.

When switching from Test Mode to Productive Mode or vice versa it is necessary to stop all instances of this process. To avoid problems follow the installation procedure of the Document Converter (see section *Quick Deployment Guide for Windows 2008*).

When using TC/LINK-LN with RTF conversion also the TC/LINK-LN instances have to be configured correctly in order not to run into this problem. With TC/LINK-MX7 sending of RTF content is not allowed.

6.1.4 Document Conversion – Windows 2008 x64 R2 – Splwow64 Process

On Windows 2008 R2 the problems regarding the single splwow64 process per session are solved. Each print job of a 32-bit application starts its own splwow64 process. After some conversions the task manager might show several of these processes. This is ok; the system removes them automatically after some time.

You don't have to remove the splwow64 processes manually.

6.1.5 Registry Setting TCDCLINK\UserMode

This chapter applies to Microsoft Office versions 2007 and 2010.

For converting Microsoft Office documents on Windows 2008/2012 it is necessary to configure a DCOM user for the Office applications. This user can be either set to "Interactive", which makes the Document Converter run in a test mode where you can watch the applications and troubleshoot problems, or to a specific user, which makes the Document Converter to run in productive mode without showing the applications and where no user has to be logged on.

The registry configuration HKLM\Software\TOPCALL\TCDCLINK\UserMode makes it possible to automatically set the necessary DCOM user configurations for the Microsoft Office applications. The following settings are possible:

0	Current configuration - the DCOM user settings are not changed (for Windows versions before 2008,
---	---

	for updates of previously configured systems, or for manual DCOM configurations)
1	Test Mode - the DCOM user settings are set to "Interactive"
2	Productive Mode - the DCOM user settings are set to the TCDCLINK user

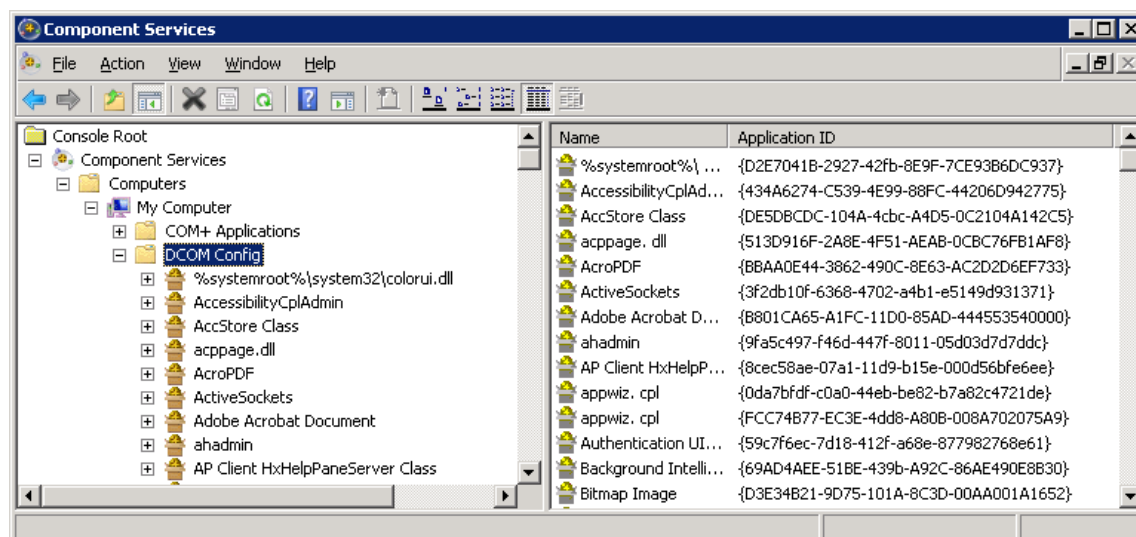
Here follows the description how the DCOM settings can be done manually:

For correct working of automation with Office 2007 files on 64-bit systems, a few registry values must be added. Setup installs the file Office_2007_Registry_Update_for_x64.reg into the document converter working directory (C:\TCOSS\TCLP for installations with links, <Program Files>\Kofax\Document Converter for installations with TWS). Run this script if you need Office 2007 support on 64-bit systems.

