BÖWE BELL+HOWELL

Trūper Advanced Features Manual
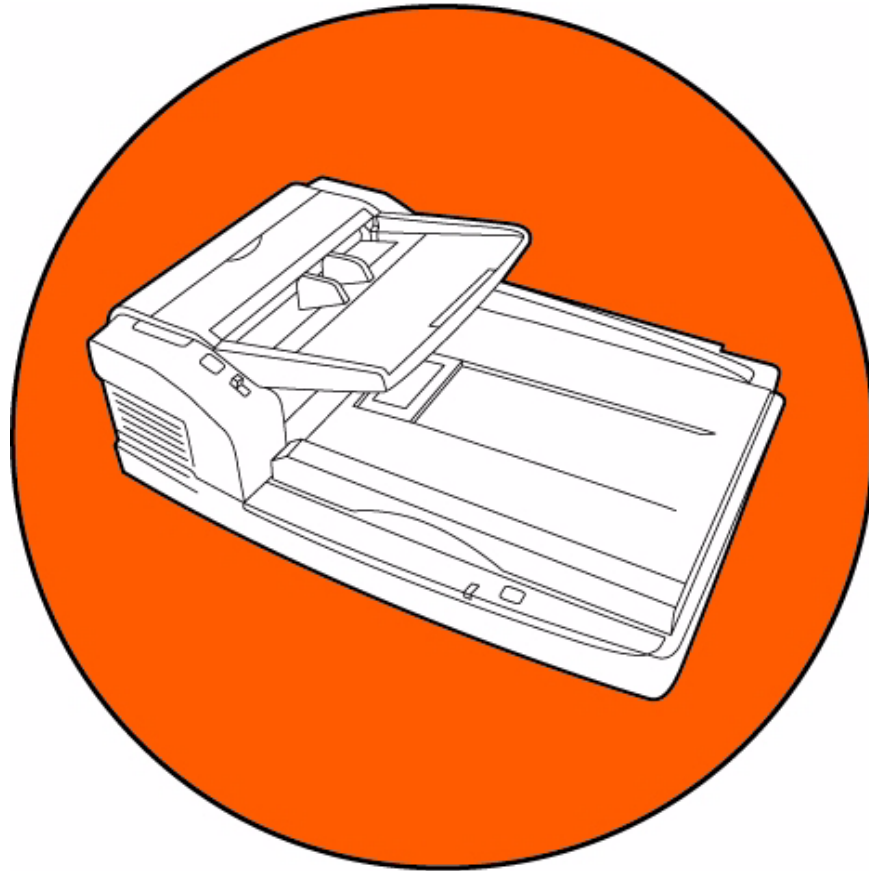
trūper™
3200
Color Scanner

Böwe Bell + Howell Scanners

Please read this manual for information about the proper installation, operation and maintenance of the scanner. Keep this documentation in a safe place for future reference.

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Typographical Conventions

This table describes the typographical conventions used in this manual.

Items	Convention
Names of buttons, links, menus, check boxes, radio buttons, lists, and fields found with software applications	These items appear in **bold** typeface. Examples: • Click the **Next** button. • Click the **User Utility** icon.
Variable placeholders, references to other documents, new or special terminology, and emphasis	These items appear in *italic* typeface. Examples: • For more information, refer to the *Operator Manual*. • In this location, you can *deskew* (straighten an image) before saving the document.
Names of files, directories, folders, paths, windows, dialog boxes, Web pages, URLs, and e-mail addresses	These items appear in normal typeface. Examples: • Run the setup.exe to start installation software. • To view our Website, go to www.bbhscanners.com.
References to sections of documents and citations of messages displayed to users	These items will appear in "quotation marks". Examples: • Refer to "Section 1" in this manual. • If the error message "Please reload paper" occurs...
Key names and hardware button names	These items appear in ALL CAPS. Examples: • Press the OFF switch to power down the scanner. • Press the ENTER key and then type...

Table of Contents

1.0 Introduction

This manual provides detailed information, including descriptions and procedures, for using the Trūper scanner's advanced feature set. Along with VRS (VirtualReScan), the Trūper scanner can enhance image quality, enable faster scanning processes, and make it possible to customize how your documents are scanned.

➲ Note

There are properties available in VCDemo, Quickscan, and Adobe that are not documented in this manual. For information on the properties not explained in this manual, refer to your application's user manual.

This guide assumes the following:

- A Trūper scanner is properly installed
- VRS software is installed
- Either VRS, VRS TWAIN, or VRS ISIS drivers are installed
- You have previous experience using scanners and scanner applications
- You have a moderate to advanced skill level using scanners and scanner applications

Depending on the driver in which you are using, proceed to one of the following sections:

- "2.0 Using VCDemo with the VRS Driver"
- "3.0 Using QuickScan with the ISIS Driver"
- "4.0 Using Adobe Acrobat with the TWAIN Driver"

2.0 Using VCDemo with the VRS Driver

This section describes how to set parameters for the way in which documents are scanned using VirtualReScan with the VRS driver.

This section contains the following topics:

➡ **Note**

For detailed information on using the functionality described in this section, refer to your application's user manual.

To select the VRS driver:

1. Select **Scanner** from the **Source** menu.

2. Click **Bowe Bell + Howell 3200 with SVRS** from the **Select Scan Source** drop-down list, and then click the **OK** button.

   The scanner resets the flatbed to the "home" position. When the icons on the toolbar become active, you are ready to begin.

3. Click the icon, and proceed to the next section, "2.1 Scanner Properties".

The Scanner Properties window allows you to specify how documents are to be scanned. This includes setting the resolution, page orientation, color preferences, and whether documents are scanned in simplex or duplex mode.
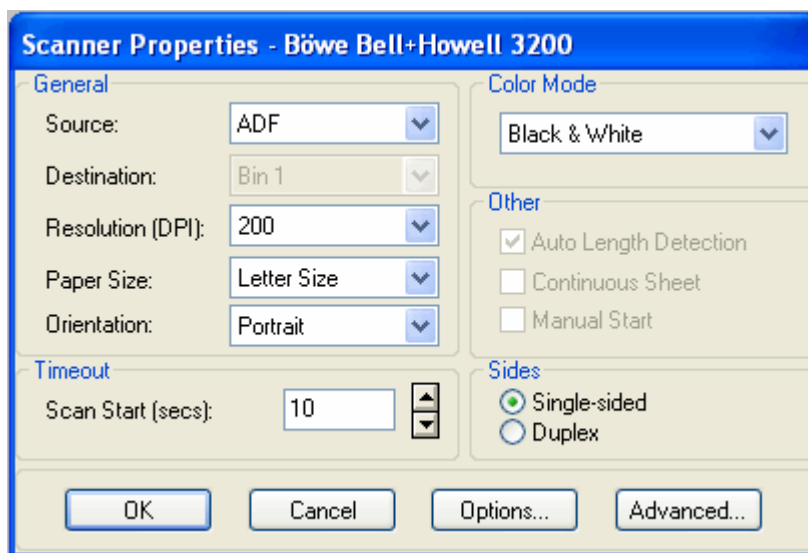
2.1.1 Source

The **Source** drop-down list is used to select how the document is to be fed into the scanner. If Flatbed is selected, documents are scanned from the glass and can only be scanned single-sided.

If ADF (Automatic Document Feeder) is selected, documents are scanned from the loading tray. When ADF and Duplex are selected, both sides of the document are scanned, but the top loaded side is output to the PC first followed by the back side.

2.1.2 Destination

This property is not available with BBH scanners.

2.1.3 Resolution (DPI)

This function specifies the resolution DPI (dots per inch) for the main and subdocument scanning parameters. The available resolution setting ranges are 100 to 600 dpi. The typical dpi setting is 200 for bitonal documents and 150 for color documents.

When the resolution is increased, the image becomes clearer. However, the image file size increases, PC HDD (Hard Disk Drive) free space decreases and additional scanning time increases. For regular high dpi scanning, you may consider purchasing a memory upgrade kit to increase the scanning speed.

2.1.4 Paper Size

Use the Paper Size option to specify the size of the documents to be scanned. Refer to the *Trūper Operator Manual* for a list of page sizes.

2.1.5 Orientation

The Orientation section is used to specify the layout in which the documents scanned are to be displayed on the computer screen. Setting the Orientation also determines how the documents are saved. The choices are Portrait and Landscape.

2.1.6 Scan Start (secs)

For information on the Scan Start (secs) property, refer to your application's user manual.

2.1.7 Color Mode

The Mode drop-down list provides multiple scanning modes. Table 1, "Mode Options and Descriptions" lists the available mode options.

