Mirror
medical imaging software

User Guide

software version 7.4

PhotoFile

PhotoTools

Rejuvenation

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Mirror
PhotoFile
advanced medical image
management software

CHAPTER 1
Installing the Software

1.1 MINIMUM SYSTEM REQUIREMENTS

Before installing the software, please make sure your computer system meets the minimum system requirements, currently:

- Pentium 4 or higher (Core 2 Duo for RBX® applications)

- Windows 8.1 Professional 64 Bit, Windows 7 Professional or Ultimate (64 Bit recommended), Windows Vista Ultimate, SP 2

- DVD Drive

- At least 4GB RAM

- At least 1 GB available disk space for installing application. More recommended for data.

- 1024 x 768 or higher resolution, including 4K monitors

- Microsoft Internet Explorer 7 or higher

- 100/1000 MB Ethernet port required for networking (WiFi not supported)

Check our website for latest requirements:
www.canfieldsci.com/imaging-systems/mirror/

1.2 INSTALLING MIRROR SOFTWARE ON A STAND-ALONE COMPUTER

Follow the steps below to install the software on a single computer or on multiple computers that are not connected by a network. To run Mirror software on multiple networked computers simultaneously, see *1.3 Installing Mirror Software on a Network*.

1 Run Windows Update to ensure that you are running the most current version of the operating system.

2 Log on to the computer with a user account that has local administrative access privileges.

3 Attach the hardware key   to an available USB (•←←) port.

4 Close any programs that may be running on your computer.

5 Temporarily disable any anti-virus software.

6 Insert the Mirror Software Installer DVD into your computer's DVD drive. The Mirror Setup program starts automatically.

☑ **If the setup program does not start automatically, double-click the DVD drive in "My Computer", then double-click "setup.exe".**

☑ **NOTE:** The second disk, "Mirror Sample Patients", contains optional files that may be added to a database. See *Importing Sample Patients* (following page) for installation instructions.

7 When the InstallShield welcome screen appears, click **Next** to proceed with installation.

8 Read the Mirror License Agreement. You must accept the terms of the License Agreement to continue with software installation. If you do not accept these terms, the Setup program will close.

9 When prompted to select the setup type, select the radio button next to "Stand-Alone". (*Note:* If you wish to install Mirror in a specific location, you will have that option later in the installation.)

10 When "Select Features" appears, be sure any additional features you want to install, such as iPad support, are checked.

11 A summary of installation details appears. If you wish to review or change any settings, click **Back**. If you are satisfied with the settings, click **Next** to begin copying the Mirror program files to the computer's hard drive.

12 When prompted that installation is complete, click **Finish**. *Note:* In some cases, your computer may automatically restart after installation.

Importing sample patients to the database (optional)
A collection of sample patients is provided on a separate disc for use during training or for practicing Mirror techniques.
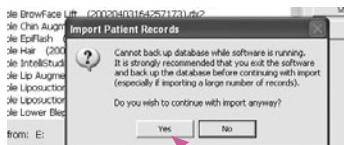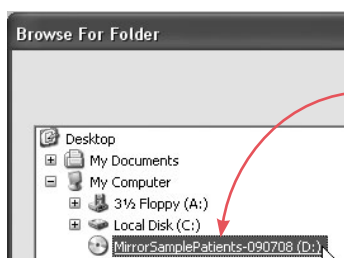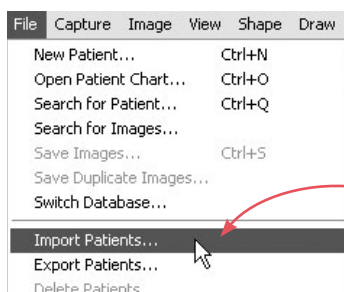
1 Insert the Mirror Sample Patients CD into your computer's CD-ROM drive.

2 Double-click the Mirror icon on the Windows desktop to open Mirror software.

3 Select **File ▸ Import Patients...** to open the **Import Patient Records** dialog box.

4 Click the **Change Directory...** button.

5 Navigate to your computer's CD drive (usually drive **D** under **My Computer**) and click on the "MirrorSamplePatients" CD to select it, then click **OK**. A list of the sample patient files appears in the **Import Patient Records** dialog box.
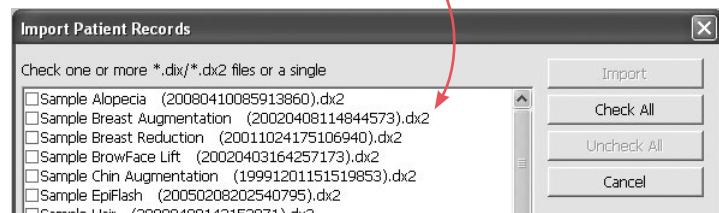
6 Click **Check All**, then click **Import**.

7 Click **Yes** in the pop-up window.

8 It takes a few minutes to import the sample patient records. When the import is complete, **Import Patients Summary** is displayed with a message confirming that the import is complete. Click **OK**.

The sample patients are now available in your Mirror database.

1.3 INSTALLING MIRROR SOFTWARE ON A NETWORK

✅ **IMPORTANT: Canfield recommends that a network administrator install the software on a network.**

About network authorization

Mirror software supports "concurrent use" network licensing. This allows multiple installations of the software on one local area network (LAN) to share a single hardware key. The number of computers that may run the software at the same time is determined by the number of network seat licenses you have purchased. A complete network installation involves the following components:

Authorization Service — This is a special piece of software that manages license information (authorized products, number of available seat licenses, etc.). The network computer with the hardware key (the License Server) must be configured with the "Canfield Clinical Systems Authorization Service."

Hardware key — This small device contains license information required by the Authorization Service. The hardware key must be attached to the License Server.

Canfield Application – This is the Mirror program. In order to run, the Application must communicate with the Authorization Service to determine whether or not a seat license is available.

When you attempt to run the software on a network workstation, the Canfield Application on that computer communicates with the Authorization Service via a TCP/IP connection to determine whether or not there is a seat license available. If so, the program launches and the number of available seat licenses is decreased by one. When the program is closed on a workstation, the number of available seat licenses is increased by one.

Network configuration

Before setting up the software for network use, you must ensure that a network administrator has properly configured the network with a Windows domain controller and TCP/IP. A TCP port must be open and available for use by the license authorization system (the default port is 9090). It is recommended that a group be created on the domain for users of the software. This group will need to have security permissions on the Canfield database and image files set to **Full Control**.

✅ **NOTE: Use of the software on a network without a Windows domain controller is not recommended.**

Setting up the License Server

One computer on your network should be designated the License Server. You may or may not choose to run the Application on this computer. However, it is important that the License Server be turned on and connected to the network with the HASP hardware key attached at all times.

Follow the steps below to install the Application, the Authorization Service and the Network Client on the computer that you have chosen as the License Server.

1 Run Windows Update to ensure that you are running the most current version of the operating system.

2 Log on to the computer with a user account that has local administrative access privileges.

3 Attach the hardware key   to an available
USB (⚡) port.

4 Close any programs that may be running on the
computer.

5 Temporarily disable any anti-virus software.

6 Insert the installation DVD into the computer's DVD
drive. The Mirror Setup program starts automatically.

7 When the InstallShield welcome screen appears, click
Next to proceed with installation.

8 Read the Software License Agreement. If you agree
to the terms of the License Agreement, click **Yes** to
continue with software installation. If you click **No**, the
Setup program will close.

9 When prompted for setup type, select **Server**, then
click **Next**.

10 A summary of installation details appears. If you
wish to review or change any settings, click **Back**. If
you are satisfied with the settings, click **Next** to begin
copying the program files to the computer's hard drive.

11 When prompted that installation is complete, click
Finish. (*Note:* If prompted to do so, you should choose
to restart the computer.)

12 By default, the software installs a SQL database.

Sharing a network database

In most network installations, a single database is
shared by all workstations. In addition to managing
license information, the License Server may also be
configured to maintain a master database list.

1 Open the Application on the License Server
(double-click the icon on the Windows desktop to
open the Application).

2 Select **Set Database Options** from the **Options**
menu.

3 Select a database from the list and click **Edit**.

4 Select the "Share this database" check box at the bottom of the Database Information dialog box and click **OK**. (*Note:* The "Share this database" check box does not appear on a network workstation or stand-alone installation.)

5 Click **OK** to exit the Database Options dialog box.

Installing the software on a network workstation

You may install the software on any number of workstations. In order for the program to run on a given workstation, that computer must have access to the License Server via a TCP/IP connection. The License Server must be turned on with the hardware key connected. There is no need for a hardware key to be connected directly to the workstation.

Follow the steps below to install the Application and the Network Client on a network workstation.

1 During the workstation installation, you will need the Host Name of the License Server. This information may be obtained from the License Server (the computer with a hardware key attached to it) by selecting **Programs** from the Windows Start menu, then **Canfield imaging Systems**, then **License Server Configuration**.

2 Run Windows Update on the workstation to ensure that you are running the most current version of the operating system.

3 Log on to the workstation with a user account that has local administrative access privileges.

4 Close any programs that may be running on the workstation.

5 Temporarily disable any anti-virus software.

6 Insert the installation DVD into the computer's DVD drive. The Mirror Setup program starts automatically.

7 When the InstallShield welcome screen appears, click **Next** to proceed with installation.

8 Read the Software License Agreement. If you agree to the terms of the License Agreement, click **Yes** to continue with software installation. If you click **No**, the Setup program will close.

9 When prompted for setup type, select **Workstation (Client)**, then click **Next**.

10 Enter the Host Name in the **License Server Name or TCP/IP Address** field.

11 Click **Connect**, then choose the shared database from the **Default Database** menu.

12 Click **Apply Selection**, then click **Next**.

13 A summary of installation details appears. If you wish to review or change any settings, click **Back**. If you are satisfied with the settings, click **Next** to begin copying the program files to the computer's hard drive.

14 When prompted that installation is complete, click **Finish**. (*Note:* If prompted to do so, you should choose to restart the computer.)

15 Double-click on the Mirror icon on your desktop to launch Mirror software.

Accessing a shared network database

If you have shared a database on the License Server (see *Sharing a network database* above), you may access that database on any workstation by selecting **Switch Database** from the **File** menu.

If you wish to open the selected network database automatically each time Mirror software is run on a workstation, check the "Set as Startup Database" box.

1.4 OPTIONAL SOFTWARE COMPONENTS

When running a "custom installation" instead of an "express installation," a screen appears to allow the selection of optional software components.

MS SQL Server Express 2012

This option installs Microsoft SQL Server Express 2012. If Microsoft SQL Server is not already running on the network, MS SQL Server Express should be installed on the Canfield database server (see *1.5 Using SQL Server* for details). It is not necessary to install MS SQL Server Express on any workstations.

Network License Server

This option installs the Authorization Service software that allows a hardware key to be shared over a network. This needs to be installed only on the License Server (the computer to which the hardware key is attached). It is not necessary to install this option on any workstations.

Security Reports

This option installs the necessary reporting tools to support HIPAA audit trails.

ViewMyConsult®
(where available)

Selecting this feature will install the Canfield Service utility on your computer. This supports the upload of consultations to the ViewMyConsult.com website, where they can be viewed by your clients from any computer or mobile device. To enable this feature, it will be necessary to register your license key and configure an administrative area on the website as described at the completion of this installation.

Apple iPad Support

Selecting this feature will install the Canfield Service utility on your computer. This supports a consultation app that can be downloaded to your iPad from the Apple App Store. With this app, you can access any of the sessions in your database and conduct client consultations on your iPad from anywhere in your facility. To enable this feature you will need to purchase an iPad license for your system as described at the completion of this installation.

Documentation

User guides in PDF format are copied from the installation disk to the Mirror folder on the hard drive: C:\Program Files\Mirror\Documentation

1.5 USING SQL SERVER

When using the software over a network, performance may be greatly improved by using a SQL database instead of MS Access. In addition, Mirror's HIPAA-related security features can be used with SQL databases only. For these reasons, you may wish to create SQL databases for Mirror.

✅ **IMPORTANT: Canfield Scientific strongly recommends that configuration of a SQL database be performed by a network administrator.**

Setting up the database server

One computer on your network needs to run Microsoft SQL Server, Microsoft SQL Server Express, or Microsoft SQL Server Desktop Engine (MSDE). It is best to use a dedicated database/file server that is not used as a workstation. The server should have an ample amount of RAM (preferably 1GB or more), a fast processor or multiple processors, a fast hard drive or array, and should be running Windows 2003 or higher.

If you are already running MSSQL Server on the network, you may skip this section and proceed to "Creating a new SQL database."