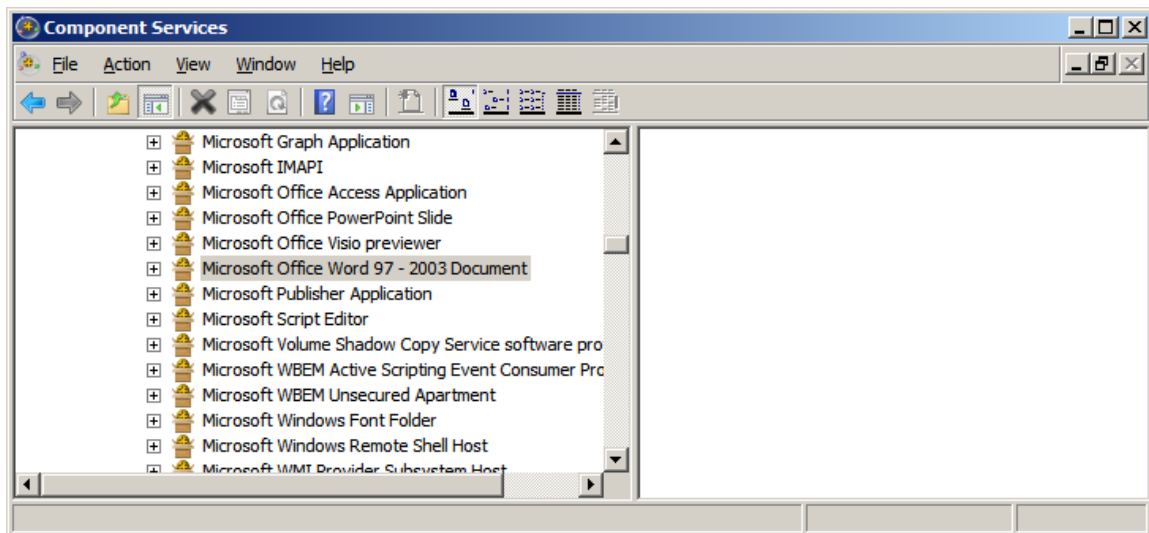
First configure Office 2007 for test mode by setting the DCOM user for the Office applications to "Interactive". Use the Office_2007_Registry_Update_for_x64.reg to do that without using "dcomcnfg" (also on 32-Bit System). After initial testing you can switch to productive mode.

Office 2007 DCOM configuration:

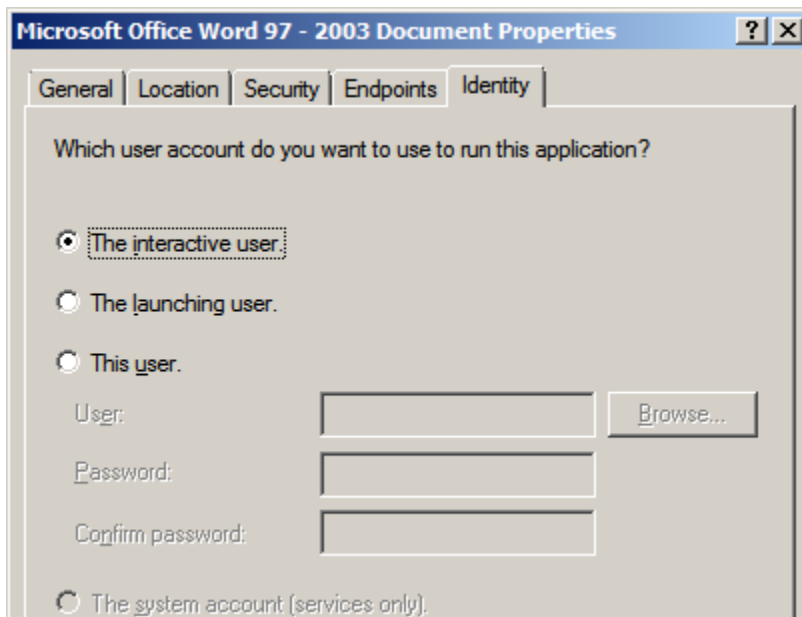
- Start DCOM configuration (Start -> Run -> "dcomcnfg"); you can omit these steps if you have imported the registry file Office_2007_Registry_Update_for_x64.reg and are using the test mode.
- Choose "Component Services/Computers/My Computer/DCOM Config"