Mode	Description
Black & White	Bitonal, image is threshold to either black or white
Color (true color)	High quality image, large file size, image is threshold to 24-bit color
Grayscale	High quality image, large file size, image is threshold to 256 shades of gray

Table 1: Mode Options and Descriptions

2.1.8 Auto Length Detection

When the Auto Length Detection function is selected, the scanner scans the documents in the size that corresponds to the documents length. If, for instance, Length Control is not selected when A4 and A5 width documents are scanned continuously, the documents with the A5 width will also be scanned in the A4 size and the roller will be scanned for the parts corresponding to their bottom halves. Conversely, if Length Control is selected and A4 documents and A5 width documents are scanned in the same session, the A4 documents will be scanned in the A4 size and the A5 width documents will be scanned in the A5 size, and no memory is wasted.

2.1.9 Continuous Sheet

For information on the Continuous Sheet property, refer to your application's user manual.

2.1.10 Manual Start

For information on the Manual Start property, refer to your application's user manual.

This section allows you to choose if your documents are scanned single-sided (one side only) or duplex (front and back).

⮕ **Note**

> When ADF and Duplex are selected, both sides of the document are scanned, but the top loaded side is output to the PC first followed by the back side.

2.2 Advanced Settings

The Advanced Settings window allows you to set the page layout and which edge of the document will be fed to the scanner.

To view the Advanced Settings window:

1. Select **Advanced Properties** from the **Source** menu.

2. Select **Scanner Driver Settings** from the **Tools** menu.

   The Advanced Settings window appears.
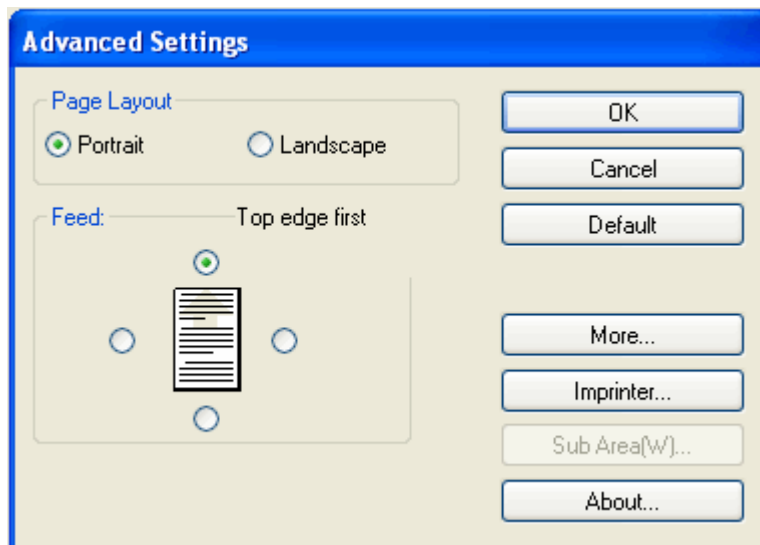
2.2.1 Page Layout

The Page Layout section has the same functionality as "2.1.5 Orientation" on page 12. However, setting the Page Layout here overrides the Orientation setting on the Scanner Properties window.

2.2.2 Feed

The Feed section allows you to choose which edge of the document is to be fed first in the ADF (Automatic Document Feeder); the choices are Portrait (top or bottom) and Landscape (right or left).

2.3 More Settings

The More Settings window allows you to specify feeding features such as detecting double feed errors and the intensity in which they are identified, scanning speed and color options.

To view the More Settings window:

1. Select **Advanced Properties** from the **Source** menu.

2. Select **Scanner Driver Settings** from the **Tools** menu.

3. Click the **More** button on the Advanced Settings window.

   The More Settings window appears.
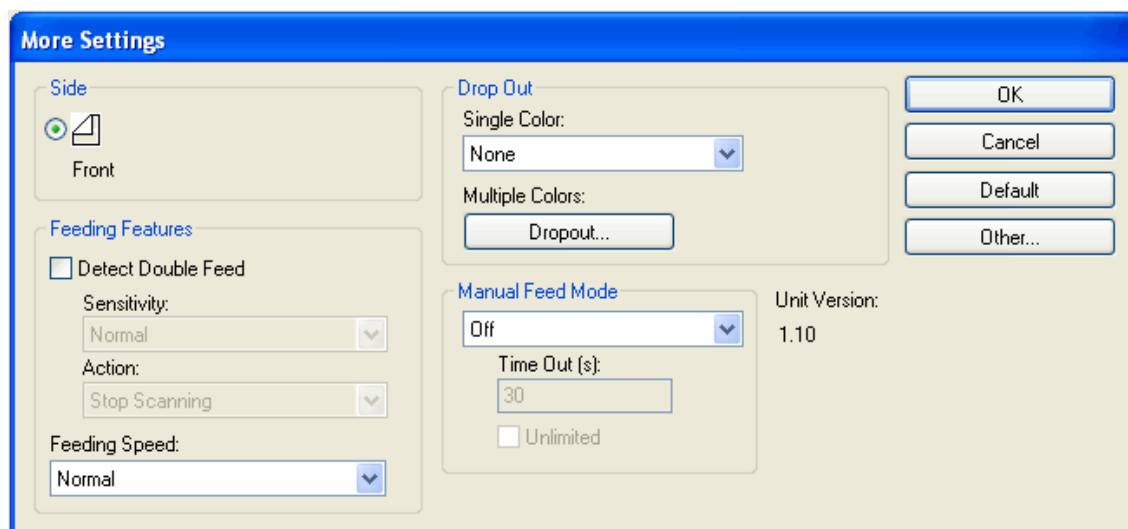
2.3.1 Side

Set this property in the Scanner Properties window. For more information on the Sides property, refer to "2.1.11 Sides" on page 13.

2.3.2 Detect Double Feed

This function detects the feeding of more than one sheet at a time. Ultrasonic waves are aimed at the document to detect double feed by the level at which the waves pass through the sheets. This function can detect double feed even when sheets are superimposed exactly on top of each other, but it may not detect properly with some paper thicknesses and when creasing and other factors are present. The default for Detect Double Feed is ON.

If a double feed is detected, you can opt to be notified. The default setting for this function is Stop.

⭢ **Note**

- When important documents are to be scanned, check the number of document sheets against the number of scanned image sheets.
- When scanning a document containing paper in different sizes, double feed can be detected when this function is selected.

2.3.3 Feeding Speed

There are two settings for the Feeding Speed; Slow and Normal. It is recommended that you select Slow when scanning thin paper, badly creased paper, fragile paper, etc. In this mode, documents are fed at about one-half of the speed as in the Normal mode. Scanning documents in Slow mode does not affect image quality.

⭢ **Note**

- At a resolution above 300 dpi, the paper is fed at the same speed as in the Normal mode, even if the Slow mode has been specified.
- This function cannot be used with flatbed scanning.

2.3.4 Single Color Dropout

For information on the Single Color Dropout property, refer to the *Trūper Operator Manual*.

2.3.5 Multiple Colors Dropout

For information on the Multiple Color Dropout property, refer to the *Trūper Operator Manual*.

2.3.6 Manual Feed Mode

Manual Feed mode allows you to choose how documents are fed to the scanner.

➲ **Note**

Scanning does not stop if the application does not come with a cancel function. However, pressing the START/STOP button on the scanner or opening the scanner cover will discontinue scanning.

Property	Description
Off	Manual Feed mode is not used.
On	Documents are fed to the scanner one sheet at a time. Each time a page is inserted into the ADF (Automatic Document Feeder), it is automatically scanned.
Start Button	When documents are placed in the ADF (Automatic Document Feeder), press the START/STOP button to begin scanning. Once all documents have been scanned, the scanner returns to the wait status. When placing another batch of documents in the ADF (Automatic Document Feeder), scanning begins again once the START/STOP button is pressed.
Automatic	When a stack of documents are placed on the scanner, they are automatically scanned. Once scanning is complete, the scanner returns to the wait status. When a new stack of documents are placed on the scanner, they are automatically scanned.

Table 2: Manual Feed Mode Properties

2.3.7 Time Out

For information on the Time Out property, refer to your application's user manual.

The Other Settings window allows you to enhance scanning by setting the properties for image processing, noise reduction, additional feeding features and more.