If you have not yet installed the Mirror software on the computer that you wish to use as a SQL database server, follow the procedure for "Setting up the License Server" (see *1.3 Installing Mirror Software on a Network*) and be sure to select "Microsoft SQL Server Express" in Step 11.

If the Mirror software has already been installed on the computer that you wish to use as a SQL database server, follow the steps below to install Microsoft SQL Server Express.

1 Insert the installation CD (the Canfield Setup program will start automatically).

2 Click **Next**.

3 Accept the license agreement and click **Next**.

4 When the Setup Type screen appears, select "Custom Installation" and click **Next**.

5 Click **Next** to maintain the current installation folder.

6 On the Select Features screen, select "Microsoft SQL Server Express" (and any other desired options) and click **Next**.

7 A summary of installation details appears. Confirm that "Microsoft SQL Server Express" is listed under "Selected Components to Install" and click **Next**.

8 When prompted that installation is complete, click **Finish**. (*Note:* If prompted to do so, you should choose to restart the computer.)

Creating a new SQL database

1 Log on to the License Server with a user account that has **Create Database** privileges on the database server. (By default, local administrators on the database server have Create Database privileges.)

2 Double-click on the 🔵 Mirror icon to launch Mirror.

3 Select **Set Database Options** from the **Options** menu.

4 The Database Options dialog box opens to the **Database List** tab.

5 Click **Create Database**.

6 Make sure "SQL Server" appears in the **Database Type** field.

7 In the **Database** field, enter a name for the new database.

8 Accept the default **(Local)** or select the database server from the **Server** drop-down list.

9 In the "Path to image files" field, enter a location to store image files for the new database (or click **Browse** to locate/create a folder and click **OK**).

10 Select the "Share this database" check box.

11 Click **OK**.

12 The Canfield System Options - Administrator dialog box appears. Confirm that **Database Role** is set to "CanfieldDB Administrator," make sure "Domain Users" is selected and click **OK**. (*Note:* If you do not wish to grant database access to all users on the domain, you may select individual users/groups instead. You may wish to create a specific group for all users of the software.)

13 The Canfield Database Agent Scheduler dialog box appears. Make sure the "Enable Schedule" check box is selected.

NOTE: In a new install of Microsoft SQL Server Express no SQL Agent is available. The full version of MS SQL Server 2005 or higher is required for full access to SQL Agent to create automatic backups.

14 Select the desired settings for creating backup files and click **OK**. (*Note:* Schedule the database backup to occur shortly before your regular data backup.)

15 Click **OK** to close the Database Options dialog box.

Backing up a SQL database

The scheduler will place a backup copy of the SQL database in the MSSQL Server backup directory on the database server. If the Application is installed on the database server, and no active MSSQL Server backup directory previously existed, the backup copies will be placed in the "backup" folder inside the Canfield program folder on the database server. If an active MSSQL Server backup directory already existed on the database server, the backup copies will be placed there.

✅ **IMPORTANT: The database server must be turned on at the scheduled time for the backup file to be created.**

Your regular data backup should include at least the MSSQL Server backup directory and all image folders (the folders containing .t2k files).

To ensure that database backup is set to the proper directory, perform the following test:

1 In the Application, select **Set Database Options** from the **Options** menu.

2 Select a SQL database in the list.

3 Click the **Backup** button.

4 In Windows Explorer, browse to the backup directory. A .bak file should appear with the same name as the selected database.

1.6 DATABASE OPTIMIZER

Mirror's Database Optimizer utility helps to maintain the integrity and performance of your Mirror databases. To ensure fast, trouble-free operation of your Mirror system, you should run the Database Optimizer as soon as possible after installing an upgrade and on a monthly basis thereafter.
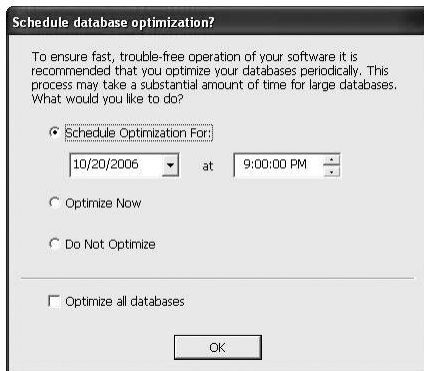
The first time you open Mirror software after upgrading, the Database Optimization window will appear automatically. Since optimization can take a long time for large databases, it is recommended to accept the default option of scheduling optimization for a later time. Select a time when no one will be using your Mirror system and click **OK**.

NOTE: Mirror must remain open until the scheduled time to avoid losing the setting.

CHAPTER 2
Overview

2.1 MIRROR SOFTWARE MODULES

Mirror software consists of a suite of software modules that are sold separately and may be used together. PhotoFile is the core component of Mirror software, providing advanced medical image management. Each additional module offers a specific set of functionality that may be added to PhotoFile.

PhotoFile provides the core medical image management functions of image storage and retrieval, on-screen viewing, printing and image export.

PhotoTools provides features used to prepare images for lectures, consultations and other visual communication applications, as well as features for improving the imaging workflow. Tools include tethered image capture, image overlay (Compare), color correction, orientation matching, layout board, labels, whiteboarding, consultation tools (Enhance, Asymmetry, Mirror), presentations and measurements.

Rejuvenation software for simulating skin rejuvenation procedures enables you to easily simulate the benefits of procedures such as neurotoxins, dermal fillers, laser procedures, microdermabrasion, and other skin rejuvenation therapies.

NOTE: Depending on which modules you have purchased, certain features may not appear on your system.

2.2 THE MAIN SCREEN

menus

toolbar

image gallery

active image

Image Data tab

Chart tab

Patient Search tab

Image Search tab

Image Check icon

2.3 NAVIGATING THE SOFTWARE

Mirror software features are accessed by selecting commands from the main menus or by clicking buttons on the main toolbar. Which commands are available depends upon the current state of the program (whether the Chart is open or closed, if any images are open/ selected, etc.).

Dialog boxes

Many commands (**New Patient**, for example) cause a dialog box to appear. A dialog box allows you to enter information, make selections or choose settings for the current operation.

When settings and data in a dialog box appear as you wish, you can execute the command by clicking a button that is typically marked with a descriptive label (**Save**, **Import**, etc.) or simply **OK**.

Most dialog boxes also contain a **Cancel** button. Clicking **Cancel** closes the dialog box without executing the command. Any data entered prior to clicking **Cancel** is discarded.

Tools

Commands that perform an action on an image (**Print**, for example) cause the program to switch from the main screen to a tool window.

The types of user interface elements present varies depending on the tool. Some tool windows display little more than the active image. Other tool windows contain a menu bar, a toolbar and an image gallery, and may appear very similar to the main screen. Other tool windows contain a few of these elements.

Two visual clues indicate whether you are in a tool window or the main screen. First, look for the easy-access tabs (Image Data, Chart, Patient Search and Image Search) along the right edge of the screen. If the tabs are present, you are on the main screen. If not, you are inside a tool.

Second, if you are on the main screen, **File** appears at the left end of the menu bar. If you are inside a tool window, either the menu bar is absent or the name of the tool appears at the left end of the menu bar.

To exit a tool window and return to the main screen, right-click with the mouse (or press the side button on the pen). Depending on where you are, you may need to right-click several times to return to the main screen.

2.4 SELECTED IMAGES VS. OPEN IMAGES

Mirror software is used to store, retrieve, view, adjust and modify images. An image must be either selected or open when you perform one of these operations.

Thumbnails (selected images)

The Chart and Image Search tabs allow you to view a number of images as small thumbnails on one screen. This arrangement makes it easy to work with images in groups (for example, to compare pairs of images or export groups of related images).

Click on thumbnails to select the images. Commands executed from the main menus or toolbar are performed on whatever images are currently selected. (Images open in the Image Gallery are disregarded as long as the Chart or Image Search tab remains open.)

For more information on the Chart and Image Search, see *Chapter 7, The Chart, Patient Search, and Image Search Tabs*.

The Image Gallery (open images)

The Image Gallery provides a workspace that allows you to focus on a small number of images with a minimum of screen clutter. This is helpful when using the software during a patient consultation.

Selecting one or more images in the Chart or Image Search and clicking **Open Images** opens those images in the Image Gallery. (**Open images** is available from the drop-down list when you right-click on a selected image.) One image—the "current" or "active" image—appears full-size in the viewing area of the main screen. The other open images are represented as small "stamps" in the Image Gallery. Clicking on a stamp switches to the corresponding image.

As long as the Chart and Image Search tabs remain closed, any commands selected from the main menus or toolbar are performed on either the active image or on all open images (depending on the specific command).

✅ **Images from multiple patients may be open in the Image Gallery at the same time.**

2.5 BASIC OPERATIONS

The following are some basic operations that are required for using Mirror software. These basic operations may differ slightly from standard MS Windows conventions.

Moving

Moving the mouse will cause the cursor to move on the screen.

If you are using a pen and tablet, hold the tip of the pen within 1 cm of the tablet surface as you move it. The pen should not actually touch the tablet.

Clicking

To "click" on an object, move the mouse to position the cursor on top of the object, then press and release the left mouse button.

If you are using a pen and tablet, move the pen to position the cursor on top of the object, then press the tip of the pen onto the tablet and release.

Right-clicking

"Right-click" means to press and release the right mouse button. A right-click is typically used in the software to cancel the current operation or to exit a tool.

If you are using a pen and tablet, press and release the button on the side of the pen to right-click.

Drag-and-drop

"Drag-and-drop" is a method used in many Windows programs to move an object from one location on the screen to another. The drag-and-drop behavior in Mirror software differs slightly from standard Windows drag-and-drop.

To begin a drag-and-drop operation in Mirror software, click once on the object you wish to move and drag it slightly. You may then release the mouse button. As you move the cursor, you will see the object move as well. Move the object to the desired location and click again to drop the object in position.

2.6 THE FILING SYSTEM

A Mirror database is made up of individual patient records. Each patient record contains data pertaining to that patient (name, MRN, date of birth, etc.) along with images that have been saved for that patient. Each image may have additional data associated with it (image date, procedure, etc.).

The data and images in a Mirror database are stored on a computer hard drive as a single database file (.mdb) and a folder containing image (.t2k) files. The number of patient records and images you can store in the Mirror database is primarily dependent upon the capacity of the hard drive or server.

In a network environment, data is stored in a single SQL Server database and images are stored on a network file server.

CHAPTER 3
Customizing Mirror Software

NOTE: Options discussed in this chapter may pertain only to specific Mirror software modules. Depending on which modules you have purchased, some options may not appear on your system, or may appear but have no function.

3.1 SETTING PROGRAM OPTIONS

Set Program Options enables you to set screen display parameters, image parameters, disclaimer message parameters, video input and output parameters, or to set other Windows programs to run from within the Mirror software.

Using the Program Options dialog

Select **Set Program Options** from the **Options** menu to open the Program Options dialog box. Click on one of the tabs at the top of the dialog box to view the different groups of program options.

The **Reset** button restores the options in the current tab to their default settings. The **Reset All** button restores *all* program options (in all tabs) to the default settings.

Screen tab

Text Style — Opens the Font dialog box, so you can format text in an image (e.g., size, color, etc.). These settings do not affect the disclaimer. To format the disclaimer, see *Disclaimer tab* later in this chapter.

Tab Transparency — Move the slider left and right to modify the transparency of the easy-access tabs (Image Data, Chart, Patient Search, Image Search). A sample is provided below the slider.

Center Initial Window — Centers the program window on the screen the next time you start the program. This setting is perceptible only when the program window is smaller than full screen (i.e., not maximized).

Toolbar is Visible — When selected, the toolbar is displayed. When cleared, the toolbar is hidden.

Show Pop-Up Image Data — When selected, floating the cursor over a thumbnail in the Chart causes image data to be displayed in a pop-up window.

Track Search Results in Chart — When selected, the Chart is automatically filtered to display only those patients/images matching the current search. The type of filter applied is based on how the Chart is opened (i.e., from Patient Search or from Image Search).

Blank Screen Bitmap — Enter the name (including path) of a bitmap or graphic file to be displayed on the main screen when no images are open. If you do not know the bitmap's name or path, click **Browse** to find and select the file.

Disclaimer tab

The disclaimer is a line of text that appears on screen automatically whenever a modified image is displayed. You must have the Rejuvenation module to create modified images.

Disclaimer Text — Select the **Disclaimer Text** field and type your own disclaimer. The default message is "Simulation only: Actual results may differ."

Text Style — Click **Text Style** to format the disclaimer text. This command opens the Font dialog box from which you can set font size, color, etc. Changes are reflected in the Sample preview box.

