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Introduction

This guide gives you instructions for installing the hardware and software components of ACE VirtualReScan (VRS).

Product Overview

ACE VirtualReScan™ (VRS) makes high-volume scanning easier and more cost-effective than ever. VRS is designed for 32-bit applications that support Adrenaline hardware accelerators. To ensure that every scanned image can meet your standards, ACE VRS provides an interactive settings control that eliminates guesswork with easy, real-time image correction.

With ACE VRS, you can take advantage of the ACE image enhancement technology from Bell & Howell, as well as the VirtualReScan image processing features from Kofax Image Products. With ACE VRS, you define the contrast and brightness yourself by simply moving slider controls. Regardless of the method used to adjust image quality, you can see the screen update in real-time as you make modifications. ACE VRS enables you to produce a perfect image the first time, every time.

Other features include the ability to scan batches consisting of multiple document sizes or varying degrees of quality. VRS also detects paper jams, bent corners, and equipment conflicts. It is no longer necessary to pre-sort mixed batches. In addition, post-processing accuracy is increased and storage requirements are reduced.

VRS offers a range of other features to help you ensure the highest level of quality for every scanned image:

- Automatic Skew Correction
- Image Cropping

- Brightness/Contrast Adjustment
- Despeckling
- Gamma Correction
- Character Smoothing

VRS Product Package

Your VRS product package includes the following items:

- VRS installation CD
- Scanner cable
- *ACE VirtualReScan Getting Started Guide*

Note To run ACE VRS, you need to install a Kofax Adrenaline 1700 Hardware Accelerator in your PC. While the accelerator is sold separately, the installation instructions are included in this guide on page 9.

System Requirements

Be sure that your PC and scanner meet the following requirements:

PC

- Pentium III class PC with a 500 Mhz processor, or greater
Pentium III class PC with 600 Mhz or greater (grayscale scanning)
- 128 Mbytes RAM
256 Mbytes RAM (grayscale scanning)
- Windows 95/98/Me/2000 or Windows NT 4.0
- Hard drive with 250 Mbytes free disk space
- Monitor resolution: 800 x 600 minimum; 1024 x 768 recommended
- Adrenaline 1700 Hardware Accelerator (sold separately)

Scanner

- Bell & Howell Copiscan® 8000 series video scanner, factory-equipped with the VRS grayscale scanner adapter

Installation

This section explains how to install the hardware and software required to run ACE VRS. The installation process consists of three basic steps:

1. Install the ACE VRS software on your PC.
2. Install the Adrenaline Hardware Accelerator in your PC.
3. Attach the scanner to your PC.

Step 1. Install the Software

This section explains how to install the ACE VirtualReScan software. The default installation folder is C:\Program Files\Kofax\Imgctl, although you can install to another folder. To install ACE VRS under Windows NT, you must have administrator rights.

v To install the ACE VRS software

- 1 Insert the ACE VRS installation CD in the appropriate CD-ROM drive.
- 2 Select Start | Run and do one of the following to select the path for the setup file on the ACE VRS installation CD. Select the path as D:\Setup.exe, where D: is the CD-ROM drive:
 - a Use the Browse button to select the path.
 - b In the text box, type in the path.

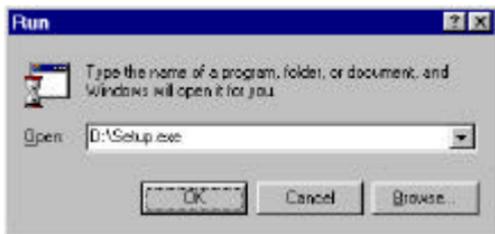


Figure 1. ACE VRS Installation Program Path

- 3 Click OK to open the ACE VRS Setup dialog box, shown in Figure 2.



Figure 2. ACE VirtualReScan Setup Dialog Box

- 4 Click Next to open the next ACE VirtualReScan Setup dialog box, similar to Figure 3. Verify that VirtualReScan is selected, along with the correct installation folder. The default folder is C:\Program Files\Kofax\Imgctl. If desired, use the Browse button to select another installation folder.

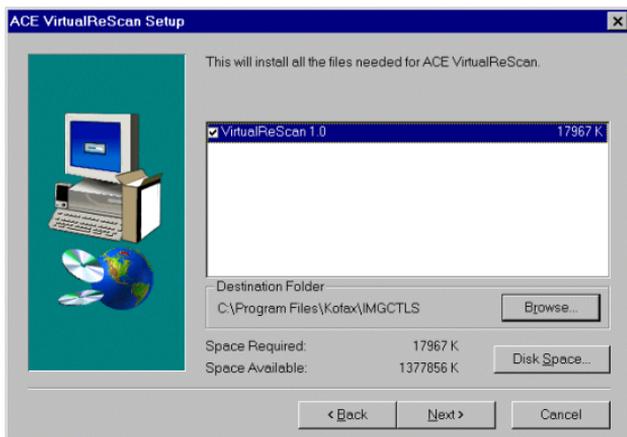


Figure 3. ACE VirtualReScan Setup Dialog Box 2

- 5 Click Next. The installation begins, and a progress indicator stays in view until the process is done. When the ACE VRS installation finishes, the Setup Complete dialog box displays, similar to Figure 4.

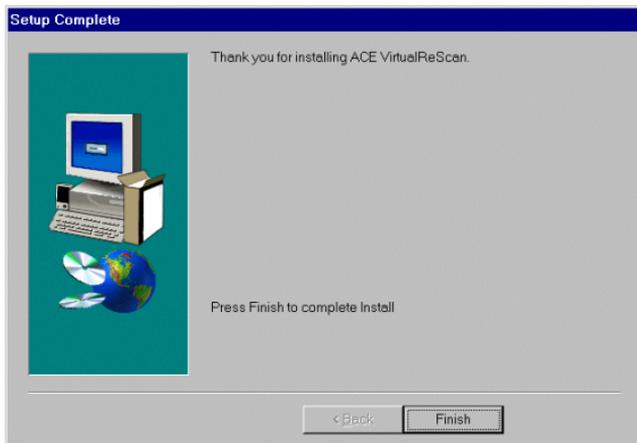


Figure 4. Setup Complete Dialog Box

- 6 Click Finish.
- 7 Remove the ACE VRS installation CD from the CD-ROM drive and store it in a safe place.

Step 2. Install the Adrenaline Hardware Accelerator

This section explains how to install the Adrenaline Hardware Accelerator.

Note To run ACE VirtualReScan successfully, you need to install only the software provided on the ACE VRS installation CD. Do not install the software provided on the Adrenaline Hardware Accelerator CD.

Compatibility with Current Accelerators and Engines

We recommend that you install the Adrenaline Hardware Accelerator on a PC with no other Kofax hardware accelerators. If necessary, remove the older Kofax accelerators before you install the Adrenaline Hardware Accelerator.

Precautions

When handling your Adrenaline Hardware Accelerator, follow these precautions:

- Keep the accelerator in its original shipping package until you are ready to install it.
- Power off your PC before installing the accelerator.
- Before handling the accelerator, discharge static electricity from yourself and the work area by touching the metal chassis of the PC.
- Hold the accelerator by the edges; do not touch its metal surface.

Before installing the accelerator, make sure your PC is powered off. Then, install the accelerator in any available PCI slot. Be sure to use the screws to secure it into place.

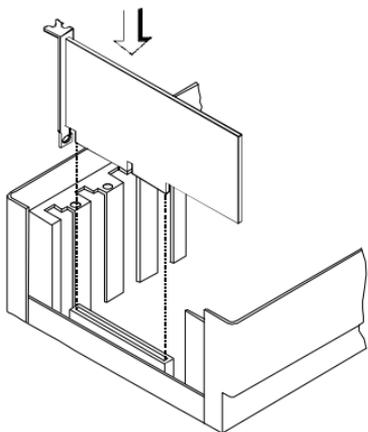


Figure 5. Installing an Adrenaline Hardware Accelerator in Your PC

Configure the Accelerator - Windows 95/98

After installing the Adrenaline Hardware Accelerator, power on your PC. Windows detects the Adrenaline Hardware Accelerator, and if you have successfully installed the ACE VRS software, it automatically locates the drivers required by the accelerator.