To view the Other Settings window:

1. Select **Advanced Properties** from the **Source** menu.

2. Select **Scanner Driver Settings** from the **Tools** menu.

3. Click the **More** button on the Advanced Settings window.

4. Click the **Other** button on the More Settings window.

   The Other Settings window appears.
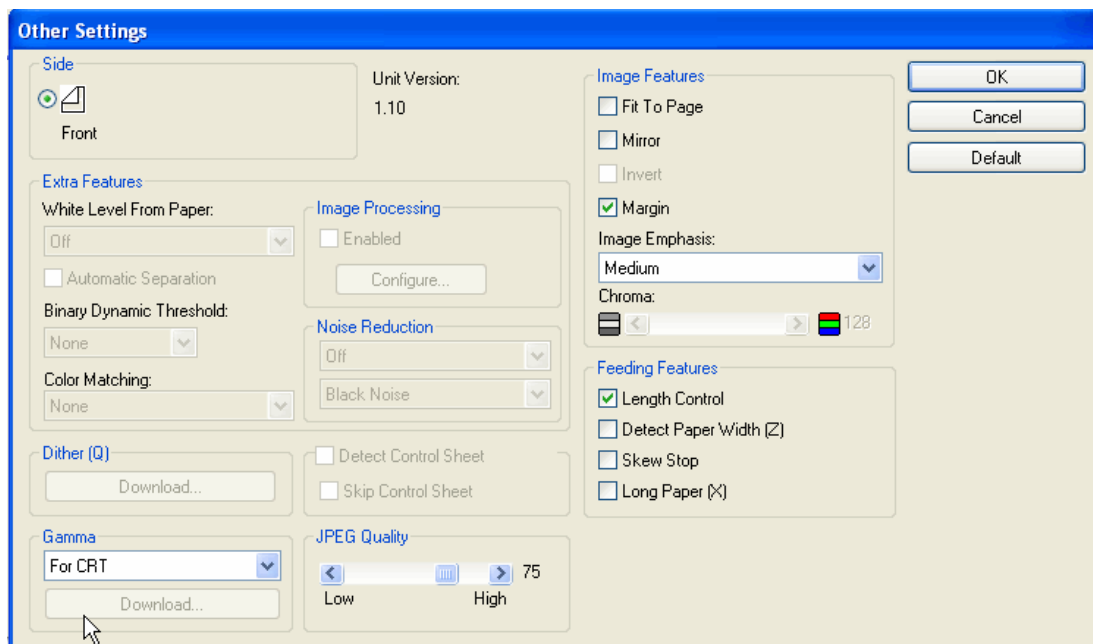
2.4.1 Side

For information on the Side property, refer to your application's user manual.

2.4.2 White Level From Paper

This function uses white as the reference for the background colors of documents being scanned. When a document with a colored background other than white is scanned, the resulting images contain a lot of noise. This is because the texture of the paper is scanned, however, when the White Level From Paper function is set to On, the texture is ignored resulting in clear images and text.

The White Level From Paper function detects the color at a position of approximately 3 mm along the top edge of the paper. It will not work properly if the colors in other areas of the paper differ from the color at this position. Also, when this function is used, the scanned image becomes white for approximately 3 mm (up to 10 mm depending on the scanning conditions) from the top edge of the paper. However, if the reference plate and flatbed background are set to black, this area will not become white.

➲ **Note**

- This function cannot be used at the same time as Automatic Crop, Deskew, or Margin.
- This function cannot be used in the Color mode.

2.4.3 Automatic Separation

This function enables the scanner to automatically differentiate between text areas and photo areas, and scan them accordingly. Text areas are scanned in the Binary mode whereas photo areas are scanned using the Dither (halftone) pattern specified in "3.1.3.1 Custom Dither (Halftone) Patterns" on page 28.

➲ **Note**

- With some documents, it may not be possible to separate the text and photos completely. However, when continuously scanning documents whose photo areas are positioned in the same places, better results can be obtained by using the Sub Area function. Refer to "3.5 Sub Area" on page 36 for more information.
- The Automatic Separation function is valid only in the Black & White mode. It cannot be used at the same time as Noise Reduction, Sub Area, Dynamic Threshold, Automatic Crop or Deskew.

2.4.4 Binary Dynamic Threshold

For information on the Binary Dynamic Threshold property, refer to your application's user manual.

2.4.5 Color Matching

For information on the Color Matching property, refer to your application's user manual.

2.4.6 Dither (Q)

For information on the Dither property, refer to your application's user manual.

This function selects the *gamma curve* (shading adjustment curve). The settings available for the gamma curve are Normal, For CRT, User Download and Linear, which are described in detail in Table 3, "Gamma Settings". Gamma can be set in Color mode, Grayscale mode, or Black & White mode.

➲ Note

The Gamma function cannot be used when sRGB or ICM have been selected by Color Matching.

Normal	This is the most common setting used when scanning business documents.
For CRT	This is the recommended setting if the primary objective of scanning documents is to view them on the display. It is most common when scanning photos or images.
User Download	This setting is used when you want to use a gamma pattern file that you have created. For information on generating your own gamma pattern files, refer to "2.4.7.1 Creating Gamma Pattern Files" on page 20.
Linear	This is the mode that gamma correction is not used.

Table 3: Gamma Settings

To set the gamma pattern:

1. Select the target gamma curve from the **Gamma** drop-down list.

   To create custom gamma patternsfiles, refer to "2.4.7.1 Creating Gamma Pattern Files" on page 20.

2. Click the **Download** button and select the **gamma pattern file (*.PXG)**.

3. Select the pattern files by clicking the **Binary/Gray**, **Red**, **Blue** or **Green** button. In the case of color, the pattern files must be set for Red, Blue and Green.

2.4.7.1 Creating Gamma Pattern Files

You can create custom gamma pattern files using a text editor (such as Windows Notepad) or by editing the invert.pxg file located in the application directory.

➲ Note

If you edit the invert.pxg file, use Save As, type in a name for the file, and make sure the file extension is .PXG.

Line 1	Name; the scanner ignores this line
Line 2	Table size; input "256"
Line 3	Input the conversion value of level 0 (brightest level)
Line 4	Input the conversion value of level 1
Line 258	Input the conversion value of level 255 (darkest level) For the data to be set, "0" is the brightest settings and "255" is the darkest setting.

2.4.8 Image Processing

For information on Image Processing, refer to the *VRS User's Manual*.

2.4.9 Noise Reduction

For information on Noise Reduction, refer to the *VRS User's Manual*.

2.4.10 Detect Control Sheet

For information on the Detect Control Sheet property, refer to the *VRS User's Manual*.

2.4.11 Skip Control Sheet

For information on the Skip Control Sheet property, refer to the *VRS User's Manual*.

2.4.12 JPEG Quality

For information on the JPEG Quality property, refer to the *VRS User's Manual*.

2.4.13 Image Features

For information on the Image Features properties, refer to the *VRS User's Manual*.

For information on the Chroma property, refer to your application's user manual.

2.4.15 Length Control (paper length control)

When the Length Control function is selected, the scanner scans the documents in the size that corresponds to the documents length. If, for instance, Length Control is not selected when A4 and A5 width documents are scanned continuously, the documents with the A5 width will also be scanned in the A4 size and the roller will be scanned for the parts corresponding to their bottom halves. Conversely, if Length Control is selected and A4 documents and A5 width documents are scanned in the same session, the A4 documents will be scanned in the A4 size and the A5 width documents will be scanned in the A5 size, and no memory is wasted.

⮫ Note

The Length Control function has the same functionality as the Auto Length Detection function. However, setting the Length Control function here overrides the Auto Length Detection function previously set.

2.4.16 Detect Paper Width

When Detect Paper Width is used, the Size and Page Layout specified in Page Size settings are ignored, and the scanner sets the page size as determined by the paper guide position.

2.4.17 Skew Stop

This function stops scanning when the paper fed by the ADF (Automatic Document Feeder) is significantly skewed. When Skew Stop has been activated, open the scanner door and remove the paper remaining inside. Then compare the document against the scanned data, and reinsert the paper up to the appropriate page. Scanning may not have been completed for some pages of the document remaining inside the scanner.

⮫ Note

The Skew Stop function does not work if the paper width is less than 148 mm.

2.4.18 Long Paper (X)

For information on the Long Paper (X) property, refer to your application's user manual.

2.5 Image Filters on the Imaging Menu

In order to use the advanced image filters for scanning, you must have VRS 4.00.101 (OEM version). The image filters listed on the Imaging menu allow you to utilize functionality such as bar coding, deskewing, border removal, patchcode properties and so on.

➦ Note

Some of the properties listed on the Image menu are not described in this manual. For information about those properties, refer to your application's user manual or the *VRS User's Manual*.

To enable the Imaging menu:

1. Select **Scanner** from the **Source** menu.

2. Click **Bowe Bell + Howell 3200 with AIPE** from the **Select Scan Source** drop-down list, and then click the **OK** button.

   The scanner resets the flatbed to the "home" position. When the icons on the toolbar become active, you are ready to begin.

3. Select the desired property from the **Imaging** menu.

2.5.1 Barcode Detection

This image filter recognizes the barcodes in the scanned images. Refer to the scanning application's operating manual how to use the barcode. If the barcodes cannot be recognized properly, the quality of the scanned images can be improved by using another image filter, examples of which are given in Table 4, "Example of Filters and Descriptions".

Filter	Description
Deskew	Straightens out the image skew
Noise Removal	Reduces the image noise
Line Removal	Restores the barcode lines
Smoothing	Smooths out the barcode lines

Table 4: Example of Filters and Descriptions

In order to obtain the ideal image quality and speed for barcode detection, it is recommended that the settings of the image filters be adjusted while scanning a test document.

