

Kofax Communication Server

TCLINK VRS Configuration Administration Guide

Version: 10.3.0

Date: 2019-12-13

The KOFAX logo is displayed in a bold, blue, sans-serif font. The letters are thick and closely spaced, with a clean, modern appearance.

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Chapter 1

Preface

Kofax VirtualRescan (VRS) image perfection technology, a built-in feature of TCLINK, can be used for enhancing fax image, TIFF, PDF and JPG attachments in different scenarios.

No additional license is needed.

By default, VRS is only enabled for MFP related link types. With other link types, it is by default disabled and can be enabled via a check box in Setup or by changing the registry value `TCIMG32\VRS\Enable` to 1.

The TCLINK manual explains how VRS can be enabled for the following scenarios:

Image Perfection for TCI, TIFF or PDF alternatives

TC/LINK optionally uses VRS when creating TCI, TIFF or PDF alternatives for message bodies and file attachments. If you are using the feature “Email Header in Body Text” that creates an HTML header at the beginning of the message body, the created HTML header can be subject to VRS as well.

The VRS feature is controlled by the following registry values.

Name	Type	Default	Description
GeneralVrsForImg	DWORD	0	Possible values: 0 - disabled 1 - enabled for all file types 2 - enabled for all file types in VrsFileTypes 3 - enabled for all file types NOT in VrsFileTypes
GeneralVrsFileTypes	MULTI_SZ		Contains file extensions (without leading dot), acts as whitelist or blacklist, depending on value of VrsForImg

To find the correct VRS settings for enhancing TCI alternatives, TCLINK searches for a VRS use case matching the address of the first recipient without binary capabilities.

To find the correct VRS settings for enhancing TIFF or PDF alternatives, TCLINK searches for a VRS use case matching the address of the first recipient with binary capabilities.

Thus, you can define special VRS settings for fax images.

Image Perfection for TIFF, PDF or JPG attachments received from a mail system

TC/LINK optionally uses VRS to enhance TIFF, PDF or JPG attachments received from the mail system.

This feature is controlled by the following registry value.

Name	Type	Default	Description
General\VrsForBin	DWORD	0	Possible values: 0 - disabled 1 - enabled

To find the correct VRS settings for enhancing these attachment types, TCLINK searches for a VRS use case matching the address of the first recipient with binary capabilities.

Image Perfection for inbound faxes forwarded to a mail system

TC/LINK optionally uses VRS to enhance received faxes that are forwarded as TIFF or PDF files to a mail system. The binary content of the attachment is replaced with the result of VRS, even if no image conversion is needed for the message (for example, a simple email).

This feature is controlled by the following registry value.

Name	Type	Default	Description
General\VrsToMail	DWORD	0	Possible values: 0 - disabled 1 - enabled

To find the correct VRS settings, TC/LINK searches for a use case matching the recipient fax number.

Image Perfection for TIFF or PDF attachment sent to a mail system

TC/LINK optionally uses VRS to enhance TIFF or PDF file attachments sent to the mail system.

This feature is controlled by registry value General\VrsToMail (see above).

Depending on the file extension, TC/LINK uses the VRS settings defined for use case ReceivedTiff or ReceivedPdf.

How to Use This Manual

This manual is intended to be used by Kofax technicians and administrators at customer sites to get a general overview of installation and configuration tasks for VRS image enhancement.

For more detailed information see the documents listed in the *Related Documentation* section.

Important The Kofax Communication Server and its components formerly used the name TOPCALL. Some screens and text in this manual may still use the former name.

Related Documentation

To the following documents are referred for more detailed information:

- TC/LINK-MFP – Technical Manual
- TC/LINK-FI – Technical Manual

- TC/LINK – Technical Manual
- TCfW – User Manual

Chapter 2

KCS Prerequisites

This section describes the KCS prerequisites.

KCS Versions

- KCS 10.0.0 or higher

Licenses

VRS is an integrated feature of TCLINK and needs no separate license.

VRS

TC/LINK uses Kofax VRS Elite 5.1. This VRS version is compatible with Kofax Capture 10.0.

Install/Upgrade VRS

From VRS version 5.1.1 onwards, VRS supports patching. Therefore, the VRS installation (during KCS installation) verifies whether the latest VRS version is installed and does one of the following:

- If VRS is not installed, then the installation is continued and VRS is installed.
- If installed VRS version is older than the version available in KCS setup, then the existing VRS installation will be upgraded.
- If installed VRS version is same as that of VRS version available in KCS setup, then the installation will be skipped.

Note If you need repair VRS installation, please run the VRS setup manually. The VRS application (VrsSetup.exe) is available in kcs\shared folder of the KCS setup.

Chapter 3

Performance

The performance numbers in this section were determined on a Windows 2008 R2 VMWare system with 1 processor and 1GB RAM. They cover the processing time in TC/LINK.

Test message	VRS conversion	Messages per hour (using current VRS)
1 page gray-scale PDF attachment (828 KB, 200*200 dpi)	to TCI	6062
1 page colored TIFF attachment	to TIFF	5382
1 page color PDF attachment (902 KB, 200*200 dpi)	to TCI	5635
13 page black & white TIFF attachment (29,3 MB, 600*600 dpi)	to TCI	163

Chapter 4

Administration

This section describes the TC/LINK-VRS administration.

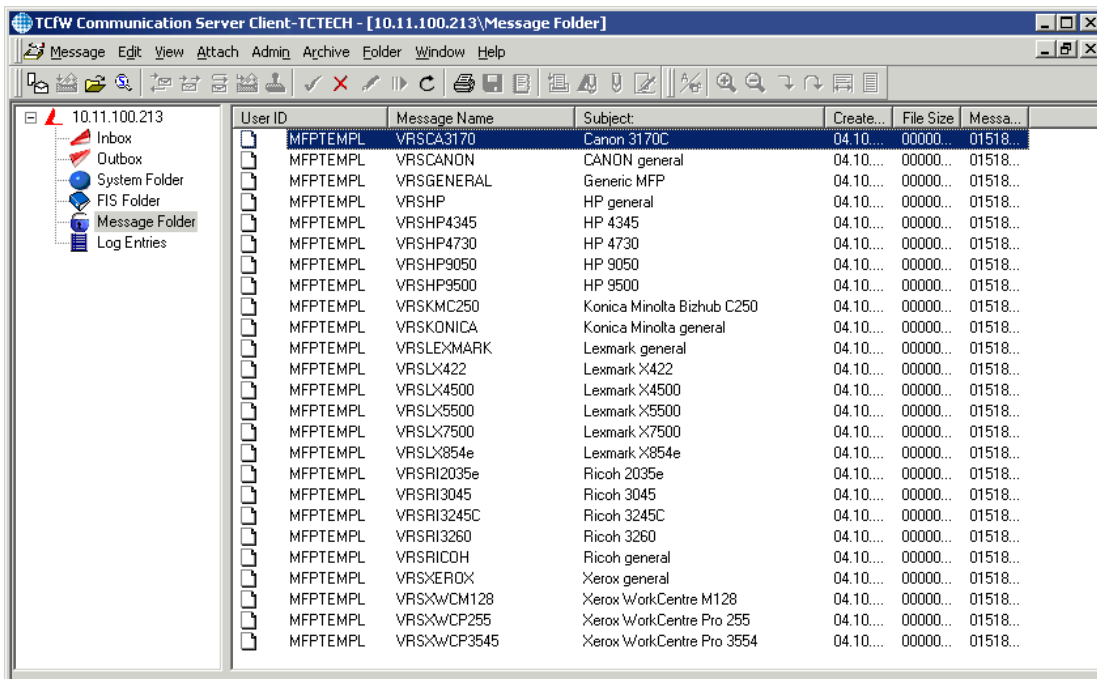
VRS Profiles

VRS profiles are stored on the KCS Server as messages in a message folder. By convention, the names of these messages start with the string *VRS*. With MFP based link type, there is one VRS profile per MFP model and all of them are stored in the message folder of the MFPTEMPL user.

All other link types use a single VRS profile, typically stored in the TCLINK message folder.

Example:

TC/LINK-MFP message folder with various VRS profiles:



The screenshot shows a window titled "TC/W Communication Server Client-TCTECH - [10.11.100.213]\Message Folder". The window displays a list of messages in a table format. The table has columns for User ID, Message Name, Subject, Create..., File Size, and Messa... (Message). The messages are all from the user MFPTEMPL and have message names starting with VRS. The subjects are various printer models and their general categories.

User ID	Message Name	Subject	Create...	File Size	Messa...
MFPTEMPL	VRSCA3170	Canon 3170C	04.10...	00000...	01518...
MFPTEMPL	VRSCANON	CANON general	04.10...	00000...	01518...
MFPTEMPL	VRSGENERAL	Generic MFP	04.10...	00000...	01518...
MFPTEMPL	VRSHIP	HP general	04.10...	00000...	01518...
MFPTEMPL	VRSHIP4345	HP 4345	04.10...	00000...	01518...
MFPTEMPL	VRSHIP4730	HP 4730	04.10...	00000...	01518...
MFPTEMPL	VRSHIP9050	HP 9050	04.10...	00000...	01518...
MFPTEMPL	VRSHIP9500	HP 9500	04.10...	00000...	01518...
MFPTEMPL	VRSKMC250	Konica Minolta Bizhub C250	04.10...	00000...	01518...
MFPTEMPL	VRSKONICA	Konica Minolta general	04.10...	00000...	01518...
MFPTEMPL	VRSLEXMARK	Lexmark general	04.10...	00000...	01518...
MFPTEMPL	VRSX422	Lexmark X422	04.10...	00000...	01518...
MFPTEMPL	VRSX4500	Lexmark X4500	04.10...	00000...	01518...
MFPTEMPL	VRSX5500	Lexmark X5500	04.10...	00000...	01518...
MFPTEMPL	VRSX7500	Lexmark X7500	04.10...	00000...	01518...
MFPTEMPL	VRSX854e	Lexmark X854e	04.10...	00000...	01518...
MFPTEMPL	VRSRI2035e	Ricoh 2035e	04.10...	00000...	01518...
MFPTEMPL	VRSRI3045	Ricoh 3045	04.10...	00000...	01518...
MFPTEMPL	VRSRI3245C	Ricoh 3245C	04.10...	00000...	01518...
MFPTEMPL	VRSRI3260	Ricoh 3260	04.10...	00000...	01518...
MFPTEMPL	VRSRICOH	Ricoh general	04.10...	00000...	01518...
MFPTEMPL	VRSXEROX	Xerox general	04.10...	00000...	01518...
MFPTEMPL	VRSXWCM128	Xerox WorkCentre M128	04.10...	00000...	01518...
MFPTEMPL	VRSXWCP255	Xerox WorkCentre Pro 255	04.10...	00000...	01518...
MFPTEMPL	VRSXWCP3545	Xerox WorkCentre Pro 3545	04.10...	00000...	01518...

The VRS profile effectively used by a certain MFP is defined in its MFP profile on the KCS server.

Therefore, TC/W provides the ability to configure this setting as shown in the following screen:

The screenshot shows a 'User Profile' window for the user 'at011018.emea.kofax.com'. The window has a title bar and a menu bar with options: Queue Length/Age/Pages alerting, Queue Length/Age/Pages logging, TC/WEB, and TC/WEB Identity Rights. Below the menu bar are tabs for General, Address, Event, Rights, Manual Fax, Distributor, and Authorize/Sign. The 'General' tab is active, showing the following fields and options:

- User ID: at011018.emea.kofax.com
- Group: MFPTEMPL
- Location: (empty)
- Representative: MFPTEMPL
- Company: (empty)
- Department: (empty)
- Full name: at011018.emea.kofax.com
- Salutation: (empty)
- Free Text: (empty)
- Default template: TCLINK/DEFTEMP
- User belongs to: MFPCConnect (dropdown)
- VRS Profile: MFPTEMPL/VRSGENERAL
- Language: English (01) (dropdown)
- Visible in outbox:
- Password: (masked)
- Retype password: (masked)
- Change own password:
- Password never expires: Password will never expire
- Change password at next login:
- Lock account: Account is not locked
- Cost center: (empty)
- Dirsync allowed:
- Reject all messages:
- Logging of all send attempts:
- Number locking:

At the bottom of the window are three buttons: OK, Save, and Cancel.

The field “VRS Profile” may contain a string made up of a folder name and a file name separated by a slash. The folder name has to be the name of the MFP template user, which is *MFPTEMPL* by default. The file name is the message name of the VRS profile, such as *MFPTEMPL/VRSGENERAL*.

The system does not check whether this VRS profile really exists.

Backup of VRS Profiles

TCfW allows you to back up user profiles (**Admin > Server > Backup Restore**). However, this backup does not include the messages in the Message Folder, which means that the VRS profiles are not included if you back up the MFPTEMPL user profile.

Therefore, for general backup purposes, we recommend using *TC/Backup*, which is available from the *KCS Technical Knowledge Base*.

Chapter 5

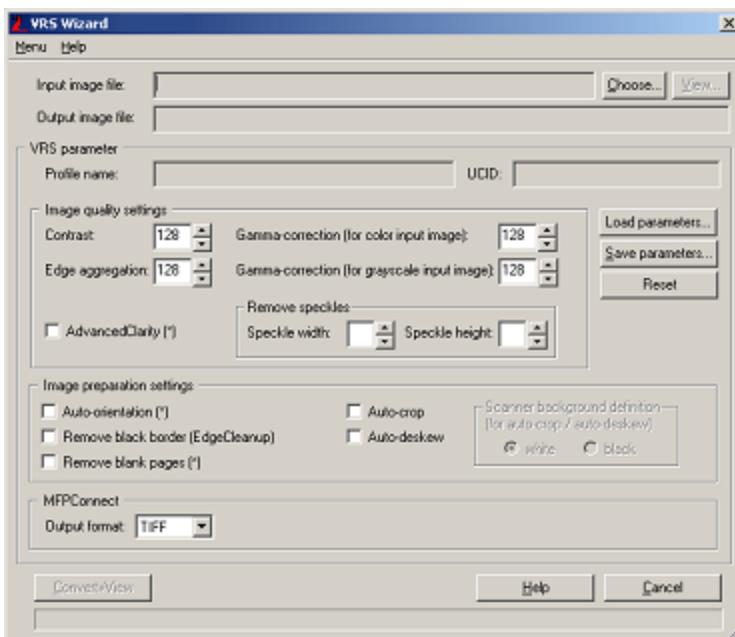
VRS Wizard

This section describes the VRS Wizard.

Introduction to VRS Wizard

The VRS Wizard utility, installed with TCLINK, is a simple configuration and test tool to assist you to maintain the use case specific VRS configuration on KCS. The utility also helps you to find the optimal Kofax VRS parameters for a certain multi-functional peripheral (MFP) device.

VRS Wizard (VrsTest.exe) is always included in TC/LINK-MFP installations. You can find a shortcut to it on the desktop and in the start menu. The utility is installed in `C:\TOPCALL\Shared\VrsWizard`.



With this tool you can:

- **Maintain VRS use-case IDs** on KCS.
- **Maintain VRS profiles** stored on KCS (or in a VRS parameter file, an older method that applies to MFP Integration V2.0 or lower)
- **Maintain MFP shadow user => VRS profile assignment** on KCS.
- **Perform VRS conversion** for test purposes on a given (unprocessed) image file and display the output image on a TIFF viewer of your choice. This output image will be saved automatically in the same folder

as the input file. Its file name will contain the main applied VRS settings (contrast/gamma correction/edge aggregation), which makes the subsequent identification of the output images easier.