Configure the Accelerator - Windows NT

After successful installation of the software, an item for the Kofax Configuration Manager utility is added to your Windows | Control Panel folder.

▾ To configure your Adrenaline Hardware Accelerator under Windows NT

- 1 Select Settings | Control Panel | Kofax Configuration Manager. The following dialog box opens:



Figure 6. Kofax Configuration Manager (KCM) Dialog Box

Note If your Control Panel does not include the Kofax Configuration Manager utility, the software installation was not successful.

- 2 Click Next. A dialog box opens, similar to Figure 7:

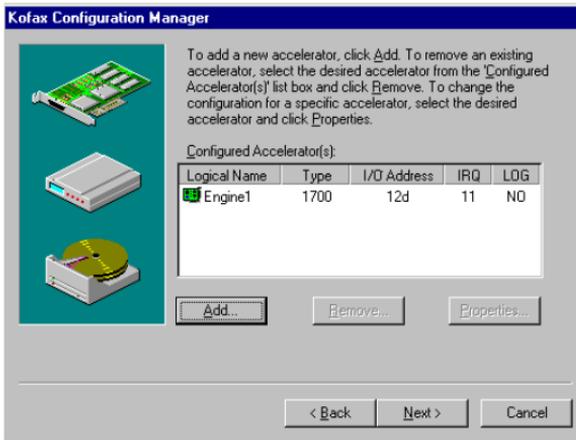


Figure 7. KCM Configured Accelerators Dialog Box

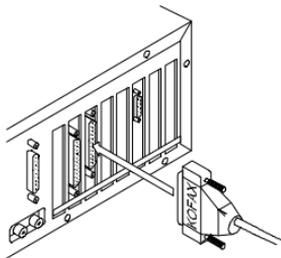
- 3 Click Next and follow the instructions on your screen to finish the installation. If prompted to do so, reboot your PC.

Step 3. Attach Your Scanner

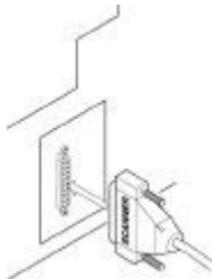
When you remove the cable from your product package, notice that one connector is marked **Kofax** and the other is marked **Scanner**. The Kofax connector attaches to the PC, and the Scanner connector attaches to the scanner.

u To connect the scanner to your PC

- 1 Attach the cable connector marked **Kofax** to the connector on the Kofax Adrenaline Hardware Accelerator in your PC.
- 2 Attach the cable connector marked **Scanner** to the matching port on the scanner.



Attach the Kofax connector (Step 1)



Attach the Scanner connector (Step 2)

Figure 8. Connecting the Scanner to Your PC

Starting ACE VirtualReScan

Once the installation is complete, activate ACE VRS by selecting the ACE VirtualReScan Source from your scanning application. Once you select the source, the ACE VRS icon appears on the Windows taskbar to signal that ACE VRS is active.

Note During the ACE VRS installation process, the ACE VirtualReScan Source is automatically created and set as the default scanning source. If you have questions about how to select the source from your scanning application, consult with your system administrator.

u To start ACE VRS

- 1 Power on your scanner.
- 2 Start your scanning application and select the ACE VirtualReScan Source.
- 3 The VRS icon appears on your Windows taskbar, similar to Figure 9.

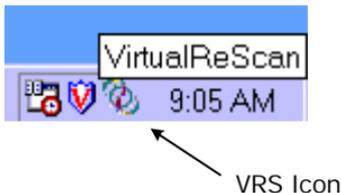


Figure 9. VRS Icon

Opening the ACE VRS Menu

You can open the ACE VRS menu to configure exception condition parameters, preview and update image properties, select a profile or operating mode, or to reset the configuration for the Adrenaline Hardware Accelerator in your PC.

u To open the ACE VRS menu

- 1 From the Windows taskbar, right click on the VirtualReScan icon to open the ACE VRS menu.



Figure 10. ACE VRS Menu

- 2 When using ACE VRS the first time, begin by selecting the Configure command. For more information, see the section *Defining Exception Conditions* on page 17. For information on other menu options, see the next section, *ACE VRS Menu Commands*.

ACE VRS Menu Commands

The ACE VRS menu consists of the following commands:

Preview

Use this command to open a sample image, so that you can test image property settings. For more information, see the section *Previewing Images* on page 58.

Profile

Use this command to select a profile, which consists of user-defined settings for image processing. For more information about profiles, see the section *Using the Profile Tab* on page 50.

Mode

Use this command to select an operating mode, which determines the conditions under which the ACE VRS user interface opens during a scanning session. For more information, see the section *Selecting a Mode* on page 29.

Configure

Use this command to open the ACE VRS Administration Utility dialog box, which is used to define exception condition parameters. For more information, see the section *Defining Exception Conditions* on page 17.

Reset

Use this command if you are instructed by authorized technical support personnel to reset the configuration for the Adrenaline Hardware Accelerator. For more information, see the section *Resetting ACE VRS* on page 60.

Defining Exception Conditions

Before scanning, set up parameters that define your requirements for image quality and exception handling. To set the parameters, open the ACE VRS Administration Utility dialog box by selecting the Configure command from the ACE VRS menu.

The ACE VRS Administration Utility dialog box consists of dual tabs relating to two exception types. The Warnings tab relates to image quality issues, and the Errors tab relates to equipment conflicts and paper transport issues. For each tab, you define settings that tell ACE VRS exactly how to respond when it detects an exception image, an equipment conflict, or a paper transport issue. You can use the default settings on the Warnings and Errors tabs, or customize how ACE VRS handles each exception type. For detailed information on changing the settings, see the sections *Warnings Tab* on page 18 and *Errors Tab* on page 22.

The settings on the ACE VRS Administration Utility dialog box remain in effect until you change them again.

Warnings Tab

The Warnings tab lists exception conditions associated with image quality. For each condition, set a threshold value to the level at which you want ACE VRS to consider an image as an exception. In the Action column, select the response to each warning type. Notice that the Brightness/Contrast Out of Range warnings do not appear when ACE Emulation mode is selected.

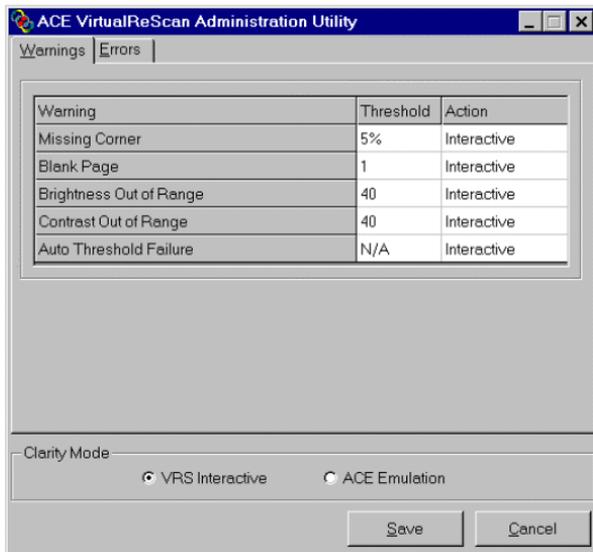


Figure 11. Warnings Tab

Table 1. Warning Types

Warning	Cause
Missing Corner	Scanned image includes a missing or obscured corner.
Brightness Out of Range (VRS Interactive)	Brightness value for the image falls outside the acceptable range.
Contrast Out of Range (VRS Interactive)	Contrast value for the image falls outside the acceptable range.
Auto Threshold Failure	Settings on the Clarity tab require adjustments to suit the current document type.

