



software to help you get
the most from your images

version 7

User Guide

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Mirror® PhotoTools User Guide

This user guide details functionality specific to the Mirror PhotoTools module. Please refer to the *PhotoFile Medical Image Management User Guide* for information on the core image management functions (installation, storage/retrieval, printing, etc.). If you have purchased additional modules such as *Aesthetic Simulation*, *Skin Rejuvenation*, or *Body Mapping*, please refer to the separate documentation for those modules.

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CHAPTER 1

Tethered Image Capture

1.1 ABOUT TETHERED IMAGE CAPTURE

Tethered digital cameras

A “tethered” camera is connected to the computer during image capture to provide direct communication between the camera and the software. (*Note:* This is not the same as connecting the camera to the computer after image capture in order to transfer images.)

The following camera/operating system combinations are supported for tethered capture:

CAMERA MODEL	WINDOWS OS			LIVE PREVIEW
	XP*	VISTA	7/8	
Canfield VECTRA H1			•	•
Canon PowerShot G7, G9, G10, S3IS	•	•	•	•
Canon EOS 50D	•	•	•	•
Canon Rebel T1i, T2i, T3i, T4i, T5i, SL1			•	•
Nikon D70, D70s, D80	•			
Nikon D90, D800, D7100	•		•	•

*Mirror software versions 7.3.8 and higher can be installed *only* as an upgrade in Windows XP environments, not as a new installation.

A tethered camera may be controlled either partially or completely from within the software, and images are captured directly into the software.

Video source Digital still images or motion video clips may be captured from video sources such as camcorders, video microscopes, endoscopes and VCRs. Devices that offer digital video output may be connected directly to the computer (typically via IEEE-1394/FireWire). Other video sources may require an analog-to-digital video converter.


For details on using video sources, see Section 1.3.

1.2 TETHERED CAPTURE WITH DIGITAL STILL CAMERAS THAT DO NOT PROVIDE LIVE VIDEO PREVIEW

Mirror's tethered capture feature for digital still cameras that do not provide live video preview currently supports the Nikon D70 and D80 cameras only. Images from these cameras may be captured directly into Mirror via a USB connection.

Note: You must have Windows XP to use this feature.

Connecting the camera to the computer

- 1 Plug the small end of the USB cable into the USB connector on the side of the camera. The connector is marked with the  symbol.
- 2 Plug the large end of the USB cable into an available USB port on your computer.

Capturing images

- 1 Be sure there is a memory card in the camera.
- 2 Be sure the USB setting on the camera is set to PTP (*not* MASS STORAGE).

1.2 Tethered digital still camera with no live video preview



3 Open or create a patient chart.

4 Select CAPTURE IMAGES from the CAPTURE menu.

5 On the Capture window, select the desired camera settings template from the SETTINGS drop-down list. (See *Settings Templates* later in this section for information on using and editing Settings Templates.) *Note:* If a setting on the camera is inconsistent with the selected settings template, a prompt appears onscreen indicating the setting that must be changed on the camera. For example, the settings template for Studio Capture requires that the

AE MODE on the camera be set to Aperture Priority (A). If it is set to Manual (M), you should set it to A before proceeding with image capture.

6 Be sure the flash unit or studio strobes are turned on and properly adjusted.


7 Frame and focus the image.

8 Click  CAPTURE to capture the image.

Viewing and deleting images

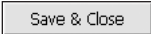
1 As each image is captured, it appears in the preview area and a small thumbnail of the image is added to the captures list. The most recently captured image is automatically selected.

2 If necessary, click on the appropriate icon to rotate the image 90 degrees  left or  right.

3 If you are satisfied with the image, repeat Steps 6 and 7 above to capture additional images. If you are unsatisfied with the image, click on  to delete the image.



IMPORTANT: Once an image has been deleted from the captures list, it cannot be recovered.

4 When you are finished capturing images, click  SAVE & CLOSE to exit the capture tool.

1.3 CAPTURING STILL IMAGES FROM A VIDEO SOURCE

There are several ways that a video device may be connected to the system.

- A digital video device may be connected directly to the computer (typically via FireWire).
- An analog video device may be connected to the computer indirectly through a video converter. The video converter makes the analog device appear as if it were a digital video source.
- On some older Mirror systems, an analog video device is connected to the computer through either a Targa 2000 or an Integral Flashpoint 128 video capture card.



IMPORTANT: You must have DirectX (included on the installation CD) installed on your computer to use a digital video source.


The Digital Video Capture tool

The Digital Video Capture tool provides a live video preview from a digital video source and enables the capture of still images from the video stream. *Note:* If you will be capturing post-op images corresponding to a previously captured series of pre-op images, or you wish to use a capture sequence, follow the steps under *Capturing pre-op images with a digital video camera*.

- 1** Make sure the digital video source is turned on and properly connected to the computer.
- 2** Open or create a patient chart. (If a patient chart is not open, images will be captured to the Image Gallery.)
- 3** Select DIGITAL VIDEO CAPTURE from the CAPTURE menu.
- 4** Using the live video preview, focus and frame the image as desired.
- 5** Left-click or press SPACEBAR to freeze the image. Left-click or press SPACEBAR again to accept the image. The screen returns to live preview mode. Adjust the patient and/or camera and repeat steps 4 and 5 as needed for additional images.
- 6** When finished capturing images, right-click or press ESC to exit the Digital Video Capture tool.

Capturing pre-op images with a digital video camera

The Pre-op Capture tool helps standardize photography by presenting a series of standard image templates (a sequence) that you may choose to use during image capture. (Refer to *Customizing Pre-op image sequences* in Section 1.8 for information on editing image sequences.) In addition, the Pre-op Capture tool provides a grid overlay to assist with patient positioning.

- 1** Make sure the video source is turned on and properly connected to the computer.
- 2** Select SET TOOL OPTIONS from the OPTIONS menu.
- 3** Select the PRE-OP/POST-OP tab. In the SELECT VIDEO DRIVER field, be sure DIRECTX VIDEO is selected.
- 4** In the SELECT CAPTURE SEQUENCE field, select a sequence from the drop-down list, or select STANDARD GRID to capture images without a sequence. (To browse to a folder containing capture sequences, click the CHANGE DIRECTORY button. Check “Save Directory Setting” if you will select sequences from this directory in the future.)
- 5** If you selected Standard Grid, you can specify the number of horizontal and vertical grid lines to be displayed onscreen during image capture.
- 6** Open or create a patient chart. (If no patient chart is open, images will be captured to the Image Gallery.)
- 7** Select PRE-OP CAPTURE from the CAPTURE menu, or click the  PRE-OP CAPTURE button on the toolbar.
- 8** A live video preview appears. If you selected a capture sequence, the first image template is displayed in the corner of the preview window, and a grid overlay appears on both the template and the preview. If you selected Standard Grid, only a grid overlay is displayed. The grid is for alignment purposes and does not appear on the final image.
- 9** Use the grid (and template, if one is displayed) as a guide to position the patient and frame the image.

10 Optional: Move the LIVE PREVIEW–ALIGNMENT IMAGE slider up and down to vary the intensity of the grid overlay.

11 When the patient is properly positioned, click CAPTURE.

12 If you are satisfied with the image, click ACCEPT IMAGE. If you are unsatisfied with the image, click RETAKE IMAGE, reposition the patient and click CAPTURE. *Note:* To skip a view in a capture sequence, click SKIP VIEW.

13 Repeat Steps 9 through 12 for each view you wish to capture. Click CLOSE to exit the Pre-op Capture tool. (If you are using a capture sequence, the Pre-Op Capture tool closes automatically when the last image in the sequence is captured.)

Capturing post-op images with a digital video camera

Using the Post-op Capture tool, you can capture a series of post-op images corresponding to a previously captured series of pre-op images. During image capture, the pre-op image is placed on top of the live video preview to assist in proper framing.

1 Make sure the video source is turned on and properly connected to the computer.

2 Select SET TOOL OPTIONS from the OPTIONS menu.

3 Select the PRE-OP/POST-OP tab. In the SELECT VIDEO DRIVER field, be sure DIRECTX VIDEO is selected.

4 Open the patient chart containing pre-op images you wish to match.

5 Click to select the pre-op images you wish to match. The order in which you select the pre-op images will be the order of the post-op capture sequence.

6 Select POST-OP CAPTURE from the CAPTURE menu or click the  POST-OP CAPTURE button on the toolbar.

7 Refer to the onscreen preview and use the LIVE PREVIEW–ALIGNMENT IMAGE slider to fade between the pre-op image and the live preview to align the two images. Adjust the patient’s position as needed so the images match.

8 Optional: Select PARTIAL IMAGE as the Overlay Mode to overlay the image in a center cross-pattern only.

9 When the live image is aligned with the pre-op image, click CAPTURE.

10 Refer to the screen and use the NEW IMAGE–ALIGNMENT IMAGE slider to fade between the pre-op and post-op images to verify alignment.

11 If you are satisfied with the image, click ACCEPT IMAGE. If you are unsatisfied with the image, click RETAKE IMAGE, reposition the patient and click CAPTURE. *Note:* To skip a view in a capture sequence, click SKIP VIEW.

12 Repeat Steps 7 through 10 for each view you wish to capture. Click CLOSE to exit the Pre-op Capture tool. (If you are using a capture sequence, the Pre-Op Capture tool closes automatically when the last image in the sequence is captured.)