Property	Description
Types section	If the barcode type is known ahead of time, clear the check boxes at the sides of the barcode types which will not be used. The fewer barcodes selected, the faster the processing.
Patch Code	The data does not appear as ASCII character strings with some barcode types such as Code128. Special characters are used for Code39 and other barcode types. When the Decode Symbol option is selected, the data of these barcodes is changed into readable ASCII character strings. **Note:** It is recommended that Decode be enabled unless it is clear that the barcode detection results must not be converted into ASCII character strings.
Limits	Set to string length if the length of the barcode character string is known ahead of time. The recognition accuracy and speed can be improved by specifying this length.
Search Directory	This is specified if the position of the barcode to be detected is known ahead of time. The recognition accuracy and speed can be improved by specifying the barcode position.

Table 5: Barcode Properties

2.5.2 Deskew

This function corrects the skew in scanned images by restoring the images to the upright position. Deskewed images (text or graphics) may appear serrated. To correct this, select the **Smooth** check box.

➲ Note

If there is any foreign matter on the reference plate or flatbed sheet when documents are scanned, dark areas may appear around the document edges. If this happens, clean the reference plate or flatbed sheet.

2.5.3 Patchcode Detection

For information on the Patchcode Detection property, refer to your application's user manual or the *VRS User's Manual*.

2.5.4 Image Scaling

For information on the Image Scaling property, refer to your application's user manual or the *VRS User's Manual*.

For information on the Line Removal property, refer to your application's user manual or the *VRS User's Manual*.

2.6 Image Filters using VRS Adjustment Controls

The image filters in the VRS Adjustment Controls window allow you to utilize functionality such as Auto Orientation, Noise Reduction, and so on. Using these features enhances the output of your scanned document.

To view the VRS Adjustment Controls:

1. Select **Scanner** from the **Source** menu.

2. Click **Bowe Bell + Howell 3200 with AIPE** from the **Select Scan Source** drop-down list, and then click the **OK** button.

   The scanner resets the flatbed to the "home" position. When the icons on the toolbar become active, you are ready to begin.

3. Select **Advanced Properties** from the **Source** menu.

4. Select **Scanner Driver Settings** from the **Tools** menu.

   The VRS Adjustment Control window appears.
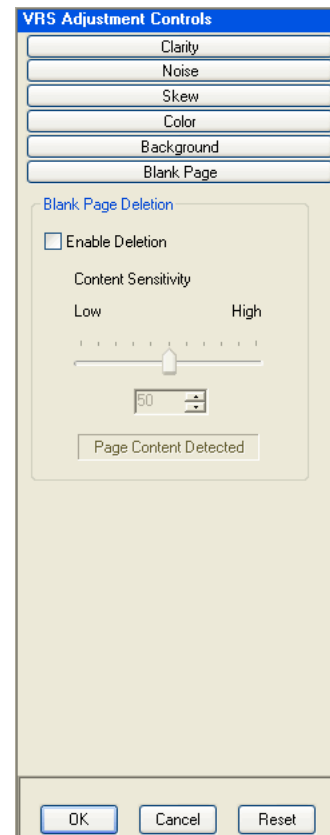
2.6.1 Brightness and Contrast

The Brightness function adjusts the image brightness. There are 3 preset modes - Darken, Normal and Lighten. When the brightness is set to be darkened, light colored characters and objects are easier to see. Alternately, when the slide is selected to be lightened, fine dots or noise are eliminated. A balance between eliminating the unwanted dots and document quality can be manually set. The range is between 1 and 255 with a default setting of 128.

➪ Note

There are independent back and front side settings for the brightness.

2.6.2 Invert Image

For information on the Invert Image property, refer to your application's user manual or the *VRS User's Manual*.

2.6.3 Noise Removal

This image filter reduces the noise (black spots) of images. Noise is caused by particles of carbon deposited from the printing by the copier or fax machine and by dirt and other foreign matter on the documents when they are scanned.

When noise is removed from the text areas, the dots over the letters "i" and "j" and other information may also be removed in error. To correct this, select a value larger than the gap between the dots and other parts for the minimum gap setting.

➲ Note

When the Noise Removal and Crop functions are applied to the same image, better results are yielded when Noise Removal is applied first. In order to obtain the optimum image quality and speed, it is recommended that the settings of the image filters be adjusted while scanning an actual document. Depending on the images being scanned, this filter may not function properly.

3.0 Using QuickScan with the ISIS Driver

This section contains the standard procedures for setting the parameters for the way in which documents are scanned using QuickScan Pro with the ISIS driver.

This section contains the following topics:

➲ **Note**

> For detailed information on using the functionality described in this section, refer to your application's user manual.

To select the ISIS driver:

1. Select **Select Scanner** from the **Scan** menu.

2. Click **Bowe Bell + Howell 3200** from the **Select Scan Source** drop-down list, click the **OK** button, and then proceed to .

The Preview Settings window is where you can configure your scanning preferences. You can specify if you want to scan in color or black and white, image quality, page layout and more.

To view the Preview Settings window:

1. Select **Preview Settings** from the **Scan** menu.

   The Preview Settings window appears.
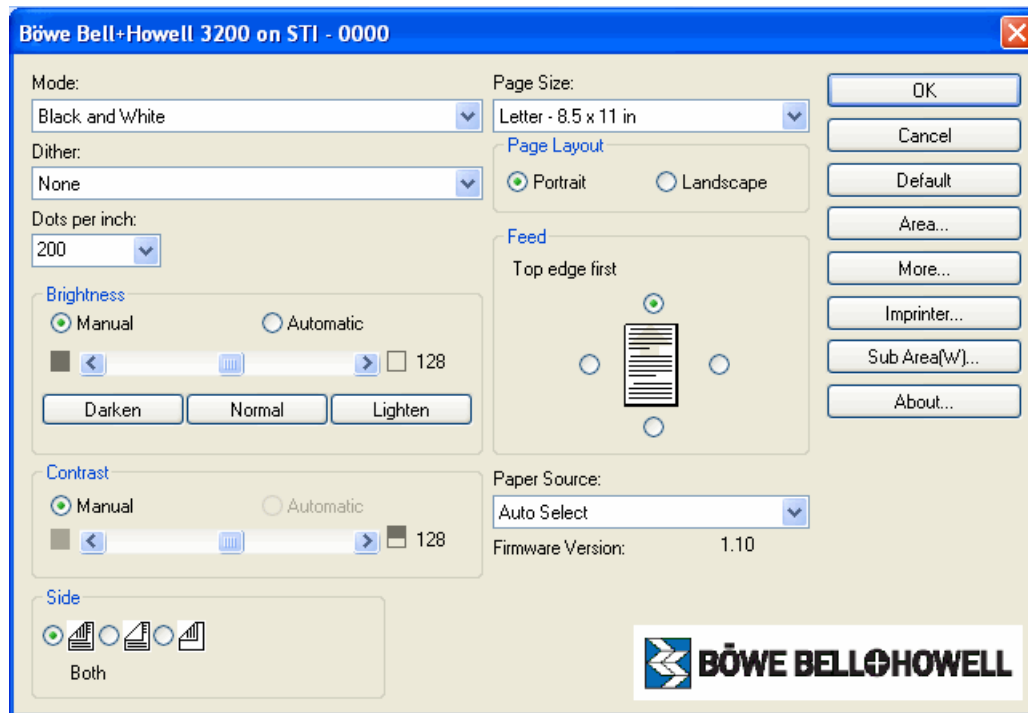
3.1.1 Mode

The Mode drop-down list provides multiple scanning modes. Table 6, "Mode Options and Descriptions" lists the available mode options and their descriptions.

Mode	Description
Black and White	Bitonal, image is threshold to either black or white
256-Level Gray	High quality image, large file size, image is threshold to 256 shades of gray
24-bit Color	High quality image, large file size, image is threshold to 24-bit color
Binary&Color	Image output is dual bitonal and 24-bit color
Binary&Gray	Image output is dual bitonal and 256 shades of gray

Table 6: Mode Options and Descriptions

3.1.2 Dots per inch

This function specifies the resolution *DPI* (dots per inch) for the main and subdocument scanning parameters. The available resolution setting ranges are 100 to 600 dpi. The typical dpi setting is 200 for bitonal documents and 150 for color documents.

When the resolution is increased, the image becomes clearer. However, the image file size increases, PC HDD (Hard Disk Drive) free space decreases and additional scanning time increases. For regular high dpi scanning, you may consider purchasing a memory upgrade kit to increase the scanning speed.

3.1.3 Dither

The Dither mode is primarily used for black and white photographs. It accelerates scanning speed by transforming a grayscale image to a black and white image. The first and least apparent adjustment can be made with the Error Diffusion filter, then a little more with Bayer Dither 64, then Bayer Dither 16, 45 deg. Halftone, and finally, for the most extreme transformation, 0 deg. Halftone.