Show Disclaimer — Select this option to have the disclaimer text displayed automatically beneath modified images.

Images tab

Image Compression — Compression increases the number of images you can store on your hard drive. Drag the slider to the right to increase the amount of compression used (i.e., to create smaller image files).

The sample image below the slider provides a preview of the effect that the selected level of compression will have on image quality.

⚠ IMPORTANT: High levels of compression (small file sizes) may have a noticeable effect on image quality.

Compression ratios of up to 1:10 generally do not cause any discernible loss in image quality. You may wish to experiment with various image compression settings on sample images to determine the highest compression setting that provides acceptable image quality for your needs.

☑ To calculate the approximate file size for images, multiply the resolution (in pixels) by three and then multiply by the compression ratio. For example, an image with three million pixels saved with 1:10 compression produces a file approximately 0.9MB in size (3MP x 3 = 9MB; 9MB/10 = 0.9MB).

NOTE: The compression ratio displayed under the sample image is only an approximation. The actual amount of compression will vary from image to image.

Enable Lossless Compression Option — When this option is selected, a "Use lossless compression" check box appears in the Image Import Settings dialog. This allows images to be imported and saved without the use of JPEG compression.

⚠ IMPORTANT: The use of lossless compression creates image files that are significantly larger than those

created with JPEG compression. Unless you are sure you require lossless compression, you should leave this option unchecked.

Create Stamps from Modified Data – When this option is selected, stamps and thumbnails are created from modified image data when available. (*Note:* You must have the Rejuvenation module to create modified images.) If this option is cleared, stamps and thumbnails are always generated from original image data.

This setting applies only to the subsequent creation of thumbnails; existing thumbnails are not affected. To apply the new setting to existing thumbnails, use the **Generate Thumbnails** command in the **Utilities** menu.

Confirm on Close All Images — When this option is selected, a confirmation prompt appears whenever the Close All Images command is used (even if no images are new or modified).

Save Modifications — When this option is cleared, it is not possible to save image modifications to the patient chart. (*Note:* This option pertains to image modifications made with one of the simulation tools.)

Edit Images Using Screen Size — Select this option when using high resolution images. When selected, images are automatically resized to fit the screen upon entering simulation tools. (*Note:* This setting has no impact on the size of the original image.) If you are capturing images at a resolution that is not much higher than your screen resolution, you may wish to clear this option.

Image Cache Size — In certain situations, the image cache size may be adjusted to optimize system performance. In most cases, it is best to leave the image cache size set to its default value unless instructed to change it by Canfield technical support.

Programs tab

Use this tab to add other programs to the **Utilities** menu so they may be launched from within the software.

1 Click **New** from the **Programs** tab.

2 In the **Description** field, enter the name of the program as you wish it to appear in the **Utilities** menu. Insert an ampersand (&) in front of a letter in the description to make that letter an access key.

3 In the **Command Line** field, enter the command line used to execute the program. If you do not know it, click **Browse** and search your directories for the program's executable (.exe) file.

4 In the **Default Directory** field, enter the path to the directory containing the program's files, or click **Browse** and search for the program files.

5 Click **OK**.

The **Edit** and **Delete** buttons may be used to modify or remove programs already in the list. (*Note:* Deleting a program from the **Utilities** menu *does not* remove that program from the computer.)

Image Search tab

Use this tab to control the order and availability of items in the Sort By drop-down list in Image Search.

Video I/O tab

These options are available only on systems with PhotoTools and a video capture card. The specific options vary according to your hardware setup (video capture card and device).

For both video input and video output, select a standard (NTSC or PAL) and an interface (S-Video, Composite or, on some systems, RGB). Select Sync on Green for certain RGB-interface cameras.

Mirror Camera View is available only if your hardware supports it. Select Mirror Camera View to view a mirrored live video image the way the patient sees it in a mirror.

3.2 SETTING DATABASE OPTIONS

Set Database Options provides access to the following database administration functions: creating and destroying databases, converting Access databases to SQL Server, setting the startup database, scheduling backups, configuring database field formats, and setting the software to automatically purge deleted images and patient records. *Note:* Not all database administration functions can be accessed by all users. Refer to the specific function below.

Using the Database Options dialog

Select **Set Database Options** from the **Options** menu to open the Database Options dialog box. *Note:* The **Reset All** button restores *all* database options (in *all* tabs) to the default settings.

Database List tab

At initial installation, Mirror software includes one empty MS Access database. The **Database List** tab may be used to convert that database to SQL Server, create new empty databases, or connect to other existing databases.

Add — (All users.) Used to add an existing database to the database list.

Edit — (All users.) Opens the **Database Information** dialog box, which allows you to view details about the selected database and change the path for associated image files. *Note:* Shared databases can only be edited on the system that is sharing the database.

Remove — (Canfield DB Administrator or Power User.) Removes the selected entry from the database list.

Remove does not delete the database file or associated images from the system. *Note:* You will not be prompted to confirm. Be sure you wish to remove the selected database from the list.

Backup — (Canfield DB Administrator or Power User.) SQL Server databases only. Creates a copy of the selected database in the backup directory. By default, the backup directory is located within the program folder.

Restore — (Canfield DB Administrator.) SQL Server databases only. Restores a database from a backup file. *Note:* It is not possible to restore the currently active database.

Scheduler — (Canfield DB Administrator or Power User.) SQL Server databases only. Used to schedule the automatic creation of backup copies of SQL Server databases, which may in turn be included as part of regular system backup. *Note:* SQL Server backup should be scheduled to take place shortly before system backup.

Set Startup Database — (All users.) Sets the selected database to be the default database that opens each time the program is launched. *Note:* If Mirror's security features are enabled, the startup database must be a SQL Server database.

Create Database — Used to create a new empty database. Databases can be created by users with Administrator-level access to the database computer (not Canfield DB Administrator).

Destroy Database — (Canfield DB Administrator.) Permanently deletes a database from the system.

⚠ **IMPORTANT: Once a database has been destroyed, it cannot be recovered.**

Convert to SQL — (Canfield DB Administrator.) Used to convert a MS Access database to a SQL Server database. (Disabled if no SQL Servers are found.) Canfield recommends you convert to SQL Server for better

network performance. In addition, Mirror's security features are available only with SQL Server databases.

Creating an empty MS Access database

Follow the procedure below to create a new, empty MS Access database for use with the software.
NOTE: An MS Access database should be used only for stand-alone installations or when you do not wish to use Mirror's security features. For a network installation, it is better to use a SQL database.

1 Select **Set Database Options** from the **Options** menu to open the Database Options dialog box.

2 Click the **Database List** tab.

3 Click **Create Database** to open the Database Information dialog box.

4 Select "Access" from the **Database Type** drop-down list.

5 Enter a name for the database in the **Database** field. This is the name that will be used by the Windows system to identify the new database.

6 In the Server field, select the server for the database from the drop-down list.

7 In the **Path to Database Files** field, enter the location where you would like the new database file to be created. If you wish, you may click **Browse** to locate the desired folder.

8 In the **Path to Image Files** field, enter the location where you would like the image files for the new database to be stored. If you wish, you may click **Browse** to locate the desired folder. If the selected folder does not yet exist, the software will create a new images folder.

9 Click **OK** to add the new database and return to the Database List tab. The new database appears in the database list.

Once you have created a new database, you may access that database by selecting it from the Database List.

Creating an empty SQL Server database

To optimize performance on a network, Canfield strongly recommends that you use SQL Server instead of MS Access. Mirror's security features can only be used with a SQL Server database.

1 Log on to the Mirror License Server with a user account that has **Create Database** privileges on the database server.

2 Launch the application.

3 Select **Set Database Options** from the **Options** menu.

4 Click the **Database List** tab.

5 Click **Create Database**.

6 Make sure "SQL Server" appears in the Database Type field.

7 In the **Data Source Name** field, enter a name for the new database.

8 Select the database server from the **Server** drop-down list.

9 In the **Path to Image Files** field, enter a location to store image files for the new database (or click **Browse** to locate/create a folder).

10 Select the "Share this database" check box.

11 Click **OK**.

12 The Canfield Database Security dialog box appears. Confirm that **Database Role** is set to "Canfield DB Administrator." Be sure "Domain Users" is selected and click **OK**. *Note:* If you do not wish to grant database access to all users on the domain, you may select individual users/groups instead. You may wish to create a specific group for all users of the software.

13 The Canfield Database Agent Scheduler dialog box appears. Make sure the "Enable Schedule" check box is selected.

14 Select the desired settings for creating backup files and click **OK**. *Note:* Schedule the database backup to occur shortly before your regular data backup.

15 Click **OK** to close the Database Options dialog box.

Converting an MS Access database to SQL Server

If you have an existing MS Access database that is used with a networked system, you may improve system performance by converting the database to SQL Server. You will also have the option of using Mirror's security features on a SQL Server database.

1 Make a backup of the existing database and images.

2 If you do not already have a copy of Microsoft SQL Server running on the network, install Microsoft SQL Server Express.

3 Close the Application on all workstations.

4 Log on to the License Server with a user account that has Create Database privileges on the database server. (By default, local administrators on the database server have Create Database privileges.)

5 Select **Set Database Options** from the **Options** menu to open the Database Options dialog box.

6 Click the **Database List** tab.

7 Select the existing MS Access database in the database list.

8 Click **Convert to SQL**.

9 Confirm that all information in the Convert Access to SQL dialog box is correct and click **OK**.

Connecting to an existing database

If the database you wish to connect to already appears in the database list on the License Server, see *Sharing a network database* below for the easiest way to access that database from network workstations.

Follow the procedure below to add an existing database to the database list (for example, after upgrading your computer system).

1 Select **Set Database Options** from the **Options** menu to open the Database Options dialog box.

2 Click the **Database List** tab.

3 Click **Add** to open the Select Data Source dialog box.

4 Click the **Machine Data Source** tab.

5 If the desired database already appears in the list of data sources, select it and click **OK**, then proceed directly to step 15.

6 If the database does not appear in the list of data sources, click **New** to open the Create New Data Source wizard.

7 Select **System Data Source** and click **Next**.

8 From the list of database drivers, select "Microsoft Access Driver (*.mdb)" and click **Next**.

9 Click **Finish** to close the Create New Data Source wizard and open the ODBC Microsoft Access Setup dialog box.

10 Enter a name and description for the new data source.

11 Click **Select** to open the Select Database dialog box.

12 Locate the database (.mdb) file you wish to connect to and click **OK** to return to the ODBC Microsoft Access Setup dialog box.

13 Click **OK** to close the ODBC Microsoft Access Setup dialog box and return to the Select Data Source dialog box.

14 Make sure the new data source is selected in the list and click **OK**.

15 Make sure the correct path appears in the **Path to image files** field. If necessary, you may use the **Browse** button to locate the correct image folder.

16 Click **OK** to add the new database and return to the **Database List** tab.

Once you have added a database to the database list, you may access that database by selecting **Switch Database** from the **File** menu.

Sharing a network database

In most network installations, a single database is shared by all workstations. In addition to managing license information, the License Server may also be configured to maintain a master database list.

1 Open the Application on the License Server (the computer with a hardware key attached).

2 Select **Set Database Options** from the **Options** menu.

3 Click the **Database List** tab.

4 Select a database from the list and click **Edit**.

5 Select the "Share this database" check box at the bottom of the Database Information dialog box and click **OK**. *Note:* The "Share this database" check box does not appear on a workstation or stand-alone installation.

6 Click **OK** to exit the Database Options dialog box.

Once you have shared a database on the License Server, you may access that database on any workstation by selecting **Switch Database** from the **File** menu.

Setting the startup database

Follow the steps below to select which database opens automatically each time the program is launched. *Note:* If Mirror security features are enabled, the startup database must be a SQL Server database.

1 Select **Set Database Options** from the **Options** menu.

2 Click the **Database List** tab.

3 Select the desired database from the list and click **Set Startup Database**.

4 Click **OK** to exit the Database Options dialog box.

☑ **IMPORTANT: It is a good idea to test a new database before setting it as the startup database.**

Hair database list tab

In addition to the main patient database, the Hair module also maintains a hair database for the Hair Graft tool. Hair databases are added in the same manner as patient databases (see above).

Field formats tab

From this tab you can format the Social Security Number, Phone, Postal Code and State fields. Click an entry in the Format column to edit that entry. Use the appropriate placeholder characters as described in the dialog box. An example of the current format appears below the list of placeholders.

Options tab

Deleted Records — Select "Auto purge deleted patients and images at program exit" and any images or charts you delete are automatically purged when you exit the program.