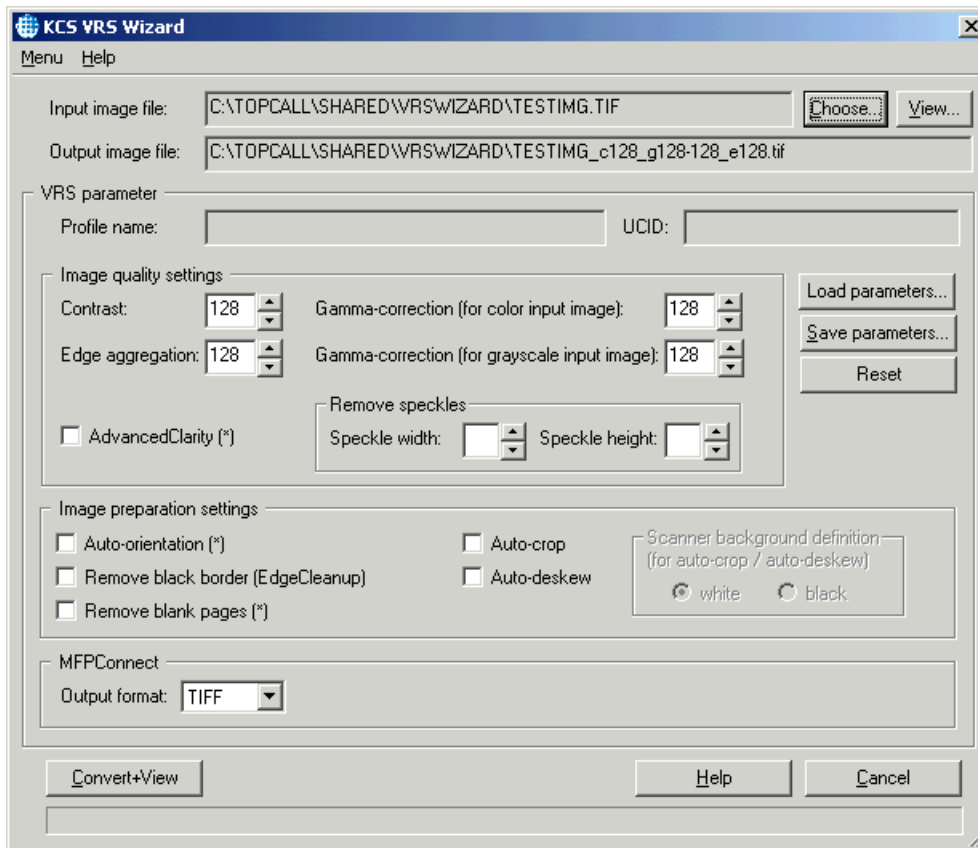
Please refer to the *TCLINK Technical Manual* and to the VRS configuration overview topic in this manual to understand the VRS configuration model.

Note This tool only helps to perform a basic VRS conversion on a given image file with standard VRS parameters. The tester is responsible for selecting the optimal VRS parameters.

Process of VRS Parameter Tuning

1. Get an unprocessed (raw) test image, such as from a message received via a link instance.
Save the corresponding image file to the hard disk with TCfW.
2. Use VRS Wizard to create VRS processed images from the raw image of step 1, experimenting with different VRS parameters in order to achieve the best image quality.
See "Using VRS Wizard for Parameter Tuning. "
3. Decide which VRS parameter set is optimal.
Examine the images processed by VRS and select your preferred quality output image or, in other words, your optimal VRS parameters.
4. Save the optimal VRS parameters to the VRS profile on KCS.
See "Store VRS Parameters for a UCID."

Using VRS Wizard for Parameter Tuning

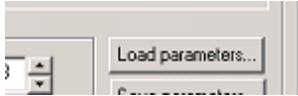


1. Click **Choose** to select the input image file.
The input image must be an unprocessed (raw) test image that you want to process with VRS.

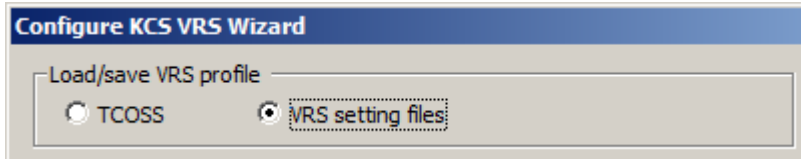
2. Fill the edit fields Contrast, Gamma-correction, Edge aggregation, etc. with your test values or load these values from an existing VRS profile stored on KCS or in a VRS parameter file.

At the program start, the main VRS parameter fields are initialized with the default values: Contrast = 128, Gamma-correction (for color input image) = 128, Gamma-correction (for grayscale input image) = 128, Edge aggregation = 128.

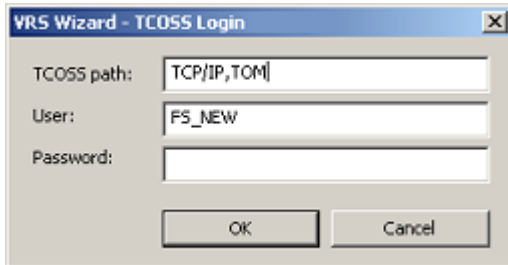
With the **Load parameters** button you can import values from an existing VRS profile stored on KCS.



As an alternative,, you can import these values from a VRS setting file. Use the radio-button group Load/Save VRS profile in the Configure VRS Wizard window to switch between these two modes.

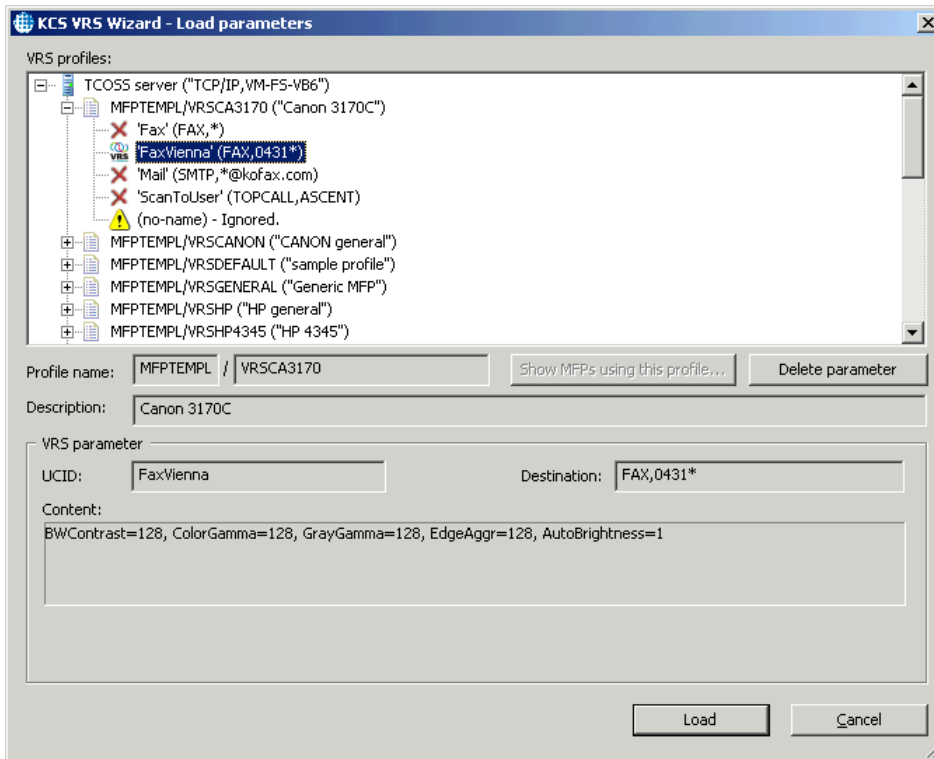


If Load/save VRS profile is set to TCOSS, a KCS login dialog box will appear:

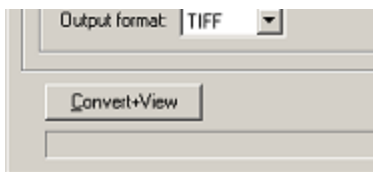


After a successful login, you can browse the VRS profiles stored on the KCS server. (For example “MFPTEMPL/VRSCA3170” is a VRS profile in the sample picture below.) Each VRS profile can contain one or more VRS parameter sets; each corresponding to the defined VRS use-cases.

Select a use-case in the tree-view that has a VRS-logo-icon and click the Load button.



3. Click the **Convert+View** button (or Convert if there is no TIFF viewer defined).



VRS conversion will be performed on the input image file. The output file will be stored in the same directory as the input image file. The name syntax is:

`[input file name]_c[BWContrast]_g[ColorGamma]-[GrayGamma]_e[EdgeAggr].tif`

Additionally, if AdvancedClarity is used, an “_A” will be appended to the output image name.

Furthermore, when using speckle width/height, then `ds[ww][hh]` will be appended.

Example:

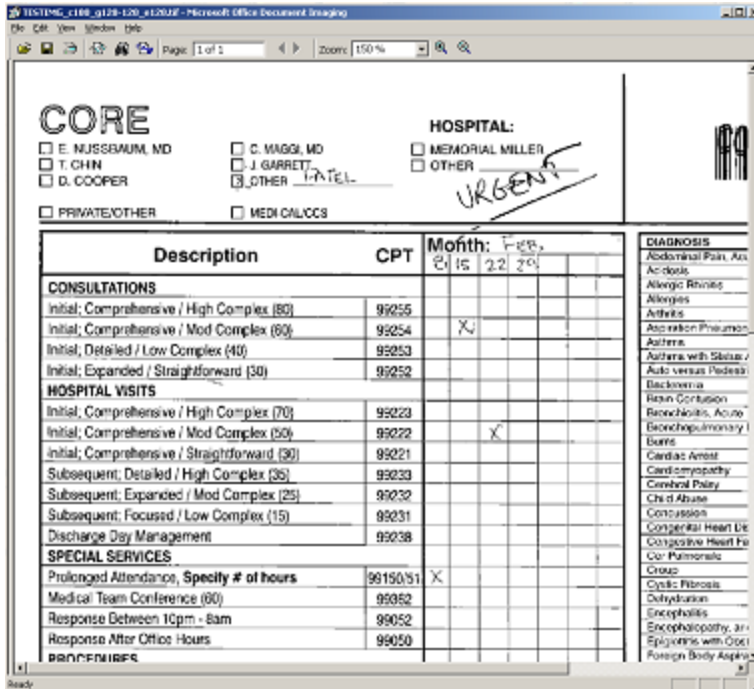
Name of input image: TESTIMG.tif

Name of output image: TESTIMG_c128_g128-128_e128.tif

Or, with AdvancedClarity and Despeckle (width=5 / height=5):

Name of output image: TESTIMG_c128_g128-128_e128_A_ds0505.tif

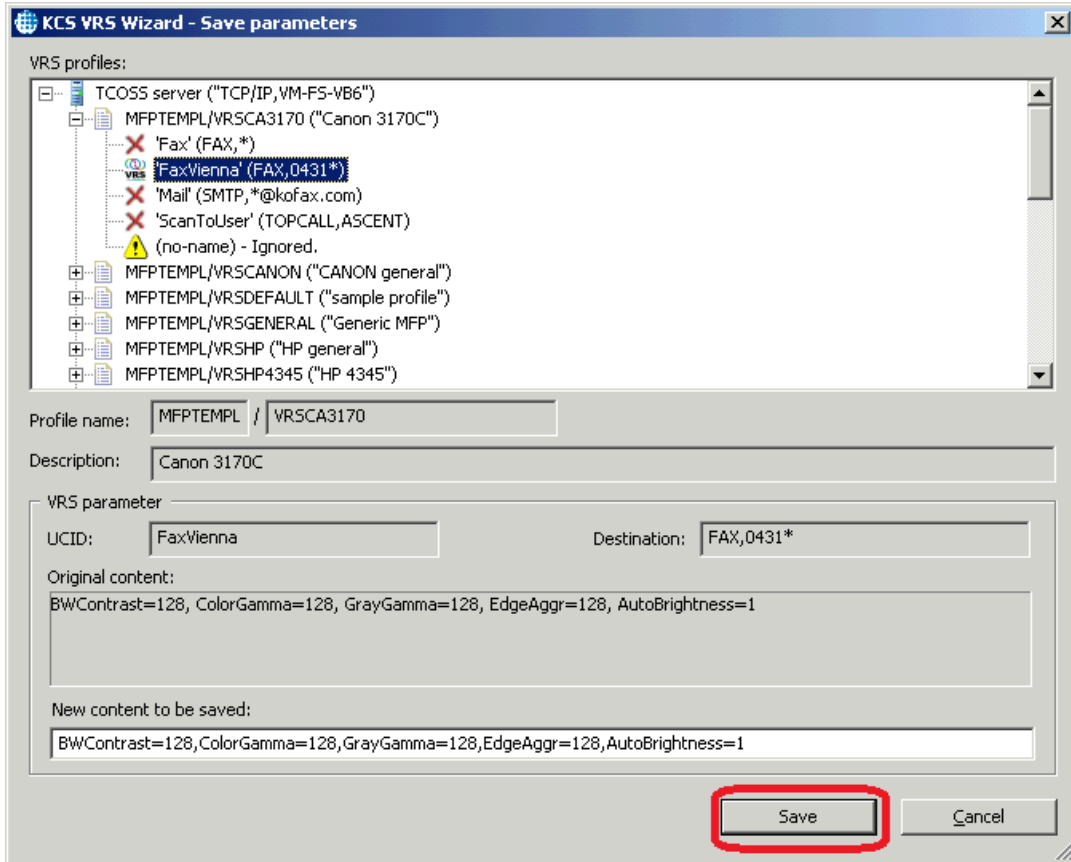
If defined (which is the default), the image viewer will be opened automatically, displaying the processed image.



For defining / switching off the TIFF image viewer, select **Configure VRS Wizard** from the menu. See "Setting the Image Viewer."

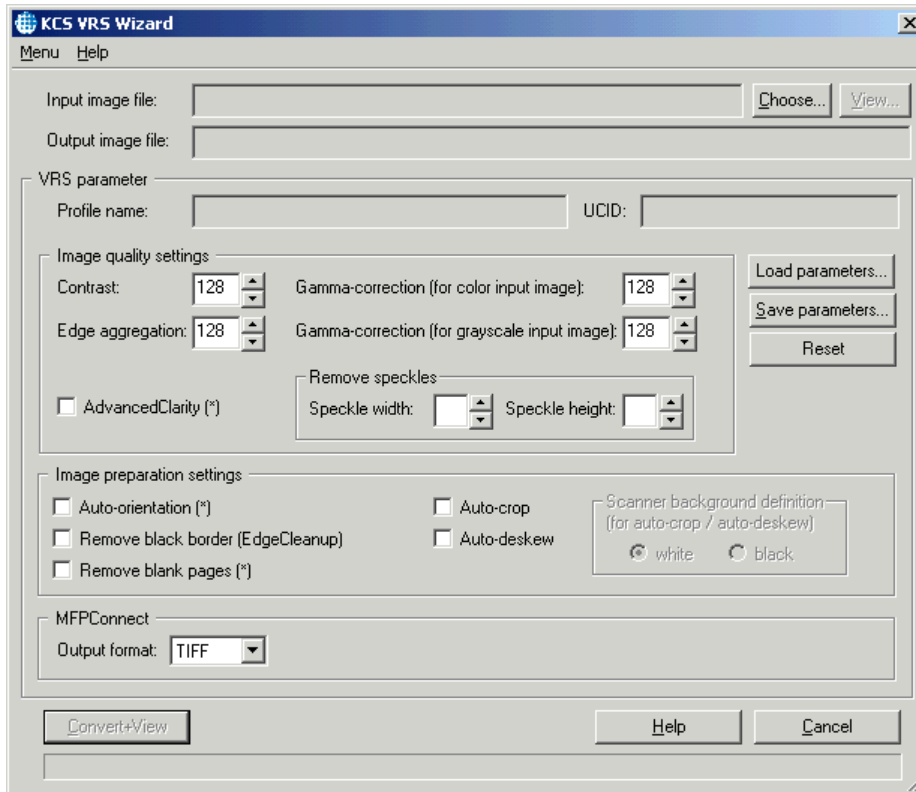
4. Repeat Step 3 with various Contrast/Gamma/Edge aggregation test values.
5. Examine the output images. Choose the best output image quality.