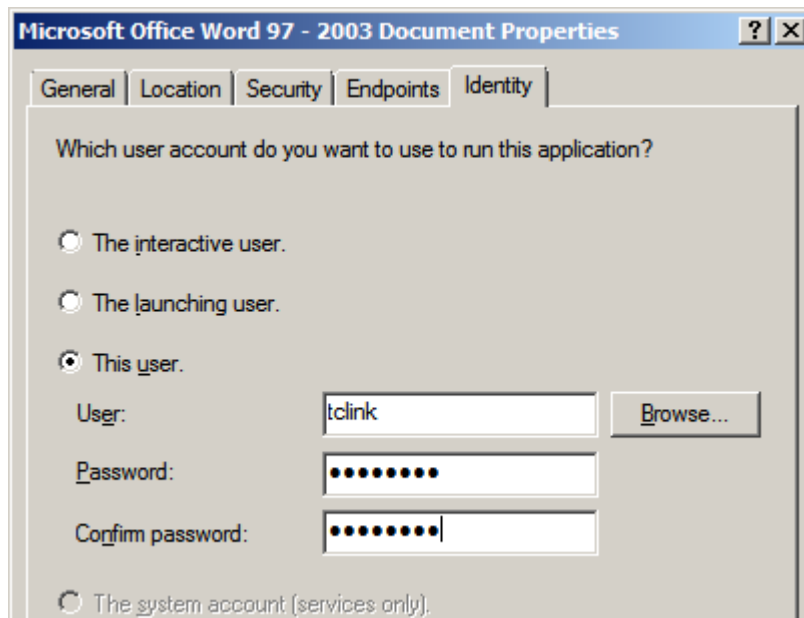
- Search for "Microsoft Office Word 97 - 2003 Document"



- Right-click, choose “Properties”
- Click tab “Identity”
- For initial testing and troubleshooting, choose “The interactive user”.
This allows seeing the application during processing and makes it possible to answer initial dialogs. In this case it is necessary that you are logged in as the user you configured for TCDCLINK (TcdcLink-User). With this configuration it is not allowed to log off during TC/LINK or TWS processing, as Document Conversion will not work.



- For productive mode, configure “This user”
The user has to be the same as configured for TCDCLINK (TcdcLink-User). The Office applications will run in background without interaction. It is possible to log off from the computer.