⚠ **IMPORTANT: If you select the Auto Purge option, you will not be able to undelete patients or images after exiting the program.**

Authorization tab

This tab displays the license information currently programmed into the attached hardware key. No license information is available on a network workstation with a remote key.

3.3 SETTING TOOL OPTIONS

Using the Tool Options dialog

Select **Set Tool Options** from the **Options** menu to open the Tool Options dialog box. Click on the tabs at the top of the dialog box to view the tool options.

The **Reset** button restores the options in the current tab to their default settings. The **Reset All** button restores *all* tool options (in all tabs) to the default settings.

General tab

Cutout Transparency — Drag the Cutout Transparency slider to adjust the overlay transparency used within various simulation tools. An example of the setting appears under the slider.

Allow Whiteboarding — If you have purchased PhotoTools, you may select this option to make the whiteboarding feature automatically available in many of the View tools. Remove the selection to skip the whiteboarding feature. This does not affect the availability of the Whiteboard tool on the main toolbar or in the **Image** menu.

DV Preview Frame Rate — Sets the number of frames per second displayed for the live video preview in the Pre-Op and Post-Op capture tools when using a digital video source. (*Note:* Digital video capture requires PhotoTools.)

Side-by-Side Image Size — Determines how images are displayed when using the Side-by-Side tool. When Best Fit is selected, images fill the height of the screen and a scroll bar appears as needed to view the full width of the images. When Full Image is selected, images are reduced so that both full images appear on screen (no scroll bar is needed).

Pre-op/Post-op tab

Settings on this tab affect the Digital Video Record tool (used for tethered capture of motion video clips) and tethered digital still capture with video preview. Tethered capture is a feature of PhotoTools.

Select Video Driver — Used to select Digital Still Camera or DirectX Video for tethered capture.

Select Capture Sequence — Used to select a capture sequence to be used during tethered capture. A capture sequence is a template containing standard photographic views. When a capture sequence is selected, an alignment grid and image icon appear on screen for each view to assist with patient positioning. **Standard Grid** should be selected if you do not wish to use a capture sequence.

Sequence Location — Click on **Change Directory** to browse for a file containing capture sequences. Check **Save Directory Setting** if you will select sequences from this file in the future.

Standard Grid Lines — Specifies the number of horizontal and vertical grid lines to appear on the video preview screen when Standard Grid is selected.

DV Record tab

Settings on this tab affect the Digital Video Record tool (used for capturing motion video clips). Digital Video Record is a feature of PhotoTools.

Initial Capture Buffer Size — In some cases, increasing the size of the Initial Capture Buffer may improve video recording performance. For better performance, enter a value that is greater than the file size for the largest video clips that you capture.

Maximum Duration of Recording — This setting may be used to prevent the accumulation of very large video clips that can rapidly consume hard drive space. The Digital Video Record tool will automatically stop recording when a clip has reached the maximum duration.

Number of Frames per Second — A greater number of frames per second produces smoother video clips, but also results in larger file sizes. High frame rates may also cause a noticeable time delay during recording.

Video Compression — Select one of three compression options: Smaller Files (lowest image quality), Normal, or Higher Quality (largest file sizes). The file sizes listed in this section are rough approximations—actual file sizes will vary.

Mirror tab

The Mirror tool (a feature of PhotoTools) is used to display a patient's image as they are accustomed to seeing it in a mirror. The check box on the Mirror tab determines whether the Mirror tool displays just the reflected image, or displays the original and reflected images side-by-side.

Labels tab

If you have saved Labels templates in the Labels tool, you may select one of these templates to be applied automatically to all images upon import. Labels are a feature of PhotoTools.

Motion Clips tab

This tab is available only if your system is configured with a Targa 2000 or Integral FlashPoint 128 video capture card and PhotoTools.

Data Rate — Drag the slider to adjust the rate at which motion clip data is processed.

The size and quality of the motion clip decreases as you decrease the data rate. Setting a data high rate might make motion clips record incorrectly if the hard drive cannot keep up.

Duration — Drag the slider to increase or decrease the length of motion clips. The size of the motion file changes accordingly.

3.4 SETTING SYSTEM OPTIONS: IMPLEMENTING MIRROR'S SECURITY FEATURES

Mirror incorporates HIPAA-related security features that can be used to control access to your Mirror database and track system and database-level events. Mirror's security features are implemented through defined user roles, secure logins, and audit trails. The security features can only be used with MS SQL Server databases.

User roles

Mirror uses a combination of Windows NT accounts and SQL Server roles to define and control user access privileges. Mirror allows you to establish roles for individual users or groups using three levels of access privileges: Canfield DB user, Canfield DB Power User, or Canfield DB Administrator. Roles can be assigned to users or groups for specific databases. Canfield DB Users can create, modify, or delete patient records. Power Users have access to some database functions including backing up the database and viewing event reports. Administrators have access to all system

operations including assigning user and group roles, creating, destroying, or converting databases, enabling audit trails, and purging event reports.

Logins

Mirror's secure login procedures function at the application level. When one user logs out (or is automatically logged out) and another user logs in, the new user gains access to the application at the location from which the previous user logged out. (Note that if an Administrator logs out from an administration function, Users and Power Users would not have access to that function when they log in.) Because the Mirror application does not have to be opened each time a user logs in, this feature streamlines the workflow when multiple users access Mirror from the same workstation. If only one user is accessing Mirror from a workstation and you do not need this feature of Mirror logins, Windows logins may be adequate to meet your security needs. Consult your HIPAA compliance officer to determine whether you should use Windows or Mirror logins.

For additional security, Mirror logins can be set up so that users are automatically logged out of the Mirror application after a designated time during which Mirror does not receive any keyboard or mouse input. An automatic logout time is established globally for all Mirror users.

Audit trails

Mirror's audit trails enable you to track system and database events. System events include login attempts (successful or failed) and creating or destroying a database. Database events include opening a database, and opening, creating, modifying, or deleting patient records. Access to audit data is controlled by user rights; Power Users may view event reports, however only Administrators can specify which events will be tracked or schedule purging of event reports.

Specific system and database events can be configured to include a "prompt for reason" dialog to appear whenever a user initiates one of these events. When this feature is enabled, the user is prompted to enter a reason in an Event Reason dialog. The user's entry in the Event Reason dialog appears on the Event Report for that event.

Mirror's security and audit features are enabled through Set System Options on the Options menu. By default, security features are not enabled.

Setting System Options

Canfield DB Administrators can use the **Set System Options** command to define user and group roles, set up logins and auto-logout times, and enable audit trails. Canfield Users and Power Users cannot open the System Options command.

Using the System Options dialog

Select **Set System Options** from the **Options** menu to open the System Options dialog box. *Note:* The **Apply** button applies *all* system options settings (in *all* tabs).

Security tab

The **Security** tab is used to define user and group roles, enable logins, and set the duration time before automatic logout occurs. User and group roles are defined for a specific database.

Enable Login — Enables a Mirror login for all SQL Server databases. Mirror logins are useful if multiple users share a single workstation.

Enable Auto Logout — Enables Mirror's automatic logout feature. When enabled, auto logout applies to all Mirror users. *Note:* Manual logout from Mirror is available from the **File** menu.

Logout after (*x*) minutes of idle time — Sets the number of minutes to elapse without any keystrokes or mouse input to Mirror before the user is automatically logged out.

Database Name — Displays the currently selected database for assigning database roles.

Server Name — Displays the SQL Server for the selected database.

Database Role — Used to specify the role (Canfield DB User, Canfield DB Power User, or Canfield DB Administrator) that will be assigned to the selected user(s) or group(s).

Switch Database — Used to select a SQL Server database. Roles assigned to users or groups will apply for the selected database.

Assign — Used to select the users or groups who will be assigned the database role.

All — Selects all users and groups in the list.

None — De-selects all users and groups in the list.

DBO — Displays the DBO for the selected SQL Server database.

Audit Trails tab

The Audit Trails tab is used to select the system and database events that you wish Mirror to track.

Enable Audit Trails — Enables Mirror's audit trail feature. This option must be checked before specific events can be selected for tracking.

System Events

Track Login Event — Used to track all Mirror logins. This option has no effect if Mirror logins are not enabled.

Track Create DB Event — Used to track database creation.

Track Destroy DB Event — Used to track database destruction.

Prompt for reason — Causes an Event Reason dialog to appear when the user attempts to perform the function. The user is prompted to enter a reason.

Database Events

Open DB — This event occurs each time a specific user connects to a specific database. Open DB events are tracked whether Mirror or Windows logins are used.

Create Patient — This event occurs when a new patient record is created.

Modify Patient — This event occurs when patient demographic data is modified.

Delete Patient — This event occurs when a patient record is removed from the database.

Open Patient — This event occurs when a user opens the chart for a specific patient. *Note:* Only one open patient event is recorded for a specific patient per open database.

Prompt for reason — Causes an Event Reason dialog to appear when the user attempts to perform the function. The user is prompted to enter a reason for the event. To enable this feature for a specific event, click on the event. Then check **Prompt for reason**.

Switch database — Used to select a database for setting database events.

Enable auto purge — Used to automatically purge the Event History.

Purge event history after *x* months — Used to specify the number of months security reports will be retained before they are purged.

SQL Server tab

For users running Microsoft SQL Server Express or MSDE without MS SQL Server Enterprise Manager, this tab provides access to some SQL Server management functions.

3.5 CUSTOMIZING THE TOOLBAR AND MENUS

The **Customize** dialog box is used to selectively show or hide various commands in the main menus, and to add, remove or rearrange buttons on the main toolbar.

Toolbar tab

Select **Customize** from the **Options** menu and click the **Toolbar** tab. Select an item in the **Button Category** list at the left side of the dialog box. Click on a button in the Available Buttons list to display the description of that button at the bottom of the dialog box.

Adding a Tool to the Toolbar — Drag a button from the Customize dialog box onto the toolbar. The new button is inserted on the toolbar in the position at which it is dropped.

Rearranging Tools on the Toolbar — Select **Customize** from the **Options** menu and click the **Toolbar** tab. Drag a button on the toolbar to a new location. To add extra space between two buttons, drag a button one half position to the right.

Removing a Tool from the Toolbar — Select **Customize** from the **Options** menu and click the **Toolbar** tab. Drag a button off the toolbar to remove it.

Menu tab

The Menu tab shows available tools (or menu commands) by menu category. Select a menu category to view a list of related tools. Click on the check box to the left of a list item to select or clear it. All selected items appear in the corresponding menu.

3.6 TEMPLATES

Several tools (Match Colors, Adjust Colors, Labels and Print) offer user-definable templates. Saving tool settings as a template makes it easy to apply the same settings to additional images in the future. For example, you may wish to create a Print template for before-and-after images with the patient's name and procedure date across the top of the page and a caption below each image indicating "Pre-Op" or "Post-Op."

Although the specific settings stored in a template vary from tool to tool, the manner in which templates are created, managed and applied is consistent.

Creating a template

1 Open or select an image and activate a tool that offers templates.

2 Perform the actions or adjustments that you wish to save to a template, but do not exit the tool.

3 Select **Add Current** from the tool's **Template** menu.

4 Enter a name for the template and click **OK**.

Applying a template

1 Open or select an image and activate a tool that offers templates.

2 Select the desired template from the tool's **Template** menu. (*Note:* The Template menu can display up to twelve templates. If you do not see the desired template in the menu, select **More**.)

✅ If you wish, you may designate a particular **Labels** template to be applied to all images automatically on import (see *Labels* in section 3.3).

Deleting a template

1 Open or select an image and activate a tool that offers templates.

2 Select **More** from the tool's **Template** menu.

3 In the Templates dialog box, select a template and click **Delete**.

CHAPTER 4
Menu Overview

4.1 ABOUT THE MENUS

This chapter briefly describes all of the commands that may appear in the main menus. Depending on which Mirror software modules you've purchased and the configuration of your system, some of these commands may not appear.

From time to time, certain menu commands may appear "dimmed" or "grayed out." These commands are unavailable based on the current state of the program. For example, if the Chart is open but no images are selected, any command requiring an image as a target is unavailable.

Customizing menus

You can select which items appear on the drop-down menus. To do so, select **Customize** from the **Options** menu, click the **Menu** tab, and select the appropriate menu in the **Menu Category** list. Make sure the check box is selected for the desired menu item in the **Available Tools** list.

4.2 FILE MENU

New Patient — Opens the Add/Modify Patient Record dialog box so you can create a new patient record.

Open Patient Chart — Opens the Chart tab (see *7.2 The Chart Tab* for details).

Search for Patient — Opens the Patient Search tab so you can locate a patient record.

Search for Images — Opens the Image Search tab so you can locate specific images.