- Save the corresponding VRS parameters to the VRS profile with the **Save parameters** button. If Load/save VRS profile is set to TCOSS, the Save parameters window appears.



The last loaded profile and UCID will be automatically selected in the list. The field "New content to be saved" will be filled according to the VRS settings of the main dialog. Click **Save** to save the changes on TCOSS.

Supported VRS Parameters and Their Description



The following table matches the dialog box fields to the corresponding VRS parameter names:

Dialog box controls field	Corresponding VRS profile parameter
Contrast	BWContrast
Gamma-correction (for color input image)	ColorGamma
Gamma-correction (for grayscale input image)	GrayGamma
Edge aggregation	EdgeAggr
AdvancedClarity (*)	AdvancedClarity
Speckle width	DespeckleWidth (+DespeckleEnable)
Speckle height	DespeckleHeight (+DespeckleEnable)
Auto-orientation (*)	AutoOrientation
Remove black border (EdgeCleanup)	EdgeCleanup
Remove blank pages (*)	BlnkPgDeletion
Auto-Crop	AutoCrop
Auto-Deskew	AutoDeskew

Dialog box controls field	Corresponding VRS profile parameter
White / black (Scanner background definition)	BlackBG

Dialog box controls field	Corresponding MFP Integration specific VRS conversion parameter
Output format (TIFF or PDF)	TcOutputFormat

VRS Parameter Summary

Scanner (MFP) or Input Image Specific Settings

Parameter name	Description	Range	Default
BWContrast	Contrast setting for the case VRS doing color / grayscale to b/w conversion (only ColorMode=3).	0, 255	128
ColorGamma	Gamma correction setting for the case VRS doing color to color or color to b/w conversion (only ColorMode=1 or 3).	0, 255	128
GrayGamma	Gamma correction setting for the case VRS doing grayscale to b/w conversion (only ColorMode = 3).	0, 255	128
EdgeAggr	Edge aggregation. Fine-tuning parameter for the edge detection algorithm.	0, 255	128
BlackBG	Defining color of the scanner's background for the AutoCrop / AutoDeskew feature.	0=white, 1=black	0=white

Note The optimal values for these settings are typically determined by a process of trial and error for each input image type. This even applies to BlackBG, which indicates the color of scanner's background. In some cases, a scanner with a black background may work better with the white background deskew and cropping algorithms.

VRS Basic Feature Control

Parameter name	Description	Range	Default
EdgeCleanup	Replaces black pixels in the border around the image with white pixels.	0=off, 1=on	0=off
AutoCrop	Crops images to the actual size of the scanned document.	0=off, 1=on	0=off
AutoDeskew	Straightens skewed images.	0=off, 1=on	0=off
DespeckleEnable	Removes speckles from the image.	0=off, 1=on	0=off
DespeckleHeight	Height of the speckles to be removed (in pixels).	0-75	
DespeckleWidth	Width of the speckles to be removed (in pixels).	0-75	

VRS Professional Feature Control

Parameter name	Description	Range	Default
AutoOrientation	Rotates the image according to the orientation of the text in the image.	0=off, 1=on	0=off
AdvancedClarity	Suppresses dense pattern document backgrounds.	0=off, 1=on	0=off
BlinkPgDeletion	Removes blank pages.	0=off, 1=on	0=off
ColorDetect	Performs automatic color detection and produces output image accordingly.	0=off, 1=on	0=off
FillHoles	Fills punch holes on document edges with the surrounding page background.	0=off, 1=on	0=off
ColorMode	Specifies the color format of the output image	1=color 2=grayscale 3=black/white	3=b/w

Description of the Parameters

Scanner (MFP) or Image Specific Settings:**BWContrast**

Range: [0, 255]

Default: 128

Description: BWContrast is the amount of difference between the lightest and darkest areas on an image. For VRS, the BWContrast parameter affects how the content is enhanced. VRS sees content as anything that has an edge. When VRS detects an edge, it is enhanced based upon the setting in the BWContrast parameter. As the BWContrast value increases, the content does not need as much of an edge to be enhanced. Fainter content will become more visible. At the highest value, VRS may even enhance invisible tape or the grain of the document. As the BWContrast value decreases, the content needs more of an edge to be enhanced. Darker content will remain while faint content will begin to disappear. At the lowest value, only content like solid lines, bar codes, and logos will be visible.

Note This setting applies only when VRS is returning a black and white image and the input image is grayscale or color.

Note The optimal value for this setting is typically determined by a process of trial and error for each scanner model of interest.

ColorGamma

Range: [0, 255]

Default: 128

Description: When a scanner scans a document, it determines how to convert the light intensity of that document into pixels using a value called "gamma". The ColorGamma parameter is used in VRS to compensate for scanners whose built-in gamma value leads to lower quality images. As the ColorGamma parameter is decreased to the lower end of the range, VRS applies significant contrast between the

lightest and darkest areas of an image. As the ColorGamma parameter is increased to the upper end of the range, VRS applies minimal contrast between the lightest and darkest areas of an image.

Note This setting applies only when ColorMode=3 or ColorMode=1, and the input image is color. The optimal value for this setting is typically determined by a process of trial and error for each scanner model of interest.

GrayGamma

Range: [0, 255]

Default: 128

Description: This is similar to ColorGamma, but for grayscale input images.

Note This setting applies only when ColorMode=3 and the input image is grayscale. The optimal value for this setting is typically determined by a process of trial and error for each scanner model of interest.

EdgeAggr

Range: [0, 255]

Typical values: 88, 92, 128, 160, 163, 168, 192.

Default: 128

Description: This is a fine-tuning parameter for the edge detection algorithm discussed with BWContrast above.

Note The optimal value for this setting is typically determined by a process of trial and error for each scanner model of interest.

BlackBG

Range: 0=white, 1=black

Default: 0=white

Description: This tells VRS the color of the scanner's background and affects AutoCrop and AutoDeskew processing.

Note The optimal value for this setting is typically determined by a process of trial and error for each scanner model of interest. In some cases, a scanner with a black background may work better with the white background deskew and cropping algorithms.

VRS Basic Feature Control:

EdgeCleanup

Range: 0=off, 1=on

Default: 0=off

Description: When EdgeCleanup=1, VRS replaces black pixels in the border around the image with white pixels, preserving the width and length of the image size determined by VRS Auto Crop.

Note This setting applies only when AutoDeskew=1 and AutoCrop=1 and VRS is returning a black and white image and VRS successfully deskewed and cropped the image.

AutoCrop

Range: 0=off, 1=on

Default: 0=off

Description: When AutoCrop=1, VRS automatically crops images to the actual size of the scanned document. For example, if you scan a postcard, the Auto Crop feature ensures that the image matches the actual document dimensions (rather than the paper size specified by the scanning application).

Note If BlackBG=1, indicating black background, the cropping dimensions are determined by using the contrast between the paper background and the scanner background. If BlackBG=0, indicating white background, the cropping dimensions are determined by the content of the image.

AutoDeskew

Range: 0=off, 1=on

Default: 0=off

Description: When AutoDeskew=1, VRS automatically straightens any images that are skewed when they scan.

Note If BlackBG=1, indicating black background, the deskew correction is determined by using the contrast between the paper background and the scanner background. If BlackBG=0, indicating white background, the deskew correction is calculated based on horizontal and vertical text lines in the image.

DespeckleEnable

Range: 0=off, 1=on

Default: 0=off

Description: When DespeckleEnable=1, VRS removes speckles from the image. Use the DespeckleHeight and DespeckleWidth settings to specify the size of the speckles to be removed.

Note This setting applies only when ColorMode=3 (black/white).

DespeckleHeight

Range: [0, 75]

Default: 0

Description: Use DespeckleHeight to specify the height in pixels of the speckles to be removed.

Note This setting applies only when ColorMode=3 (black/white) and DespeckleEnable=1.

DespeckleWidth

Range: [0, 75]

Default: 0

Description: Use DespeckleWidth to specify the width in pixels of the speckles to be removed.

Note This setting applies only when ColorMode=3 (black/white) and DespeckleEnable=1.

C) VRS Professional Feature Control:

AutoOrientation

Range: 0=off, 1=on

Default: 0=off

Description: When AutoOrientation=1, VRS automatically rotates the image 90, 180, or 270 degrees, based on the detected orientation of the text in the image.

Note This setting applies only when Auto Deskew=1.

AdvancedClarity

Range: 0=off, 1=on

Default: 0=off

Description: When AdvancedClarity=1, VRS applies advanced thresholding techniques for suppressing densely patterned document backgrounds. This setting applies only for black/white output.

BlnkPgDeletion

Range: 0=off, 1=on

Default: 0=off

Description: When BlnkPgDeletion=1, VRS automatically removes any page that it can confidently determine to be blank. There is a content sensitivity setting to adjust and control the VRS interpretation of "blankness" but this content sensitivity setting is not supported by the VRScmd DLL at this time.

ColorDetect

Range: 0=off, 1=on

Default: 0=off

Description: When ColorDetect is 1, VRS performs automatic color detection of the input to automatically provide either color or black and white output. It creates a color image if color is detected, or a black and white image otherwise.

FillHoles

Range: 0=off, 1=on

Default: 0=off

Description: When FillHoles is 1, VRS fills punch holes on document edges with the surrounding page background.

ColorMode

Range: 1=color, 2=grayscale, 3=black/white

Default: 3=black/white

Description: This setting specifies the color format of the output image.

If the input image is color and ColorDetect=1, VRS may return a color image even if ColorMode=3.

Usage of VRS Parameters

Some VRS parameters apply only with certain input or output color modes. The following tables show which settings are useful for different use cases in TCLINK.

Converting colored images to black/white image (such as for sending to fax)

VRS Parameters	Purpose
AdvancedClarity	Image perfection for complicated backgrounds (such as check boxes)
BWContrast, EdgeAggr, ColorGamma	Contrast control
AutoCrop (+ BlackBG + EdgeCleanup)	Crop image to the size of the scanned document (especially for scanned images)
AutoDeskew (+ BlackBG + EdgeCleanup)	Deskew correction for scanned images
AutoOrientation	In addition to AutoDeskew, rotate image by 90, 180 or 270 degrees, if necessary
DespeckleEnable, DespeckleHeight, DespeckleWidth	Remove speckles
FillHoles	Remove hole marks
BlnkPgDeletion	Remove empty pages

Enhancing black/white images (for sending to fax, or improving received fax)

VRS Parameters	Purpose
AdvancedClarity	Image perfection for complicated backgrounds (such as check boxes)
AutoCrop (+ BlackBG + EdgeCleanup)	Crop image to the size of the scanned document (especially for scanned images)
AutoDeskew (+ BlackBG + EdgeCleanup)	Deskew correction for scanned images
AutoOrientation	In addition to AutoDeskew, rotate image by 90, 180 or 270 degrees, if necessary
DespeckleEnable, DespeckleHeight, DespeckleWidth	Remove speckles
FillHoles	Remove hole marks
BlnkPgDeletion	Remove empty pages

Enhancing color images (output is color)

To get color output, you have to explicitly set ColorMode to 1, because per default VRS creates black and white output.

VRS Parameter(s)	Purpose
ColorGamma	Contrast control
AutoCrop	Crop image to the size of the document

VRS Parameter(s)	Purpose
AutoDeskew	Deskew correction
AutoOrientation	In addition to AutoDeskew, rotate image by 90, 180 or 270 degrees, if necessary
FillHoles	Remove hole marks
BlnkPgDeletion	Remove empty pages

MFP Integration VRS Configuration Overview

VRS parameters (or the no-VRS mode) can be defined individually per use case and (for MFP-based links) per MFP.

The following three configuration elements make up the whole VRS configuration on KCS:

1. List of all "use cases" for which VRS conversion is intended.

This list is stored in the message body of a dedicated KCS message folder entry, in simple text format. For MFP-based link types, this KCS message is named "VRSUCID" and it stays in the message folder of the "MFPTEMPL" user. For other link types, it is typically stored in the message folder of the TCLINK user. Format of one use case definition:

UCID: service, address

Example:

FaxVienna: FAX,00431*

Where UCID ("use-case ID") is just an arbitrary unique name of this destination and is used only in VRS profiles (see below) to reference this use case. Wildcard character (*) can be used in the address part as beginning or ending character. A complete UCID definition list can look like this:

ScanToUser: TOPCALL,ASCENT

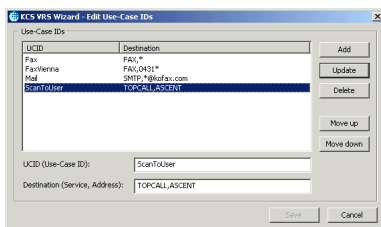
Mail: SMTP,@dicomgroup.at*

*FaxVienna: FAX,00431**

*Fax: FAX,**

When processing a message from a mail system, VRS processing will be performed if the recipient address matches one of these destinations. Otherwise, the default is used: no VRS. The order of the definition lines is important because the first match determines the respective use case.

Note Use the menu "Use-Case IDs..." in KCS VRS Wizard to show / maintain these UCID definitions:



2. VRS profile(s), each one containing the corresponding VRS parameters for the defined UCIDs.

Example:

FaxVienna: AutoBrightness=1,BWContrast=175,ColorGamma=118,EdgeAggr=128

Fax: AutoBrightness=1,BWContrast=175,ColorGamma=118,EdgeAggr=128

MFP-based Links:

With MFP-based links, typically all MFPs of the same type use the same VRS profile. But this is not mandatory: Each MFP machine can have its own individual VRS profile.

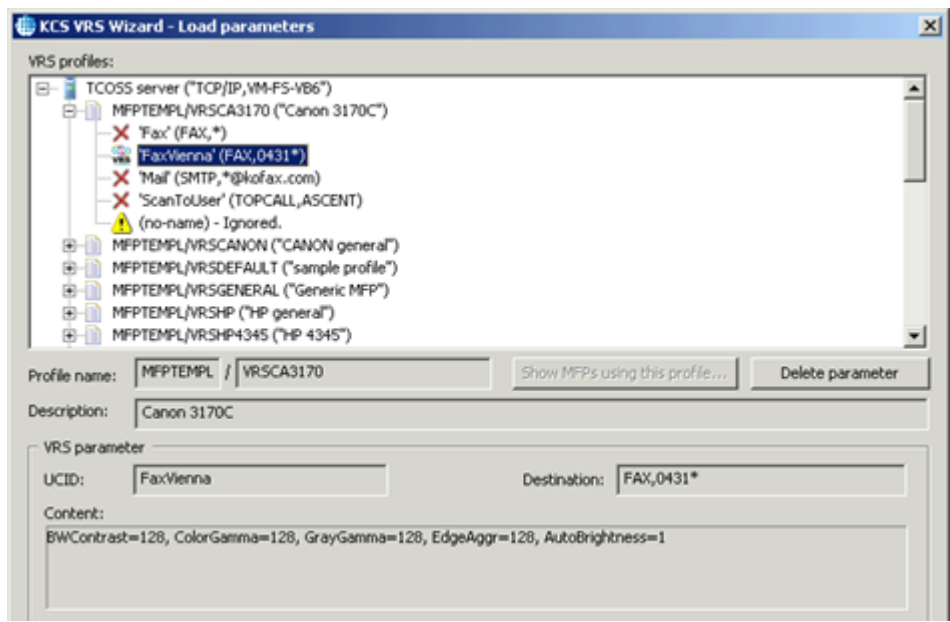
If some defined UCID is missing in a VRS profile, then for MFPs using the profile, VRS conversion is disabled for these destinations.

Each VRS profile is stored as a special KCS message in the message folder of the “MFPTEMPL” user. The name of this message is arbitrary, but it must begin with the “VRS” prefix.

Other link types:

Other link types use a single VRS profile per link instance. The name of this VRS profile is configurable in the registry. The name is arbitrary, but it must begin with the “VRS” prefix.