1.4 TETHERED CAPTURE WITH A DIGITAL STILL CAMERA THAT PROVIDES LIVE VIDEO PREVIEW

Images from digital still cameras that provide live video preview may be captured directly into Mirror via a USB connection. See the chart on page T-1 for cameras with live preview that are supported by Mirror's tethered capture feature. **NOTE: You must be running Mirror on Windows XP Pro or higher to use the Pre-op and Post-op tools with a digital still camera.**

Connecting the camera to the computer

1 Uncover the USB port on the camera (see your camera's manual) and plug the small end of the USB cable into the USB port.

2 Plug the large end of the USB cable into an available USB port on your computer.

Capturing pre-op images

The Pre-op Capture tool helps standardize photography by presenting a series of standard image templates (a sequence) that you may choose to use during image capture. Refer to *Customizing Pre-op image sequences* in Section 1.8 for information on editing image sequences.

1 Make sure the camera is turned on and properly connected to the computer.

2 Select SET TOOL OPTIONS from the OPTIONS menu.

3 Select the PRE-OP/POST-OP tab. In the SELECT VIDEO DRIVER field, be sure DIGITAL STILL CAMERA is selected.

4 In the SELECT CAPTURE SEQUENCE field, select a sequence from the drop-down list, or select STANDARD GRID to capture images without a sequence. (To browse to a folder containing capture sequences,

click the CHANGE DIRECTORY button. Check “Save Directory Setting” if you will select sequences from this directory in the future.)

5 If you selected Standard Grid, you can specify the number of horizontal and vertical grid lines to be displayed onscreen during image capture.

6 Open or create a patient chart.

7 Select PRE-OP CAPTURE from the CAPTURE menu, or click the  PRE-OP CAPTURE button on the toolbar.

8 Select HORIZONTAL or VERTICAL from the SETTINGS drop-down list. (See *Settings templates for tethered digital still cameras* in Section 1.7 for more information.)

9 A live video preview appears. If you selected a capture sequence, the first image template is displayed in the corner of the preview window, and a grid overlay appears on both the template and the preview. If you selected Standard Grid, only a grid overlay is displayed. The grid is for alignment purposes and does not appear on the final image.

✔ To focus the live preview image when using the Canon 40D or 50D:

a) Press SET on the rear of the camera to activate the camera’s LCD screen.

b) Press AF-ON until you hear the autofocus confirmation beep.

✔ The on-screen slider control may be used to control a Canon PowerShot camera’s zoom lens.

10 Use the grid (and template, if one is displayed) as a guide to position the patient and frame the image.

1.4 Tethered digital still camera that provides live video preview

11 Optional: Move the LIVE PREVIEW–ALIGNMENT IMAGE slider up and down to vary the intensity of the grid overlay.

12 When the patient is properly positioned, click CAPTURE.

13 If you are satisfied with the image, click ACCEPT IMAGE. If you are unsatisfied with the image, click RETAKE IMAGE, reposition the patient and click CAPTURE. *Note:* To skip a view in a capture sequence, click SKIP VIEW.

14 Repeat Steps 10 through 13 for each view you wish to capture. Click CLOSE to exit the Pre-op Capture tool. (If you are using a capture sequence, the Pre-Op Capture tool closes automatically when the last image in the sequence is captured.)

Capturing post-op images

Using the Post-op Capture tool, you can capture a series of post-op images corresponding to a series of previously captured pre-op images. During image capture, the pre-op image is placed over the live video preview to assist in proper framing.


1 Make sure the camera is turned on and properly connected to the computer via a USB cable (see *Connecting the camera to the computer*). The ON indicator lights orange.

2 Select SET TOOL OPTIONS from the OPTIONS menu.

3 Select the PRE-OP/POST-OP tab. In the SELECT VIDEO DRIVER field, be sure DIGITAL STILL CAMERA is selected.

4 Open a patient chart containing pre-op images. (To locate a patient's record, click the PATIENT SEARCH tab and enter patient data. Double click on the record to open it.)

5 Click on the pre-op images you wish to match. The order in which you select the pre-op images will be the order of the post-op capture sequence.

6 Select POST-OP CAPTURE from the CAPTURE menu (or click the  POST-OP CAPTURE button on the toolbar). Note that the correct settings template is automatically selected, based on the settings used for pre-op capture.

7 Refer to the screen and use the live preview image to position the patient to match the pre-op image.



To focus the live preview image when using the Canon 40D or 50D:

a) Press SET on the rear of the camera to activate the camera's LCD screen.

b) Press AF-ON until you hear the autofocus confirmation beep.



The on-screen slider control may be used to control a Canon PowerShot camera's zoom lens.

8 Optional: Use the LIVE PREVIEW-ALIGNMENT IMAGE slider to fade between the two images. Select PARTIAL IMAGE for the Overlay Mode to overlay the image in a center cross-pattern only.

9 When the live image is aligned with the pre-op image, click CAPTURE.

10 Refer to the screen and use the NEW IMAGE-ALIGNMENT IMAGE slider to fade between the pre-op and post-op images to verify alignment.

11 If you are satisfied with the image, click ACCEPT IMAGE. If you are unsatisfied with the image, click RETAKE IMAGE. Reposition the patient and click CAPTURE.

1.4 Tethered digital still camera that provides live video preview

12 Repeat Steps 7 through 11 to capture additional images.

The Post-Op capture tool closes automatically after the last image is captured.

1.5 MOTION VIDEO CLIPS

The Digital Video Record tool may be used to record motion video clips from a digital video source. It is also possible to import existing video clips that are stored as AVI files using the Import Images tool. The Digital Video Playback tool may be used to view video clips and to capture selected frames as still images.



IMPORTANT: You must have DirectX (included on the installation CD) installed on your computer to record, import and view video clips.

Recording video clips

- 1** Make sure the video source is turned on and properly connected to the computer.
- 2** Optional: Open a patient chart if you wish to capture video clips directly to a patient record. (If the Patient Chart tab is not open, video clips will be captured to the Image Gallery.)
- 3** Select DIGITAL VIDEO RECORD from the CAPTURE menu.
- 4** Press the SPACEBAR or click anywhere in the preview area to start recording.
- 5** Press the SPACEBAR or click again to stop recording and save the clip. (*Note:* To cancel recording without saving a video clip, press ESC or right-click in the preview area.)

6 Press ESC or right-click in the preview area to exit the tool. (**TIP:** To exit the tool automatically after recording a video clip, press ENTER instead of the SPACEBAR in Step 5 or click the STOP button.)

Importing video clips

1 Make sure the device containing AVI files is properly connected to and recognized by your computer (i.e., insert removable media, log on to network, etc.).

2 Optional: Open a patient chart if you wish to import video clips directly to a patient record. (If the Patient Chart tab is not open, video clips will be imported to the Image Gallery.)

3 Select IMPORT IMAGES from the CAPTURE menu.

4 If the correct video clips do not appear (video clips are represented by a stamp of the first frame), click the FIND IMAGES button at the bottom of the dialog box. Repeat as needed until the correct video clips appear. (*Note:* If you prefer, you may use the DIRECTORY button to browse directly to a specific folder.)










5 Click to select one or more video clips (a red border indicates a selected clip). You may click to select additional video clips, or click on a selected clip to deselect it. The MARK ALL and UNMARK ALL buttons may be used to select or deselect all clips at once.

6 Click IMPORT.

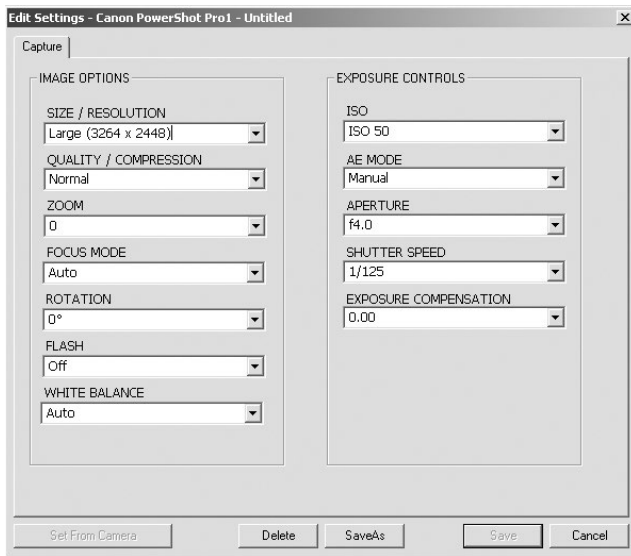
Viewing video clips

Digital Video Playback is used to play motion video clips that either have been captured using Digital Video Record, or have been imported from AVI files.

To open Digital Video Playback, select one or more video clips in the patient chart (the word “Video” appears across the thumbnail for a video clip) and select DIGITAL VIDEO PLAYBACK from the VIEW menu.

-  **Return To Beginning** — This button returns to the beginning of the first video clip. This button is disabled if tool is already at the beginning of the first clip.
-  **Previous Clip** — This button returns to the beginning of the previous clip. This button is disabled if the current clip is the first clip.
-  **Rewind** — This button rewinds the current clip to the beginning. This button is disabled if the tool is already at the beginning of the current clip.
-  **Play** — This button starts playing the video clip(s). This button is disabled during playback.
-  **Next Clip** — This button moves to the beginning of the next clip. This button is disabled if the current clip is the last clip.
-  **Pause/Frame Advance** — In playback mode, this button pauses playback. When paused, this button advances to the next frame. This button is disabled only when playback stops because the end of the last clip was reached.
-  **Stop** — This button stops playback and closes the tool.
-  **Snapshot** — This button saves the still image displayed in the window as a new image. This button is disabled unless playback is paused.
-  **Frame Slider** — The slider moves as the clip is played to show the location of the current frame in relation to the overall clip. The slider may be dragged to move to a specific location in the clip.