➔ Note

> Error Diffusion cannot be used when Autocrop, Deskew or Dynamic Threshold are selected.

You can also use the User Download option to select a customized dither pattern. For information on creating custom dither patterns, refer to the next section, .

3.1.3.1 Custom Dither (Halftone) Patterns

Using the ISIS driver, the Halftone (dither) patterns can be customized. This function specifies the *DPI* (dots per inch) for the main and subdocument scanning parameters. The available resolution setting ranges are 100 to 600 dpi. The typical dpi setting is 200 for bitonal documents and 150 for color documents . When the resolution is increased, the image becomes clearer. However, the image file size increases, PC HDD (Hard Disk Drive) free space decreases and additional scanning time increases. For regular high dpi scanning, you may consider purchasing a memory upgrade kit to increase the scanning speed.

When setting the dpi, you can either select a preset number from the drop-down list or type in the desired dpi.

➔ Note

> When using either the Black and White, Binary&Color or Binary&Gray mode, the color or gray image resolution can be set to a ratio of 111**,** 112, 113 or 714 dpi of the black and white resolution. However, the color resolution cannot be set outside the 100 to 600 dpi range. See details on the MultiStream mode within the ISIS scanning software application or .

You can create custom dither patterns using Windows Notepad or Wordpad which you can upload to your scanning application. The dither pattern should follow the format in Table 7, "Dither (Halftone) Pattern Format". Once you have finished creating the file, save it with the file extension .pxh.

.

Line Number	Description
1	Name - Do not use
2	Table size - input 8x8
3	Input 8 slice levels of the first column with the spaces between them
4	Input 8 slice levels of the second column with the spaces between them
10	Input 8 slice levels of the eighth column with the spaces between them

Table 7: Dither (Halftone) Pattern Format

➲ **Note**

> When setting the slice date, "0" is the brightest setting and "255" is the darkest.

3.1.4 Brightness

The Brightness function adjusts the image brightness. There are 3 preset modes - Darken, Normal and Lighten. When the brightness is set to be darkened, light colored characters and objects are easier to see. Alternately, when the slide is selected to be lightened, fine dots or noise are eliminated. A balance between eliminating the unwanted dots and document quality can be manually set. The range is between 1 and 255 with a default setting of 128.

➲ **Note**

> For details on how to set the scanning brightness automatically in the Black and White mode, refer to "2.4.4 Binary Dynamic Threshold" on page 18.

> There are independent back and front side settings for the brightness.

3.1.5 Contrast

The Contrast function sets the contrast between black and white images. When using a Dither (Halftone) pattern or Grayscale or Color mode, the values between dithers and contract are interactive. The values from 1 to 255 can be set, the default setting being 128. The lower the contrast setting, the more delicate in texture or grain the image will be. Conversely, the higher the contrast value, the sharper the image will be.

➲ **Note**

> Like the brightness manual setting, the contrast can be independently set for the front and back sides of the document.

3.1.6 Side

This section allows you to choose if your documents are scanned single-sided (one side only) or duplex (front and back).

⮕ **Note**

> When ADF and Duplex are selected, both sides of the document are scanned, but the top loaded side is output to the PC first followed by the back side.

3.1.7 Page Size

Use the Page Size option to specify the size of the documents to be scanned.

⮕ **Note**

> Changing the page size initializes the "3.4 Scan Area" and "3.5 Sub Area". Ensure that the page size and feed are set before adjusting the Sub Area**.**

3.1.8 Page Layout

The Page Layout section is used to specify the layout in which the documents scanned are to be displayed on the computer screen. Setting the Page Layout also determines how the documents are saved. The choices are Portrait and Landscape.

⮕ **Note**

> Changing the page size initializes the Scanning Area and Sub Area. Complete the settings before selecting these items. If Automatic Crop or Detect Paper Width has been set, the page size cannot be set or the setting becomes invalid.

3.1.9 Feed

The Feed section allows you to choose which edge of the document is to be fed first in the ADF (Automatic Document Feeder); the choices are Portrait (top or bottom) and Landscape (right or left).

3.1.10 Paper Source

The Paper Source function selects the paper side(s) to be scanned. If the scanner flatbed is selected, the only option is simplex. Selections include: Auto Select, Flatbed, ADF Simplex or ADF Duplex.

When using the Auto Select option, the scanner first looks to see if a document is present in the ADF (Automatic Document Feeder). If not, then the default is set to the flatbed*.* Check your scanning application to determine if this is available.

When ADF and Duplex are selected, both sides of the document are scanned, but the top loaded side is output to the PC first followed by the back side.

The More Settings window allows you to set how the documents will be fed into the scanner, whether they will be scanned in color or grayscale, and if they will be feed manually or automatic.

To view the More Settings window:

1. Select **Preview Settings** from the **Scan** menu.

2. Click the **More** button on the Preview Settings window.

   The More Settings window appears.
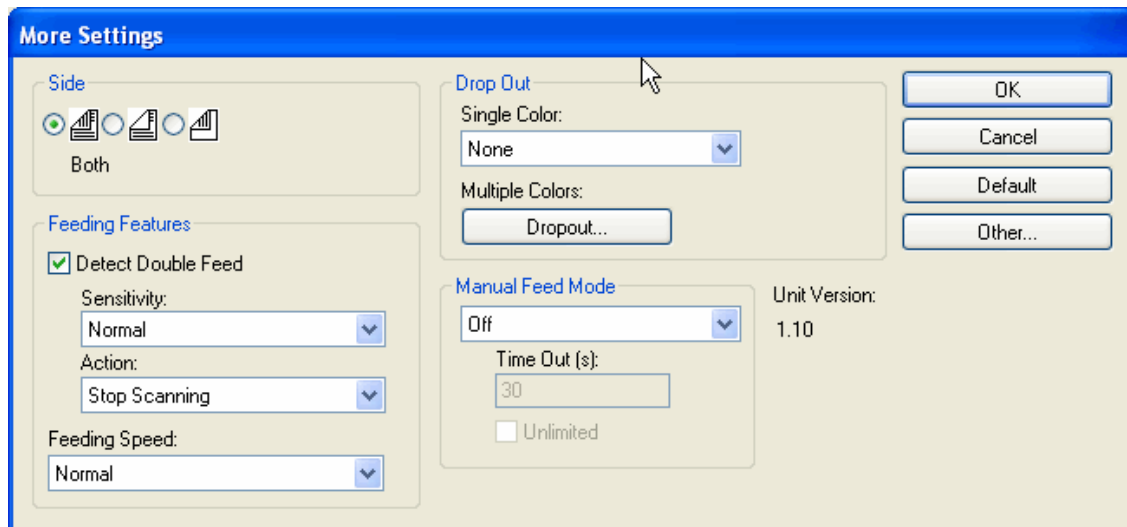
3.2.1 Side

For information on the Side property, refer to your application's user manual.

3.2.2 Detect Double Feed

This function detects the feeding of more than one sheet at a time. Ultrasonic waves are aimed at the document to detect double feed by the level at which the waves pass through the sheets. This function can detect double feed even when sheets are superimposed exactly on top of each other, but it may not detect properly with some paper thicknesses and when creasing and other factors are present. The default for Detect Double Feed is ON.

 If a double feed is detected, you can opt to be notified. The default setting for this function is Stop.

➮ Note

- When important documents are to be scanned, check the number of document sheets and the number of scanned image sheets.
- When scanning a document containing paper in different sizes, double feed can be detected when this function is selected.

3.2.3 Feeding Speed

There are two settings for the Feeding Speed; Slow and Normal. It is recommended that you select Slow when scanning thin paper, badly creased paper, fragile paper, etc. In this mode, documents are fed at about one-half of the speed as in the Normal mode. Scanning documents in Slow mode does not affect image quality.

➲ **Note**

- At a resolution above 300 dpi, the paper is fed at the same speed as in the Normal mode, even if the Slow mode has been specified.
- This function cannot be used with flatbed scanning.

3.2.4 Single Color Dropout

For information on the Single Color Dropout property, refer to the *Trūper Operator Manual*.

3.2.5 Multiple Color Dropout

For information on the Single Color Dropout property, refer to the *Trūper Operator Manual*.

3.2.6 Manual Feed Mode

For information on the Manual Feed Mode property, refer to your application's user manual.

3.2.7 Time Out

For information on the Time Out property, refer to your application's user manual.

The Other Settings window is used to set the properties for advanced scanning preferences.