Tip Use the Load and Save buttons in the KCS VRS Wizard to show / maintain the VRS profiles:



3. MFP shadow user => VRS profile assignment

The “VRS profile” field in the MFP shadow user is used to assign a VRS profile to an MFP.

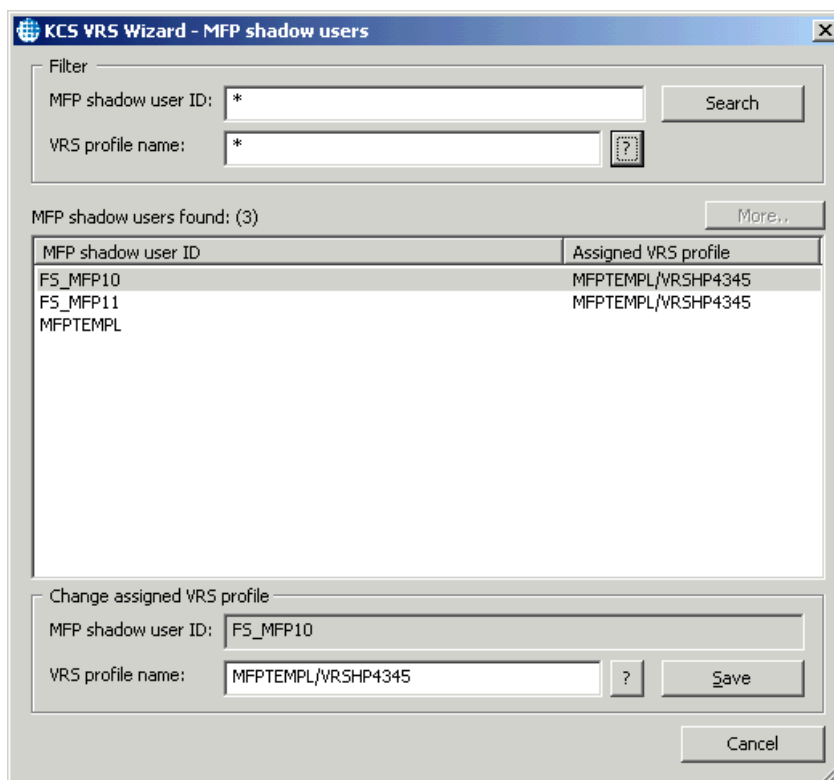
One MFP can have no or one VRS profile. If there is no VRS profile assigned to an MFP, then VRS is disabled for this MFP.

More MFPs can share the same VRS profile: Just enter in each of these MFP shadow users the same VRS profile name in the “VRS profile” field.

Note VRS profile

“VRS profile ” field with the KCS path definition, that is, with the “MFPTEMPL/” prefix. This is a detail that is not hidden by the KCS VRS Wizard or TCfW user interface.

Tip Use the menu “MFP shadow users” in the KCS VRS Wizard to display / maintain the MFP shadow user => VRS profile assignment:



MFP Integration uses the following procedure to determine whether for a certain MFP and a certain recipient VRS conversion has to be performed and if yes, with which VRS parameters:

Step 1:

MFP Integration tries to find among the UCID definitions the first matching entry with the recipient address. If no matching UCID definition is found, no VRSprocessing is performed.

In the example above, the recipient FAX,0043186353 matches the use-case “FaxVienna”, but also “Fax”. However, “FaxVienna” will be found first, so the corresponding use case is “FaxVienna”.)

Step 2:

Finding the KCS shadow user of the sending MFP.

If the sending MFP has no corresponding shadow user on KCS (User-ID: the fully qualified domain name of the MFP), then it cannot have a corresponding VRS profile either, so no VRS processing is performed.

Step 3:

Loading the assigned VRS profile from the MFP shadow user.

If no VRS profile is defined at the MFP shadow user, then no VRS processing is performed.

Step 4:

Checking if the VRS profile has a VRS parameter definition for the use-case determined in step 1.

If no such definition is found, then no VRS processing is performed.

Otherwise, this VRS parameter set will be taken and the VRS conversion is performed.

(Unless the VRS feature is disabled in the TC/LINK-MFP registry.)

For example, to continue the example in step 1, to enable VRS the VRS profile must have a VRS parameter definition for FaxVienna, such as this:

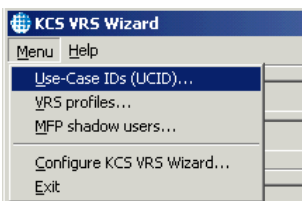
FaxVienna: AutoBrightness=1,BWContrast=175,ColorGamma=118,EdgeAggr=128

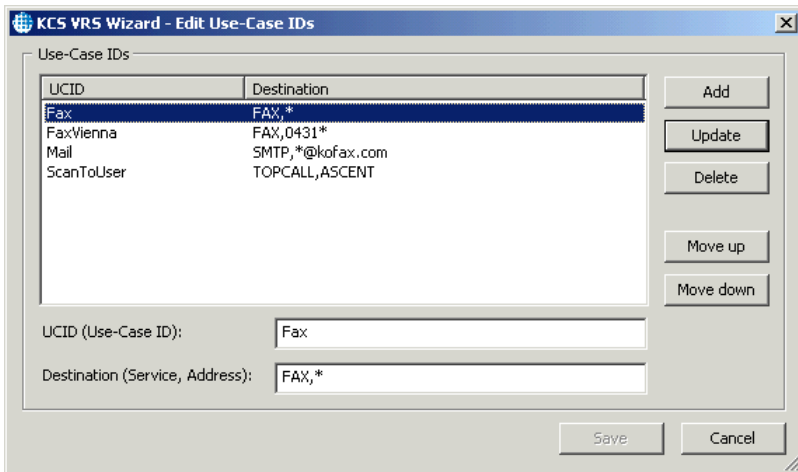
Important It is not sufficient to have a VRS parameter definition for the use case “Fax”, even if “Fax” is by definition “FAX,*” and the recipient in our example is “FAX,0043186353”.

The reason is that in step 1 our use-case was already categorized as “FaxVienna” and not as “Fax”, and this will not be revised later.

In the MFP Integration configuration semantic, a missing use-case definition in the VRS profile means that VRS is disabled for this use-case.

Maintain VRS Use Case IDs





Enter / change the values in the “UCID” and “Destination” edit fields below and do not forget to click “Add” or “Update” to apply the changes into the list. Buttons “Move up” and “Move down” can be used to change the order of the UCID definitions. The order of the entries is relevant. For example, if use case “Fax” would stay before “FaxVienna” in the list above, then “FaxVienna” would never match.

The changes are not stored on KCS until you click the **Save** button.

For more information on VRS use-case IDs, refer to the topic "VRS configuration overview. "

Maintain VRS Profiles

KCS VRS Wizard offers all functionality to maintain the VRS profiles:

Display VRS profiles:

- Show all VRS profiles stored on KCS
- Show the content of a VRS profile

Manage VRS profiles:

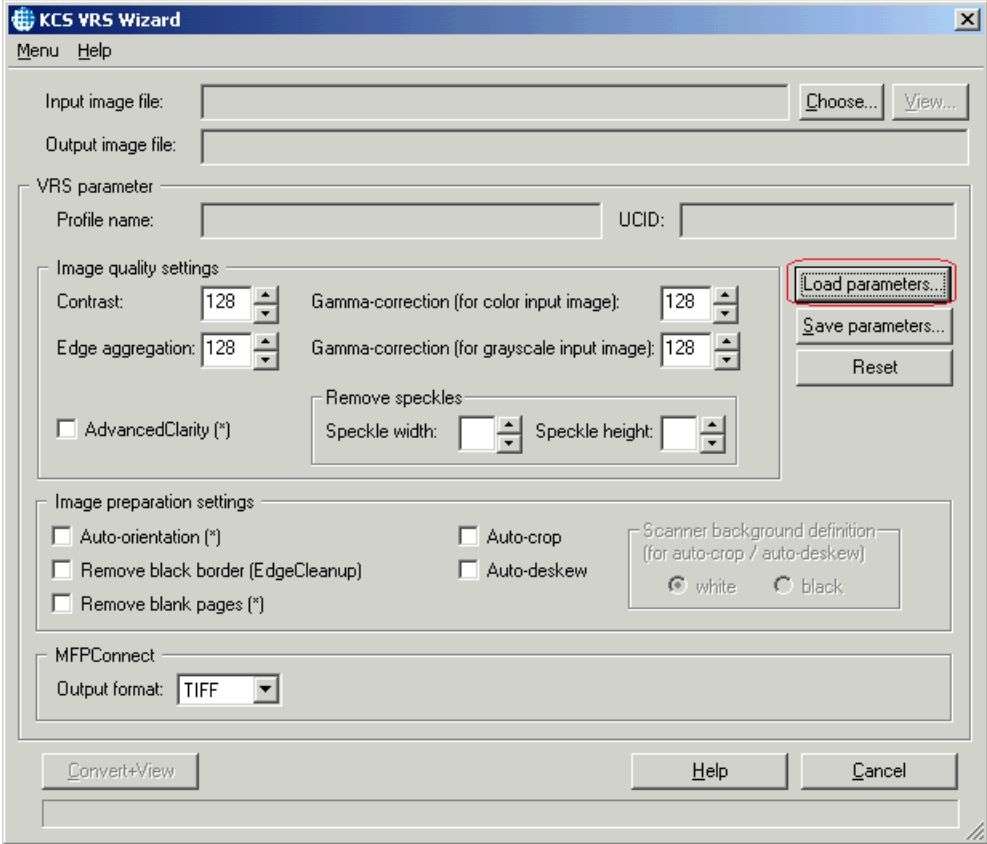
- Create a new VRS profile
- Delete an existing VRS profile

Edit VRS profiles:

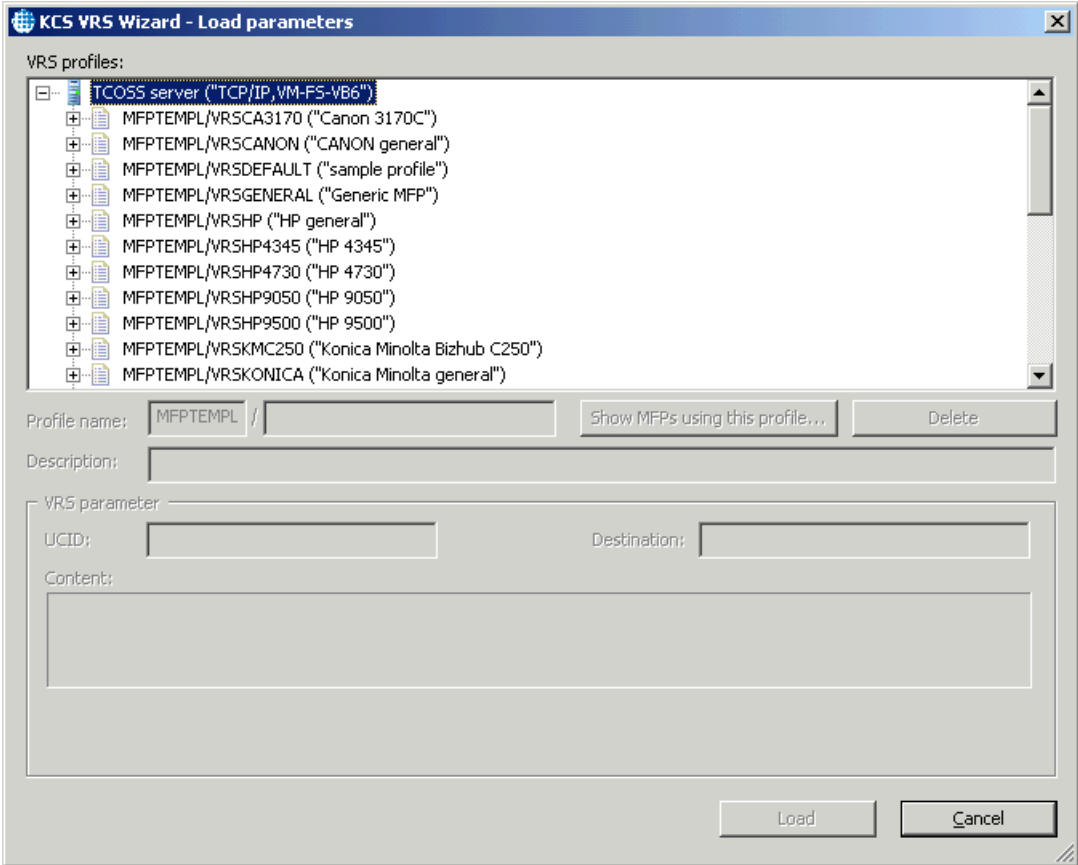
- Store VRS parameters for a UCID
- Modify the VRS parameters for a UCID
- Delete the VRS parameters for a UCID

Show All VRS Profiles Stored on KCS

- 1. Click **Load parameters.**

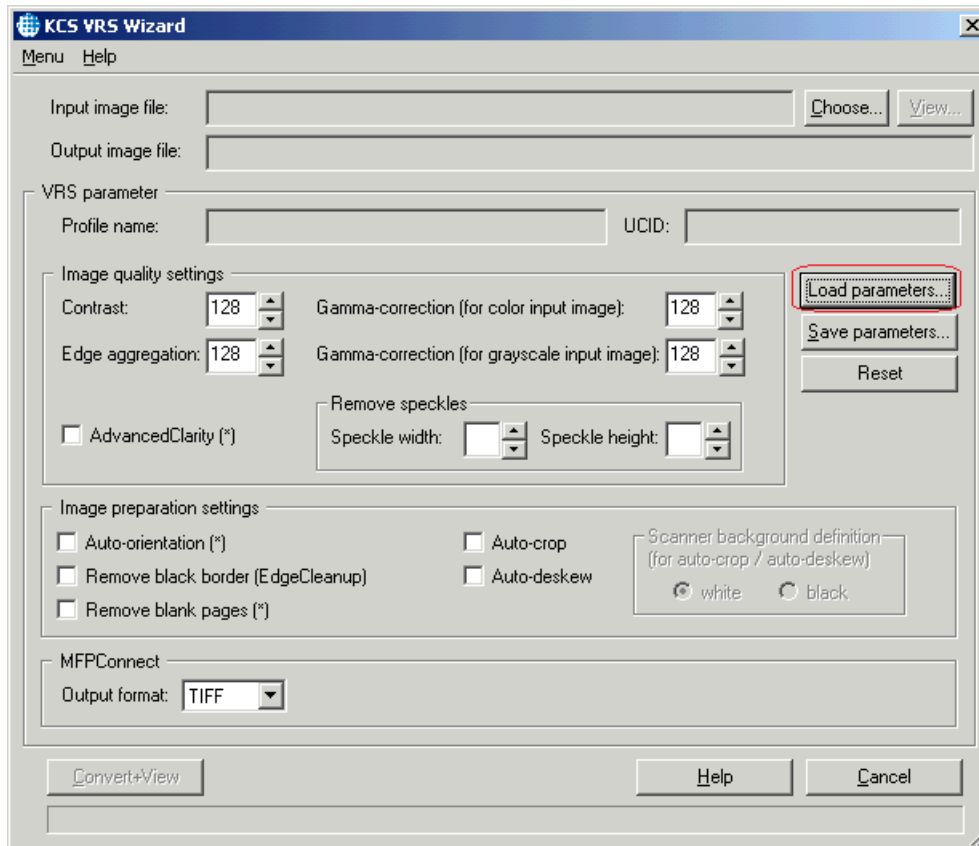


2. A list appears with all VRS profiles stored on the KCS server it was logged in.



Show the Content of a VRS Profile


1. Click **Load parameters**.





2. A list appears with all VRS profiles stored on the KCS server it was logged in. Click on the "+" to expand the VRS profile node that interests you.

A list of all defined (valid) VRS use cases plus all undefined VRS parameter entries in the selected VRS profile will be displayed. The tree view displays all UCIDs, even those for which there is no VRS parameter defined (marked with the **X** icon). For these use cases, the VRS conversion is disabled.