1.6 SETTINGS TEMPLATES FOR TETHERED DIGITAL STILL CAMERAS



The capture tools for digital still cameras contain a list of user-definable settings templates. By default, this list includes templates for capturing horizontal and vertical images, or for Body, Face, Close-up, or Studio images. (The default templates included depend on the type of camera being used.) These templates may be modified or copied to create new templates (see *Modifying and creating settings templates* later in this section).

To view the settings for a selected template, click EDIT to open the Settings dialog box. The Edit Settings dialog displays the following:

Size/Resolution — Resolution, which is measured in pixels, determines the quantity of data in a digital image. The higher the resolution of an image, the greater amount of detail it will contain. The ideal resolution of an image depends on the output of the image (printer, monitor, etc.). If an image does not contain a sufficient number of pixels when it is output, the image will lack detail. If an image contains more pixels than are needed for output, the surplus information is discarded. Because high-resolution images tax system resources, selecting the highest possible resolution without regard to output will slow

1.6 Settings templates for tethered digital still cameras

down performance and may not provide any benefit. Digital images should be captured at the lowest resolution that will satisfy the intended use.

Quality/Compression — Sets the amount of JPEG compression used during the capture process. JPEG is a method of compressing digital image files so they take up less space on a hard drive or other storage medium. With JPEG compression, some amount of the original image data is lost during compression. The greater the level of compression used, the greater the impact is on image quality. This setting also affects the speed with which images are captured: the greater the compression, the faster the download speed. Note that changing the Quality/Compression setting in the capture tool has no effect on the disk space consumed by images that are later saved to a patient chart. (Refer to Section 3.1 in the *PhotoFile User Guide, Setting Program Options* for more information on image compression.)

Zoom — Sets the focal length on the camera.

Focus Mode — Provides two focus modes: CloseUp for capturing full face or closer images, and Auto for capturing half-body images.

Rotation — Sets the automatic rotation for images as they are captured.

Flash — Sets the mode for the camera's built-in flash.

White Balance — Configures the camera to automatically adjust the color balance based on the type of lighting used.

ISO — Sets the camera's light sensitivity. ISO speed should be set to the lowest value that provides good exposure. If images are under-exposed, raise the ISO speed.

AE Mode — Sets the auto exposure mode to one of the following settings:

- **Aperture Priority** — Select an aperture and the camera automatically adjusts the shutter speed. Recommended when using a TTL metered flash system.
- **Shutter Priority** — Select a shutter speed and the camera automatically adjusts the aperture. Not typically used for flash photography.
- **Program** — The camera automatically controls both aperture and shutter. Not recommended for clinical photography because the camera often selects wide apertures that produce poor depth-of-field.
- **Manual** — Select this option and set the aperture manually if studio lights will be used.

Aperture — Sets the camera aperture, or f/stop. In clinical photography, this is typically the setting that is most often changed from one image to the next. The following are some tips regarding aperture:

- Large f-numbers equate to smaller apertures that allow less light to enter the camera.
- Large f-numbers produce images with a greater depth-of-field (i.e., more of the image is in focus).
- A good rule of thumb is to use the smallest aperture (largest f-number) that allows proper exposure.

1.6 Settings templates for tethered digital still cameras

- If the flash takes a long time to charge between photos (even with fresh batteries), a larger aperture (smaller f-number) should probably be selected.
- Close-up photos require smaller apertures (larger f-numbers) and body photos require larger apertures (smaller f-numbers).

Shutter Speed — Sets the camera's shutter speed. For flash photography, this is typically fixed at 1/125.

Exposure Compensation — May be used to adjust overall image brightness.

Modifying and creating settings templates

Changes made to any of the controls in the Settings dialog box take effect immediately and remain in effect until a different template is selected or the capture tool is closed. This is true even if the Settings dialog box is closed.

To save settings changes for future use, do one of the following:

- Click **SAVE** to save the changes to the current settings template.
- Click **SAVE AS** to create a new settings template with the current settings. The new template will be added to the Settings drop-down list.

Set From Camera

If the camera provides a Set From Camera option, you can create a settings template from on-camera settings. To do so, configure the camera with the desired settings. Open the Edit Settings dialog and click **SET FROM CAMERA**. Click **SAVE AS** and enter a name for the template.

1.7 CUSTOMIZING PRE-OP IMAGE SEQUENCES

This section contains instructions for editing capture sequence files used with the Pre-op Images capture tool.

You can edit sequences to suit your needs by changing the sequence file in the program's directory (typically <DRIVE>\MIRROR\SEQUENCE).

Contents of the sequence file

Sequence files are ASCII text files that have a .seq extension. The name of the file, minus the extension, is used as the name of the sequence in the Select Capture Sequence dialog. These are the contents of the Full Face.seq file:

```
FULL FACE - FRONT  
FULLFACE_FRONT.TGA  
FULL FACE - LEFT OBLIQUE  
FULLFACE_LEFTOBLIQUE.TGA  
FULL FACE - LEFT LATERAL  
FULLFACE_LEFT.TGA  
FULL FACE - RIGHT OBLIQUE  
FULLFACE_RIGHTTOBLIQUE.TGA  
FULL FACE - RIGHT LATERAL  
FULLFACE_RIGHT.TGA
```

Every two lines apply to a different template in the capture sequence. The first of the two is the title that appears on the screen when the template is displayed (e.g., FULL FACE - FRONT). The second is the bitmap image file containing the template (e.g., FULLFACE_FRONT.TGA).

A template's title typically describes the template's purpose, but you can reword the title in any way you choose. For example, the text FULL FACE - LEFT LATERAL describes the template used to capture a left profile view of the face.

The bitmap image file (e.g., FULLFACE_FRONT.TGA) contains the actual template and must appear in the same sequence directory (e.g., C:\MIRROR\SEQUENCE) as the sequence file (FULL FACE.SEQ).

The program uses the bitmap image file to construct the grid that is displayed over the live video in the pre-op capture screen. Sequence files are 640 pixels wide and 480 pixels high and have 24-bits of color information per pixel. Each black pixel (0,0,0) becomes transparent in pre-op capture mode, so you can see the live video underneath the grid.

Changing a sequence file's template order

1 Make a backup copy of the sequence file before you edit it. You can use Windows Explorer and copy the sequence file to a different name or to the same name with an extension other than .seq.

2 Open the sequence file in a text editor. (The Windows-based accessory program, Notepad, is an example of a text editor.)

3 Rearrange the line pairs that describe the templates you want to change.



IMPORTANT: Keep the lines in each pair in the correct order (name first, bitmap image second).

4 Save the edited sequence file and exit the text editor.

Creating a new sequence file

1 Open a new file in a text editor. (The Windows accessory program, Notepad, is an example of a text editor.)

2 Enter a pair of lines for each template you want in the sequence. For more information, see *Contents of the Sequence File* earlier in this chapter.

Hint: Copy and paste line pairs from other sequence files.

3 Save the new file in the sequence directory (typically C:\MIRROR\SEQUENCE) under any name (e.g., CUSTOM.SEQ) but always use the “.seq” extension.

CHAPTER 2

Image Editing and Annotation

2.1 MATCH COLORS

Match Colors is typically used to balance the color of a patient's pre- and post-op images. Images that match in color are less distracting and allow the patient to focus on what is important—the surgical results. The Match Colors command is unavailable until you open or select images.

Match Colors screen



Initially, the active image appears in three places on the screen. Drag the images you want to match into the appropriate positions.

The image containing the color you want to match goes into the target area. The image you want to match to the target goes into the original area. The adjusted image shows any changes you make to the Original.

Match Colors View menu **Compare** — Interactively fades between the original image and the adjusted image.

Side by Side — Places the original and adjusted images next to each other.

3-Way — Places a Compare image next to the original image, so you can view the original image next to the Compare image.

Match Colors Color menu **Match Colors** — Is selected to show that it is the active command.

Adjust Colors — Adjusts the color of an image (see Section 2.2).

Batch — Applies the current color adjustments to additional open images.

Match Colors Template menu **Add Current** — Saves the current Match Colors parameters as a template file that you can apply to other image(s).

(Template Name) — The names of any Match Colors templates you have created. Selecting a template applies it to the active image. The menu shows up to twelve templates.

More — Shows all your templates and is available when you have more than twelve templates.

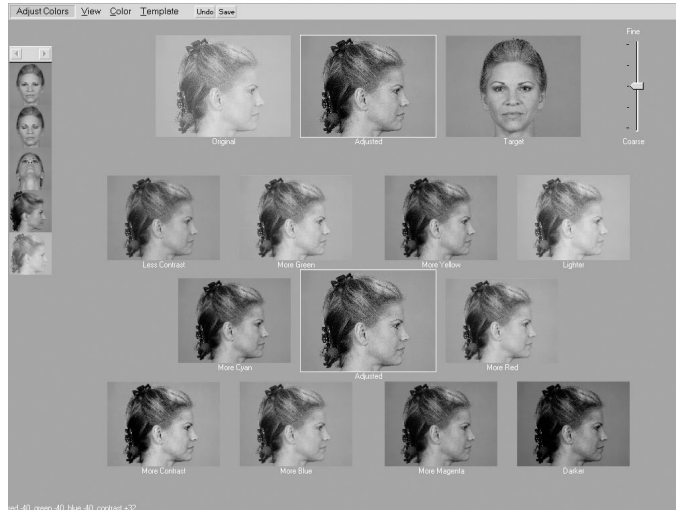
**Match Colors
technique**

- 1** Open or select the images you wish to match.
- 2** Select **MATCH COLORS** from the **IMAGE** menu.
- 3** Drag the image you wish to correct to the **Original** area.
- 4** Drag the image with the desired color balance to the **Target** area.
- 5** Move the pointer onto the original image (the pointer becomes an eyedropper). Click on an area of the skin.
- 6** Click on the corresponding area in the target image. The adjusted image displays the change.
- 7** Optional: Experiment by repeating steps 5 and 6 with another area of skin until the adjusted image reflects an optimal color correction.
- 8** Optional: To make additional manual adjustments, select **ADJUST COLORS** from the **COLOR** menu (see Section 2.2 for details on the Adjust Colors tool).
- 9** Select **SAVE** from the menu bar to save the adjusted image or click **UNDO** to discard the adjustments. If you wish to apply the same color correction to additional open images, select **BATCH** from the **COLOR** menu.
- 10** Right-click to exit the Match Colors tool.