Selecting the Threshold

The threshold defines the “margin of error” that ACE VRS tolerates for missing corners, blank pages, brightness, and contrast. ACE VRS intercepts any image with values that fall outside the margin of error. ACE VRS handles the image according to the action you define for each exception type.

Missing Corner threshold

Use the threshold value to define the level at which a missing or obscured corner should be considered as an exception. The threshold is a percentage that represents the amount of the document width that is allowed to be obscured or missing. For example, if you scan a document with a one-half inch fold in the upper right corner, the missing section would translate to almost 6% (for a standard 8½x 11 sheet). If you define the threshold for Missing Corner as 7%, ACE VRS would process the document without issuing a warning. If you define the threshold as 5%,

ACE VRS would generate a warning and take the action listed on the Warnings tab for Missing Corner.

Brightness Out of Range threshold

Use the threshold to define the valid range for brightness values. When a document is scanned, ACE VRS evaluates the resulting image to determine its brightness. Then, ACE VRS compares it to the user-defined brightness value set in the Clarity tab. Concurrently, ACE VRS also identifies the user-defined acceptable value in the Brightness Out of Range threshold setting in the Warnings tab. Based on this real-time evaluation, ACE VRS either accepts the image and allows it to be passed on to the scanning application, or intercepts it and responds according to the user-defined action in the Warnings tab.

For example, if the brightness value on the Clarity tab is 50, and the threshold is 10 on the Warnings tab, ACE VRS accepts any image with a detected brightness value ranging from 40 to 60. The range starts at 40, which is 10 less than 50, and it ends at 60, which is 10 more than 50. Therefore, an image with a brightness value of 70 would fall outside the valid range. ACE VRS would respond by taking the action listed on the Warnings tab for Brightness Out of Range.

Contrast Out of Range threshold

Use the threshold to define the valid range for contrast values. When a document is scanned, ACE VRS evaluates the resulting image to determine its contrast. Then, ACE VRS compares it to the user-defined contrast value set in the Clarity tab. Concurrently, ACE VRS also identifies the user-defined acceptable value in the Contrast Out of Range threshold setting in the Warnings tab. Based on this real-time evaluation, ACE VRS either accepts the image and allows it to be passed on to the scanning application, or intercepts it and responds according to the user-defined action in the Warnings tab.

For example, if the contrast value on the Clarity tab is 65, and the threshold is 15 on the Warnings tab, ACE VRS accepts any image with a contrast value ranging from 50 to 80. The range starts at 50, which is 15 less than 65, and it ends at 80, which is 15 more than 65. Therefore, an image with a contrast value of 40 would fall outside the valid range and generate a warning. ACE VRS would respond by taking the action listed on the Warnings tab for Contrast Out of Range.

Auto Threshold Failure

You do not set a threshold for this warning. The warning occurs when the grayscale balance process fails for the current document. For example, this failure may occur for a document that contains insufficient contrast between the foreground and the background (so that you cannot distinguish the foreground from the background). In some cases, you can resolve the issue by adjusting the settings on the Clarity tab.

Selecting an Action

When a warning condition occurs, ACE VRS handles it according to the Action setting you select. For details on selecting an action type, see the section *Action Options* on page 24.

Errors Tab

The Errors tab lists exception conditions caused by equipment conflicts or paper transport issues. In the Action column, select the desired ACE VRS response for each error type. To change the setting, click in the Action box and select from the drop-down list. For details, see *Action Options* on page 24.

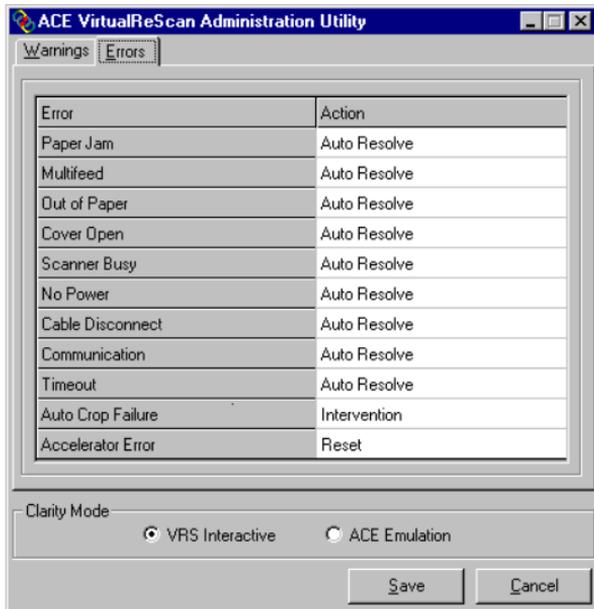


Figure 12. Errors Tab

Table 2. Error Types

Error	Description
Paper Jam	Paper jam occurs in the scanner paper path.
Multifeed	Multiple sheets feed into the scanner.
Out of Paper	No paper is available to scan. <i>(See note below.)</i>
Cover Open	Scanner cover is not closed securely.
Scanner Busy	Scanning interrupted, due to conflict with another scanner operation. Check scanner display for details.
No Power	Power is off, or the power cable connection is loose.
Cable Disconnect	Scanner cable is not attached properly to the scanner or to the Adrenaline Hardware Accelerator in the PC.
Communication	Communication conflict exists between the scanner and the PC.
Timeout	Scanner is unable to respond within the predefined period of time.

Action Options

Use the Action box to define how you want ACE VRS to handle each exception condition listed on the Warnings tab and the Errors tab. To define an exception action type, click in the Action box on the Warnings tab or the Errors tab, and select from the drop-down list. The action options vary, according to the type of warning or error.

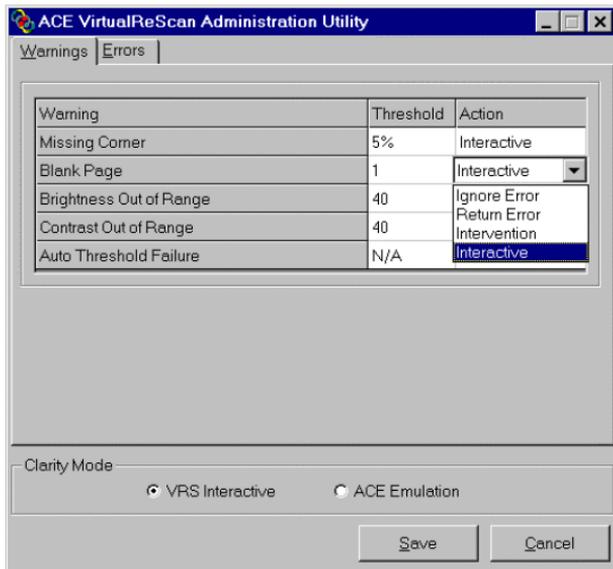


Figure 13. Action Drop-Down List

Table 3. Action Types

Action Type	Description
Return Error	Passes error (without the image) to the host application.
Ignore Error	Accepts image "as is," passes it to the host application, and resumes the scanning session.
Intervention	Opens the Auto Resolve Manager in manual mode. As a result, the user is presented a range of options for handling the error. See the next section, <i>Using the Auto Resolve Manager</i> .
Auto Resolve	Opens the Auto Resolve Manager in automatic mode. As a result, the scanner automatically attempts to retry the scan until the user resolves an equipment or paper transport impediment, such as a loose cable, paper jam, or out of paper condition. See the next section, <i>Using the Auto Resolve Manager</i> .
Interactive	Opens the ACE VRS Interactive Properties dialog box and displays the image in the ACE VRS Viewer, so that the user can apply new settings to the current image. The dialog box opens to the tab that relates to the warning condition. For example, if a Brightness Out of Range warning occurs, the dialog box would open with the focus on the Clarity tab, where the brightness setting can be adjusted. Note: This action is not available for Missing Corner warnings.
Reset	Opens a message box that lists some details about the error. User can clear the output hopper, refeed any page that has not been received by the scanning application, and select Retry to continue the batch.

v **To define exception condition parameters**

- 1 From the Windows taskbar, right click on the VRS icon to open the ACE VRS menu.
- 2 From the ACE VRS menu, select Configure to open the ACE VRS Administration Utility dialog box.
- 3 From the ACE VRS Administration Utility dialog box, select one of the following tabs:
 - a **Warnings tab**

The Warnings tab gives you options to set the threshold and response for exceptions related to image quality, as listed in Table 1 on page 19.
 - b **Errors tab**

The Errors tab gives you options to set the response to exceptions related to equipment conflicts, paper transport errors, and edge detection, as listed in Table 2 on page 23.
- 4 Adjust the settings for each tab.
 - a **Warnings tab - Threshold**

From the Warnings tab, you can type directly into the Threshold box, or click the arrows to select a new threshold setting. For information about threshold settings, see the section *Warnings Tab* on page 18.
 - b **Warnings tab/Errors tab - Action**

From the Warnings tab and the Errors tab, define an ACE VRS response to each exception type by clicking in the Action box and selecting from the drop-down list. See *Action Options* on page 24.
- 5 Once you are satisfied with the settings, click Save.