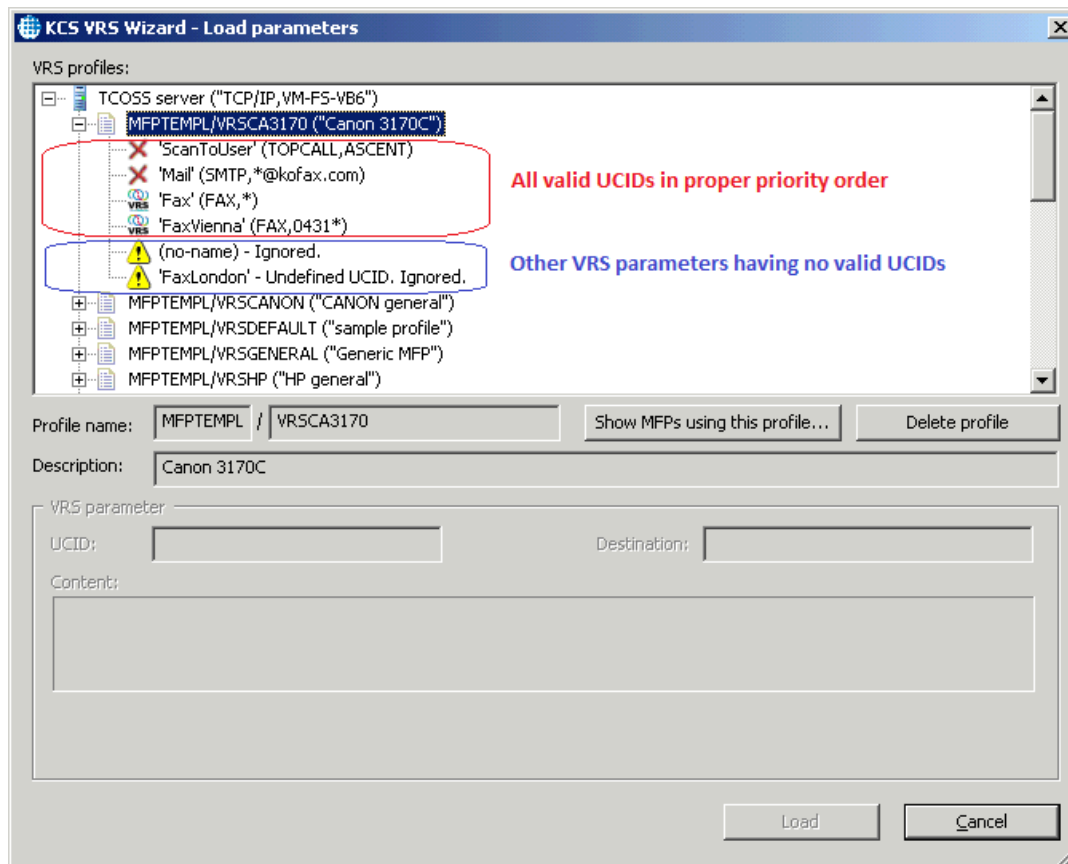
This information is important to see at a glance whether a destination is configured to use VRS or not for all the MFPs using this profile.

: VRS parameters are stored in VRS profile for this use case; VRS conversion is enabled.

: no VRS parameters are stored; VRS is disabled

: VRS parameters stored in the profile, but without valid UCID

Example:



The message body text in the corresponding KCS message file (message folder: “MFPTEMPL”, message name “VRSCA3170”) looks like this:

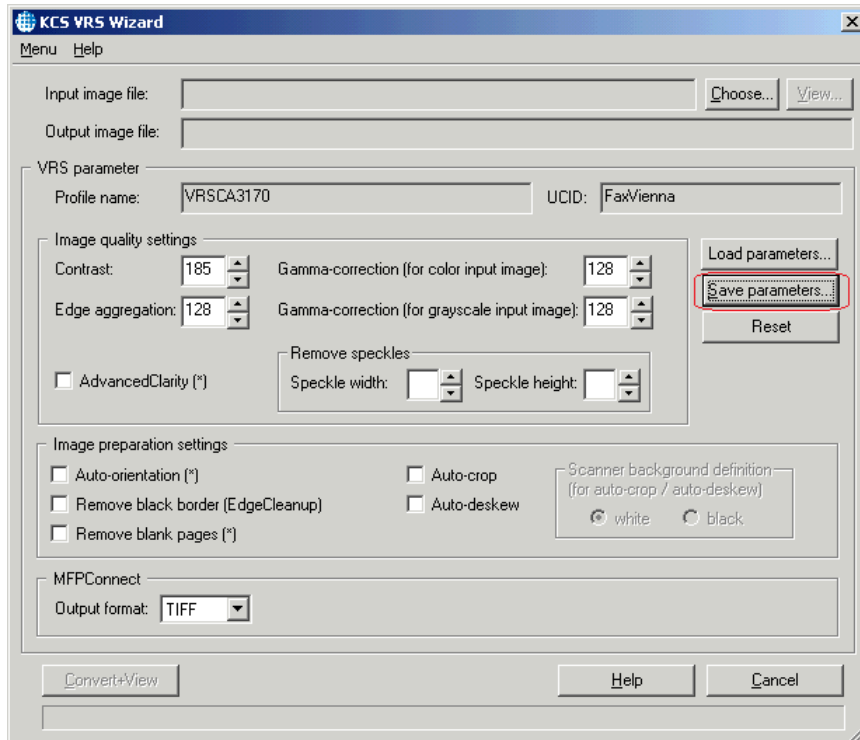
```
BWContrast=128,ColorGamma=128,GrayGamma=128,EdgeAggr=128,AutoBrightness=1
Fax:BWContrast=200,ColorGamma=128,GrayGamma=128,EdgeAggr=128,AutoBrightness=1
FaxLondon:BWContrast=128,ColorGamma=128,GrayGamma=128,EdgeAggr=128,AutoBrightness=1
FaxVienna:BWContrast=128,ColorGamma=128,GrayGamma=128,EdgeAggr=128,AutoBrightness=1
```

As you see, the order of the entries has been changed in the tree view to display the valid entries first; within the valid entries the correct UCID priority order is used.

Create a New VRS Profile

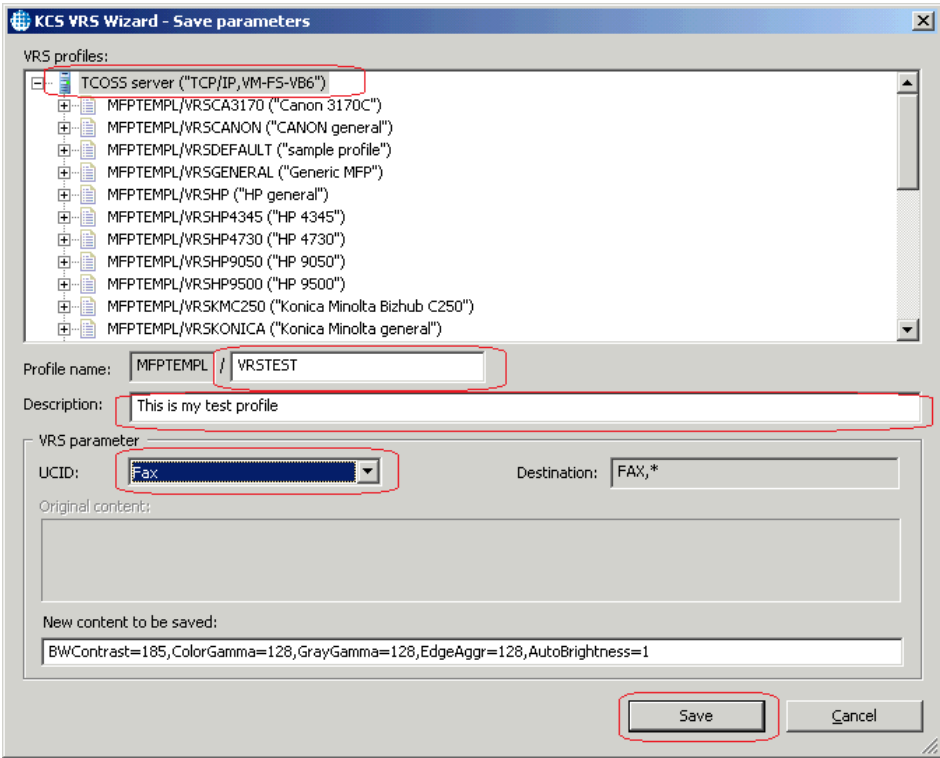
Prerequisite: at least one UCID must be defined on KCS. (Each VRS parameter set stored in a VRS profile belongs to some UCID, so without at least one existing UCID, the profile cannot have a valid content and cannot be stored.)

1. Choose your preferred VRS settings on the main dialog, and then click the **Save parameters** button.



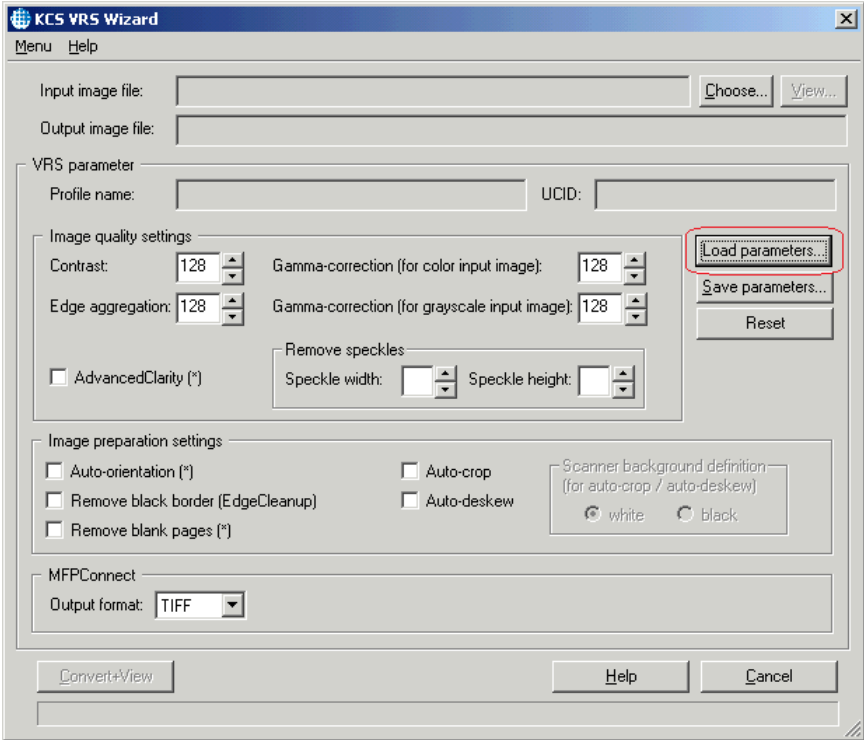
2. Select the **KCS server** node in the tree view control.
Enter a profile name (must always begin with "VRS") and, optionally, a description and select a UCID from the combo box to which the VRS parameters will belong.
The "Profile name" must **not** be an existing profile name; otherwise, the VRS profile with this name will be overwritten.

3. Click the **Save** button.

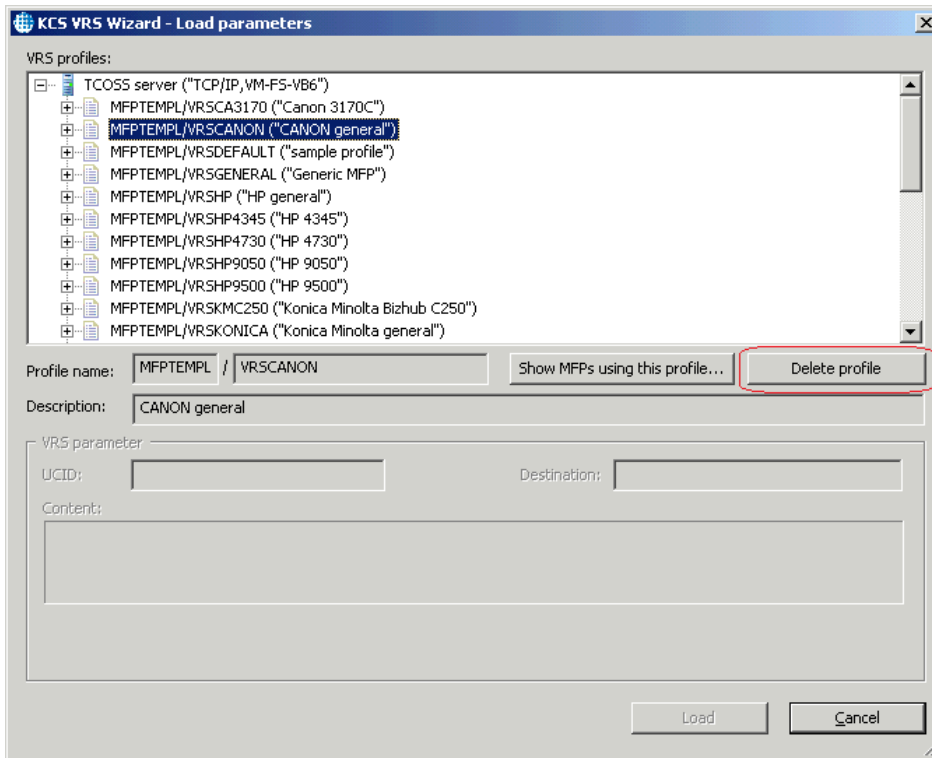


Delete an Existing VRS Profile

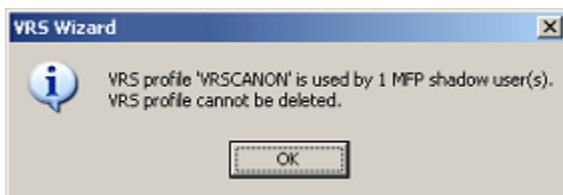
- 1. Click the **Load parameters** button.



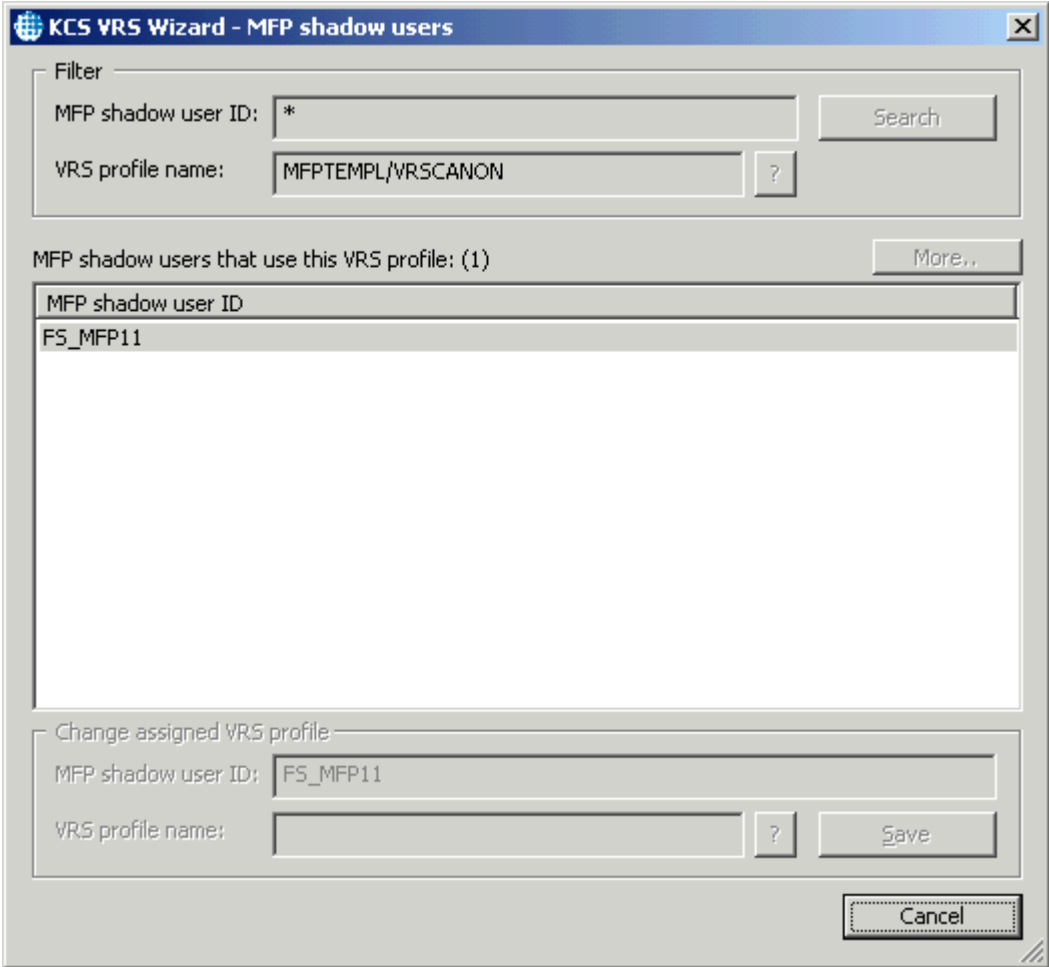
2. Select the profile you want to delete and click the **Delete Profile** button.