2.2 ADJUST COLORS

Use Adjust Colors to manually adjust the colors in an image based on visual feedback. Adjust Colors is unavailable until you open or create images.

Adjust Colors screen



Initially, the active image appears in the Original, Target, and Adjusted areas of the screen. Drag images from the gallery into these areas.

The image you want to adjust goes in the Original area. If you wish, you may drag a reference image to the Target area (useful if you are attempting to match the color of another image). The Adjusted areas show any changes you make to the Original image.

Adjustment Scale — The scale that sets the degree of adjustment that appears in the Adjustment Palette. Drag the slider up toward FINE for less adjustment or down toward COARSE for greater adjustment.

Adjustment Palette — The group of images that displays various potential adjustments to the original image. Select a palette image to apply its displayed adjustment to the adjusted image.

Adjust Colors View menu **Compare** — Interactively fades between the original image and the adjusted image.

Side by Side — Places the original and adjusted images next to each other.

3-Way — Places a Compare image next to the original image, so you can view the original image next to the Compare image.

Adjust Colors Color menu **Match Colors** — Adjusts an image's color to another (see Section 2.1).

Adjust Colors — Is selected to show that it is the active command.

Batch — Applies the current color adjustments to additional open images.

Adjust Colors Template menu **Add Current** — Saves Adjust Colors parameters as a template that you can apply to other images.

(Template Name) — The names of the first twelve Adjust Colors templates you have created.

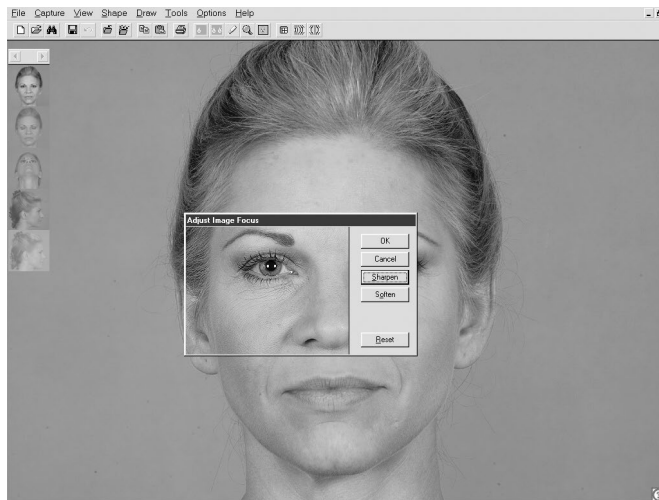
More — Shows all of your Adjust Colors templates and is available when you have more than twelve templates.

- Adjust Colors technique**
- 1** Open or select the image(s) you wish to adjust. If you wish to use a reference image, open or select that image as well.
 - 2** Select **ADJUST COLORS** from the **IMAGE** menu.
 - 3** Drag the image you wish to adjust to the **Original** area.
 - 4** Optional: Drag a reference image to the **Target** area.
 - 5** Drag the **Adjustment Scale** slider to the desired level of color adjustment.
 - 6** Select a palette image to apply its displayed color adjustment.
 - 7** Repeat steps 5 and 6 as needed until the adjusted image displays the desired color balance.
 - 8** Select **SAVE** from the menu bar to save the adjusted image or click **UNDO** to discard the adjustments. If you wish to apply the same color correction to additional open images, select **BATCH** from the **COLOR** menu.

2.3 FOCUS

Use Focus to sharpen or soften an image.

- Focus technique**
- 1 Open an image you wish to sharpen or soften.
(Note: Focus is not available from the Patient Chart.)
 - 2 Select FOCUS from the IMAGE menu. The Adjust Image Focus dialog box appears.



This dialog contains a “transparent” window through which you can preview adjustments you make to the active image.

- 3 Click SHARPEN one or more times to sharpen the image or click SOFTEN one or more times to soften the image. You may click RESET at any time to discard the changes and start again.
- 4 Click OK to apply the focus change or click CANCEL to exit the Adjust Image Focus dialog box without modifying the image.

2.4 MATCH ORIENTATION

At times, images you take from one session to another may not match in size or orientation. Use Match Orientation to correct this problem by defining corresponding reference points on the two images. The Match Orientation command is unavailable until you open or select images.

Match Orientation screen The active image automatically fills all places in the screen. Drag the images you want to match into the screen at the proper location.

The Original area holds the image you want to adjust. The Target area holds the image containing the orientation and size you wish to match. The adjusted image displays your progress by superimposing the Original over the Target image.

The move pointer appears inside the Original and Target images, allowing you to adjust the position of an image within its frame. This is useful when part of the image you want to match is outside the frame.

Match Bars — The bars that appear inside the original and target areas. These bars contain circular handles at each end and are used to mark corresponding reference points on the two images.

Match Orientation View menu Compare — Interactively fades between the original image and the adjusted image.

Side by Side — Places the original and adjusted images next to each other.

Method — Shows Compare or Side by Side results in normal or embossed mode.

Match Orientation technique

- 1 Open or select the images you wish to match.
- 2 Select MATCH ORIENTATION from the IMAGE menu.
- 3 Drag the image you wish to adjust to the Original area.
- 4 Drag the image you wish to match to the Target area.
- 5 Select two fixed reference points in the Original image. These reference points should appear in both images and should be unaltered by surgery or other means. For example, the pupil or medial canthus may be good choices in facial photographs.
- 6 If necessary, drag the original image using the move pointer so that at least one of the reference points appears within the Original area.
- 7 Drag the green handle on the Original image match bar onto one of the chosen reference points.
- 8 If necessary, drag the original image using the move pointer so that the second reference point appears within the Original area.
- 9 Drag the red handle on the Original image match bar onto the second reference point.



10 Repeat steps 6 through 9 for the Target image, adjusting the green and red handles to the corresponding reference points on the Original image. Confirm that the two images match in the Adjusted area.





11 Select **SAVE** from the menu bar to create an adjusted copy of the original image or select **UNDO** from the menu bar to start over.

12 Right-click to exit the Match Orientation tool.

2.5 WHITEBOARD

Using the Whiteboard tool, you can temporarily draw on a patient's image to highlight changes, mark areas of interest, etc. The whiteboard markings are non-destructive—they do not become part of the image you are drawing on. (Note: If you wish, you may save a copy of the image with markings.)

Note: The Whiteboard tool is easiest to use with a pen and tablet.

- 1 Open or select the image you wish to mark up.
- 2 Select WHITEBOARD from the IMAGE menu.
- 3 Click a pen icon <  > in the upper righthand corner of the screen to select a color. You may change colors at any time as you draw.
- 4 Draw anywhere on the image. If you are using a pen and tablet, press down and move the pen without lifting it from the tablet. If you are using a mouse, press and hold the left button while moving the mouse.
- 5 Optional: To save a marked up copy of the image, click the folder icon <  > in the upper righthand corner of the screen (to the right of the pen icons).
- 6 Right-click (or press the side button on the pen) to erase all markings.
- 7 You may start over with more markings or right-click to exit the Whiteboard tool.

Note: The Whiteboard tool appears automatically during the use of certain viewing tools (Zoom, Compare, Side-by-Side). If you wish, you may disable this feature.

2.6 LABELS

The Labels tool is used to add labels and callouts (labels with arrows) to a non-destructive layer that may be saved with an image, turned on or off, and modified at any time.

The Labels menu bar **Layers** — Allows the user to selectively show or hide data layers associated with an image (measurements, modesty panels, etc.).


Template — A menu with commands for saving standard labels templates to apply to images.

Clear — Clears all labels and callouts from the active image.


 Used to place a text label.


 Used to place a callout (text with arrow).

 Opens the Font dialog box, allowing you to format label text. This is only available when you are editing label text.

 Opens the Insert Field dialog box, allowing you to create a label using data from the patient chart.

Adding a label to an image

- 1** Select or open one or more images.
- 2** Select LABELS from the IMAGE menu.
- 3** Click the  LABEL button.
- 4** Click on the image where you wish to place the label. A small frame appears.
- 5** Type the label text using the keyboard. As you type, text appears in the frame.

6 Optional: To format the label text, click the  FONT button. Make the desired selections in the Font dialog box and click OK. (*Note:* Font changes are applied to the entire label, you cannot selectively change the formatting of a portion of the label.)

7 Click outside the frame to save the label.

8 Click SAVE at the top of the screen.

Adding a callout to an image

1 Select or open one or more images.


2 Select LABELS from the IMAGE menu.

3 Click the  CALLOUT button.

4 Click on the image where you wish to place the head of the arrow.

5 Move the mouse and click on the image where you wish to place the text. A small frame appears.

6 Type the callout text using the keyboard. As you type, text appears in the frame.

7 Optional: To format the callout text, click the  FONT button. Make the desired selections in the Font dialog box and click OK. (*Note:* Font changes are applied to the entire callout, you cannot selectively change the formatting of a portion of the callout.)