Save Images — Opens the Save Images dialog box so you can save new or changed images to a patient record. (Available only if new and/or changed images are open in the Image Gallery.)

Save Duplicate Images — Opens the Save Images dialog box so you can save a copy of one or more images to any patient record.

Switch Database — Opens the Switch Database dialog box. This command is available only if you have assigned multiple databases to the software (see *3.2 Setting Database Options* for details).

Import Patients — Used to import complete patient records (data and images) previously exported from any Canfield system using the Export Patients command.

Export Patients — Used to export complete patient records (data and images) so they may be imported into any Canfield system.

Delete Patients — If the Chart is open, removes the current patient record (data and images) from the database. If the Patient Search tab is open, removes all selected patients from the database.

Undelete Patients — Displays a list of previously deleted patient records so they may either be restored to the database or permanently erased (purged).

Close Image — Closes the active image in the Image Gallery. If the current image is new or changed, the user is prompted to save it.

Close All Images — Closes all images in the Image Gallery. If any images are new or changed, the user is prompted to save them.

Print — Opens a submenu from which you can print images to paper, to slide format, or from video.

Lock Program — Minimizes the application and requires the user to enter a user name and password to re-open the program. (May be activated by selecting **CTRL + ALT + L**.)

Exit — Exits the program and returns to the Windows desktop.

4.3 CAPTURE MENU

Depending on your system configuration, some of the Capture commands may not appear in your menus.

Import Images and Acquire are available in all Mirror software. All other capture commands require PhotoTools.

Import Images — Used to import image files or video clips of any valid format. (*Note:* PhotoTools is required to import video clips.)

Acquire — Opens a submenu of commands for working with TWAIN devices such as scanners.

Capture Images — Opens the Import tool for tethered operation of digital still cameras that do not provide live video preview (available for supported Nikon SLRs).

Digital Video Capture — Opens the Digital Video Capture tool for capturing still images from a digital video source.

Pre-op Capture — Opens the Pre-op Capture tool for tethered capture of a series of still images using a digital still camera that provides live video preview or a digital video camera.

Post-op Capture — Opens the Post-op Capture tool for tethered capture of a series of post-op images corresponding to a previously captured series of pre-op images using a digital still camera that provides live video preview or a digital video camera.

Video — (Targa/FlashPoint card only) Activates the video camera for recording live video or playing it back.

Live — (Targa/FlashPoint card only) Activates the video camera for set up or for viewing videotape.

Digital Video Record — Opens a tool for capturing motion video clips from a digital video source.

4.4 IMAGE MENU

Many of the commands in the Image menu require PhotoTools.

Match Colors (PhotoTools) — Automatically balance the color of one image to match the color of a second image.

Adjust Colors (PhotoTools) — Manually adjust the color of an image by visual inspection.

Focus (PhotoTools) — Sharpen or soften an image.

Match Orientation (PhotoTools) — Automatically adjust the rotation and magnification of one image to match a second image.

Rotate Image — Rotate an entire image by ninety degrees.

Whiteboard (PhotoTools) — Create temporary markings on an image (or save a copy of the image with markings).

Labels (PhotoTools) — Add labels and callouts to a non-destructive layer that may be saved with an image, turned on or off, and modified at any time.

Layout Board (PhotoTools) — Create a copy of an image at a different resolution, crop an image or combine multiple images into a single composite image.

Delete Image — Remove one or more images from a patient record.

Undelete Image — Displays a list of images previously deleted from the current patient chart. Images may be restored to the chart or permanently erased (purged).

Restore Image — Discard modifications made to an image using simulation tools.

Copy Image — Place a copy of an image on the Windows Clipboard. The image may then be placed in another program using the Paste command. (*Note:* The other program must be able to paste image files from the Clipboard.)

Paste Image — Insert an image from the Windows Clipboard into the current patient chart or the Image Gallery.

Send To — A submenu of commands for transferring images to other programs.

4.5 VIEW MENU

Compare — Used to fade between two different images (typically pre-op and post-op) or to fade between the original and modified versions of a single image. Compare is a feature of PhotoTools.

Side-by-Side — Used to view two different images— or the original and modified versions of an image— next to each other on the screen.

Compare Method — Opens a submenu for selecting how to show the Compare and Side-by-Side views: normal or embossed. This is a feature of PhotoTools.

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

Show Image History — Displays various data for an image (when it was imported, when it was modified, image resolution, camera settings, etc.).

Prioritize — Activates the **Prioritize** tool, so you can show single or combined modifications on an edited image (e.g., rhinoplasty and chin, rhinoplasty only, or chin only). Prioritize is a feature of Aesthetic Simulation in Mirror Suite.

Mirror — Shows the active image the way the patient sees it in the mirror. This is a feature of PhotoTools.

Asymmetry — Demonstrates a patient's asymmetry by displaying a composite of two left sides next to a composite of two right sides. (*Note:* Use asymmetry on front view images.) Asymmetry is a feature of PhotoTools.

Zoom — Activates the Zoom tool for magnifying portions of an image on screen.

Show Edges — Displays the active image in embossed mode to emphasize lines and imperfections. Show Edges is a feature of PhotoTools.

Loupe — Activates the Loupe tool for magnifying portions of an image on screen.

Enhance — Activates the Enhance tool for displaying the standard image along with an enhanced image that makes pigment, fine lines and other surface features more apparent.

Digital Video Playback — Opens a tool for viewing motion video clips. Also allows still images to be captured from a video clip. This is a feature of PhotoTools.

Blank Screen — Blanks out the screen for privacy. The blank screen can be used as a light box for x-rays.

4.6 SHAPE MENU (only in Aesthetic Simulation)

All tools listed in the Shape menu require the Aesthetic Simulation module in Mirror Suite. Some features also require one of the procedure-specific simulation modules.

Warp — Opens a tool you can use to reshape areas of an image as if they were made of clay.

Copy — Opens a tool you can use to duplicate areas of an image. (Requires Breast or Bleph & Brow module.)

Resize — Opens a tool you can use to enlarge or reduce areas of an image.

Stretch — Opens a tool similar to resize, but with one side of a selected area remaining fixed.

Rotate — Opens a tool you can use to rotate a portion of an image.

Rubber Stamp — Opens a tool you can use to duplicate an area of an image multiple times.

Cutout — Opens a tool you can use to remove portions of an image.

Excise — Opens a tool you can use to selectively remove portions of an image that are darker than their surroundings.

Fade — Used to soften the effects of a modification.

4.7 DRAW MENU

Except for Wrinkle, all tools listed in the Draw menu require the Aesthetic Simulation module in Mirror Suite. Some features also require one of the procedure-specific simulation modules. The Wrinkle tool is available with Rejuvenation.

Airbrush — Opens a tool you can use to paint over portions of an image with a solid color.

Texture — Opens a tool you can use to paint over portions of an image with a texture.

Blend — Opens a tool you can use to smooth areas of an image.

Erase — Opens a tool you can use to selectively remove or soften modifications made to specific areas in an image.

Clone — Opens a tool you can use to paint over portions of an image using a sampled area from any open image. (Requires Breast or Bleph & Brow module.)

Wrinkle — Opens a tool you can use to remove wrinkles, fine lines or blemishes. (Requires Skin Rejuvenation module.)

4.8 TOOLS MENU

Analysis — Opens a submenu of tools you can use to measure distances, area, angles and proportions in an image. Also measure the amount of change between original and modified images and calculate hair density. (Analysis tools are included with PhotoTools.)

Resurfacing — Opens a tool you can use to demonstrate realistic resurfacing results including post-op redness. (Resurfacing is a feature of the Skin Rejuvenation module.)

Breast Warp — Opens a tool you can use to demonstrate realistic outcomes for breast augmentation. (Breast Warp is a feature of the Breast module, only available with Mirror Suite.)

Eyelids — Opens a tool you can use to demonstrate realistic blepharoplasty outcomes. (Eyelids is a feature of the Bleph & Brow module, only available with Mirror Suite.)

Hair — Opens a submenu with tools you can use for demonstrating realistic hair replacement outcomes, for simulating hair loss or for planning hair restoration surgery. (Hair tools are included with the Hair module, only available with Mirror Suite.)

Presentations — Opens a tool you can use to create and view presentations. (The Presentations tool is a feature of PhotoTools.)

Modesty — Opens a tool you can use to cover portions of an image with removable panels. (Modesty is a feature of PhotoTools.)

4.9 OPTIONS MENU

Set Program Options — Used to set screen display parameters, image parameters, disclaimer message parameters, video input and output parameters, or to set other Windows programs to run from within the software.

Set Database Options — Used to perform database administration functions such as creating and destroying databases, converting Access databases to SQL Server, setting the startup database, scheduling backups, configuring database field formats, and setting the software to automatically purge deleted images and patient records.

Set Tool Options — Used to customize several tools.

Set System Options — Used to enable Mirror's security features, including defining user and group roles, setting up logins and auto-logout times, and enabling audit trails.

Customize — Used to selectively show or hide various commands in the main menus, and to add, remove or rearrange buttons on the main toolbar.

4.10 UTILITIES MENU

Attributes Manager — Used to add, modify or delete attribute libraries.

Recompress Images — Used to selectively recompress image files to save disk space.

Generate Thumbnails — Used to generate missing thumbnail images or to regenerate existing thumbnails for all images in a database at once.

Find Orphan Images — Used to locate image files that are missing corresponding database entries and restore them to the database.

Extras — Used to view and print Event Reports generated by Mirror's audit trail feature.

4.11 HELP MENU

Help Topics — Opens the online help library.

About — Displays information about the software you are running and technical support telephone number.

Importing Images

5.1 IMAGE SOURCES

There are various ways to capture digital images and import them into the software.

Digital camera with removable media

Most digital cameras store images on removable media. To transfer images from camera to computer, the storage card is removed from the camera and inserted into a card reader connected to the computer. (*Note:* Cameras that support the USB storage class standard may be connected to the computer via a USB cable without the need for a separate card reader.) The card is then recognized by the system as if it were a CD or other type of external drive.

Images from any digital camera may be imported directly from the removable media. It is not necessary to use any additional software that may have been bundled with the camera. (*Note:* For the best compatibility, it is recommended that cameras be set to capture JPEG files.) See *5.2 Importing Previously Captured Images*.

Stored image files and video clips

Mirror software supports several standard image file formats (JPEG, TIFF, Windows Bitmap and Portable Network Graphic), as well as the Canon RAW (CR2)

format. In addition, PhotoTools supports AVI media files. Images or video clips may be imported from a hard drive, network file server, CD, DVD or any other location.

The procedure for importing stored files is the same as for importing images from a digital camera. See *5.2 Importing Previously Captured Images*.

Tethered digital camera

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.)

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

Tethered capture is available only with PhotoTools. Visit www.canfieldsci.com/imaging-systems/mirror/ for information on supported cameras.

TWAIN devices

Most scanners and some digital cameras communicate with software through a standard interface protocol known as "TWAIN." Mirror software is compatible with most TWAIN devices.

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. *Video capture is available only with PhotoTools.*

5.2 IMPORTING PREVIOUSLY CAPTURED IMAGES

This section describes the process for importing images that have already been captured and stored. This encompasses images captured with a digital still camera, images exported from other software, etc.

Making images available to Mirror software

Mirror software can import any image that is stored in one of the following standard formats: JPEG (.jpg), TIFF (.tif), Windows Bitmap (.bmp), Portable Network Graphic (.png) or Canfield Image File (.t2k).

Note: While Mirror software supports the standard TIFF format, many proprietary and nonstandard versions of TIFF exist that are not compatible.

There are several ways to make existing image files available for import into the software:

Storage card transfer — Most digital cameras store captured images on a removable storage card (CompactFlash, SmartMedia, MemoryStick, etc.). The card may be removed from the camera and inserted into an appropriate card reader (either internal or external) connected to the computer. Files on the card may then be accessed in the same way as on other removable storage media (such as CDs, etc.).

USB connection — Digital cameras that support the USB storage class standard may be connected directly to the computer using a USB cable. Once connected, such a camera appears in the computer's list of drives, providing access to any files on the camera's storage card. In essence, the camera becomes an external card reader for the computer.

Local or network drive — Image files may be imported from any accessible hard drive or network file server.

Removable media — Image files may be imported from removable media such as CDs, DVDs or flash drives.

The Import Images dialog box

Select **Import Images** from the **Capture** menu to open the Import Images dialog box.

Note: The **Settings** button is only available in the Import Images dialog if PhotoTools is installed.

The Import Images window can be moved or re-sized, and the size of thumbnails can be adjusted.

- To move the Import Images window, click on the blue title bar at the top of the window and drag to move the window to a new location.