To modify the More Settings window:

1. Select **Preview Settings** from the **Scan** menu.

2. Click the **More** button on the Preview Settings window.

3. Click the **Other** button on the More Settings window.

   The Other Settings window appears.
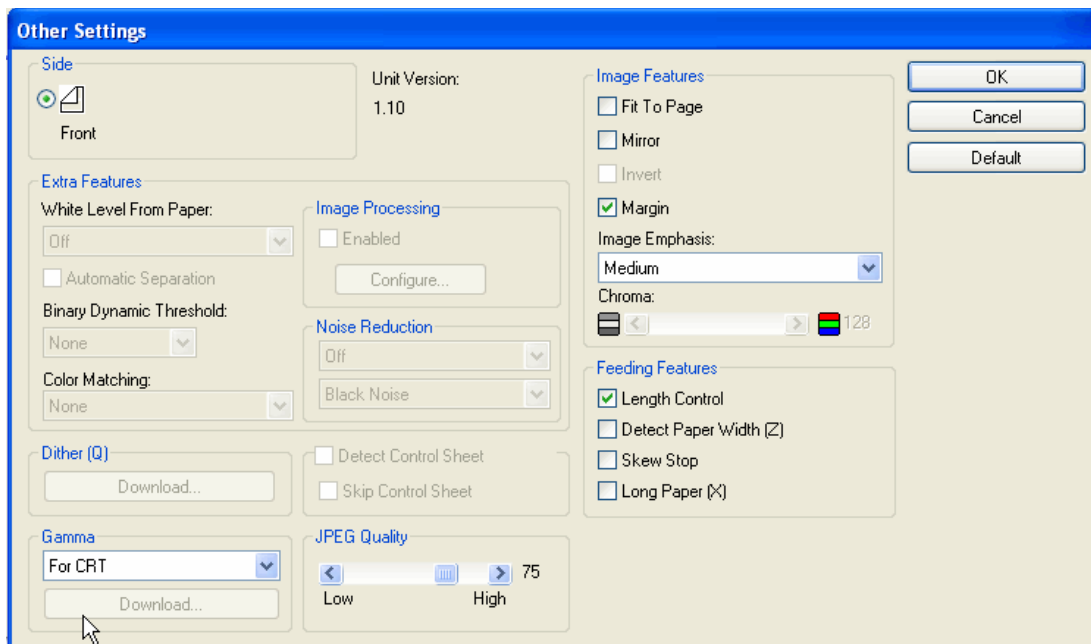
Refer to <u>"2.4 Other Settings" on page 17</u> for detailed information about this window.

The Scan Area option allows a selected portion or region to be scanned, rather than the entire document. The scanning area is specified by the start position X (horizontal) and Y (vertical) from the top left corner of the paper, the image width and the length.

⊃ **Note**

> The scanning area function cannot be used at the same time as Automatic Crop, Deskew, Margin, Detect Paper Width, Control Sheet or Length Control.
>
> In the case of duplex scanning, only X can be set separately for the front and back.

To access the Scan Area window:

1. Select **Preview Settings** from the **Scan** menu.

2. Click the **Area** button on the Preview Settings window.

   The Scan Area window appears.
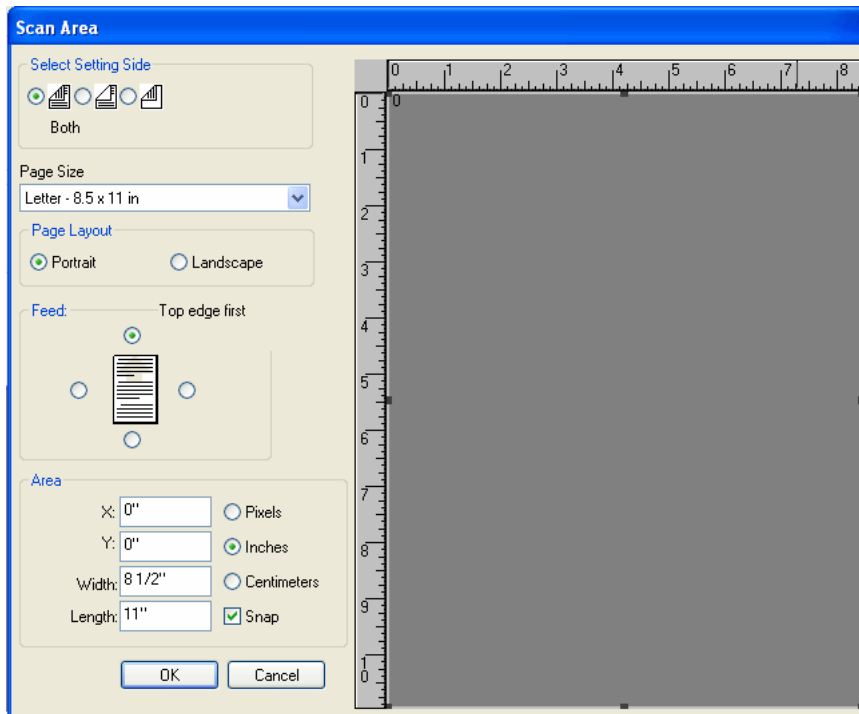
3.4.1 Select Setting Side

For information on the Select Setting Side property, refer to your application's user manual.

Use the Page Size option to specify the size of the documents to be scanned.

➲ **Note**

> Changing the page size initializes the "3.4 Scan Area" and "3.5 Sub Area". Ensure that the Page Size and Feed properties are set before adjusting the Sub Area.

3.4.3 Page Layout

The Page Layout section is used to specify the layout in which the documents scanned are to be displayed on the computer screen. Setting the Page Layout also determines how the documents are saved. The choices are Portrait and Landscape.

➲ **Note**

> Changing the page size initializes the Scanning Area and Sub Area. Complete the settings before selecting these items. If Automatic Crop or Detect Paper Width has been set, the page size cannot be set or the setting becomes invalid.

3.4.4 Feed

The feed section allows you to choose which edge of the document is to be fed first in the ADF (Automatic Document Feeder); the choices are Portrait (top or bottom) and Landscape (right or left).

3.4.5 Area

For information on the Area properties, refer to your application's user manual.

The Sub Area function enables separate scanning conditions to be set in one part of the scanning range. For example, if there is a region of the document that consistently contains a color graphic, you can achieve better scanning results by specifying the whole page in Black and White mode and then specifying the photo area as a Halftone.

⇒ Note

The Sub Area function can be used only when Image Type is set to the Black and White (Bitonal) mode. It cannot be used when Margin, Detect Paper Width, Dynamic Threshold, Automatic Separation, Automatic Crop, Deskew or Noise Reduction have been set. (Even if it can be set, the setting is ignored.)

Only one type of Halftone (dither) pattern can be configured. Three areas can be specified for each scanning side.

To access the Scan Area window:

1. Select **Preview Settings** from the **Scan** menu.

2. Click the **SubArea(W)** button on the Preview Settings window.

   The Sub Area window appears.
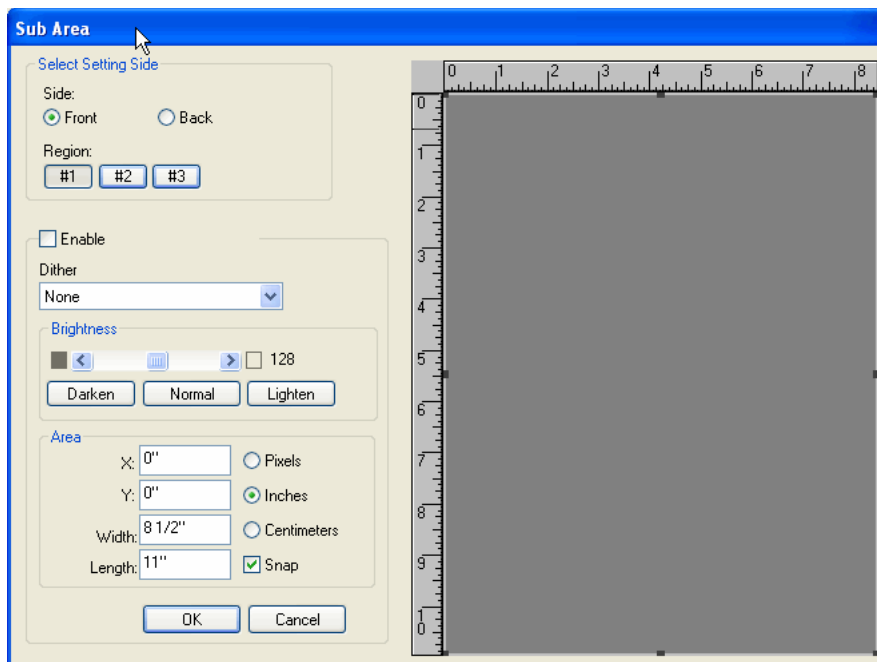
3.5.1 Side

For information on the Side property, refer to your application's user manual.

3.5.2 Dither

The Dither mode is primarily used for black and white photographs. It accelerates scanning speed by choosing one of the five preset dither patterns described in "3.1.3 Dither" on page 28.

3.5.3 Brightness

For information on the Brightness property, refer to "3.1.4 Brightness" on page 29.

3.5.4 Area

For information on the Area properties, refer to your application's user manual.

3.6 Image Filters

The following image filters are provided with the ISIS driver. For information about filters not described in this manual, refer to your application's user manual.