8 Click outside the frame to save the callout.

9 Click SAVE at the top of the screen.

Editing text for labels or callouts

1 Open or select the image with the label(s) or callout(s) you wish to edit.


2 Select LABELS from the IMAGE menu.

- 3 Double-click the label or callout text you wish to edit. A frame appears around the text.
- 4 Edit the text using the keyboard.
- 5 Click outside the frame to save the changes.
- 6 Click SAVE at the top of the screen.

Adding data fields to a label or callout

The Labels tool may be used to display patient data and/or image data on an image. If the data is changed in the patient chart, the labels are updated automatically.

Note: Images must be saved to a patient record before using the labels tool to display data.

- 1 Using the procedures described above, create a new label/callout or edit an existing label/callout.
- 2 Click the  INSERT FIELD button.
- 3 In the Insert Field dialog box, select the name of the data field you wish to use and click INSERT.
- 4 Click outside the frame to save the changes.
- 5 Click SAVE at the top of the screen.

As long as you are in the Labels tool, the inserted data field is displayed as “%Field Name%.” Whenever labels are displayed outside of the labels tool (main screen, Print screen, Layout Board, etc.), The actual data is displayed.

Note: If no data has been entered for an inserted field, nothing appears in the label text.

Deleting labels and callouts

- 1 Open or select the image with the label(s) or callout(s) you wish to delete.
- 2 Select LABELS from the IMAGE menu.
- 3 Press the CLEAR at the top of the screen. All labels and any attached lines are removed.
- 4 Click SAVE at the top of the screen.

Moving a label or callout text

- 1 Open or select the image with the label(s) or callout(s) you wish to move.
- 2 Select LABELS from the IMAGE menu.
- 3 Click the label or callout text you wish to move with the move cursor .
- 4 Move the text to a new location and click to place it.
- 5 Click SAVE at the top of the screen.

Moving a callout line

- 1 Open or select the image with the callout(s) you wish to move.
- 2 Select LABELS from the IMAGE menu.
- 3 Click the end of the line farthest from the text with the move cursor .
- 4 Move the line to a new location and click to place it.
- 5 Click SAVE at the top of the screen.

Formatting line styles for callouts

- 1 Holding down the CTRL key, move the pointer over the end of the line farthest from the text (the cursor turns into a spinning color wheel) and click to open the Line Properties dialog box.
- 2 Select the line style (solid, dashed or dotted), pointer style (arrow, circle, square, etc.) and color.

3 When finished, click OK to apply the changes or click CANCEL to exit the dialog without changing the line.

4 Click SAVE at the top of the screen.

Adding a callout line to an existing label

1 Open or select the image with the label(s) or callout(s) you wish to modify.

2 Select LABELS from the IMAGE menu.

3 Click the  CALLOUT button.

4 Click on the image where you wish to place the end of the line (i.e., the tip of the arrow).

5 Move the pointer over the label. A frame appears around the text.

6 Click to attach the line to the label text.

7 Repeat as needed to add lines to additional labels, or to add additional lines to a single label.

8 Click SAVE at the top of the screen.

2.7 LAYOUT BOARD

Use Layout Board to resize an image, crop an image or combine multiple images into a single composite image. The Layout Board command is unavailable until you open or select images.

Layout Board File menu

Convert to Black and White — Converts images from color to grayscale.

Save Working Image — Creates a new composite image from the current layout board.

Save as Original + Modified — Saves the contents of a 2x1 layout board to a single image file. The image on the left side of the layout board becomes the “original” image and the image on the right side of the layout board becomes the “modified” image. Once you have saved two images as original and modified, you may view them at any time using the COMPARE and SIDE-BY-SIDE commands in the VIEW menu of the main menu bar without returning to Layout Board.

Exit Layout Board — Exits the Layout Board.

Layout Board View menu Compare — Interactively fades between images in a two-up, three-up or four-up layout board. With a four-up layout, the fade occurs between a side-by-side view of the top two images and a side-by-side view of the bottom two images.

Method — Shows Compare results in normal or embossed mode.

Layers — Allows the user to selectively show or hide data layers associated with an image (labels, measurements, modesty panels and the ImageCheck symbol).

Note: When an image is dragged onto the layout board, all currently visible layers are combined in a single “Layout” layer.

Layout Board Size menu Used to set the size of the layout board. The size determines the resolution and aspect ratio of images created with the layout board.

Select EDIT SIZE LIST to add custom layout board sizes or to remove sizes that you do not use. All sizes are measured in pixels.

Layout Board tools **Layout Buttons** — (☐ 2x1, ☐ 2x2, etc.) Used to select the number of images in a layout.

Move — Used to reposition an image within its frame.

Zoom — Used to enlarge an image.

Rotate — Used to rotate an image by 90 degrees, counterclockwise.

Flip — Used to flip an image horizontally. (When you flip a rotated image, it will appear to flip vertically.)

Synchronize — Used to apply changes made to one image (move, zoom, rotate and flip) to other images in the layout board.

Orientation Buttons — Used to select a vertical (portrait) or horizontal (landscape) layout.

- Creating a layout board**
- 1 Select or open one or more images.
 - 2 Select LAYOUT BOARD from the IMAGE menu.
 - 3 Choose a size for the layout board from the SIZE menu.
 - 4 Click one of the Layout buttons (☐ 2x1, ☐ 2x2, etc.) to choose a layout for the board.
 - 5 Click one of the Orientation buttons at the right end of the menu bar to select a vertical (portrait) or horizontal (landscape) format.

Note: You cannot change the size, layout or orientation of a layout board once it contains images.

- Adding an image to a layout board**
- 1 Open the Layout Board tool and create a layout board with the desired size, layout and orientation (see above).
 - 2 Click on a stamp in the gallery to pick it up.

Tip: If an image contains modified (simulation) data, click the left half of the stamp to pick up the original image or click the right half of the stamp to pick up the modified image.

3 Move the stamp over the desired position in the layout board and click to place the image.

(*Note:* If there is already an image in that position, it will be replaced by the new image.)

4 Repeat steps 2–3 to fill any remaining positions in the layout board.

Repositioning an image

1 Click the MOVE button on the Layout Board menu bar and move the pointer to the image you wish to move. The cursor changes to a hand.

2 Click anywhere on the image to pick it up.

3 Move the image to the desired position and click again.

4 Repeat steps 2–3 as needed to reposition other images.

Resizing an image

1 Click the ZOOM button on the Layout Board menu bar and move the pointer to the image you wish to resize. The cursor changes to a magnifying glass.

2 Click anywhere on the image to activate the zoom tool.

3 Move the cursor up and down to adjust the magnification.

4 Repeat steps 2–3 as needed to resize other images.

5 After resizing an image, you may wish to use the Move tool to reposition it (see above).

- Rotating an image**
- 1 Click the ROTATE button on the Layout Board menu bar and move the pointer to the image you wish to rotate. The cursor changes to a curved arrow.
 - 2 Click anywhere on the image to rotate it by ninety degrees. Click again to restore the image to its original orientation.
 - 3 Repeat step 2 as needed to rotate other images.

- Flipping an image**
- 1 Click the FLIP button on the Layout Board menu bar and move the pointer to the image you wish to flip. The cursor changes to a horizontal arrow.
 - 2 Click anywhere on the image to flip it horizontally. (*Note:* If an image has been rotated prior to being flipped, it will appear to flip vertically.)
 - 3 Repeat step 2 as needed to flip other images.

Synchronizing images For layout boards composed of two or more images, the Synchronize tool may be used to apply changes made to one image (move, zoom, rotate and flip) to other images in the layout board. This may be used, for example, to match the original and modified versions of a single image or to match the same view of a patient captured at different time points (if the images were framed consistently).

- 1 Create a layout board for two or more images.
- 2 Add the desired images to all positions in the layout board.
- 3 Use the Move, Zoom, Rotate and Flip tools as needed to adjust one of the images.
- 4 Click the SYNCHRONIZE button on the Layout Board menu bar.

- 5** Move the pointer over the adjusted image. The cursor changes to an eyedropper.
- 6** Click anywhere in the adjusted image.
- 7** Click on another image in the layout board. The size, position and orientation of the second image are automatically changed to match the first image.
- 8** Repeat steps 5–7 as needed to synchronize additional images.

Downsampling and cropping images

A 1-up layout board may be used to make a copy of an image at a different resolution. This is useful for reducing the size of a high-resolution image before transferring it over a dial-up internet connection or inserting it in a PowerPoint presentation.

The layout board may also be used to adjust the framing of an image. Cropping in on an area of interest can reduce or eliminate distracting elements.

- 1** Select or open the image you wish to adjust.
- 2** Select **LAYOUT BOARD** from the **IMAGE** menu.
- 3** Choose a new size (resolution) for the image from the **SIZE** menu.
- 4** Click the 1x1 Layout button (the first button after the **SIZE** menu).
- 5** Click one of the Orientation buttons at the right end of the menu bar to select a vertical (portrait) or horizontal (landscape) format.
- 6** Drag the image from the gallery onto the layout board.
- 7** Use the Move, Zoom and Rotate tools as needed to adjust the image.
- 8** Click **SAVE** to create the adjusted copy of the image and right-click to exit the Layout board tool.


CHAPTER 3

Analysis Tools

Using Analysis, you can analyze patient images on screen instead of marking measurements directly on photographs. You can easily measure distances, areas, angles and proportions. Analysis also contains the Density command. This feature calculates hair density on close-up scalp images.