Using the Auto Resolve Manager

ACE VRS opens the Auto Resolve Manager dialog box for each occurrence of an exception condition with an Action type of Intervention or Auto Resolve, as defined in the ACE VRS Administration Utility dialog box. The Auto Resolve Manager gives you a range of exception handling selections, as explained below.



Figure 14. ACE VRS Auto Resolve Manager

Auto Resolve check box

The check box is selected if you designated the error condition action response as *Auto Resolve* from the ACE VRS Administration Utility dialog box. With the check box selected, the Auto Resolve Manager goes into automatic mode. As a result, ACE VRS automatically attempts to rescan until the exception condition is resolved. If you want to temporarily disable the Auto Resolve function for the error in question, clear the check box. Then select the Rescan button when you are ready to scan the document again.

With the Auto Resolve check box cleared, the Auto Resolve Manager enters manual mode and enables the Rescan, VRS, and Ignore buttons. As a result, ACE VRS takes no action until you select one of the buttons.

Rescan (manual mode only)

After reloading a document into the scanner, select this button to rescan the sheet. Be aware that extra sheets sometimes feed into the scanner after the exception document is detected. If this happens, be sure to reload the exception document and the additional sheets into the scanner before you select the Rescan button.

Ignore (manual mode only)

Use this button to accept the image "as is," send it to the scanning application, and proceed with the scanning process.

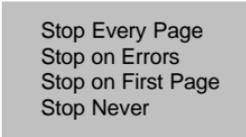
Stop

Use this button to stop the batch or cancel the scanning process. When you select Stop, any error information is passed to your scanning application. The error image(s) are not sent to the scanning application.

Note If the Auto Resolve Manager opens while the Auto Endorse/Annotate feature is engaged, a special dialog box will appear as in Figure 15a. This dialog box allows you to enter the next number in the sequence, based on the increments set in the Auto Endorse/Annotation Properties dialog box. For more information on the Auto Endorse/Annotation feature, see page .

Selecting a Mode

The Mode menu options control the conditions under which the ACE VRS user interface opens for image inspection and interactive updates.



Stop Every Page
Stop on Errors
Stop on First Page
Stop Never

Figure 15. Mode Menu

By selecting the Mode command from the ACE VRS menu, you can request that the ACE VRS user interface display under the following conditions:

Stop Every Page

ACE VRS dialogs open after each document scans; or with duplex scanning, after each document side scans.

Stop on Errors

ACE VRS dialogs open only when exception conditions occur.

Stop on First Page

ACE VRS dialogs open when you scan the first page of a batch and when exception conditions occur.

Stop Never

ACE VRS dialogs remain out of view, even if exception conditions occur. In this case, peripheral/equipment errors are passed to the scanning application and other errors are ignored.

After installation, the mode is set to Stop on Errors, which opens the ACE VRS Viewer and the ACE VRS Interactive Properties dialog box when an exception image is detected during the scanning process. Once you select a mode, it stays in effect until you change it again.

v To change the mode

- 1** From the Windows taskbar, right click on the VRS icon to open the ACE VRS menu.
- 2** From the ACE VRS menu, select Mode.
- 3** From the Mode submenu, select an operating mode.

Updating Image Properties

While scanning, you can use ACE VRS to apply property changes to images that are intercepted as exceptions. To update an exception image, use the ACE VRS Interactive Properties dialog box to apply property changes to the image shown in the ACE VRS Viewer.

The ACE VRS Interactive Properties dialog box and the ACE VRS Viewer open under the following circumstances:

- When ACE VRS intercepts an exception image for which the response is defined as *Interactive*. See *Defining Exception Conditions* on page 17.
- As defined by the active operating mode. See *Selecting a Mode* on page 29.
- When you select the Preview feature. See *Previewing Images* on page 58.

The ACE VRS Viewer and the ACE VRS Interactive Properties dialog boxes open together, as shown in Figure 16. You can use the ACE VRS Interactive Properties dialog box to apply attribute changes to the image in the ACE VRS Viewer.

For more information, see the next section, *Using the ACE VRS Viewer*, as well as the section *Using the ACE VRS Interactive Properties Dialog Box* on page 35.

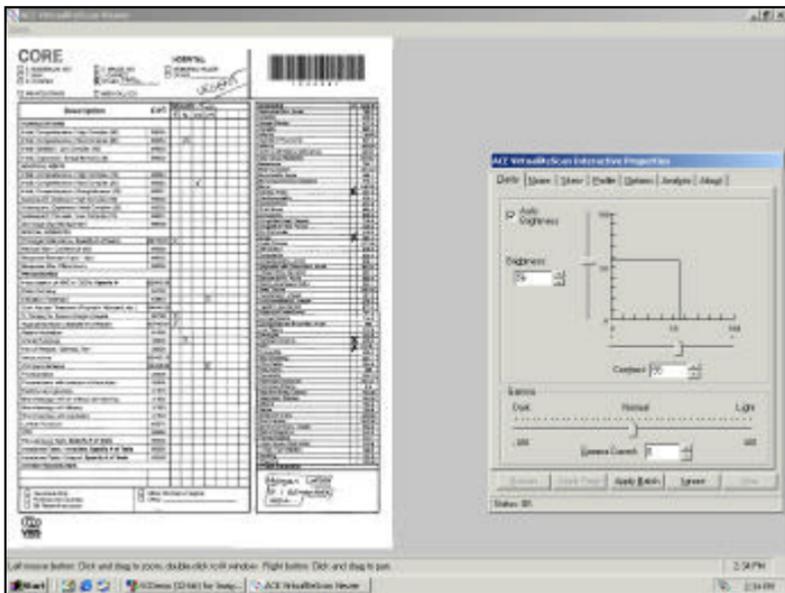


Figure 16. ACE VRS Viewer with the VRS Interactive Properties Dialog Box

Using the ACE VRS Viewer

The ACE VRS Viewer displays scanned images for your inspection. The purpose of the Viewer is to show you what an image looks like when it scans, and to refresh the image as you apply property changes.

The ACE VRS Viewer includes a Zoom menu with a range of image magnification levels.

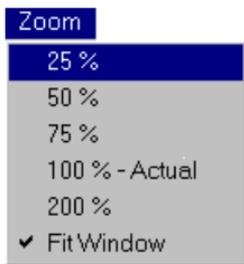


Figure 17. ACE VRS Viewer Zoom Menu

Using the Zoom Menu to adjust the view

From the Zoom menu, you can select a setting to magnify or reduce the image in the Viewer. Using the Fit Window setting, you can view the entire image in the ACE VRS Viewer.

Using mouse buttons to adjust the view

In the ACE VRS Viewer, you can adjust the image view with the left and right mouse buttons.

Using the left mouse button, you can do the following:

- View part of the image by clicking and dragging a box to outline the section you want to magnify.
- Restore the image to the standard view by double clicking.

Using the right mouse button, you can move (or pan) the image position in the ACE VRS Viewer.