Filter	Description
Barcode Detection	Recognized barcodes
Border Removal	Removes the black areas around the images
Crop	Removes the white areas around the images
Deskew	Corrects the skew
Dilation	Makes the characters thicker, etc.
Erosion	Makes the characters finer, etc.
Halftone Removal	Removes the halftones
Hole Removal	Removes the images of punched holes
Image Scaling	Enlarges or reduces the image size
Invert Image	Converts white into black and vice versa
Line Removal	Removes the lines
Noise Removal	Reduces the noise
Patchcode Detection	Recognizes patchcodes
Rotation	Rotates the images in 90-degree increments
Skeleton	Turns images into fine lines
Smooth	Removes protrusions and indentations from text as well as lines

Table 8: Image Filters and Descriptions

More than one image filter can be set at a time. However, as additional filters are added, the scanning speed may decrease.

⮨ **Note**

Image filters can be used only in the Black and White mode.

To add image filters in QuickScan:

1. Click **New Batch** on the **Scan** menu.

   The New Batch window appears.

2. Select a profile from the list and then click the **Add** button. Depending on the option you choose, some filters may or may not be available.

3. Click the **Image Processing** tab in the Profile Editor window.

4. Select the **Image processing during scan** check box if it is not already selected.

5. Select the desired image filter from the **Available Filters** list box, and then click the **Add** button.

   The image filter is added to the **Selected Filters** list box.

6. If the **Configure** button is enabled, click it to adjust the filter's settings.

   For more detailed information on the available filters, refer to the *Image Filter* help or the application's user manual.

To remove image filters in QuickScan:

1. Click **New Batch** on the **Scan** menu.

   The New Batch window appears.

2. Select a profile from the list and then click the **Add** button.

3. Click the **Image Processing** tab in the Profile Editor window.

4. Select the desired image filter from the **Selected Filters** list box, and then click the **Remove** button.

   The image filter is removed from the **Selected Filters** list box.

⮨ **Note**

If you would do not want to apply any filters, clear the **Image processing during scan** check box, and then click the **OK** button.

To modify the sequence in which the filters are to be applied:

1. Click the desired filter from the Selected Filters list box and use the ⬆ and ⬇ to position the filter appropriately.

2. When finished, click the **OK** button.

This image filter recognizes the barcodes in the scanned images. Refer to the scanning application's operating manual how to use the barcode. If the barcodes cannot be recognized properly, the quality of the scanned images can be improved by using another image filter, examples of which are given in Table 9, "Example of Image Filters with Descriptions".

Property	Description
Deskew	Straightens out the image skew
Noise Removal	Reduces the image noise
Line Removal	Restores the barcode lines
Smooth	Smooths out the barcode lines

Table 9: Example of Image Filters with Descriptions

In order to obtain the ideal image quality and speed for barcode detection, it is recommended that the settings of the image filters be adjusted while scanning a test document.

Barcode Property	Description
Symbologies to check	If the barcode type is known ahead of time, clear the check boxes at the sides of the barcode types which will not be used. The fewer barcodes selected, the faster the processing.
Orientation	When Horizontal or Vertical is selected, barcodes inclined less than 15 degrees from the horizontal or vertical are detected. Use Diagonal to recognize barcodes inclined at a greater angle. Vertical barcodes are detected slightly more slowly. Recognizing inclined barcodes adds additional processing time. If the barcode orientation is known ahead of time, the processing speed is improved by selecting only the required orientation. Conversely, if the barcode orientation is not known, all the orientations must be selected.
Decode Symbol	The data does not appear as ASCII character strings with some barcode types such as Code128. Special characters are used for Code39 and other barcode types. When the **Decode Symbol** check box is selected, the data of these barcodes is changed into readable ASCII character strings. **Note:** It is recommended that Decode be enabled unless it is clear that the barcode detection results must not be converted into ASCII character strings.

Table 10: Barcode Properties and Descriptions

3.6.2 Crop

This image filter removes the white margins around images. The dimensions of the white margins to remain at the top, bottom, left and right can be set separately. Furthermore, by selecting the **Force Symmetry** check box, the same dimensions can be left at the top, bottom, left and right.

➡ Note

The Cropping image filter does not work properly when there is black noise in the margins of the images. To correct this, specify the Noise Removal image filter before specifying the cropping image filter (refer to).

3.6.3 Dilation

This image filter enlarges the black areas. When it is used, the image quality and legibility of the text are improved.

Property	Description
Number of passes	Input the number of times the Dilate image filter is to be applied. When this number is increased, the text and patterns appear thicker. Normally, a setting of "1" is sufficient.
Diagonal	The four pixels on the diagonals around the black pixel in the center are replaced with black.
Horizontal	The two pixels at the left and right of the black pixel in the center are replaced with black.
Vertical	The two pixels at the top and bottom of the black pixel in the center are replaced with black.

Table 11: Dilation Properties and Descriptions

3.6.4 Erosion

This image filter makes the black areas smaller. When it is used, some information of the image's detailed areas is lost.

Property	Description
Number of passes	Input the number of times the Erode image filter is to be applied. When this number is increased, the text and patterns appear finer. Normally a setting of "1" is sufficient.
Diagonal	The four pixels on the diagonals around the white pixel in the center are replaced with white.
Horizontal	The two pixels at the left and right of the white pixel in the center are replaced with white.
Vertical	The two pixels at the top and bottom of the white pixel in the center are replaced with white.

Table 12: Erosion Properties and Descriptions

3.6.5 Halftone Removal

This image filter removes the background and shading of images.

➡ Note

Depending on the images to be scanned, the Halftone Removal function may not work properly.

3.6.6 Hole Removal

This image filter searches for and removes the images of punched holes or any patterns that resemble punched holes from one edge of the images.

- Set the reference plate and flatbed sheet to black when using the Hole Removal function (refer to the *Trūper Operator Manual* for information on changing the background color reference plates.

➡ Note

- Punched holes are not removed unless they are neatly round.
- If text is superimposed on the punched holes, the holes are not removed.
- Depending on the images to be scanned, the Hole Removal function may not work properly.

3.6.7 Invert Image

This image filter converts the white pixels into black pixels and vice versa.

This image filter reconstructs or removes the ruled lines on images. This function can be used to improve OCR results.

Property	Sub-property	Description
Mode		
	Remove lines	The lines are detected and removed.
	Repair	First, the lines are detected and removed. Next, the text and/or patterns superimposed on the removed lines are restored.
	Reconstruct	First, the lines are detected and removed. Next, the text and/or patterns superimposed on the removed lines are restored. Lastly, straight lines are then redrawn at the same locations as the removed lines.
	Remove Form	First, the lines are detected and removed. Next, straight lines are redrawn at the same locations. Lines which are considered to be parts of ruled lines are joined to each other.
Horizontal/ Vertical		
	Enable	This setting enables the processing of the horizontal and vertical lines.
	Straight line algorithm	This setting is for detecting straight lines. When used, the ability to detect straight lines is improved. When this check box is selected, the minimum length, maximum gap and curvature settings are ignored.
	Min Length	The minimum length to be detected is specified here. Inches, millimeters or points can be used as the unit for the setting. Input "mm" or "pt" after the number, respectively. A fraction such as 1/2 can also be specified as the number.
	Max Gap	The gap between adjacent lines is specified here. Two lines with a gap which is less than the one specified in between is treated as one line. Inches, millimeters or points can be used as the unit for the setting. Input "mm" or 'pt' after the number, respectively. A fraction such as 1/2 can also be specified as the number.
	Curvature	A curvature to be treated as a straight line is specified here. **Note:** Depending on the images to be scanned, the Line Removal function may not work properly.

Table 13: Line Removal Properties and Descriptions

This image filter reduces the noise (black spots) of images. Noise is caused by particles of carbon deposited from the printing by the copier or fax machine and by dirt and other foreign matter on the documents when they are scanned.

When noise is removed from the text areas, the dots over the letters "i" and "j" and other information may also be removed in error. To correct this, select a value larger than the gap between the dots and other parts for the minimum gap setting.

➲ **Note**

> When the Noise Removal and Crop functions are applied to the same image, better results are yielded when Noise Removal is applied first. In order to obtain the optimum image quality and speed, it is recommended that the settings of the image filters be adjusted while scanning an actual document. Depending on the images being scanned, this function may not function properly.

Property	Description
Max height	The maximum height of what is to be considered as noise is set here. Inches, millimeters or points can be used as the unit for the setting. Input "mm" or "pt" after the number, respectively. A fraction such as 1/1 00 can also be specified as the number.
Max width	The maximum width of what is to be considered as noise is set here. Inches, millimeters or points can be used as the unit for the setting. Input "mm" or "pt" after the number, respectively. A fraction such as 1/1 00 can also be specified as the number.
Max area	The area which is smaller than a percentage of the area defined by Maximum Height and Maximum Width is to be considered as noise. This percentage is set here. Normally, a setting of 100 is selected.
Min separation	The gap between what is considered as noise and other characters, etc. is set here. When the gap is too small, the dots over the letter "i" and other marks are considered as noise and removed. Inches, millimeters or points can be used as the unit for the setting. Input "mm" or "pt" after the number, respectively. A fraction such as 1/4 can also be specified as the number.