- To re-size the window, place the cursor on a horizontal or vertical edge or on a corner of the window. When the cursor changes to a double-headed arrow, click and drag the mouse.

- To adjust the size of the displayed thumbnail images, set the number of columns at the top of the window between 2 and 12. (Fewer columns display larger thumbnails.)

Locating the image file directory

The first time you import images from a particular location, it is necessary to direct the software to the directory containing the image files. If you always import images from the same source, you should only need to perform this procedure once.

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

2 Select **Import Images** from the **Capture** menu.

3 If the correct images do not appear, click the **Find Images** button at the bottom of the dialog box. Repeat as needed until the correct images appear. (*Note:* If you prefer, you may use the **Directory** button to browse directly to a specific folder.)

4 Optional: Check **Save Directory Setting** if you will usually be importing images from this same location.

Locating or creating a patient record

If a chart already exists for a patient, you can search for the chart, open it, and import images into the chart from within the Import Images tool. If a chart does not exist for the patient, you can create one from within the Import Images tool. *Note:* If no chart is open when you import images, the images will be imported to the Image Gallery as new (unsaved) images.

1 To search for a patient record, click the **Search** button. On the Lookup Patient window, enter the patient's data. If the patient's chart appears, double-click on the chart to open it.

2 If a chart does not appear for the patient, on the Lookup Patient window, click **ADD**. Enter patient data. **TIP:** Press the **TAB** key to move among fields. You *must* enter a last name for the patient — all other fields are optional. (The more information you enter for a patient,

the easier it will be to find the patient later using Patient Search.) Click **Save**.

Selecting images

The Import Images dialog box displays a small stamp for each image file in the source directory. Click once on an image to select it (a blue frame appears around selected images). To deselect an image, click on the image again to remove the frame. Use the **All** or **None** buttons to select or deselect all images at once. To select a series of images, click on the first image, then press the **SHIFT** key and click on the last image in the series.

Examining images before import

To examine an image closely before importing it, double-click on the image to zoom in on it. To deactivate the zoom, click the ⊞ **Thumbnails** button.

Automatic rotation of images

If images were captured with the camera held vertically, Mirror detects this information and automatically rotates the images so they appear with the correct orientation once they are imported into the software. This feature is available only with cameras that store capture information with images. Automatic Rotation is the default setting in Mirror.

If images are not automatically being rotated to the correct orientation on import, either your camera does not store capture information, or the correct rotation setting is not enabled.

With Mirror PhotoTools, you may still configure the software for 90-degree rotation of images upon import:

1 Click the **Settings** button in the Import Images dialog box to open the Image Import Settings dialog box.

2 Select one of the 90-degree rotation options at the bottom of the dialog box.

3 Select the **Save Settings** check box

4 Click **OK** to return to the Import Images dialog box.

If you do not have PhotoTools, see *Rotating images manually* below.

Rotating images manually

If automatic rotation of images is not available (because your camera does not provide capture information with images and you do not have PhotoTools) you can rotate images manually before import on the Import Images screen. To rotate all selected images, position the cursor on one of the selected images, right-click, and select **Rotate Selected**. To rotate only one of the selected images, position the cursor on the image, right-click, and select **Rotate**. Each additional click on **Rotate Selected** or **Rotate** will rotate the image(s) another 90 degrees.

Discarding images

To delete unwanted images, select the images, right-click, and select **Delete**. All selected images will be deleted.

⚠ **IMPORTANT: Deleting images from the Import Images dialog box will permanently remove them from their original location without copying them into the database. Once an image has been deleted in this manner, it cannot be recovered.**

Deleting source images

Select the "Delete source images after import" check box to automatically delete the original source images once they have successfully been imported and saved to a patient chart. This option is not available when importing images to the Image Gallery.

✅ **To ensure trouble-free image capture and import, Canfield recommends that you use your camera's card format feature to periodically reformat your storage cards. Refer to your camera documentation for details.**

Hiding saved images

To remove images from the displayed images list once they have been saved, select the "Hide saved images" check box. *Note:* Hiding images is not the same as deleting them.

Applying attributes to images

To apply descriptive data to the selected image(s), select an attribute (such as Procedure) from the Attribute drop-down list. Then select a value from the Values List. To apply a value to all selected images, double-click on a value from the Values list. To apply a value to a single image, drag-and-drop the value to the image. To add notes, select **Notes** from the **Attribute** drop-down list and enter notes in the Notes field.

✅ If you wish to add Attributes and/or Values to the drop-down lists, refer to *Chapter 6, Saving Images*.

Importing images

Select all images you wish to import (see *Selecting images in section 5.2* above). To save selected images to the patient chart and remain in the Import Images window, click **Save**. To save selected images to the patient chart and close the Import Images window, click **Save & Close**.

To save selected images to the Image Gallery, be sure there is no patient chart open. If a chart is open (a patient name appears at the top of the Import Images window under Selected Patient), click **Clear**, then click **Import**.

If the Chart was open when the Import Images command was selected, all imported images are saved to the current patient and automatically selected. If the Chart was not open, imported images appear in the Image Gallery as new (unsaved) images.

Resizing images on import

With Mirror PhotoTools, you may crop and/or scale images as they are imported. Click the **Settings** button in the Import Images dialog box to open the Image Import Settings dialog box. Controls for resizing images are located in the top portion of the dialog box under the "Import size" heading.

resizing controls
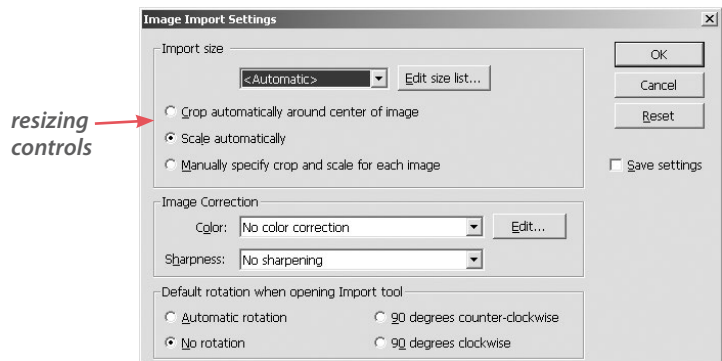
By default, import size is set to "<Automatic>." This setting retains the original resolution of imported images without resizing. This is the recommended setting for most images.

To resize images on import, select a resolution setting (measured in pixels) from the import size drop-down list. If the desired resolution does not appear, click the **Edit size list...** button to open the Edit Image Size List dialog box. Enter a width and height in pixels, click **Add to list** and click **OK**.

If you wish to apply the current resizing option to all future imports, select the **Save Settings** check box before clicking **OK** to close the Image Import Settings dialog box. If you would like the settings to apply only

for the current import, make sure the **Save settings** check box is cleared.

Color correction

With PhotoTools, it is possible to perform color correction on images as they are imported.

1 Capture a series of patient images. Include a standard gray card in one of the images.

2 Open the Import Images dialog box.

3 Select the image that contains the gray standard.

4 Click the **Settings** button to open the Image Import Settings dialog box.

5 Select "New color correction…" from the **Color** drop-down list under **Image Correction** to open the Image Import Color Adjustment tool.
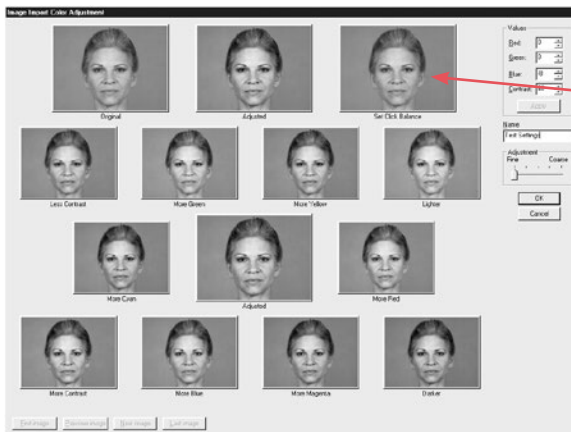
Image Import Color Adjustment tool

6 Move the cursor over the image in the upper right corner of the screen (labeled "Set Click Balance"). The cursor changes to an eyedropper.

7 Click in the middle of the gray standard with the eyedropper. The "Adjusted" images will change to reflect the color correction.

8 *Optional:* If you wish, you may make additional adjustments by clicking on the appropriate images. Alternatively, you may change the values listed in the upper right corner of the screen and click **Apply**.
In either case, the "Adjusted" images will change to reflect the color correction.

9 *Optional:* Enter a name for the color correction in the **Name** field. If you leave **Name** blank, the program creates a name from the correction's values.

10 Click **OK** to accept the color correction or click **Cancel** to exit the Image Import Color Adjustment tool without applying the correction.

11 *Optional:* If you wish to save the color correction settings for use on future imports, select the **Save settings** check box.

12 Click **OK** to return to the Import Images dialog box.

13 Select the images you wish to import and click **Import** or **Save**.

Sharpening images on import

With PhotoTools, images may be automatically sharpened as they are imported.

1 Click the **Settings** button in the Import Images dialog box to open the Image Import Settings dialog box.

2 Select "Sharpen" or "Sharpen more" from the **Sharpness** drop-down list under Image Correction.

3 Select the **Save settings** check box.

4 Click **OK** to return to the Import Images dialog box.

5.3 USING TWAIN ACQUIRE

Most scanners and some digital cameras communicate with software through a standard interface protocol known as "TWAIN." Canfield software is compatible with most TWAIN devices.

In order to import an image from a TWAIN device, you must first install and properly configure the device and its accompanying software.

Selecting the source

You need only select the source once, unless you choose the wrong driver or wish to change drivers.

1 From the **Capture** menu, select **Acquire** then **Select Source** to open a list of available TWAIN drivers.

2 Select the name of the driver that corresponds to the device from which you wish to import images.

3 Click **Select**.

Acquiring the image

1 From the **Capture** menu, select **Acquire** then **Acquire Images** to open the currently selected TWAIN driver. (*Note:* The TWAIN driver is not part of the Canfield software.)

2 Capture images using the TWAIN software. This process varies from one device to the next (refer to the software documentation that accompanied the device).

3 Close the device software.

Acquire settings

From the **Capture** menu, select **Acquire**, then **Settings**. The Twain Acquire Settings dialog box is displayed. (*Note:* requires PhotoTools.)
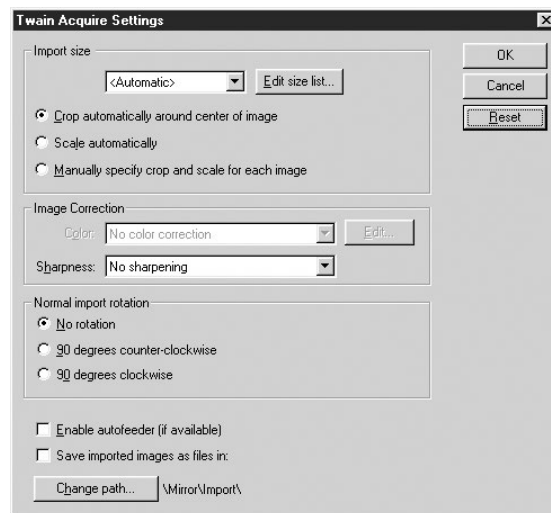
TWAIN Acquire Settings dialog

The Import Size, Image Correction and Import Rotation features in the TWAIN Acquire Settings dialog function the same as their corresponding features in the Image Import Settings dialog (see *5.2 Importing Previously Captured Images*).

Autofeeders — "Enable autofeeder" is used with devices that have autofeeders as input devices (typically, page or slide scanners).

Saving images as files — "Save imported images as files in" is useful when working with autofeeders. Rather than seeing the images appear in the gallery, acquired images are stored as files on the hard drive in the displayed directory (click **Change Path** to change the directory where acquired images are stored).

Once the images are imported to files, you can import the acquired images by clicking **Import Images** from the **Capture** menu. Then save the images in the appropriate chart(s).

5.4 ROTATING IMAGES AFTER IMPORT

If an image has already been imported into the software, the Rotate Image tool may be used to rotate the entire image in ninety degree increments. This can be helpful if, for example, the camera was held sideways to capture vertical images. In most cases, however, images are rotated as they are imported (see above).

Follow the steps below to rotate one or more full images.

1 Select or open the image(s) you wish to rotate.

2 Select **Rotate Image** from the **Image** menu.

3 In the Rotate Images dialog box, select the images you wish to rotate (if you wish to apply the same rotation to all displayed images, you may skip this step).

4 Choose a rotation direction (clockwise or counterclockwise).

5 Click **Rotate** to apply the rotation to selected images or click **Rotate All** to apply the rotation to all displayed images, whether they are selected or not.