Using the ACE VRS Interactive Properties Dialog Box

The ACE VRS Interactive Properties dialog box consists of seven tabs, including three with options for dynamically adjusting image properties as you scan. The tabs are shown in Figure 18.

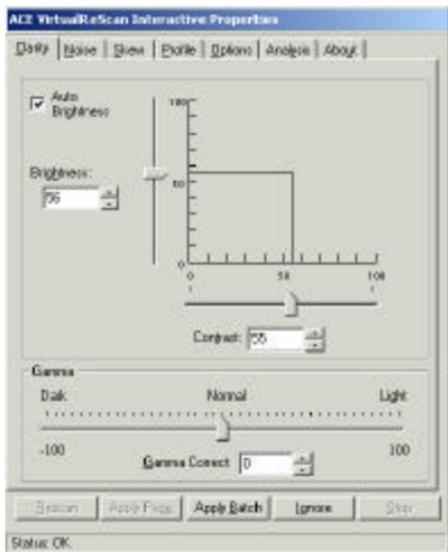


Figure 18. ACE VRS Interactive Properties Dialog Box

When the dialog box opens for an exception condition, the status line lists the specific cause for the warning or error. Otherwise, you see "Status OK" on the status line. The

dialog box opens to the tab that is relevant to the current warning or error condition. Then you can make adjustments to resolve the condition.

ACE VRS Interactive Properties Dialog Box Tabs

The ACE VRS Interactive Properties dialog box consists of the following tabs:

Clarity

Use this tab to adjust the settings for brightness, contrast, and gamma correction. For details, see the section *Using the Clarity Tab* on page 39.

Noise

Use this tab to select image enhancement filters, to control line thickness, or to remove unwanted speckling from an image. For details, see the section *Using the Noise Tab* on page 43.

Skew

Use this tab to straighten an image that is skewed, or crooked. Settings on the Skew tab apply only to the current image in the ACE VRS Viewer window. Use this tab also to enable or disable Automatic Deskew and Image Crop. For details, see the section *Using the Skew Tab* on page 46.

Profiles

Use this tab to create and manage image property profiles. A profile consists of user-defined settings from the Clarity, Noise, and Options tabs in the ACE VRS Interactive Properties dialog box. For details, see the section *Using the Profile Tab* on page 50.

Options

Use this tab to activate optional features, such as Black Border Removal. For details, see the section *Using the Options Tab* on page 53.

Analysis

Use this tab to view a summary of the property settings for the most recently scanned image. For details, see the section *Using the Analysis Tab* on page 55.

About

Use this tab to view information about your ACE VRS software and firmware version, as well as the street address, telephone number, web site address, and e-mail address for Bell & Howell Imaging Solutions. Additionally, the VRS Online button gives you direct access to the VirtualReScan web site, which offers product information and instructions for downloading Software VRS product updates. For details, see the section *Using the About Tab* on page 57.

ACE VRS Interactive Properties Dialog Box Buttons

The following buttons are available when you use the ACE VRS Interactive Properties dialog box. Keep in mind that the button selection applies to the entire set of dialog box tabs, including the active tab. When you change the settings on the ACE VRS Interactive Properties dialog box, they remain in effect until you close ACE VRS. When ACE VRS restarts, the dialog box is reset to the default settings.

Rescan

After reloading a document into the scanner, select this button to rescan the sheet.

Apply Page

Use this button to apply the current settings to the image in the ACE VRS Viewer. With this selection, the settings do not stay in effect for subsequent scanned images.

Apply Batch

Use this button to apply the current dialog box settings to the image in the ACE VRS Viewer window, and to keep the settings in effect for future batches.

Ignore

Use this button to indicate that ACE VRS should accept an image "as is." As a result, ACE VRS ignores a warning/error condition and resumes the scanning session. Additionally, ACE VRS abandons any changes, and restores the settings that were in effect when the dialog box first opened.

Stop

Use this button to stop the batch and close the ACE VirtualReScan Interactive Properties dialog box without applying or saving any changes. When you select Stop, ACE VRS passes any errors to the scanning application. The current image is not sent to the scanning application.

Using the Clarity Tab

The Clarity tab gives you options to adjust the contrast, brightness, and gamma correction for an image. Contrast relates to the range of the lightest and darkest shades in an image. Brightness relates to the intensity (or density) of the gray shades in an image. Gamma relates to the contrast between the light and dark areas of an image.

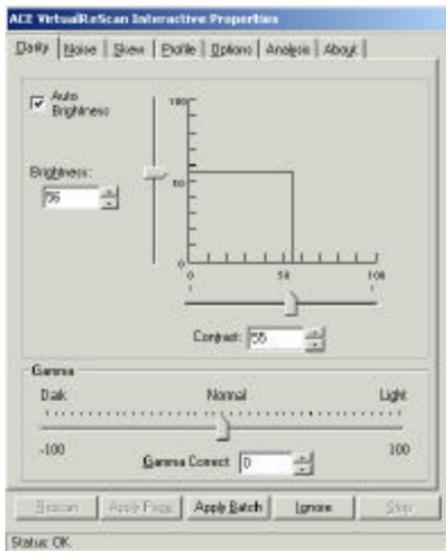


Figure 19. Clarity Tab

Brightness and Contrast

You can set the values for brightness yourself, or have ACE VRS automatically assign optimal values for brightness. To enable ACE VRS-assigned values, select the Auto Brightness Adjustment check box on the Clarity tab.

For example, if you scan a yellow invoice and enable Auto Brightness, ACE VRS automatically adjusts the brightness value to produce the best image quality for the colored sheet. As you scan, the intelligent values for contrast and brightness are reported for each page on the Analysis tab.

When ACE VRS checks the validity of the brightness for a scanned image, it checks the ACE VRS Administration Utility - Warnings tab settings. If the image brightness value falls within the range determined by 50 plus or minus the Brightness Out of Range threshold on the Warnings tab, it is acceptable. If the image brightness value does not fall within the acceptable range, ACE VRS intercepts the image.

To illustrate, if the Brightness Out of Range threshold is set to 10 on the Warnings tab, ACE VRS accepts any image with a brightness value from 40 to 60. If ACE VRS detects an image that needs a brightness value outside the acceptable range, it puts into effect the action selection for Brightness Out of Range, as listed on the Warnings tab.

Brightness and Contrast Visual Markers

The Clarity tab includes the following visual markers to help you identify the valid range for brightness and contrast:

Black Lines

The black lines indicate the baseline brightness and contrast values, which reflect the settings that you last applied (with the Apply Batch button).

Blue Rectangle

This box shows you the region of acceptable brightness and contrast values. The box is centered around the baseline settings for brightness and contrast, with the borders representing the brightness and contrast threshold values from the ACE VRS Administration Utility dialog box. Valid settings must fall within the blue box. Invalid settings fall outside the blue box borders, and they generate warnings.

Dotted Red Lines

The dotted red lines represent the current values for brightness and contrast.

Gamma

Gamma correction relates to the contrast between the lightest and darkest areas of an image. You can use the slider to adjust the setting, or you select from the Gamma Correct edit box on the Clarity tab.

v To select settings from the Clarity tab

- 1 From the ACE VRS Interactive Properties dialog box, select the Clarity tab.
 - a **To adjust the contrast and brightness at the same time**, click within the boundaries of the brightness/contrast scale.
Click the pointer so that the intersection of the crosshairs represents the desired values for brightness and contrast. Then, a dotted line appears on the brightness/contrast scale. The horizontal dotted line represents the brightness value, and the vertical dotted line represents the contrast value.
 - b **To adjust the contrast and brightness separately**, skip to the next step.
- 2 In the Brightness box, ACE VRS displays the current brightness setting. To change the setting, do one of the following:

- a** Click in the Brightness box, click the arrows to move through the list of settings, and click your selection.
 - b** Click in the Brightness box and type in a value.
 - c** Use the Brightness slider control to select a value.
- 3** In the Contrast box, ACE VRS displays the current contrast setting. To change the setting, do one of the following:
 - a** Click in the Contrast box, click the arrows to move through the list of settings, and click your selection.
 - b** Click in the Contrast box and type in a value.
 - c** Use the Contrast slider control to select a value.
- 4** In the Gamma Correct box, ACE VRS displays the gamma correction setting. The correction values range from Dark to Light, with Normal at the midpoint. To change the setting, do one of the following:
 - a** Click in the Gamma Correct box, click the arrows to move through the list of values, and click your selection.
 - b** Click in the Gamma Correct box and type in a value.
 - c** Use the Gamma slider control to select a value.