3.1 CALIBRATING

Because measurements in Analysis are most easily calibrated based on a known measurement, we suggest you use calibration stickers in at least one of the images you take of a patient. For calibration stickers, contact Canfield Imaging Systems.

 **IMPORTANT: A calibration measurement on one body plane may not result in an exact measurement when applied to another body plane. For example, a calibration based on the nose, when applied to the cheek, will be slightly off.**

About calibrating Distances and areas measured in an image are based on a calibrated distance. If you measure a distance or area without first calibrating the tool, the measurement appears in pixels (number of dots of color in the line),

and the units of measure shows an asterisk to indicate the units are uncalibrated.

 **IMPORTANT: If you do not save a calibrated image before closing it, calibrations are lost.**

Calibrating from a sticker or ruler

- 1 Open the patient's image.
- 2 From the main menu, select ANALYSIS then MEASUREMENTS then CALIBRATE.
- 3 Select two points on the sticker or ruler and the Calibrate dialog appears.
Hint: If the dialog covers the sticker/ruler, move the dialog aside by dragging the dialog's title bar.
- 4 Enter the measurement in the Enter known distance field and adjust the units of measure field as needed.
- 5 Click OK to set the calibration or click CANCEL to exit the dialog without making any changes.

Calibrating from a known distance

- 1 Open the patient's image.
- 2 From the main menu, select ANALYSIS then MEASUREMENTS then CALIBRATE.
- 3 Select two reference points on the patient's anatomy that are a known distance apart. A distance line and the Calibrate dialog appear.
- 4 Enter the measurement in the ENTER KNOWN DISTANCE field and adjust the units of measure field as needed.
Hint: The unit of measurement field is already set to centimeters (cm). However, to change the units of measurement, you could select another unit (inches or millimeters).

5 Click OK to set the calibration or click CANCEL to exit the dialog without making any changes.

For example, suppose you already know that the distance between the patient's medial canthi is 2 cm. Select the right inner canthus then the left inner canthus. Type 2 in the ENTER KNOWN DISTANCE field and confirm that the unit of measurement field is set to CM.

3.2 MEASUREMENTS

Measurements Analysis menu Select this menu to switch between Measurements and Comparative Analysis in the same session.

Measurements Layers menu Opens a dialog through which you can show or hide information about an image.

Measurements Add Current — Saves the current Analysis items as a Template menu template that you can apply to other images.


(Template Name) — The names of measurement templates you have created appear in the menu. The menu lists up to twelve templates.


More — Displays the entire list of measurement templates and is available if you have more than twelve templates.


Measurements Calibrate — Select this option to calibrate the Distance tools and Area tools.


Clear — Clears the active image of analysis items.


Distance — Select the Distance tool to measure the distance of a feature or between features.


 **Angle** — Select the Angle tool to calculate angles (e.g., the nasofacial angle) on an image.

 **Vertical Proportions** — Select the Vertical Proportions tool to calculate facial thirds and other vertical proportions.

 **Horizontal Proportions** — Select the Horizontal Proportions tool to calculate facial fifths and other horizontal proportions.

 **Area** — Select the Area tool to calculate the area of any circled portion of the image.

 **Hairline** — Select the Hairline tool to mark a proposed hairline on the image.

 **Chain** — Select the Chain tool to connect measurements. This tool is used with the Distance and Angle buttons and is standard in hairline mode.

Select the Chain tool and the system automatically starts another measurement at the end of the previous measurement. That is, the measurements are “chained” together.

Measuring distances Distances can be measured on any image. To demonstrate, we’ll measure the interpupillary distance of a full-face image.

- 1 Open a full-face image.
- 2 If the CHAIN button is selected, tap or click it to remove the selection.
- 3 Calibrate your measurements as shown under “Calibrating,” earlier in this chapter.
- 4 From the MEASUREMENTS menu, select the DISTANCE tool.

5 Select the starting then the ending point of the measurement (e.g., the right then left pupil) and a measurement appears.

Measuring distances with the Chain tool

Select the CHAIN tool before you measure distances, and the system automatically starts a second measurement from the end of the previous measurement. That is, measurements are linked together.

1 Calibrate your Distance tool. (See “Calibrating,” earlier in this chapter.)

2 Select the CHAIN tool, if it is not already selected.

3 Select the DISTANCE tool.

4 Select the beginning then the ending location of your measurement.

5 Move the pointer and the system begins a new measurement from the end location of the previous measurement.

6 Select the ending location of the following measurement.

7 Repeat steps 5 and 6 as needed.

8 Press the pen’s side button or the right mouse button to finish measuring.

Measuring angles

Angles can be measured on any image. To demonstrate, we’ll use a face profile to measure the nasofacial angle.

1 From the main menu, select ANALYSIS then MEASUREMENTS then the CHAIN button to deselect it if necessary.

- 2** Select the ANGLE tool.
- 3** Select the end then the vertex of the first side of the angle you want to measure (e.g., from the patient's nasal tip to the naision). As you move the pointer, the first side of the angle appears.
- 4** Move the pointer and the line for the other side of the angle appears. Select the ending point of the angle's second side at the edge of the nostril.
- 5** The angle's measurement appears near the vertex.

Measuring angles with the Chain tool

Select the CHAIN tool before you measure an angle and the system automatically starts a second angle from the end of the previous angle. That is, the angles are linked together.

For demonstration purposes, we'll measure nasofrontal and nasofacial angles.

- 1** Open a profile rhinoplasty image.
- 2** From the main menu, select ANALYSIS then MEASUREMENTS.
- 3** Select the CHAIN tool, if it is not already selected and the ANGLE tool.
- 4** Select the beginning and ending locations of the angle's first side to form a line tangent to the glabella and ending at the naision:
- 5** Move the pointer to extend the second side of the angle along the ridge of the nose and select the tip of the nose to paste the angle.
- 6** Move the pointer, and the second side of the connecting angle appears. Select the tip of the chin to paste this side of the angle.

7 Press the pen's side button or the right mouse button to exit chain mode.

Vertical proportions Vertical proportions can be measured on any image (e.g., a full face image).

1 Open a full-face image.

2 From the main menu, select ANALYSIS then MEASUREMENTS then the VERTICAL PROPORTIONS tool.

3 Select an area outside the face at the top of the image.

4 Move the pointer to the patient's hairline, and a line appears.

5 Select the hairline to paste the line then select the patient's glabella to paste the second proportion line. A percentage appears.

6 Select the subnasale to place a third proportion line. Notice the percentages divide proportionally as you paste additional lines.

7 Select the menton to set the final line.

8 When finished, press the pen's side button or the right mouse button to exit proportion mode.

You can add as many sets of proportion lines as you need to an image.

Horizontal proportions Horizontal proportions can be measured on any image (e.g., full-face image).

1 Open a full-face image.

2 From the main menu, select ANALYSIS then MEASUREMENTS then the HORIZONTAL PROPORTIONS tool.

- 3** Select a location outside the patient's face at left and a proportion line automatically appears.
- 4** Select the outer edge of the left ear to place the proportion line.
- 5** Select the outer corner of the left eye to place a second proportion line and percentage appears between the two lines.
- 6** Continue placing proportion lines at the inner left eye, inner right eye, outer right eye, and outer right ear. Notice the percentages change proportionally as you add these lines.
- 7** When finished, press the pen's side button or the right mouse button to exit proportion mode.

You can add as many sets of proportions as needed to an image.

Area and circumference Area and circumference can be measured on any image (e.g., the area of a tattoo.)

- 1** Open an image containing a tattoo.
- 2** From the main menu, select ANALYSIS then MEASUREMENTS.
- 3** Calibrate the Area tool. (See "Calibrating," earlier in this chapter.)
- 4** Select the AREA tool.
- 5** Circle the tattoo with the pen and the circled area automatically fills with crosshatching. The area and circumference appear inside the area.

Hint: To circle, drag the pointer and release to close the circle. If the circle is unsatisfactory, press the pen's side button or the right mouse button and start a new circle.

Creating a hairline Use the Hairlines tool to approximate a hairline on the active image. When you use the hairline tool, the system automatically starts another line from the end of the previous line. That is, the lines are chained together.

- 1** Open an image of a hair replacement patient.
- 2** From the main menu, select ANALYSIS then MEASUREMENTS then the HAIRLINE tool.
- 3** Select the beginning and ending location of the first section of hairline and a line appears.
- 4** Select the ending location of the next section of hairline and a second line appears.
- 5** Continue this process to place the remaining sections of hairline.
- 6** When you are finished drawing the hairline, press the pen's side button or the right mouse button to exit hairline mode.

Adjusting a hairline

- 1** Move the pointer over a node you want to adjust until it becomes a move pointer and tap or click.
- 2** Drag to move the section of hairline connected to the node.
- 3** Tap or click to paste the hairline.
- 4** Continue this process to move other nodes, as needed, until the hairline is in a satisfactory position.

3.3 FORMATTING CONTENTS OF THE ANALYSIS SCREEN

Deleting a single measurement **1** Move the pointer over a measurement until the Move or a double-arrow pointer appears and tap or click.

2 Press DELETE and the measurement disappears.

If the measurement was chained to other measurements, the chained measurements also disappear.

Formatting measurement text **1** Move the pointer over the measurement text until the Move pointer appears.

2 Double-tap or double-click on the measurement to open the Font dialog.

3 From the Font dialog, change the font style, size and color of the measurement text. Sample displays the changes you make.

4 When finished, click OK or click CANCEL to exit the dialog without changing the text.

The next time you measure a feature in this image, the system uses these font attributes.

Formatting measurement lines **1** Holding down the CTRL key, move the pointer over a measurement line arrowhead until a spinning color wheel appears and tap or click to open the Color dialog.