A rotated copy of each image is created. The original image remains unaltered.

5.5 IMAGE HISTORY

Mirror software maintains a history for each image in the database. This image history includes the date and time the image was first captured, imported or created, as well as any adjustments or modifications that have been made to the image in the Mirror software. Depending on how the image was originally captured, the image history may also include data from the camera.

To view the history for an image, select or open an image and select **Show Image History** from the **View** menu.

ImageCheck

With Mirror PhotoTools or Rejuvenation, the ImageCheck symbol appears in the bottom right corner of thumbnails and open images. The ImageCheck symbol gives a quick visual clue regarding the history of that image. Clicking on the ImageCheck symbol provides a shortcut for viewing the full image history.

⊘/☑ **Original (captured)** — A *green* checkmark indicates that the image was created by a tethered capture tool (e.g., Digital Video Capture, VISIA, etc.) and has not been modified within Mirror.

⊘/☑ **Original (imported)** — A *purple* checkmark indicates that the image existed as a file outside of Mirror and was imported. The image has not been modified within Mirror, though its history prior to import is unknown.

/ **Adjusted** — A *yellow* cross indicates that the image was created inside Mirror from another image, potentially with some kind of global adjustment (color adjustment, cropping, etc.). The image has not been modified using simulation tools.

/ **Simulation** — A *hollow red* triangle indicates that the image contains modifications made with simulation tools, but may be restored to an original or adjusted state.

/ **Modified** — A *solid red* triangle indicates that the image contains permanent modifications and cannot be restored to an original or adjusted state.

CHAPTER 6
Saving Images

6.1 SAVING MODIFIED IMAGES

Mirror will always preserve the integrity of the original "source" images that were captured or imported into a Patient Chart. Modifying a source image will generate a new image which is not automatically saved. To save modified images follow the steps below.

Save Images window

1 Select **Save Images** from the **File** menu. The Save Images window appears and displays thumbnails of all unsaved images.

Mirror automatically labels each thumbnail according to the type of changes you've made:

- **<new>** images are those to which you have applied adjustments such as color, orientation and rotation, or simulations such as warp and airbrush. These will be saved as separate image files.

- **<changed>** images are those to which overlays or layers have been added, such as labels. These modifications are saved with the original image, but can be removed or changed later if desired.

2 Select the images you wish to save: Click a thumbnail to select it, click again if you wish to deselect it, or click the **All** or **None** buttons to select all or none of the images.

3 Click **Save**. All selected images are saved to the appropriate patient chart and are removed from the Save Images window.

✅ You can edit the image data in the Save Images window prior to saving if desired: Select a single thumbnail and its image data will appear in the lower right of the window.

6.2 SAVING DUPLICATE IMAGES

Duplicating a saved image can be useful for collecting copies of images that document especially interesting cases or exceptional surgical results. This also provides a means of moving images that may accidentally have been filed under the wrong patient.

Using the Save Duplicate Images command

The Save Duplicate Images command may be used to copy one or more images to a patient chart.

1 Select or open the images you wish to copy.

2 From the **File** menu, select **Save Duplicate Images**. The Save Images window appears and displays all open images (if the Chart is closed) or all selected images (if the Chart is open).

3 Select the images you wish to save.

✅ Click the **All** button to select all images at once.

4 Click **Search** and enter the Name, MRN or SS# to locate the patient record to which you wish to save the images.

5 Double-click on the chart in which you want to save the images.

6 Click **Save** to save selected images to the chart and remain in the Save Images window, or click **Save & Close** to save the images and close the Save Images window.

Using the clipboard

The Windows clipboard may be used to copy a single image to a patient chart, the Image Gallery, or to any other program that supports clipboard images.

1 Select or open the image you wish to copy.

2 From the **Image** menu, select **Copy Image**.

3 Move to the destination for the copied image (i.e., the Image Gallery, Chart, or other program).

4 If copying the image into Mirror software, select **Paste Image** from the **Image** menu. In most other programs, the Paste command is located in the Edit menu (refer to the program's documentation for details).

6.3 IMAGE DATA

Each image may have descriptive data associated with it. Image data may be accessed in the Chart or in the Image Data tab on the main screen.

The Image Data tab
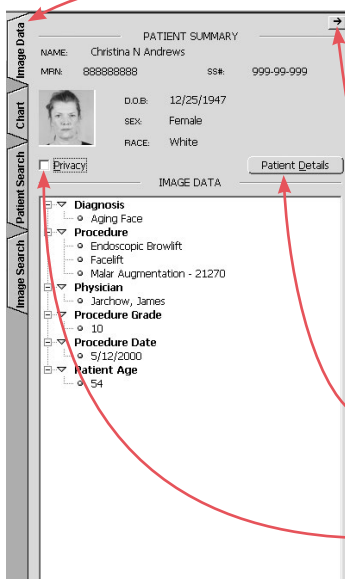
The Image Data tab, located in the upper right corner of the main screen, provides easy access to the data associated with the active image in the main screen. Click once to expand the tab. Click the tab again to collapse it. (The tab may also be collapsed by clicking the right arrow button in the upper right corner.)

The top portion of the open Image Data tab displays patient data for the current image, including the ID photo for that patient (see *7.3 Viewing and Modifying Patient Data* for details on selecting the ID photo). To edit the patient data, or to view additional patient data, click the **Patient Details** button.

If you do not wish personal data to be displayed in the Image Data tab, select the **Privacy** check box. When **Privacy** is selected, the patient name, social security number and ID photo are hidden.

✔ If no patient data appears, the current image has never been saved to a patient chart. See *6.1 Saving Modified Images* for details on saving images.

Entering image data in the main screen
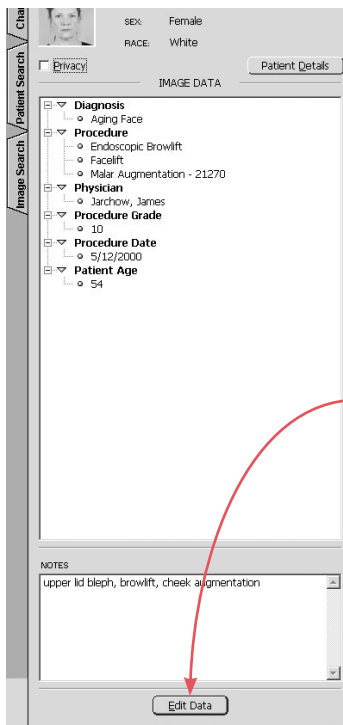
The Image Data tab may be used to add or modify data for the active image in the main screen.

1 Make sure the image you wish to work with is the active image. (The active image is displayed full-size on the main screen.)

2 If you have not already done so, save the image to a patient chart (see *6.1 Saving Modified Images*).

3 If the Image Data tab is collapsed, click the tab once to expand it.

4 To enter image data, click the **Edit Data** button.

5 On the Edit Image Data window, select an attribute from the drop-down list, then select a value from the Values list. (If you selected "Notes" in the Attribute field, enter text in the Notes field.) Click **Apply**.

6 When finished entering image data, click **Save** to save the changes and remain in the Edit Image Data window, or click **Save & Close** to save the changes and close the Edit Image Data window.

Editing image data in the Chart

Image data may also be viewed and modified in the Chart. By working in the Chart, it is possible to edit data for multiple images simultaneously.

1 Open the Chart.

2 Select one or more images. Data for the selected images is displayed on the right side of the Chart.

3 Click the **Edit Data** button.

4 On the Edit Image Data window, select an attribute from the drop-down list. To apply a value to multiple images, select the value and click **Apply**, or double-click on the value. To apply a value to a single image, drag and drop the value on the image. (If you selected "Notes" in the Attribute field, enter text in the Notes field.)

5 If notes were added during image import, you can replace or append the notes on the Edit Data window.

- To replace existing notes, select the image(s) with notes you want to replace. In the Notes field, enter the new notes. Click **Apply**.

- To append notes for a single image, select the image. Add additional notes in the Notes field. Click **Apply**.

- To append notes for multiple images, select the images. In the Applied Image Data window, double-click on the notes that you wish to append. Enter the additional notes. Click **Apply**.
  ☑ **IMPORTANT: The appended notes will over-write original notes for all selected images.**

6 When finished entering image data, click **Save** to save the changes and remain in the Edit Image Data window, or click **Save & Close** to save the changes and close the Edit Image Data window.

Deleting image attributes

1 Select one or more images in the Chart.

2 Click the **Edit Data** button.

3 Select the desired attribute type (procedure, diagnosis, etc.) from the **Attribute** list.

4 Select the value you wish to delete in the **Applied Image Data** list.

5 Press the **Delete** key.

6 Click **Save** to save the changes and remain in the Edit Image Data window, or click **Save & Close** to save changes and exit the Edit Image Data window.

7 Repeat steps 2 through 6 for each attribute or value you wish to delete.

The Attributes Manager

Each attribute has a library of possible values which may be applied to images. These are the values that appear in the Selection List drop-downs. The Attributes Manager is used to add, modify or delete attribute libraries. Open Attributes Manager by selecting **Attributes Manager** from the **Utilities** menu or by selecting **Edit List** from a Selection List.

Adding and removing values in a library

Values may be added to or removed from an attribute library using the Attributes Manager.

1 In the Attributes Manager, select an item in the Attributes List to display the corresponding library in the Values List.

Attributes Manager
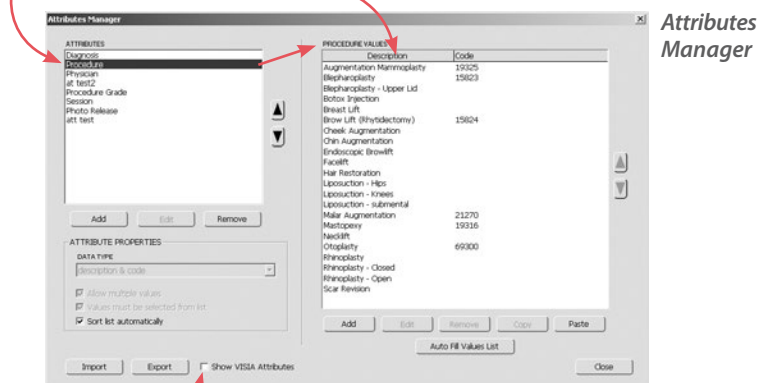
✔ "Show VISIA Attributes" should be unchecked if you do not have a VISIA system. This will prevent VISIA attributes from appearing in drop-down lists.
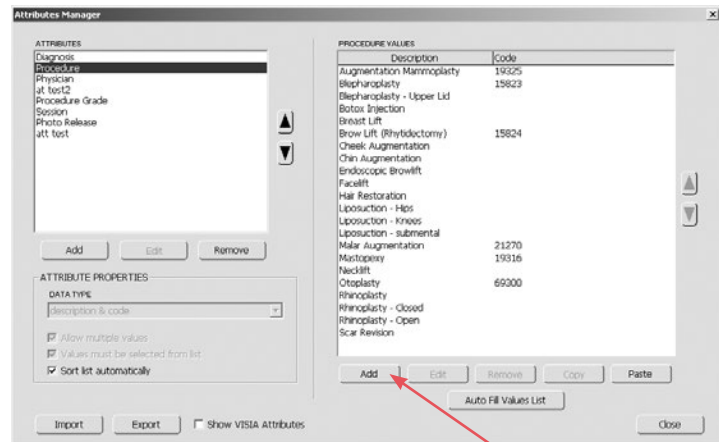
2 To add a value to the library, click the **Add** button located below the Values List. If a desired list of values already exists in another program (e.g., Word), you may copy and paste to add all of the values to the attribute library in one step.

To remove an item from an attribute library, select that item in the Values List and click the **Remove** button located below the Values List. The item is removed from the library. If the value has already been applied to images in the database, you are prompted to either remove the value from the library without affecting applied data, replace the applied data with another value or remove the value from the library and from any images to which it has been applied.

Adding an attribute type

By default, Mirror includes the Procedure, Diagnosis, and Physician attributes. You may add as many additional attributes as desired.

1 Select **Attributes Manager** from the **Utilities** menu to open the Attributes Manager.

2 Click the **Add** button located below the Attributes List.

3 Enter a name for the new attribute and click **OK**.

4 Select the desired attribute properties:

- **Data Type** — Select "text" for simple values or select "description & code" for paired values such as procedure & CPT code.

- **Allow multiple values** — Select this option to allow multiple values for the attribute to be assigned to a single image.

- **Values must be selected from list** — When this option is selected for an attribute (recommended), users will be unable to enter any value in the Chart that has not already been added to the Selection List using the Attributes Manager. This option is always selected for the "description & code" data type.