Using the Noise Tab

The Noise tab gives you a set of filters that enhance image quality and remove excessive speckling. As you adjust the Noise settings, the changes are applied to the image in the ACE VRS Viewer window. You can fine-tune the settings until the image appearance meets your quality standards.

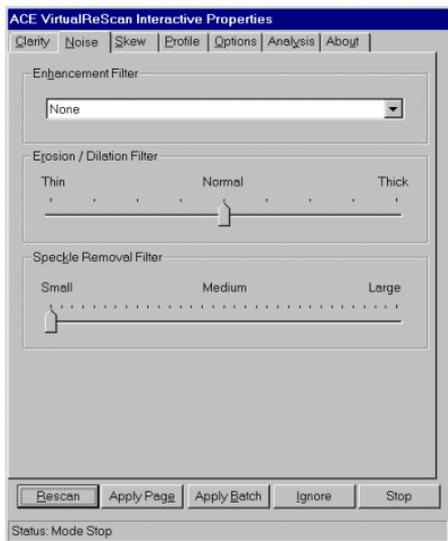


Figure 20. Noise Tab

Note The Noise tab settings are intended for black and white scanning; they have no effect on grayscale scanning.

v **To change the Noise settings**

- 1 From the ACE VRS Interactive Properties dialog box, select the Noise tab.
- 2 Under Enhancement Filter, you can select one of the following:
 - a None: Disables all the enhancement filters.
 - b Descreening: Activates a shade removal filter that is useful for removing halftone patterns.
 - c Image smoothing: Activates a filter that helps to smooth characters or lines that appear jagged on your image.
 - d Image cleanup: Activates a filter that smoothes out characters, removes background noise, and eliminates some lines.
- 3 Use the Line Filter slider to select the amount of thinning/ thickening to apply to image elements.
 - a. For image elements that are ballooned or blended together, improvement occurs as you move the slider toward the Thin setting.
 - b For image elements that are too thin or too light, improvement occurs as you move the slider toward the Thick setting.
- 4 Use the Speckle Removal slider to remove unwanted black dots.
 - a Move the slider toward Small if removal of small dots will achieve the desired image quality.

- b** Move the slider toward Medium if removal of small and medium dots will achieve the desired image quality.
- c** Move the slider toward Large if removal of small, medium, and large dots will achieve the desired image quality.

Using the Skew Tab

The Skew tab gives you settings to straighten an image that appears to be skewed, or crooked, in the ACE VRS Viewer. To straighten an image, you rotate it up to 360 degrees clockwise, or counter-clockwise. Use the movable angle control arm to rotate the image. If necessary, you can fine-tune the rotation with the Fine Angle Adjustment slider. The Angle box on the Skew tab lists the current image angle. When the Angle setting is 0.00, the image is not skewed.

Note The deskew process is designed to straighten an image, rather than the text on the image. Also, the skew adjustment applies only to a single image at a time.

When you select the Apply Batch button, the Skew tab settings are applied strictly to the current image, rather than to future images in the batch.

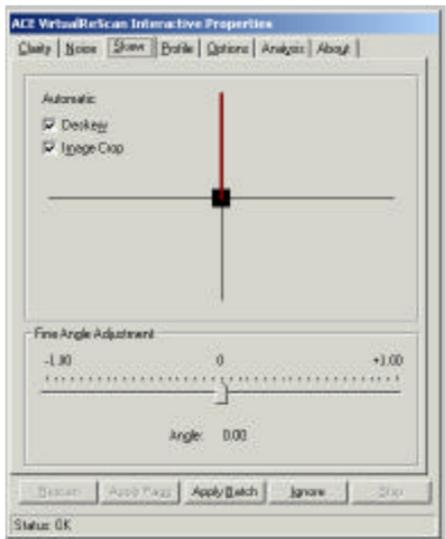
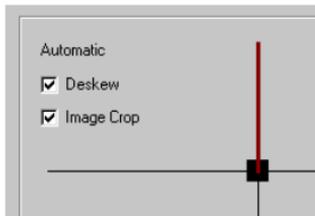


Figure 21. Skew Tab

u **To change the Skew tab settings**

- 1 From the ACE VRS Interactive Properties dialog box, select the Skew tab.
- 2 Adjust the movable angle control arm until the image is straight:
 - a Use the mouse to select the vertical arm. When selected, the pointer changes to a hand icon.
 - b Move the arm counter-clockwise to rotate the image to the left, or clockwise to rotate it to the right. You can rotate the image up to 360 degrees.

- 3 Using the Fine Angle Adjustment slider, you can fine-tune the deskew angle in single degree, or partial degree, increments, as follows:
- a By moving the slider all the way to the left, you select a complete one-degree, counter-clockwise angle adjustment.
 - b By moving the slider all the way to the right, you select a complete one-degree, clockwise angle adjustment.
 - c By moving the slider to a position in between the leftmost or rightmost setting, you select an angle shift that is less than a full degree. Each line on the slider scale represents 5 percent of one degree.



Automatic Deskew

Switch on the Deskew option to deskew images automatically as they scan. The skew is determined by the leading edge of the document.

Note The Automatic Deskew process is page-based, rather than content-based. While ACE VRS can automatically straighten a page, it does not straighten the data on the page (if the data was not straight on the original document).

Image Crop

With Automatic Deskew selected, you can activate Image Crop to automatically crop any image to reflect the actual size of the scanned document. This is helpful if you scan a batch of images consisting of multiple paper sizes. Image Crop is also important for a precise registration of each image in order to perform accurate character recognition (OCR).

Note If your scanning application does not support cropped images, ACE VRS disables the Image Crop function, even if Automatic Deskew is selected.

For example, if you scan a postcard, you can enable the Image Crop feature to ensure that excess borders are removed. As a result, the image would match the actual postcard dimensions (rather than the paper size specified in your scanning application).

Using the Profile Tab

The Profile tab helps you set up and manage ACE VRS image property profiles. Each profile is a user-defined combination of settings for the Clarity, Noise, and Options tabs. You can establish multiple profiles to accommodate different scanning situations, so that you don't have to repeat the process of defining image properties.

ACE VRS uses the profile *Default settings*, unless you define and select another one. From the Profile tab, you can define, update, load, and remove profiles.

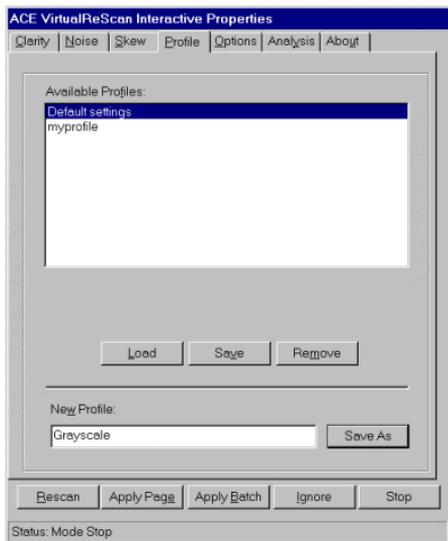


Figure 22. Profile Tab

v To set up a profile

- 1 Open the ACE VRS Interactive Properties dialog box and make selections from the Clarity, Noise, and Options tabs.
- 2 Select the Profile tab.
- 3 In the New Profile text box, assign a name to the new profile. Be sure to assign a profile name with alphanumeric characters.
- 4 Select Save As. The new profile name appears in the Available Profiles list, and it becomes the active profile.