3. It might happen that this VRS profile is defined in some MFP shadow user as the associated VRS profile. In this case, the VRS profile cannot be deleted:

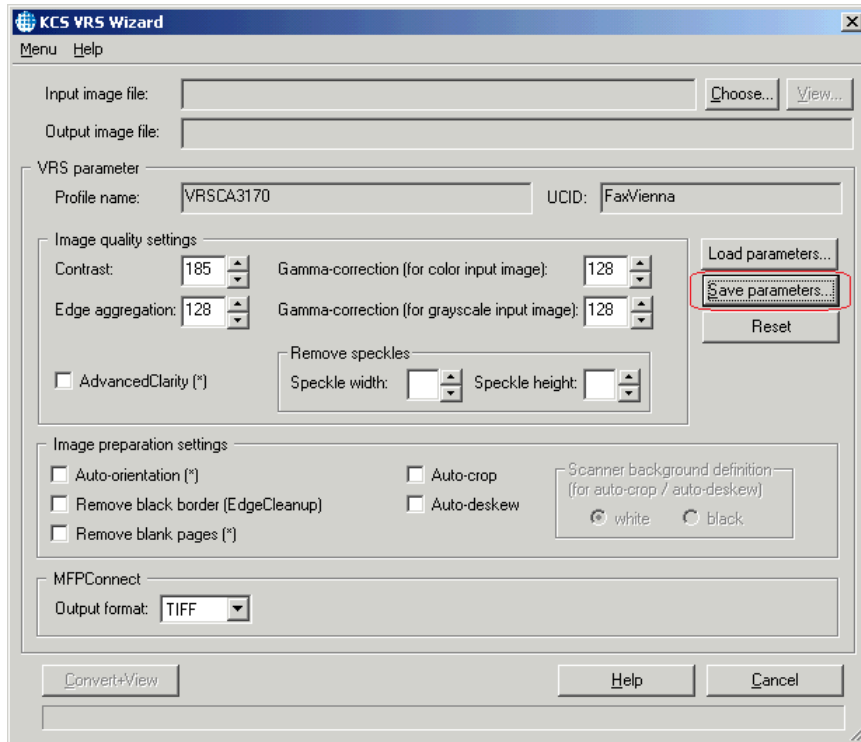


4. Click the button **Show MFPs using this profile** to get a list of all MFPs that use this VRS profile.

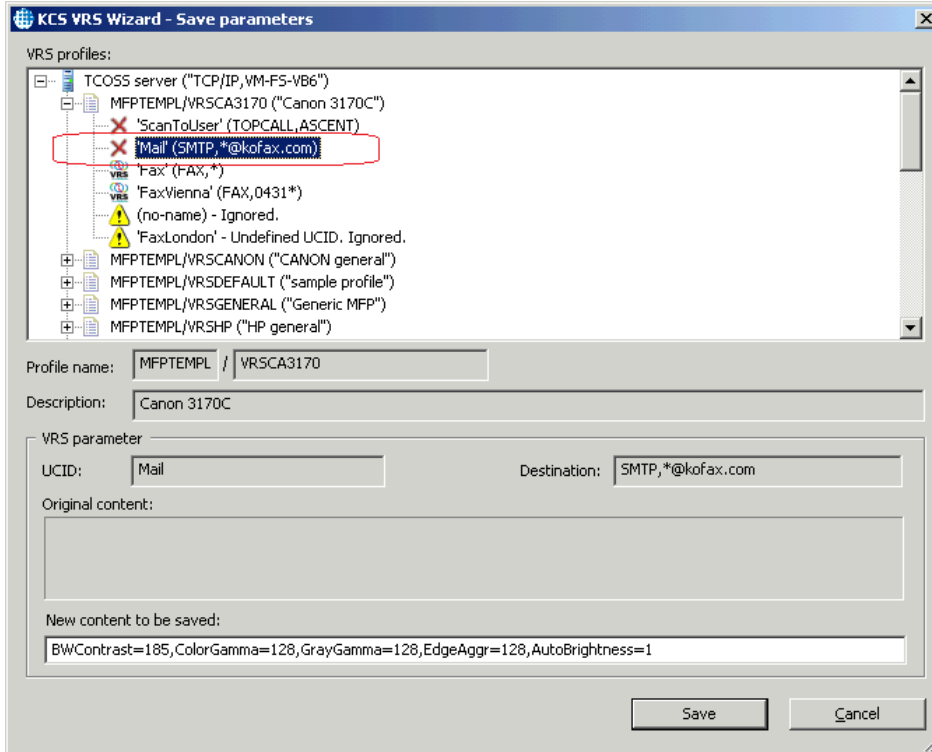


Store VRS Parameters for a UCID

1. In the main dialog, enter the VRS parameters you want to save and click the **Save parameters** button.



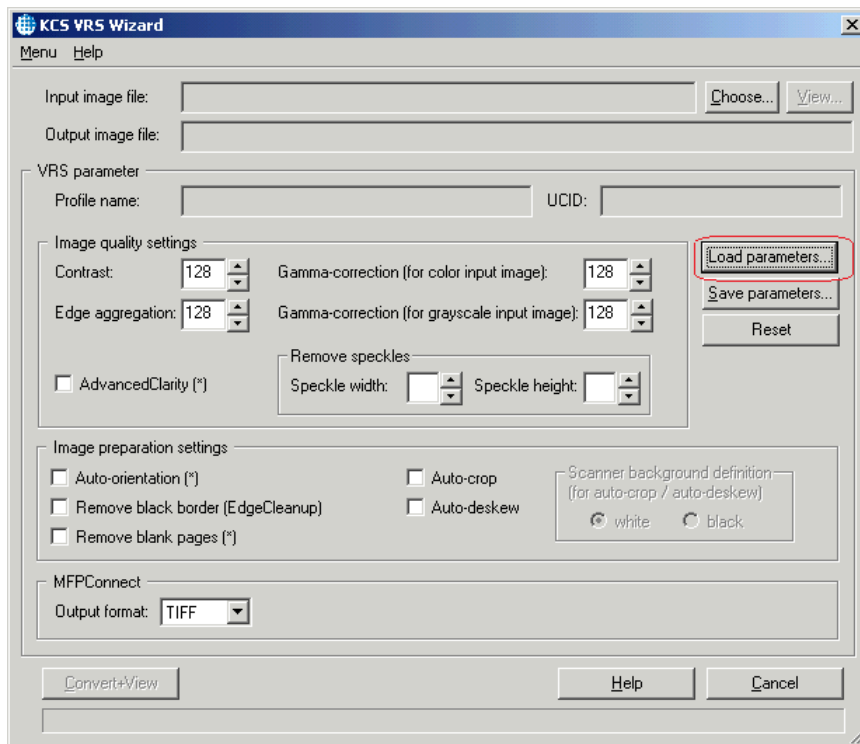
2. Select the VRS profile and use case, with (📧) or without (✗) an already existing VRS parameter. Click the **Save** button. The parameters will be stored on KCS. Next time you open this dialog, you will see the 📧 icon for this use case, showing that it now has the VRS parameter stored in the profile and therefore, VRS is enabled for this use case.



Modify the VRS Parameters for a UCID

1. Click the **Load parameters** button.

A list appears with all VRS profiles stored on the KCS server it was logged in.




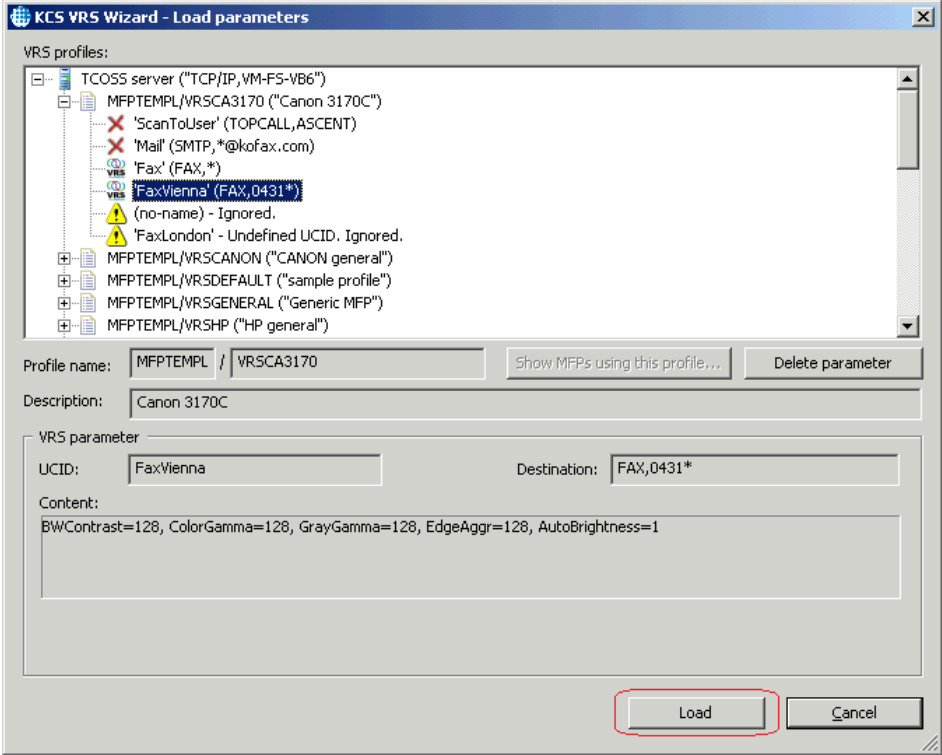
2. Select a profile and a UCID for which you want to modify the VRS parameters.

The VRS parameters will be loaded to the GUI of the main dialog.

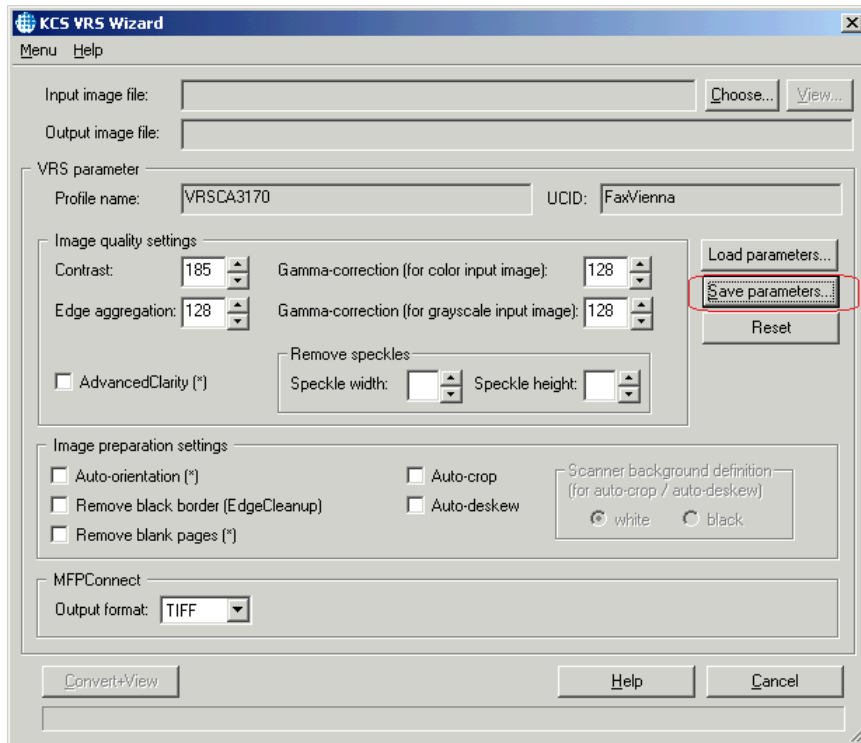
The tree view displays all UCIDs, even those for which there is no VRS parameter defined (✗ icon).

For these use cases, the VRS conversion is disabled. This information is important if we want to see at a glance, whether a destination is configured to use VRS or not for all the MFPs using this profile.

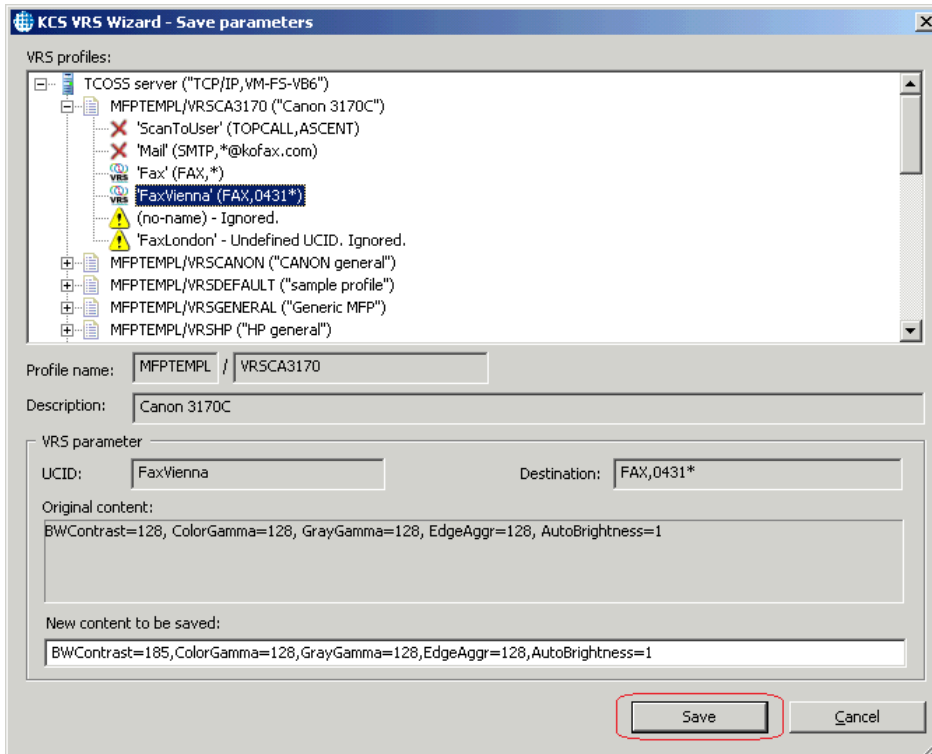
The use cases with VRS conversion are marked with the  icon. Select one of these nodes and click the **Load** button.