Table 14: Noise Removal Properties and Descriptions

3.6.10 Patchcode Detection

This image filter detects the patchcodes on the images and decodes them. If a patchcode cannot be recognized satisfactorily, the quality of the scanning images can be improved by using other image filters. For instance, the filters listed below can be used:

Deskew	Straightens out the image skew
Noise Removal	Reduces the image noise
Line Removal	Restores the patchcode lines
Smooth	Smooths out the patchcode lines

➡ Note

In order to obtain the optimum image quality and speed, it is recommended that the settings of the image filters be adjusted while scanning an actual document.

3.6.11 Rotation

This image filter rotates the images in 90-degree and 180-degree increments. It can be used to rotate images either clockwise or counterclockwise. Mirror processing can also be executed at the same time as Rotation.

3.6.12 Scaling

Image Scaling enlarges or reduces the size of the images. When the image width and height are specified, the image size is changed accordingly while retaining its original width-to-height ratio. If the width-to-height ratio specified differs from the image's original width-to-height ratio, the image size is changed to the maximum size that the width-to-height ratio can be retained within the specified width and height.

Even when the image size is changed using this function, the image's original width–to–height ratio is always retained.

3.6.13 Skeleton

This image filter reduces black areas down to a *skeleton*, the thickness of a single pixel. When it is used, the images become grossly distorted. It is normally used only when so required by OCR (Optical Character Reading) or some other application.

➡ Note

When this function is used for photo images, processing takes time increases greatly.

This image filter removes the protrusions and indentations appearing in characters and patterns. When five or six surrounding pixels have a different color, this function inverts the pixel concerned. It enables the size of files to be reduced when they are compressed with no accompanying loss of image information.

Property	Description
Trim First	The black pixels are processed before processing the white pixels.
Corner Black	The protruding black pixels in the corners are removed.
Corner White	The protruding white pixels in the corners are removed. **Note**: The pixel processed is the one which is surrounded by five or six pixels with the opposite color. Both white and black pixels are processed.

Table 15: Smoothing Properties and Descriptions

4.0 Using Adobe Acrobat with the TWAIN Driver

This section contains the standard procedures for setting the parameters for the way in which documents are scanned using Adobe Acrobat with the TWAIN driver.

This section contains the following topics:

➲ **Note**

- For detailed information on using the functionality described in this section, refer to your application's user manual.
- This section is for use with Adobe Acrobat 7.0 Standard.

To select the TWAIN driver:

1. Open Adobe Acrobat.

2. Select **Create PDF** from the **File** menu, and then select **From Scanner**.

   The Create PDF from Scanner window appears.
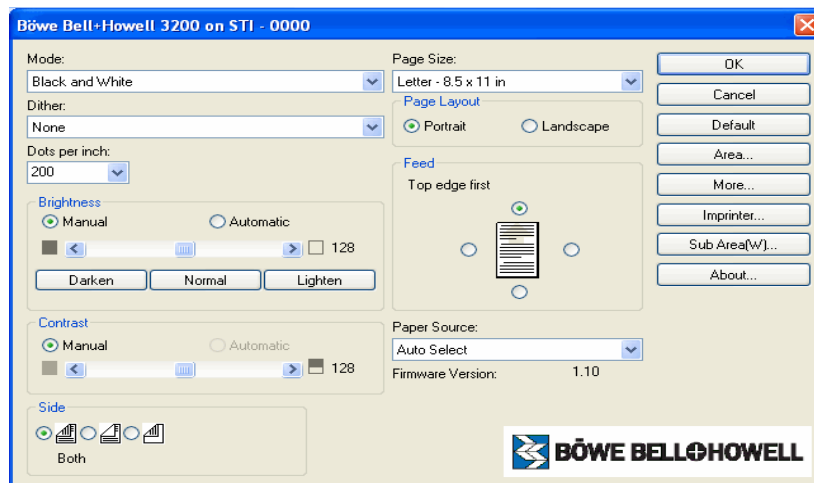
   For information on the properties in this window refer to .

3. Click **Kofax Software VRS-TWAIN** from the **Scanner** drop-down list, and then click the **Scan** button. Proceed to the next section .

The Kofax VRS properties window allows you to specify how documents are to be scanned, the resolution in which they are scanned, page orientation, color preferences, and whether the documents are scanned in simplex or duplex mode.
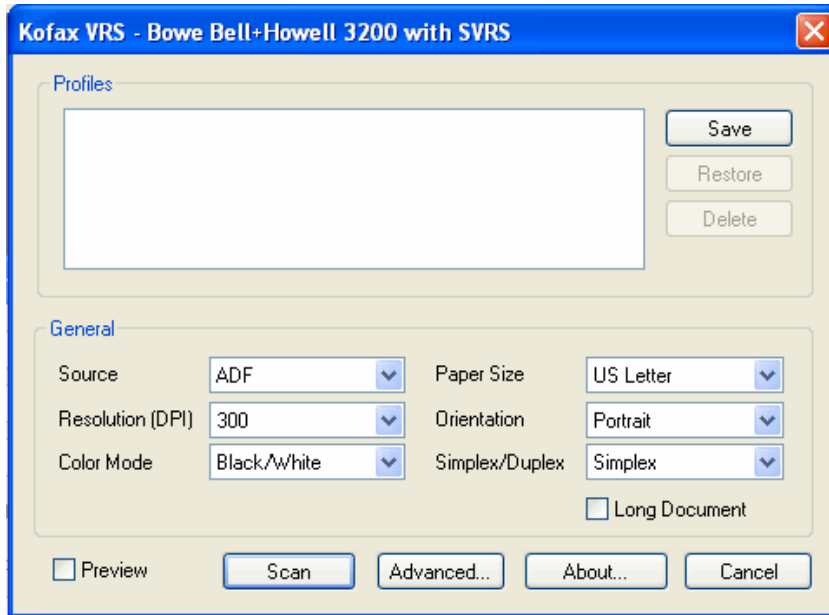
4.1.1 Source

The Source drop-down list is used to select how the document is to be scanned. If Flatbed is selected, documents are scanned from the glass and can only be scanned Single-sided.

If ADF (Automatic Document Feeder) is selected, documents are scanned from the loading tray. When ADF and Duplex are selected, both sides of the document are scanned, but the top loaded side is output to the PC first followed by the back side.

4.1.2 Resolution (DPI)

This function specifies the resolution DPI (dots per inch) for the main and subdocument scanning parameters. The available resolution setting ranges are 100 to 600 dpi. The typical dpi setting is 200 for bitonal documents and 150 for color documents.

When the resolution is increased, the image becomes clearer. However, the image file size increases, PC HDD (Hard Disk Drive) free space decreases and additional scanning time increases. For regular high dpi scanning, you may consider purchasing a memory upgrade kit to increase the scanning speed.

4.1.3 Paper Size

Use the Paper Size option to specify the size of the documents to be scanned. Refer to the *Trūper Operator Manual* for a list of page sizes.

4.1.4 Color Mode

The Mode drop-down list provides multiple scanning modes. Table 16, "Mode Options and Descriptions", lists the available mode options.

Mode	Description
Black/White	Bitonal, image is threshold to either black or white
RGB	High quality image, large file size, image is threshold to 24-bit color
Grayscale	High quality image, large file size, image is threshold to 256 shades of gray

Table 16: Mode Options and Descriptions

For information on the Single-sided property, refer to your application's user manual.

4.1.5 Orientation

The Orientation section is used to specify the layout in which the documents scanned are to be displayed on the computer screen. Setting the Orientation also determines how the documents are saved. The choices are Portrait and Landscape.

4.1.6 Simplex/Duplex

For information on the Duplex property, refer to your application's user manual.

⭢ Note

When ADF and Duplex are selected, both sides of the document are scanned, but the top loaded side is output to the PC first followed by the back side.

4.2 Advanced Properties

If you have VirtualReScan (VRS) installed on your computer, you can set advanced features such as noise reduction, skewing, brightness and so on.

To view the advanced features with VRS:

1. Open Adobe Acrobat.

2. Select **Create PDF** from the **File** menu, and then select **From Scanner**.

3. Click **Kofax Software VRS-TWAIN** from the **Scanner** drop-down list on the Kofax VRS window, and then click the **Scan** button.

4. Click the **Advanced** button.

   The VRS VirtualReScan Interactive view opens. For information on the VRS advanced features, refer to "2.2 Advanced Settings" on page 13, and "2.6 Image Filters using VRS Adjustment Controls" on page 24.