2 From the Color dialog, select a Basic or Custom color.

Hint: To create a new color, drag the target until the Color/Solid indicator shows the desired color then click ADD TO CUSTOM COLORS then OK.

The next time you measure a feature in this image, the system uses the new color attributes.

3.3 Formatting contents of the analysis screen

Formatting measurement areas **1** Holding down the CTRL key, move the pointer over a measurement area until a spinning color wheel appears and tap or click to open the Color dialog.

2 From the Color dialog, select a Basic or Custom color.

Hint: To create a new color, drag the target until the Color/Solid indicator shows the desired color then click ADD TO CUSTOM COLORS then OK.

The next time you measure a feature in this image, the system uses the new color attributes.

Moving measurement labels **1** Move the pointer over the measurement text until the Move pointer appears.

2 Select the label and move the pointer to reposition the label. (All proportion labels move as a unit.)

3 Select the new location to paste the label.

Adjusting a measurement **1** Move the pointer over the measurement text until the Move pointer appears.

2 Select the measurement and move the pointer to reposition.

3 Select the new location to paste the measurement.

Adjusting proportion lines **1** Move the pointer over the end of a proportion line (opposite the percentage end) until one of the double-arrow pointers appears and tap or click.

2 Move the pointer to reposition the line. (Percentages change as you move the line).

3 Select the destination to paste the line.

3.4 COMPARATIVE ANALYSIS

Use Comparative Analysis to show the amount of change you made to a modified feature (e.g., that the angle of a patient's nose decreased by a degree).

Comparative Analysis works in much the same way Measurements does. Comparative Analysis contains the same interface with some of the same tools, including the template feature. You can format the contents of the Analysis screen, just as you would measurements.

- 1** Open a modified image.
- 2** From the main menu, select ANALYSIS then COMPARATIVE ANALYSIS and the original and modified images appear next to each other on your screen's workspace.
- 3** Use the scroll bars in the lower-right corner of the screen to place the feature in question in the workspace.
- 4** Select the DISTANCE or ANGLE tool and calibrate it. (See "Calibrating" earlier in this chapter.)
- 5** Measure the modified feature in the original image and a corresponding measurement appears in the adjusted image. The number in parenthesis under the corresponding measurement shows the amount of change.

You may need to adjust the measurement on the modified image. (See "Adjusting a Measurement" earlier in this chapter.)

To format the appearance of the comparative analysis screen, see “Formatting Contents of the Analysis Screen” earlier in this chapter.

To create a template from the comparative analysis you’ve made, see “Templates“ later in this chapter.

3.5 DENSITY

Density analyzes close-up scalp images and counts hair roots in a given area (lense aperture) to calculate hair density. Using Density, you can calculate density in the patient’s donor/recipient region and track the survival of hair in the grafted area.

Density Lense menu **Calibrate** — Tunes the Density tool based on a known measurement (of a patient’s feature or a ruler photographed with the feature).

Emboss — Toggles the image between normal and embossed gray-scale color. Emboss is useful for focusing on the details in an image.

Add Current — Saves the current image’s density parameters (lense size, view type, etc.) as a template you can apply to other images.

(Lense Template Name) — The names of the first twelve density templates you created appear in the menu. (Select a template to apply it to the active image.)

More — Lists all density templates and is available if you have more than twelve templates.

Taking density images To take accurate measurements, use a handheld video microscope. Density comes with a lense template for its directly-supported video microscope, the Scalar Video Loupe. If you use another lens or camera/lens setup, you will need to calibrate the setup using CALIBRATE and save it as a template using ADD CURRENT if you plan to use the setting frequently. For more information about templates, see “Templates,” later in this chapter.

You can use a regular video camera, but it will be difficult to get good lighting in extreme close-up and the magnification cannot be set precisely. If you do use video, use a fixed-focal length lens to avoid recalibrating every image. If you use a variable-focal length lense, you will have to calibrate each image you take by putting either a ruler or sticker of known size in the image.

- Calibrating**
- 1** Using your camera or microscope, capture then open a close-up image of a patient’s scalp that contains a ruler or calibration sticker.
 - 2** Select CALIBRATE from the LENSE menu.
 - 3** Select the beginning and ending points of the known measurement or the ruler/sticker.
 - 4** In the Calibrate dialog’s Enter known distance field, type the length of the line you made between the two tick marks or in the sticker and Select the appropriate units (mm, cm, or inches).
 - 5** In the Aperture Diameter field, type the diameter of the aperture you want to use. The diameter must be measured in the same units as the known distance.

6 In the Density Units field, enter the units of measure for the density count. This unit need not be the same as the previous units you specified.

Using density **1** Use the Scalar Video Loupe template or calibrate the density measurements as described in “Calibrating.”

2 Count follicles in the aperture by selecting them with the pen or mouse. A “1” (meaning 1 hair) appears after the first tap or click.

3 Select the same follicle for each additional hair growing from the root (to a maximum of 4).

Hint: Selecting the follicle more than four times cycles through the count a second time, and so on. To decrement the count, press CTRL and select the follicle.

As you count hairs, the total hairs, density and hairs per follicle counts change.

3.6 TEMPLATES

Creating a template You can save measurements in an image as a template to apply them to other images. Using templates regularly saves valuable time.

1 Open an image containing measurements or add measurements to an image.

2 From the MEASUREMENTS or the COMPARATIVE ANALYSIS menu, select TEMPLATE then ADD CURRENT.

3 In the dialog, type a name for the template.

4 Click OK to save the measurements as a template, or click CANCEL to exit the dialog without saving the template.

- Applying a template**
- 1** From the MEASUREMENTS or the COMPARATIVE ANALYSIS menu, select TEMPLATE. The first twelve measurement templates appear in the menu.
 - 2** Select the name of the template you want;
Or
 - 3** Select More, and select the template from the full list.
 - 4** Click SELECT.

- Deleting a template**
- 1** From the MEASUREMENTS or the COMPARATIVE ANALYSIS menu, select TEMPLATE.
 - 2** Select MORE. A dialog listing all the measurement templates appears.
 - 3** Select a template and click DELETE. A dialog appears to verify the deletion.
 - 4** Click YES to delete the template or NO to cancel without deleting the template.

CHAPTER 4

Creating Presentations

Use the Presentations tools to prepare and present lectures, electronic case books or other presentations.

4.1 THE PRESENTATION EDITOR MENUS

- Presentation Editor File menu**
- New Presentation** — Clears the current presentation and opens a new Presentation Editor screen. If you have modified the current presentation, you are able to save the edits. This command becomes available once you place images in the slide list area.
 - Open Presentation** — Opens a previously created presentation.
 - Save Presentation** — Saves the displayed presentation and is available once you place images in the slide list area.
 - Save Presentation As** — Saves the current presentation to a new or different directory and is available once you place images in the slide list area.
 - Open Images** — Opens the current chart so you can open an image. Select **SEARCH** to find and open image(s) from another chart.

Save Images — Saves image(s) from the gallery to the active chart. To specify another chart, select **SEARCH** and find and open another chart.

Search for Image — Opens the Search for Patient dialog, so you can find and open images.

Close Image — Closes the active image in the gallery. The active image is outlined in red. If you have modified the image, you are able to save the edits. This command becomes available when you select an image from the gallery.

Close All Images — Closes all the images in the gallery. If you have modified any images, you will be able to save the edits.

Print Presentation — Prepares the images for printing to paper or slides.

Exit Editor — Exits the Presentation Editor screen.

Presentation Editor Edit menu

Cut — Removes an image from the slide list area and moves it to the Clipboard so it can be pasted into another location in the slide list, or into another presentation.

Copy — Copies an image from the slide list area and moves it to the Clipboard so it can be pasted into another location in the slide list or into another presentation.

Paste — Pastes the contents of the Clipboard into another location in the slide list or into another presentation.

Delete — Deletes the selected image from the presentation but not from the gallery or database.

Insert Image Number — Inserts a place holder into the presentation that brings up an image from the active gallery when you run the presentation.

Move All Images to Slide List — Copies all images currently in the gallery into the slide list.

Slide menu Properties — Specifies how the slide acts during an on-screen presentation: its duration on screen, the way it shifts to the next slide, and whether it supports whiteboarding.

Set Image Number — Sets the index of an image number in the presentation. The index refers to the position of the image in the gallery (1 for first, 2 for second, and so on).

Presentation menu Properties — Specifies the way your presentation runs: whether it automatically repeats, how long each slide appears on screen, and so on.

Self-Contained — Saves the contents of the slide list area as a self-contained presentation. Use this option when you want to take the presentation to another Canfield system.

Test — Runs a preview of the displayed presentation.

4.2 EDITING PRESENTATIONS

The Presentation Editor screen From the main menu, select TOOLS then PRESENTATIONS then PRESENTATION EDITOR and the Presentation Editor screen appears.

Any images you currently have open appear in the gallery. The slide list area is where you create the presentation.

Moving images in the Presentation Editor To move images from the gallery to the slide list area, simply drag them and once they begin to move, move the pointer onto the slide list area and tap or click.

Once inside the slide list area, images appear in slide form. The number on the slide represents the order in which the slide appears during the presentation.

Rearranging images in the Slide List Area Drag the image you want to move. Once the image begins to move, you can lift the pen or release the mouse button.

Move the image to a new position in the list and tap or click to paste the image. Any images below and to the right of the image shift to the right

Deleting images from the presentation Select one or more slides from the slide list area (selected slides are outlined in red) and press DELETE.