3. Modify the VRS parameters on the main dialog and then click the **Save profile** button.

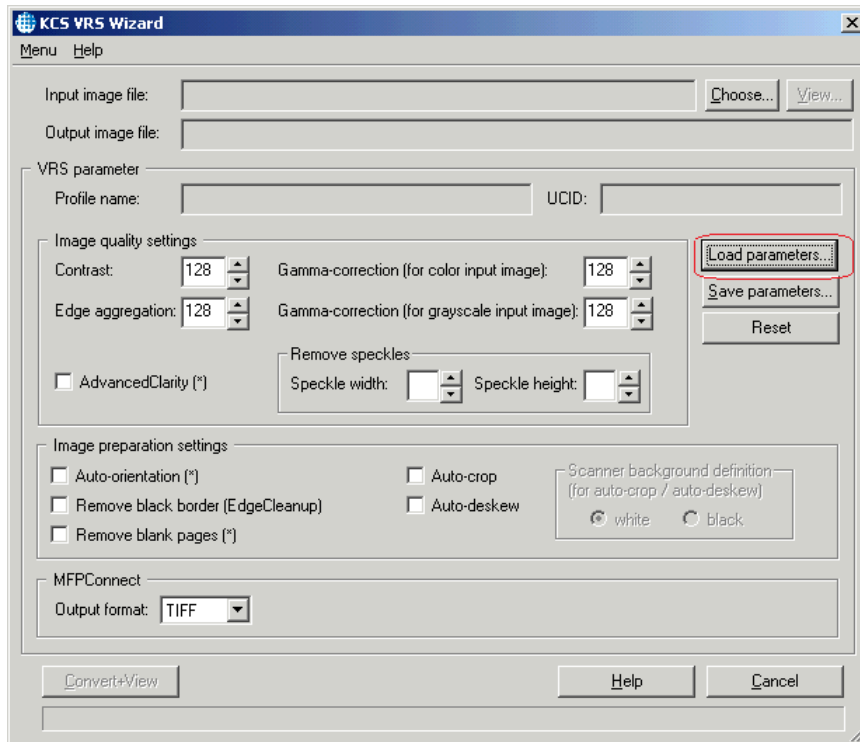


4. In the **Save parameters** dialog box, all fields are filled automatically. You only need to click the **Save** button.



Delete the VRS Parameters for a UCID

1. Click the **Load parameters** button.

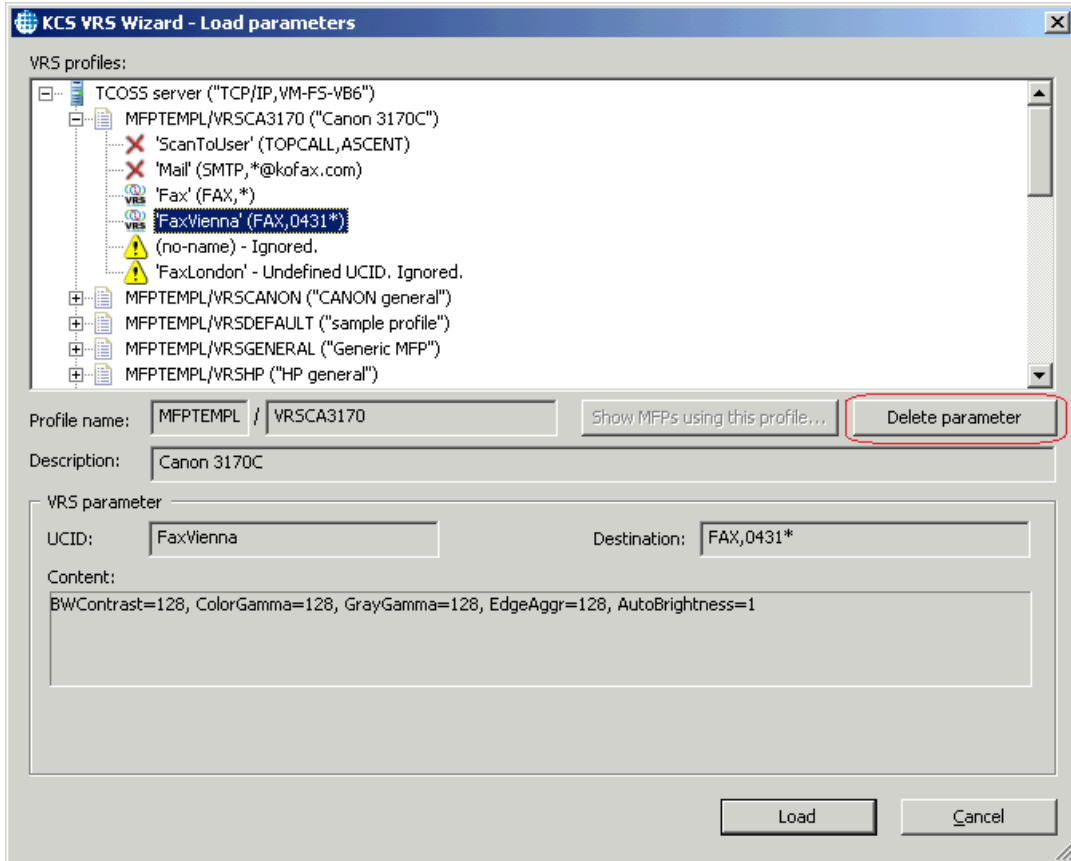


A list appears with all VRS profiles stored on the KCS server it was logged in.

2. Select the profile and select a UCID for which you want to delete the VRS parameters.

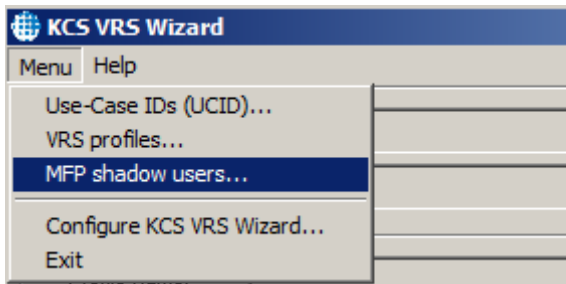
The tree view displays all UCIDs, even those for which there is no VRS parameter defined (marked with the **X** icon). For these use cases, the VRS conversion is disabled. This information is important to see at a glance whether a destination is configured to use VRS or not for all the MFPs using this profile. The use cases with VRS conversion are marked with the **VRS** icon. Select one of these nodes and click the **Delete parameter** button. After deleting, the selected use case is marked by a **X** icon;

this means that the VRS parameter set for the use case is deleted and VRS is disabled for this use case.



Show the MFP Shadow Users on KCS

1. Open the **MFP shadow users** dialog box:



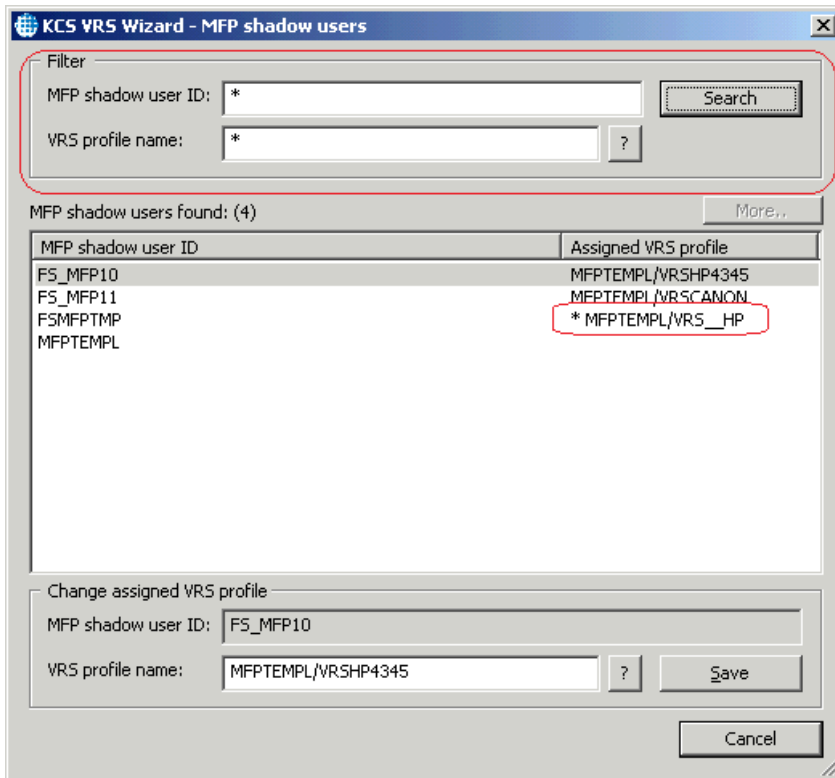
All MFP shadow users are displayed.

2. Use the filter fields and the Search button to show only a subset of all MFP shadow users, such as all MFPs beginning with the letters HP (case insensitive) or all MFPs having the profile 'MFPTEMPL/VRSCANON'.

You can also show all MFPs having no profile. (Clear the filter field "VRS profile name.")

The character * marks in the list the referenced but not existing VRS profiles such as the VRS profile MFPTEMPL/VRS__HP in the screen below.

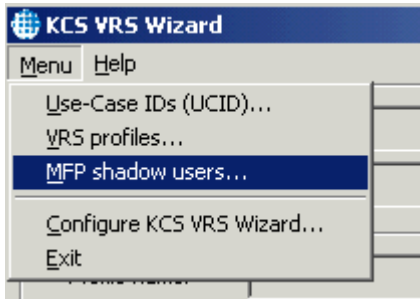
3. If more than 100 MFP shadow users are found on KCS, then use the **More** button to view additional items.



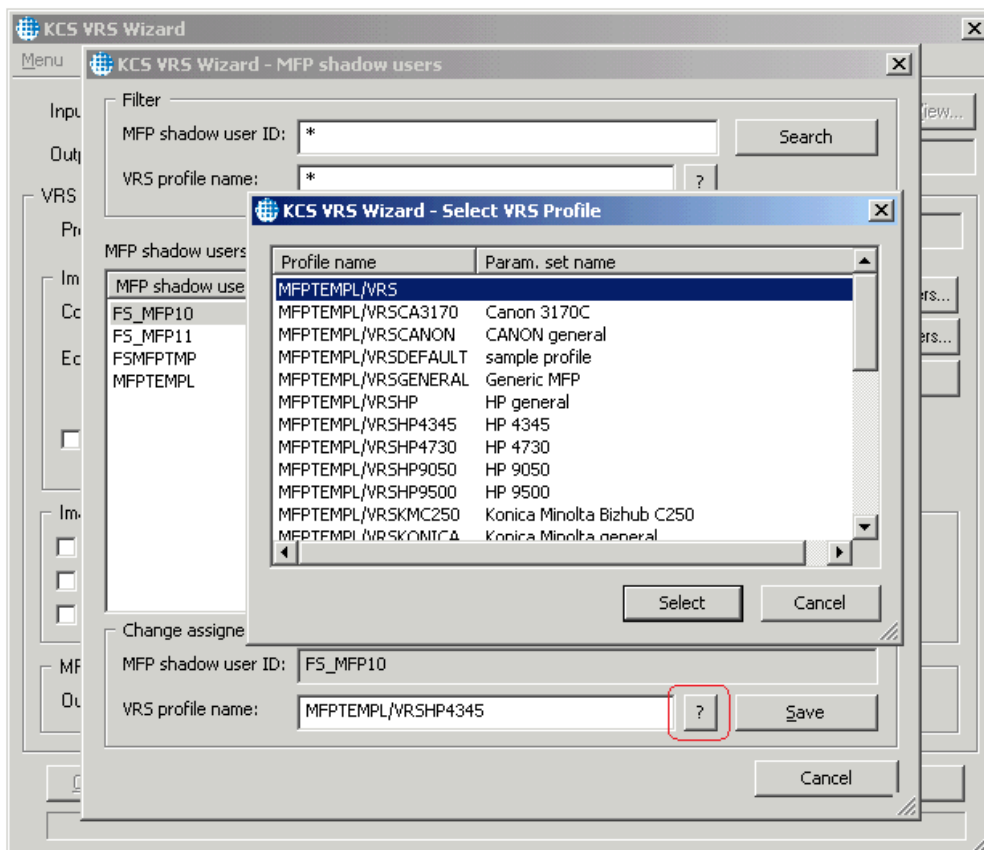
Note When searching for 'MFPTEMPL/VRSCAN*', then also all MFPs with 'MFPTEMPL \VRSCAN*' (backslash!) will be listed, and vice versa. Reason: MFP Integration accepts both slash and backslash in the VRS profile definition.

Assign a VRS Profile to One or More MFP(s)

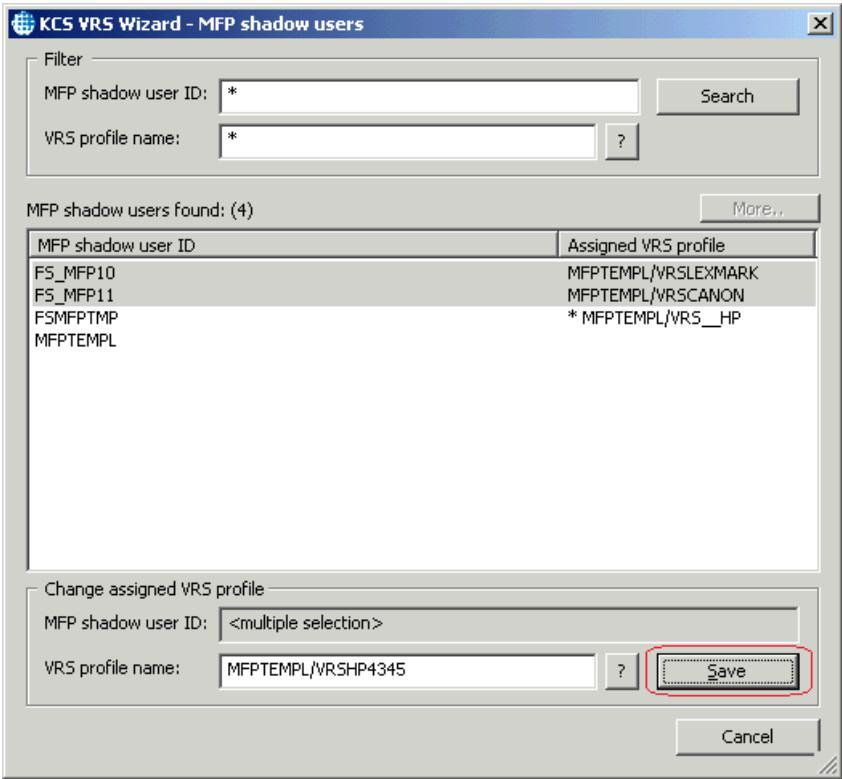
1. Open the **MFP shadow users** dialog box.



2. Select one or more MFPs from the list, and where you want to change the assigned VRS profile, click the question mark button '?' to get a list of all available VRS profiles:

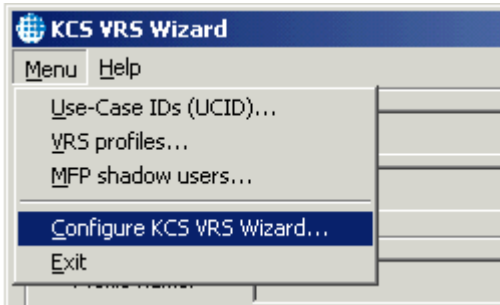


3. Select a VRS profile and click **Save**.

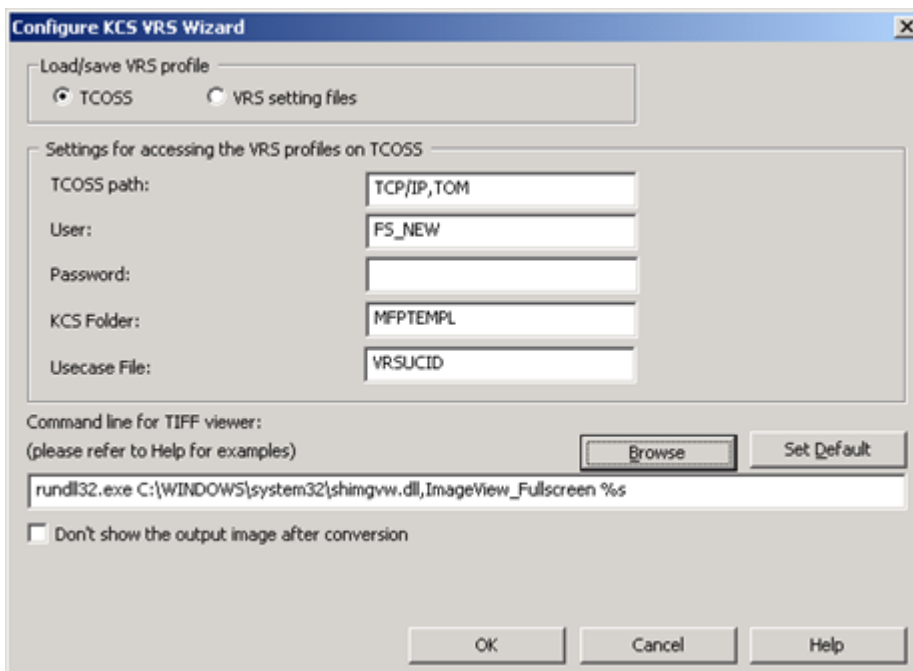


Configuring KCS VRS Wizard

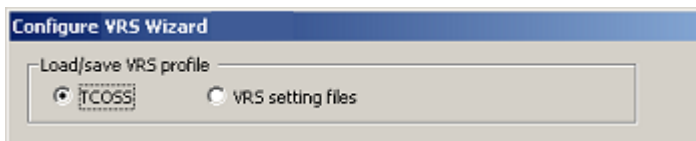
1. Select **Configure TOPCALL VRS Wizard** from the menu.