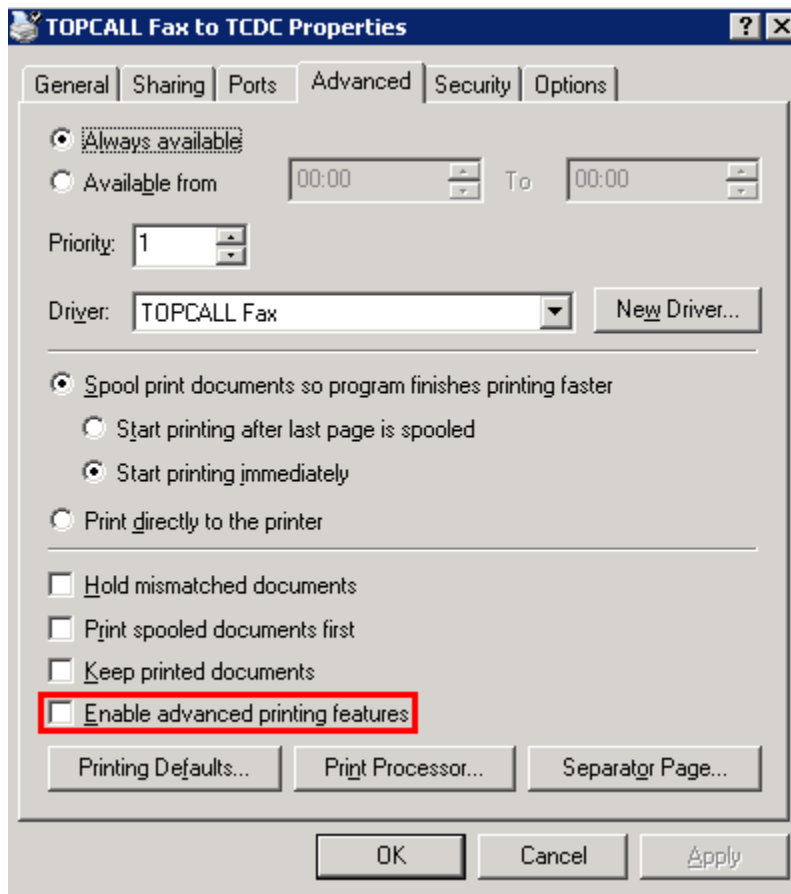


- Repeat the user configuration also for the other Office DCOM-components:
 - "Microsoft Excel Application"
 - "Microsoft Office PowerPoint Slide"

6.1.6 Advanced Printing Features May Cause Document Conversion Problems

KCS document conversion might produce documents with garbled characters and/or extra blank pages if the parameter "Enable advanced printing features" is selected in the advanced properties of KCS printers.

Since KCS 9.1.1, this flag is cleared by default. It is also cleared when upgrading to KCS 9.1.1 or later.



6.1.7 Windows Server 2012: Error 1: Incorrect Function

On Windows Server 2012, starting the service may fail with an error “Error 1: Incorrect Function”.

Workaround: The Interactive Services Detection is disabled by default on Windows Server 2012. To enable it, set the registry value HKLM\SYSTEM\CurrentControlSet\Control\Windows\NoInteractiveServices from the default “1” to “0”. Restart the operating system to make the changes effective.

6.2 Restrictions

6.2.1 General Restrictions

6.2.1.1 Applications Must Print to Default Printer

The document converter works only with applications that print to the default printer.

6.2.1.2 MS Excel Documents with Current Date and Time

Some Excel spreadsheets include the current date and time or another field that is changed automatically whenever the spreadsheet is opened. If you do not use automation for Excel documents, Excel displays a message box asking whether the document shall be saved. This message box disturbs document converter actions and usually causes a non-delivery notification.

Workaround: use automation for Excel documents, as configured by default.

6.2.1.3 Document Converter Installation Disables TCfW Printer

The KCS printer driver is installed with TCfW, links, and TWS. This sometimes causes a version mismatch. After installation you always have to reboot the system to avoid version conflicts!

If newer files are already installed, setup will ask you if you want to replace the files. Use the same option (OK or CANCEL) for all printer driver files!

Check the product version of the following files (file properties). They have to be the same.

```
C:\WIN\System32\TCDDIMON.DLL
C:\WIN\System32\spool\DRIVERS\W32X86\TCDDI40.DLL (and ...W32X86\3\TCDDI40.DLL)
C:\WIN\System32\spool\DRIVERS\W32X86\TCDDIUI.DLL (and ...W32X86\3\TCDDIUI.DLL)
```

Printing to TCfW is not supported on a computer where document conversion runs. Installation of the document converter with links or as standalone setup deactivates printing to TCfW by setting the following registry keys:

Registry key	Registry value	Value
...\Tcfw\Workstation	AttachToPrinter	N
HKLM\SYSTEM\CurrentControlSet\Control\Print\Printers\TOPCALL TIFF to TCDC\PrinterDriverData	NoApiCmd	1
HKLM\SYSTEM\CurrentControlSet\Control\Print\Printers\TOPCALL Fax to TCDC\PrinterDriverData	NoApiCmd	1
...\TCPDD	Unattended	1

6.2.2 Discontinued Features with Windows Server 2008

- Foreground document conversion
- Conversion of embedded OLE attachments
- Microsoft Office 2003
- File type association via Windows Explorer is not possible.
- Keeping applications alive (as defined in the Run registry key) is not supported.
- TC/LINK-MX is not supported

6.2.3 Restrictions for Windows 2008 64-Bit and Windows 2012

- General restrictions of Windows 2008 apply
- JetForm is not supported
- No PS or PCL printer drivers instead of the KCS printer driver are supported for document conversion
- TC/LINK-MX7 RTF conversion is not supported; use HTML instead

6.2.4 HTM/HTML Conversion on Windows Server 2012

Internet Explorer 10 shipped with Windows Server 2012 does not support conversion of HTM/HTML files. KCS document conversion can convert HTM/HTML documents only if Microsoft Office is installed on computers with this operating system.

References

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