Table 4. Invalid Characters for Profile Names

Character	Description	Character	Description
:	Colon	'	Apostrophe
;	Semicolon	"	Double quotation
\	Backslash	>	Greater than
/	Slash	<	Less than
	Pipe	^	Caret
&	Ampersand	.	Period
?	Question mark		

u **To change the active profile**

- 1 From the ACE VRS Interactive Properties dialog box, select the Profile tab.
- 2 From the Available Profiles list, select the profile you want to use.
- 3 Select the Load button.

or

- 1 From the ACE VRS Interactive Properties dialog box, select the Profile tab.
- 2 From the Available Profiles list, double click the name of the profile you want to use.

or

- 1 From the ACE VRS menu, select the Profile command.
- 2 When the Profile submenu opens, select the name of the profile you want to use.

Note If you change the active profile, it stays in effect for the current ACE VRS session.

u **To remove a profile from the Available Profiles list**

- 1 From the ACE VRS Interactive Properties dialog box, select the Profile tab.
- 2 From the Available Profiles list, select the profile(s) you want to remove.
- 3 Click Remove. The profile name clears from the Available Profiles list.

Using the Options Tab

Currently, there is only one function available on the Options tab: “Automatic Black Border Removal.”

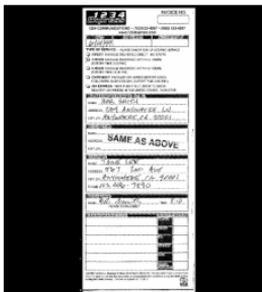


Figure 23. Options Tab

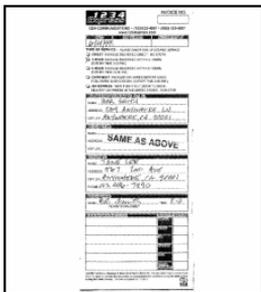
Automatic Black Border Removal

By selecting the Black Border Removal checkbox, you activate the ACE VRS feature that automatically removes any black borders around the image. It is different from

Image Cropping because it does not crop the image to its actual size. Instead it replaces any black pixels in the border around the image with white pixels, preserving the width of the paper size specified in your scanning application.



Raw Image from scanner without Black Border Removal and without Image Cropping



Black Border Removal enabled



Image Cropping Enabled

Using the Analysis Tab

Use the Analysis tab to view a summary of the properties for the current image in the ACE VRS Viewer. The summary reflects the properties at the time ACE VRS scans the image. With the exception of the Speckle Count, none of the Analysis tab information is updated as you apply image property changes. You cannot edit the information on the Analysis tab.

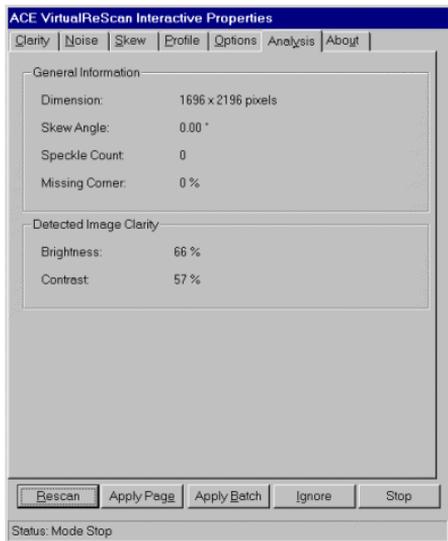


Figure 24. Analysis Tab

The information on the Analysis tab may help you identify proper threshold values for contrast and brightness on the ACE VRS Administration Utility dialog box, as well as settings for contrast and brightness on the Clarity tab.

Using the About Tab

The About tab lists the ACE VRS software/firmware version information, along with the mailing address, web site address, and e-mail address for Bell & Howell Imaging Solutions.



Figure 25. About Tab

Previewing Images

The preview process gives you an opportunity to test image property settings to meet quality standards. Use the Preview feature to test property settings before you scan a batch of documents, or to adjust the settings between batches.

When you select Preview, ACE VRS opens the most recently scanned image in the ACE VRS Viewer. (With duplex scanning, ACE VRS opens the front side of the most recently scanned sheet.) As you apply property changes from the VRS Interactive Properties dialog box, the preview image is refreshed so you can evaluate the adjustments. Be aware that the changes to the preview image are not sent to your scanning application; the image is intended only for preview purposes.

Note The Preview function is available only if a scanned image exists in the scanner's memory.

For information on the ACE VRS Viewer window, see the section *Using the VRS Viewer* on page 33. For information on updating image properties, see the section *Using the ACE VRS Interactive Properties Dialog Box* on page 35.

v To preview an image

- 1 Scan a document that is similar to the document type you plan to use for batch scanning.
- 2 From the ACE VRS menu, select Preview to display the sample image in the ACE VRS Viewer.

When you select Preview, ACE VRS always displays the last image scanned since the scanner was powered on (provided that such an image exists).

- 3 If desired, use the Zoom menu to adjust the magnification level.
- 4 For more information on the Zoom menu, see the section *Using the ACE VRS Viewer* on page 33.
- 5 If necessary, use the ACE VRS Interactive Properties dialog box to change the image properties.
- 6 For more information on the ACE VRS Interactive Properties dialog box, see the section *Using the ACE VRS Interactive Properties Dialog Box* on page 35.
- 7 When you are satisfied with the appearance of the preview image, select the Apply Batch button in the ACE VRS Interactive Properties dialog box.

The property settings are saved and put into effect for the next batch of scanned documents. If you expect to use the settings on a regular basis, save them as a profile, so they can be recalled as often as necessary. See the section *Using the Profile Tab* on page 50.

Resetting ACE VRS

The Reset command reloads the configuration for the Adrenaline Hardware Accelerator in your PC. You should use the Reset function only if an authorized member of the technical support staff instructs you to do so.

v To reset the ACE VRS configuration

- 1** From the Windows taskbar, right click on the VRS icon to open the ACE VRS menu.
- 2** From the ACE VRS menu, select the Reset command.
A progress indicator appears for a few moments as the configuration is reset for the Adrenaline Hardware Accelerator.
- 3** From your scanning application, reselect the ACE VirtualReScan Source.
- 4** Proceed with your scanning session.

Endorsing/Annotation Support

Both Endorsing and Annotation are supported in this release of ACE VRS. This feature can be used to add permanent, user-defined text to the original page and/or the electronic image. In addition, it can be used for adding counter information to an image. You can access the Automatic Endorser/Annotation Properties dialog box through the Auto Endorse/Annotation option of your scan application's Imaging menu.

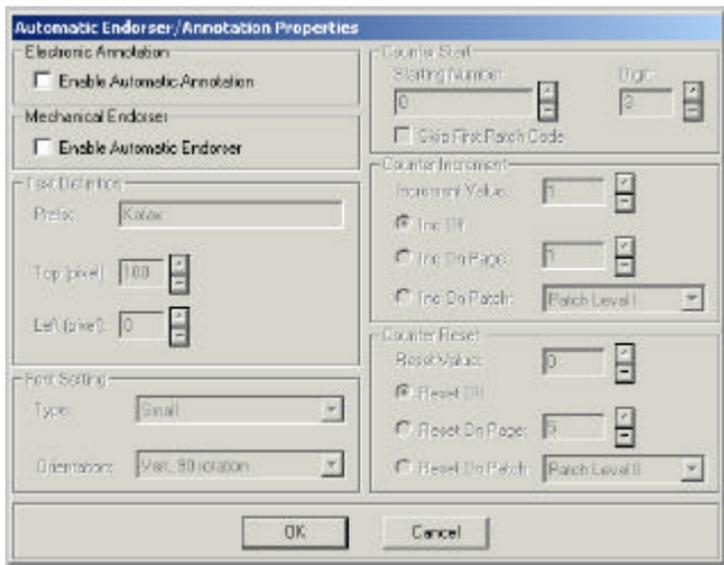


Figure 26. Automatic Endorser/Annotation Properties Dialog Box

Enable Annotation

Select this checkbox to enable the text annotation feature. When annotation is enabled, the annotation text is added to the scanned TIFF image.