The following dialog box appears:



2. You can set the following features of the KCS VRS Wizard:
VRS profile storage type:



3. Since MFP Integration 2.1, VRS profiles are stored on KCS. In earlier versions they were stored in VRS setting files. You can now choose your preferred storage method by selecting the proper option in Load/save VRS profile.

Hint: The setting “VRS setting file” can still be used just to store a certain VRS parameter set temporarily in a file for later use.

TCOSS related settings:

Settings for accessing the VRS profiles on TCOSS

TCOSS path:	TCP/IP,TOM
User:	FS_NEW
Password:	
KCS Folder:	MFPTEMPL
Usecase File:	VRSUCID

The TCOSS path, User and Password are the login data to the TCOSS server, where the VRS profiles are stored.

KCS Folder is the TCOSS message folder where use case file and VRS profiles are stored. For link instances that are not MFP related, you can configure the location of VRS profiles and use case file in the KCS Folder field.

Usecase File is the name of the use case message on TCOSS. It must be located in the message folder specified via the KCS Folder setting.

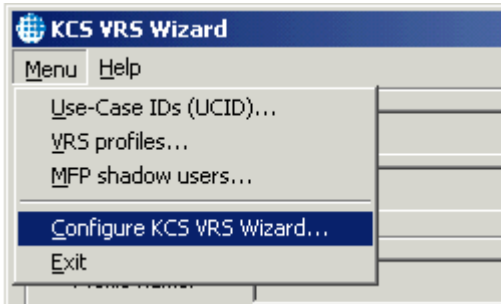
TIFF viewer:

See the next section.

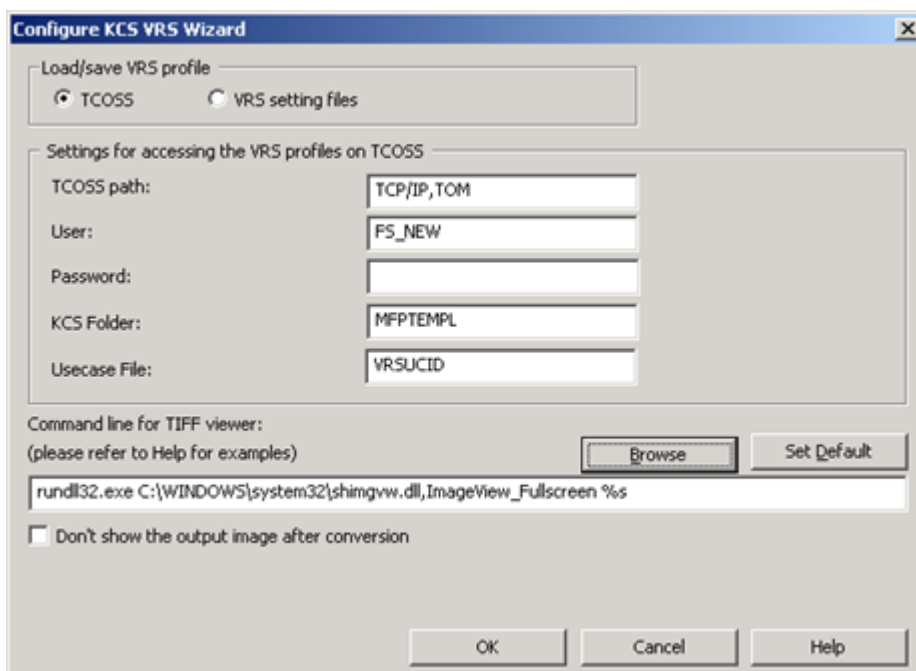
Setting the Image Viewer

If you click the **Convert+View** button, an image viewer will open automatically after the VRS conversion, showing the VRS processed image. Also, if you click the View button next to the input image definition field, the input image is shown with an image viewer. This image viewer is the default TIFF or PDF or JPG viewer installed on the operating system (depending on the image format).

Optionally, you can use another TIFF viewer for KCS VRS Wizard. To set the TIFF viewer, select Configure KCS VRS Wizard.



The following window appears:



Use the Command line for TIFF viewer field to define your preferred TIFF viewer.

At the beginning, the default TIFF viewer of the system will be used. (The “opening” application assigned to the file extension “.tif”.)

Windows picture and fax viewer:

```
rundll32.exe C:\WINDOWS\system32\shimgvw.dll,ImageView_Fullscreen %s
```

IrfanView:

```
C:\Program Files\IrfanView\i_view32.exe %s
```

Microsoft Office Document Imaging:

```
C:\Program Files\Common Files\Microsoft Shared\MSPaper\mspview.EXE %s
```

%s is the placeholder for the TIFF file to be displayed

Click Set Default to fill the edit field with the default TIFF viewer for the system.

Important Some image viewers such as Microsoft Office Document Imaging lock the image file permanently while showing it. So, if you keep open the input image with this image viewer, you cannot perform VRS conversion. Instead, you get an error message.



Also, if you keep open the VRS output image and you try to perform the same conversion again (the point is: with the same output file name), then you get this message, because VRS will not be able to open the output image:



Workaround: Use another image viewer (such as IrfanView) or close Microsoft Office Document Imaging showing the input image before converting the image.

Inactivate Image Viewer

Select the **Don't show the output image after conversion** check box if you prefer that output images are not displayed automatically after the VRS conversion. This may be useful if you want to evaluate the output images later. In this case, the Convert+View button on the main dialog window will be changed to Convert, indicating that no image viewer is currently set.

Chapter 6

Using VRS

This section describes how to use VRS.

VRS Settings

If you have chosen to use VRS, Kofax VRS Components are installed. Also, a set of predefined VRS profiles is installed in the message folder of the MFPTEMPL user. By convention, these messages start with the string *VRS*.

Note

1. For TC/LINK-MFP, these VRS profiles are created in the course of the TC/LINK-MFP process. Therefore, the first step to establish VRS profiles on KCS is starting TC/LINK-MFP. VRS profiles are not created automatically for other LINKs. For creating VRS profiles, see [Create a New VRS Profile](#).
2. In case of a later update of TC/LINK-MFP without VRS, the VRS components remain on the computer and KCS will keep the VRS profiles. (Reason: it is possible that other TC/LINK-MFP instances that may be installed on another computer are still using VRS.) Nevertheless, all VRS-related registry settings are removed from the updated TC/LINK-MFP.

VRS Configuration

This section describes the VRS configuration.

Background on VRS Conversion

Kofax VRS (VirtualRescan) technology is used to get a better quality of scanned images. Additionally, TCIMGIO with VRS converts images from the formats TIF, PDF, and JPG to FAX images. The classic KCS document conversion via the printer driver is no longer necessary for these attachment formats.

VRS conversion is part of the general TC/LINK message conversion process. TC/LINK calls the module TCIMGIO, and TCIMGIO calls the VRS modules.

TC/LINK calls TCIMGIO if for the attachment type the following registry entries exist (XXX stands for a file format, the relevant ones for this example are TIF, PDF, JPG):

```
HKEY_LOCAL_MACHINE\ SOFTWARE \TOPCALL\TCLINKMFP\General\FmtXXX
```

Name	Type	Description
InputExtensions	SZ	Comma-separated list, case-insensitive such as TIF, TIFF All files with these extensions are recognized correctly. If the value is empty, TCLINK does not use TCIMGIO for this file format.
OutputExtension	SZ	1 extension for output (message to mail system) such as TIF Maximum length: 4 characters Image files created by TCLINK will have this extension.

The registry keys for TIF, PDF and JPG have to have the following values:

Key	InputExtensions	OutputExtension
FmtJPG	JPG, JPEG	JPG
FmtPDF	PDF	PDF
FmtTIF	TIF, TIFF	TIF

To see how TC/LINK-MFP supports TIF conversion, see *TC/LINK Technical Manual – Chapter: Image Format Conversion*.

The following TCIMGIO configuration is necessary for VRS: Normally, you do not have set it manually. The installation procedure sets it if VRS option is selected.

HKEY_LOCAL_MACHINE\ SOFTWARE \TOPCALL\TCLINKMFP\TCIMG32\VRS

Registry Key	Type	Default	Description
Enable	DWORD	0	0 – VRS disabled 1 – VRS enabled
SettingsFile	STRING	""	VRS parameter file with full path, e.g.: "C:\TOPCALL\SHARED\VRS_SETTINGS_HP4345.TXT"
MfpDevice	STRING	""	Name of the MFP device; only used by setup.

TCIMGIO calls the VRS conversion modules, if the following conditions are met:

- TCLINKMFP/TCIMG32/VRS/Enable = 1
- The image format is TIF, PDF or JPG (the file extension is tif, tiff, pdf, jpg or jpeg)
The VRS-output image is stored in the Windows temporary directory and it is deleted after further conversion to the TC FAX image format (TCI).

VRS Use Cases

TC/LINK can be configured to use different image perfection settings for different scenarios. For example, with incoming faxes it makes sense to do automatic rotation and removal of blank pages, whereas for outbound faxes it is important to enhance readability of colored images.

Use cases can be configured in a file on TCOSS. The name of this TCOSS file is configurable via a registry value *General\VrsUseCaseFile*. With MFP-based links, the default value of this registry value is "MFPTEMPL/VRSUCID".

For all other link types, the registry value is by default empty.

In the use case file, each use case is described on a separate line; fields on each line are separated by a colon (':') character.

Syntax of a single line:

```
UCID: service-name, address
```

The first field is the use#case#id (UCID), which is case insensitive and must not contain any white space characters such as spaces or tabs.

The second field describes the recipient address of the message; defined by a service name and an address, separated by a comma character; service name and address are case insensitive. Anything following the comma separator is treated as address. At the beginning or the end of the address it is allowed to use the wildcard character (*), which matches either zero or more characters.

Use cases for inbound faxes have the value "Received" instead of a service name (see last example below).

Empty lines and lines starting with '#' are treated as comments and are therefore ignored. Also, all white space characters such as blanks and tabs are ignored.

Examples of UCID definitions:

```
# messages sent to KCS user ASCENT
ScanToUser: TOPCALL, ASCENT

# messages sent to FAX numbers in Vienna/Austria
FaxVienna: FAX, 00431*

# other fax messages
Fax: FAX, *

# SMTP mail messages for domain kofax.com
Mail: SMTP, *@kofax.com

# Inbound fax to extension 430
MyFax: Received, *430
```

Use-case lookup for messages from mail system to TCOSS

When receiving a message from an MFP or from a mail system, TC/LINK checks the recipient addresses to decide which representations of the attachment must be included in the resulting KCS send order.

Recipients with binary capability	Recipients without binary capability	Include TCI alternative	Include binary content
0	1 or more	Yes	No ¹
1 or more	0	No	Yes
1 or more	1 or more	Yes	Yes

For each content representation, TC/LINK tries to find a match between the recipients needing this content and the use-cases defined in the use-case file. This search starts with the first active address of the first active recipient, and stops as soon as a match is found. This means that the VRS settings from the first found VRS use case are used for message processing, even if the message has more than 1

¹ This is not standard TC/LINK behavior, and is only done if a use-case file is defined.

recipient. When sending one document to several recipients requiring different VRS settings, it is therefore recommended to send several individual messages, so that every recipient gets the best matching image format.

If no match is found, no VRS is done for this content representation.

Use-case lookup for messages from TCOSS to a mail system

When processing a received fax, TC/LINK tries to find a use case matching the destination fax number.

Fixed use case names for VRS on TIFF or PDF attachments sent to a mail system

When processing a TIFF or PDF binary attachments in a message from TCOSS, TCLINK looks for VRS settings matching the fixed use case names "ReceivedTiff " and "ReceivedPdf. "

VRS Profiles

When TCLINK knows which use case is applicable, it tries to find the settings for this use case in a VRS profile. A VRS profile is a TCOSS file that holds VRS settings for one or more use cases.

For MFP related links, there are several profiles, each matching a certain MFP device type. The VRS profile name is defined in the MFP user profile on TCOSS.

All other link types use a single VRS profile, the name of which is configured in registry value General \VRSSettingsFile.

In the VRS profile, each use case is described on a separate line; fields on each line are separated by a colon (':') character.

The first field is the use#case#id (UCID), which is case insensitive and must not contain any white space characters such as spaces or tabs.

The second field contains the VRS settings for the use case, as comma-separated name/value pairs. The VRS parameter names are case sensitive.

Syntax of a VRS profile line:

```
UCID: [key=value],...
```

Empty lines and lines starting with '#' are treated as comments and are therefore ignored. Also, all white space characters such as blanks and tabs are ignored.

Example of a VRS profile with settings for three use cases and a default setting:

```
# VRS parameter settings for ScanToAscent
ScanToAscent: AutoBrightness=1,AutoCrop=0,BWContrast=205,AutoOrientation=1
# PDF output for emails
ScanToPdf:
AutoBrightness=1,AutoCrop=0,BWContrast=205,AutoOrientation=1,TcOutputFormat=pdf
# VRS parameter settings for invoice fax messages
FaxVienna: AutoBrightness=1,AutoCrop=0,BWContrast=205,AdvancedClarity=1
# VRS parameter setting if VRS is enabled and UCID definition does not exist
AutoBrightness=1,AutoCrop=0,BWContrast=205,AdvancedClarity=1,AutoOrientation=1
```

Notes on the VRS profile syntax:

- Comment lines must start with a # character in the first column.
- A default setting (without UCID) cannot be defined immediately after a VRS parameter or comment. It must be either at the start of the file, or it must be preceded by an empty line.

Reason:

When saving a profile via TCFW, line wrapping can occur. As a result, a long comment like the following will be misinterpreted as a single comment line followed by a default setting (“AutoDeskew=0,ColorGamma=128”).

```
#AutoBrightness=1,AutoCrop=0,BWContrast=205,AdvancedClarity=1,AutoOrientation=1,EdgeAddr=1,AutoDes
```

The parameter “TcOutputFormat” (see line ScanToPdf in the example above) is only used for conversion of binary PDF, TIFF or JPG attachments received from a mail system. The key name ‘TcOutputFormat’ is case sensitiv, the value (‘pdf’) is case-insensitive. If this parameter is missing or its value is not ‘pdf’ (or its case-insensitive variants), the output format will be TIFF (=default).

VRS Parameters

Information about possible VRS parameters is available in the *TCLINK VRS Configuration Manual*. That manual also explains how the VRS configuration can be maintained and tested via the VRS Wizard application.

Note When sending landscape pages as faxes from a mail system via TCLINK, the VRS setting “AutoOrientation” is not applied, and pages are not rotated.