Moving images between presentations To cut or copy image(s) from the slide list area into another presentation:

1 Select one or more images (selected images are outlined in red).

2 From the PRESENTATION EDITOR menu, select EDIT then CUT or COPY.

3 From the PRESENTATION EDITOR menu, select FILE then OPEN PRESENTATION and open the presentation to which you want to paste the images.

4 From the PRESENTATION EDITOR menu, select EDIT then PASTE to insert the cut or copied images.

Inserting image numbers

Insert image numbers in a presentation before you run it to bring currently open images of a patient into a previously created presentation. For instance, running a presentation that contains image numbers makes it possible to image a patient or refer to a patient's features in the middle of a previously created presentation about the procedure of interest.

An image number is a placeholder that stands for an image in the gallery. You determine which image the image number represents before you run the presentation and the gallery image appears in the presentation when you run it.

Initially, inserted image numbers appear at the end of the slide list or in front of the first selected slide in the list. Once you insert an image number, you can rearrange it.

Setting image numbers

The first image number insert is automatically set to the first image in the gallery, the second image number to the second gallery image, and so on. However, you can customize the setting of an image number to any image currently in the gallery.

Assuming you have more than one image open in the gallery and have a presentation open in the slide list area:

1 From the PRESENTATION EDITOR menu, select EDIT then INSERT IMAGE NUMBER and Image Number 1 appears.

- 2 Select the number in the corner of the Image Number slide.
- 3 From the PRESENTATION EDITOR menu, select SLIDE then SET IMAGE NUMBER.
- 4 Enter a number that corresponds to the order of the image in the gallery. For example, type 2 to set the image number to the second image currently in the gallery.
- 5 Click OK to change the image number setting or click CANCEL to leave the setting unchanged.

Note: Image Number slides are set to images that are currently in the gallery when the presentation is run, not from the gallery images displayed when the presentation was created.

Self-contained presentations

A self-contained presentation can run by itself on another Canfield system. At times you may want to make a presentation self contained (e.g., when you are traveling to give a presentation on another Canfield system.)

If a presentation is not self-contained, it relies on the database used to create it. A self-contained presentation file includes image files, so that it can run without the database. This makes self-contained presentation files very large. Therefore, we suggest you use this feature only when necessary.



IMPORTANT: Although a self-contained presentation does not require the specific Canfield system used to create it, it will only run on a computer that has the same version of Canfield software installed.

From the PRESENTATION EDITOR menu, select PRESENTATION then SELF-CONTAINED and a program dialog appears.

Click YES to make the active presentation self-contained or click NO to exit the dialog without making changes.

Testing a presentation

After you have created a presentation, you'll want to test it to make sure it runs the way you want it to before you show it to your patient or colleagues.

Remove the selection from all the slides in the slide list area before you test the presentation. Otherwise, the presentation begins from the first selected slide.

From the PRESENTATION EDITOR menu, select PRESENTATION then TEST and the active presentation begins.

To exit the presentation at any time, press the pen's side button or the right mouse button and click the STOP button from the media control interface that appears in the bottom left of the slide list area.

4.3 SETTING PRESENTATION PROPERTIES

From the PRESENTATION EDITOR menu, select PRESENTATION then PROPERTIES to determine the way a presentation runs on screen and the Presentation Properties dialog appears.

Common to all tabs are the RESET, OK, CANCEL and RESET ALL buttons. Click RESET to return the displayed tab to its standard settings. Select OK to apply all the dialog's settings. Select CANCEL to close the dialog without applying any setting changes. Select RESET ALL to return all of the tabs to their standard settings.

Presentation tab Transition between slides automatically (Auto Run) — Select this option to set the presentation to transition from slide to slide automatically. Remove the selection, and you will need to select the media control interface buttons at the bottom of the slide list area to move from slide to slide.

Duration that slide remains on screen (seconds) — This option is available if “Transition between slides automatically (Auto Run)” is set. Type a number of seconds in this field to set how long a slide stays on the screen before the next slide appears. Alternatively, select the arrows to increase/decrease the seconds in the field.

Restart presentation after last slide (Auto Loop) — Select this option to set the presentation to repeat continuously until you freeze the presentation by tapping the pen or clicking the mouse. To close a frozen presentation, select the STOP button in the media control interface at the bottom of the screen.

Remove the selection from this option and the presentation runs once.

Allow whiteboarding on paused slides — Select this option and whiteboard pointers appear on each slide when you run the presentation. Use these pointers to draw on slides. Remove the selection and whiteboard pointers are unavailable.

Transitions between slides — Select this option to set the transition method between slides. “Fade to Next Slide” gradually blends out the old slide while blending in the new slide. “Simple Change to Next Slide” abruptly replaces the old slide with the new slide. “Wipe Horizontally or Vertically to Next Slide”

wipes out the old slide while wiping in the new slide. See “Transition Tab” for information about setting the orientation and direction of the wipe.

Target duration for transitions between slides (seconds) — Type the length of time (seconds) in which you want the presentation’s slide transitions completed.

Description of presentation — Enter a description of the presentation. Doing so lets you tell this presentation from the others when you select presentations in the future. See “Showing Presentations” for more information.

Transition tab This tab is available once you set the Transition between slides option in the Presentation tab to “Wipe Horizontally or Vertically to Next Slide”.

Select a Wipe direction: Left-to-right, Right-to-left, Top-to-bottom, or Bottom-to-top.

Editing slide properties in the Slide List Area Select image(s) from the slide list area. (Selected images are outlined in red.)

From the PRESENTATION EDITOR menu, select SLIDE then PROPERTIES and the Slide Properties dialog appears.

Allow whiteboarding on this slide — Use the whiteboard tools to temporarily mark on a slide.

Select YES to make the whiteboarding feature available on the selected slides during the presentation. Select NO to make this option unavailable. Select USE PRESENTATION SETTING to use the option you chose for the entire presentation. See “Setting Presentation Properties” earlier in this chapter.

Duration that slide remains on screen — Specify how long the selected slide(s) appears on-screen (in seconds). Select **USE PRESENTATION VALUE** to use the option you chose for the entire presentation. See “Setting Presentation Properties” earlier in this chapter.

To select a different length of time, remove the selection from **USE PRESENTATION VALUE** and type a number of seconds in the Duration (seconds) field.

Transition — Specify how the selected slide(s) transitions to the next slide. Select **USE PRESENTATION TRANSITION** to use the option you chose for the entire presentation. See “Setting Presentation Properties” earlier in this chapter.

To select a different transition, remove the selection from **USE PRESENTATION TRANSITION** and select a transition from the Transition for this slide list.

4.4 SHOWING PRESENTATIONS

Once you have created and tested a presentation, you are ready to show it.

1 From the main menu select **TOOLS** then **PRESENTATIONS** then **RUN PRESENTATION** and the Select Presentation dialog appears.

2 Select a presentation from the Presentations list.

If you entered a description of the presentation when you created it, the description appears under Selected presentation description.

3 Optional: To open a presentation stored in a different directory, click **CHANGE DIRECTORY** to find and select

the directory that contains the file. (The current directory appears next to Directory.)

4 Click SELECT to run the presentation and the presentation begins.

5 Optional: To stop the presentation, tap or click and select the STOP button from the media control interface at the bottom of the screen. (◀■▶▶)

6 Optional: To manually run the presentation, select the media control interface buttons on the screen, or press the following keys:

- SPACEBAR: Advances to the next slide.
- BACKSPACE: Returns to the previous slide.
- ESC: Exits the presentation.

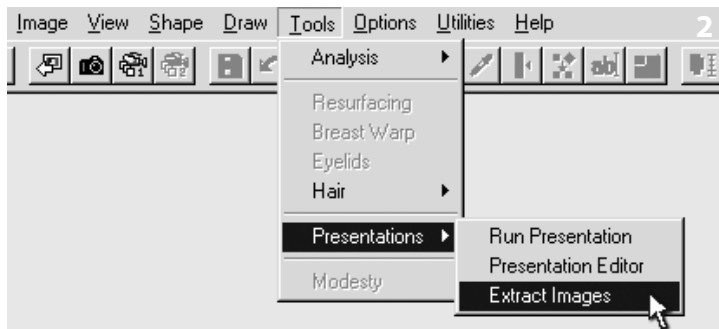
4.5 EXTRACT IMAGES FROM A MIRROR PRESENTATION

The Extract Images feature allows you to open all of the images in a selected presentation.

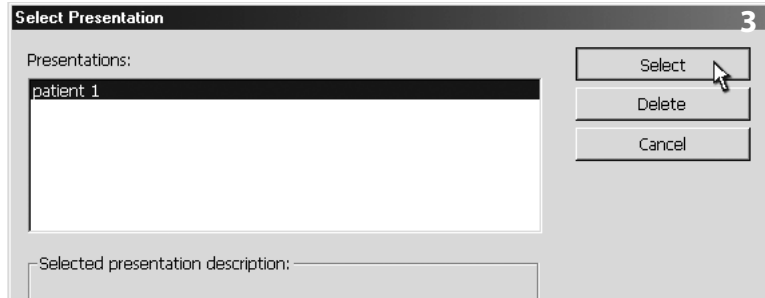


1 (*optional*) Close all open images.

2 Select PRESENTATIONS/EXTRACT IMAGES from the TOOLS menu.



3 Select the desired presentation and click SELECT.



The exact behavior of the Extract Images feature will vary based on the type of presentation:

- For a standard (linked) presentation, all images from the presentation will be opened from their respective patient charts. You must have the correct database open to extract images from a linked presentation.
- For a self-contained presentation, all images will be opened as new, imported images. The images from a self-contained presentation have no link back to the original patient chart.