Figure 27. Enable Automatic Annotation Check Box

Enable Automatic Endorser

Select this check box to enable the scan endorser text feature. When endorsing is enabled, the selected endorser text is printed on the original page as it is fed through the scanner.



Figure 28. Enable Automatic Endorser Check Box

Text Definition

The Text Definition options become available when the Automatic Annotation check box and/or the Automatic Endorser check box are enabled. The Prefix text box is used to enter up to 32 characters of custom text as a string prefix.

To specify where on the page the endorser/annotation text should be printed, you will need to set the following:

Top This option specifies the top position on the page, in pixels, of the text.

Left This option specifies the left position on the page, in pixels, of the text. Currently, this option is not supported.

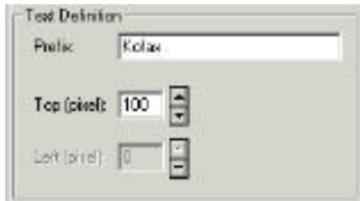


Figure 29. Text Definition Options

Font Setting

The Font Settings option allows you to select font preferences for endorsing and annotations. The font type used for automatic endorser/annotation strings and the position of the strings on the page can be controlled with the following options:

Font Type

This option specifies the font size for the automatic endorser/annotation text. Select from Small, Medium, or Normal size font.

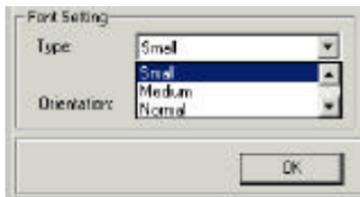


Figure 30. Font Type Options

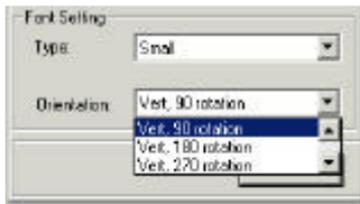


Figure 31. Orientation Options List

Orientation

The orientation options (drop box shown in Figure 31) specify the direction for the automatic endorser/annotation text. These orientation options are illustrated in Figure 32:

- Vertical, 0° rotation
- Vertical, 90° rotation
- Vertical, 180° rotation
- Vertical, 270° rotation

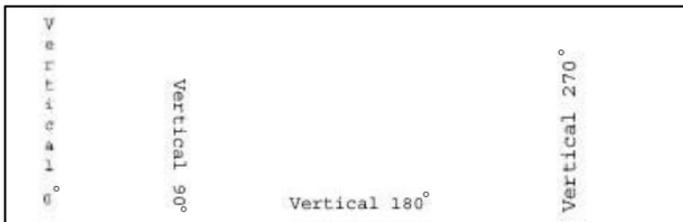


Figure 32. Orientation Options

Counter Start

This feature enables an automatic counter when scanning pages in a batch, the initial value of which can be set by the user. In this way, you can modify the string on a per-batch basis.

Starting Number

Select the start number for the automatic endorser/annotation counter, or type the start number into the text box. The start number is used at the start of the first batch.

Digit

Select the number of digits for the counter value, to a maximum of 6 digits. The number of digits controls the maximum value for the counter. For example, if the number of digits is 3, the maximum counter value would be 999. If the number of digits is 6, the maximum counter value would be 999,999.



Figure 33. Counter Start Options

Counter Increment

You can control how the automatic endorser/annotation counter is incremented with the properties listed below. For example, you can increment the counter every n pages or every time a certain patch code is scanned. Ideally, the counter should be set up based on the documents being scanned, how the batches are organized, and specific user needs.

Increment Value

This feature specifies an increment value for the counter. For example, set this property to 5 to increment the counter by 5 whenever the counter value changes. Select the value, or type the value into the text box.

Increment Off (Inc Off)

Select this option if you do not wish to increment the counter.

Increment On Page (Inc On Page)

This feature specifies how the counter will be incremented per page. For example, set this property to 2 to increment the counter on every other page scanned; set this property to 10 to increment the counter on every 10th page. Select the option button and select or type the number into the text box to Increment On Page.

Table 1. Example Counter Increment Settings

Feature	Setting
Prefix	ABCCompany
Start Number	1
Digit	4
Increment Value	1
On Page	2

Using the settings in Table 1, the automatic endorser/annotation string would be:

For this page scanned:	The string would be:	
1	ABCCompany0001	
2	ABCCompany0001	
3	ABCCompany0002	<i>(counter incremented by 1 after 2 pages scanned)</i>
4	ABCCompany0002	

Counter Reset

Use this option to determine the number that the counter will return to when it is reset. You can control how the automatic endorser/annotation counter is reset with the following properties. For example, you can reset the counter for every n pages or every time a certain patch code is scanned.



Figure 34. Counter Reset Options

Reset Value

This feature specifies the reset value for the counter. For example, set this property to 15 to reset the counter value to 15 whenever the counter is reset.

Reset Off

Select this option if you do not wish to implement the Reset feature.

Reset On Page

This option enables you to set the number of pages to be scanned before the counter is reset. For example, set this property to 15 to reset the counter on every 15th page scanned; set this property to 30 to reset the counter on every 30th page scanned, and so on.

Using the values in Table 2 will result in endorser/annotation strings as in Table 3.

Table 2. Sample Counter Reset Values

Property	Value
Prefix	ABCCompany
Start Number	1
Increment Value	1
Digit	4
Inc On Page	2
Reset On Patch	Patch Level II
Reset Value	10

Table 3. Sample Counter Reset Values Resulting String

Batch	Page	String
1	1	ABCCompany0001
	2	ABCCompany0001
	9	ABCCompany0005
	10	ABCCompany0005
2	1	ABCCompany0010
	2	ABCCompany0010
	9	ABCCompany0015
	10	ABCCompany0015

3	1	ABCCompany0010
	2	ABCCompany0010
	9	ABCCompany0015
	10	ABCCompany0015

v **To set Automatic Endorser/Annotation Properties**

- 1 From the menu of the scan application, select Imaging.
- 2 Select the Auto Endorse/Annotation option from the Imaging menu.
- 3 Select the Enable Automatic Endorser checkbox to enable the scan endorser text feature.
- 4 Select the Enable Annotation checkbox to enable the text annotation feature.
- 5 Type the desired Prefix into the text box.
- 6 Select or type in the top position on the page, in pixels, of the endorser/annotation text in the Top field.
- 7 Choose the font type from the drop down list.
- 8 Select the direction for the endorser/annotation text.
- 9 Set the Counter, beginning by doing one of the following:
 - If you are not using the Counter feature, select Increment Off.
 - If you are using the Counter feature, and wish to Increment on Page:
 - Select the Inc On Page button.

- Select or type in the value. The Counter Start options will become available.
 - Select or type in the Starting number and Digit.
 - If you are using the Counter feature and wish to Increment on Patch:
 - Select the Inc on Patch button.
 - Select the patch level. The Counter Start options will become available.
 - Select or type in the Starting number and Digit.
- 10** Set the Counter Reset feature by doing one of the following:
 - If you do not wish the application to Reset, select Reset Off.
 - If you are using the Reset feature, and wish to Reset on Page:
 - Select the Reset On Page button.
 - Select or type in the value.
 - If you are using the Reset feature, and wish to Reset on Patch:
 - Select the Reset On Patch button.
 - Select or type in the value.
- 11** Choose Save to implement the changes to the dialog box. Or, click Cancel to exit without making any changes.

Technical Support

For assistance with ACE VirtualReScan, contact Bell & Howell Imaging Solutions as shown below. Please have the following information available:

- ACE VRS version
- Scanner model number
- Type of hardware, including your PC and other peripherals
- Operating system
- Description of how the problem occurred, including error message text

Headquarters



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FCC Notice

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