- **Sort list automatically** — When selected, the values for the attribute will be sorted alphabetically in both the Attributes Manager and the Selection Lists. When cleared, the user may choose the order in which values appear by using the List Order Buttons.

5 To insert a dashed line to separate items in the **Attributes** list, click on the item you wish to separate and click **Add**. Click **Create Separator** and click **OK**. The line appears above the item you selected on all **Attribute** drop-down lists. (To remove the line, select it on the **Attributes** list and click **Remove**.)

6 With the new Attribute selected, add the desired values to the **Values List** either by using the **Add** button or by copying values to the clipboard (from another attribute or another program) and clicking the **Paste** button located below the Values List.

7 Click **Close** to close the Attributes Manager. The new attribute may now be selected from any **Attribute** drop-down list.

Exporting attributes

Using the Attributes Manager, it is possible to export a complete attribute library from one database and import it into another Canfield database.

Attributes may be exported as follows:

1 Select **Attributes Manager** from the **Utilities** menu.

2 Select one or more attributes in the Attributes list.

3 Click the **Export** button. The Export Attribute dialog box appears.

4 The selected attributes are automatically marked in the list. If you wish, you may select additional attributes or deselect attributes.

5 When exporting multiple attributes, you may either export all selected attributes to a single file or to individual files. To export to individual files, select "Export each attribute library to a separate file."

6 Enter a name for the output file. (*Note:* If multiple attributes are being exported to separate files, each file is automatically given the name of the corresponding attribute.)

7 The current export directory is displayed at the bottom of the dialog box. Click the **Directory** button to select a different export directory. *Note:* Check "Save Directory Setting" if you will export attributes to this directory in the future.

8 Click the **Export** button to save the selected attributes to the export directory. The names, properties and values lists for all selected attributes are saved to a single file.

Importing attributes

Once attributes have been exported from a database as described above, they may be imported into another Canfield database.

1 Select **Attributes Manager** from the **Utilities** menu.

2 Click the **Import** button. The Import Attribute dialog box appears.

3 Click the **Directory** button, browse to a folder containing the attribute (.aix) files you wish to import and click **OK**. A list of available attribute files is displayed. *Note:* Check "Save Directory Setting" if you will import attributes from this directory in the future.

4 Click to select one or more files in the list.

5 Click **Import**.

Removing redundant attribute values

As your Mirror database grows, you may find that you end up with multiple variations of the same attribute value ("Breast Augmentation" and "Augmentation Mammoplasty," for example). The following procedure will help you clean up your database.

1 Select **Attributes Manager** from the **Utilities** menu.

2 Select the desired attribute in the **Attributes** list.

3 Click the **Auto Fill Values List** button. At the prompt, click yes. This adds all applied values for the selected attribute to the Values List.

4 In the Values list, select a specific value that you wish to remove and click the **Remove** button located below the Values list.

5 At the confirmation prompt, click **OK**.

⚠ **IMPORTANT: Be sure the prompt says "Remove selected value(s) from list?".** If the prompt says "Remove selected attribute(s)?" you have clicked the wrong **Remove** button. Click **Cancel**, then click the **Remove** button located below the Values list on the right side of the dialog.

6 If a message appears stating that the attribute value is already in use, select **Delete from list and replace applied values with** and select the desired value from the drop-down list.

7 Repeat steps 4–6 as needed to remove additional values for the selected attribute.

8 To help ensure more consistent data entry in the future, select the **Values must be selected from list** option for the selected attribute.

CHAPTER 7
The Chart, Patient Search, and Image Search Tabs

7.1 THUMBNAIL IMAGES IN THE CHART AND IMAGE SEARCH TABS

The Chart and Image Search tabs allow you to view a patient's stored images as small thumbnails on one screen. (Refer to *7.2 The Chart Tab* and *7.9 Working with Images In the Chart* for details on using the Chart and Image Search tabs.) This arrangement makes it easy to work with images in groups (for example, to assign the same data to a number of images).

Chart
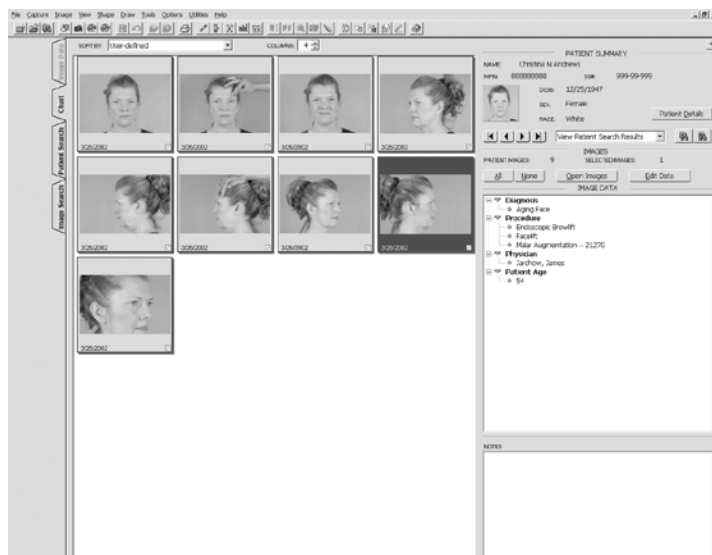
Selecting thumbnails

Many commands operate on whatever images are currently selected in the Chart.

- Click on a thumbnail to select it. Selected images appear with a blue border.

- Click on additional images to add to the selection.

- Click on a selected image to deselect it.

- The **Shift** key may be used to select a contiguous range of images: Click to select the first image in the range. While pressing and holding the **Shift** key, click the last image in the range. All images between the first and last image are also selected.

- The **All** and **None** buttons may be used to select or deselect all images in the active patient chart.
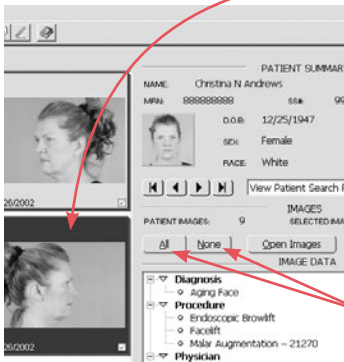
Arranging thumbnails

You may arrange the thumbnails in the patient chart in any order you choose.

1 Open the Chart.

2 Make sure the **Sort By** control above the thumbnails indicates "User Defined." If it does not, select "User Defined" from the drop-down list.

3 Click on the thumbnail you wish to move and keep the mouse button pressed.

4 While continuing to hold the mouse button, move the cursor to the position where you would like to place the thumbnail.

5 Release the mouse button to drop the thumbnail in its new position. (*Note:* The cursor must be above another thumbnail when you release the mouse button—it cannot be between thumbnails.)
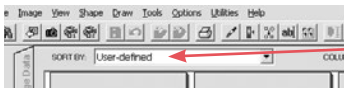
Sorting thumbnails automatically by date

Select an item from the **Sort By** drop-down list (located above the thumbnails) to automatically sort thumbnails by image date. You may choose to either show the newest images first or show the oldest images first.

Resizing thumbnails

The size of the thumbnails in the Chart may be changed by selecting the number of columns to display (fewer columns allows larger thumbnails). Use the Columns control at the top of the Chart to select the number of columns (from 2 to 12).

Opening thumbnails and accessing commands

Double-click on a thumbnail to open the image in Image Gallery. Right-click on an image to display a pop-up menu of common commands.

7.2 THE CHART TAB

The Chart tab allows you to view previously created patient records. After you have created patient charts and imported images into them, you can use the Patient Search or Image Search tabs to locate a specific patient or image.

Creating a patient chart

To create a patient chart, do the following:

1 From the **File** menu, select **New Patient**.

2 Type the patient's information into the Add/Modify Patient Record dialog box. Press the **TAB** key to move among fields or select a field and type. You must enter a Last Name for every patient; all other fields are optional. (The more information you enter for a patient, the easier it will be to find the patient later using Patient Search.)

3 When finished entering data, click **Save** to add the new patient or click **Cancel** to close the Add/Modify Patient Record dialog box without adding the patient.

Accessing the Chart

The Chart is accessed by clicking the **Chart** tab at the right edge of the main screen. Click the tab again to collapse it. (The tab may also be collapsed by clicking the right arrow button in the upper right corner.)

Filtering the Chart

If you have performed a search in the Patient Search or Image Search tab, you may filter the Chart to display only those patients/images matching the current search.

If you have performed a patient search, select **View Patient Search Results** and use the navigation controls to scroll through the charts for those patients who match the current search.

navigation controls

filter drop-down
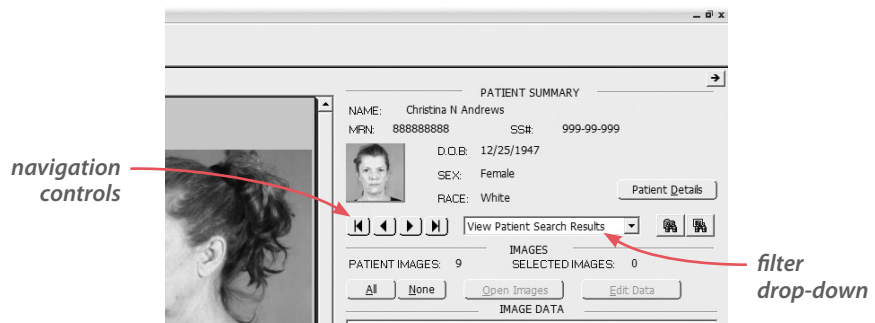
If you have performed an image search, select **View Image Search Results** and use the navigation controls to scroll through the charts for those patients with images matching the current search. As you view each patient record, only those images matching the current search are displayed. To view all images for the current patient, select **View All** from the Filter drop-down list.

Viewing image attributes

To quickly view attributes for a single image, move the cursor over that image and pause (it is not necessary to select the image). A pop-up window appears displaying data for that image. Move the cursor to close the pop-up image data window.

If you wish to view data for multiple images, follow the procedure below.

1 Select one or more images in the Chart.

2 Attributes and values appear in the **Image Data** field.

3 Attribute values for the selected images are displayed in the applied values list. Values applied to all selected images appear in black type. Values applied to only some of the selected images appear in gray type.

Filter by attribute

To select images with a common attribute, for example, only those images captured on a certain day, or that represent a specific treatment, follow the procedure below.
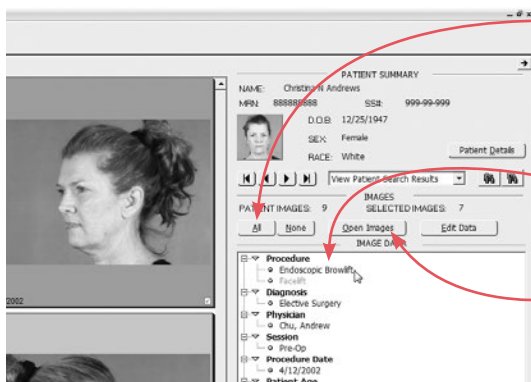
1 Click [All] **All** to select all of the thumbnails in the current patient chart. Attribute values for all of the images are displayed in the applied values list.

2 Double-click on the desired attribute. Images which do not include the attribute are deselected.

3 Click [Open Images] **Open Images** to view the images that remain selected.

7.3 VIEWING AND MODIFYING PATIENT DATA

Summary patient data is displayed in the Image Data and Chart tabs. To edit patient data, or to view additional patient data, click the **Patient Details** button in either the Chart or Image Data tabs.

The ID photo

For each patient record, one image is used as an ID photo. This image appears as a small stamp in the Image Data tab, in the Save Images dialog box and in the Patient List on the Patient Search tab. By default, the ID photo is the first image in a patient's chart. To use a different image as a patient's ID photo, open the Chart for that patient, drag the desired image from the image list and drop it onto the ID photo.

Privacy mode

When using the software in front of a patient, you will probably want to preserve the privacy of other patients in your database. Select the **Privacy** check box at the top of the Patient Search tab to suppress the display of personal information. When Privacy is selected, patient names, social security numbers and ID photos are replaced by the word "(privacy)."

Privacy mode is also available in the Image Data tab.

7.4 EXPORTING AND IMPORTING PATIENT RECORDS

Export patients

The Export Patients command saves a complete patient record—including all patient data, images and image data—to a single file on a hard drive, network server or removable media. The file may then be imported into any Canfield system. This is useful for archiving patient records to offline storage or for transferring patient records from one Canfield system to another.

Exporting a single patient

1 Open the patient chart for the patient you wish to export.

2 Select **Export Patients** from the **File** menu. The Export Patient Records dialog box opens displaying a list of all patients in the active database. The current patient is automatically selected in the list.

3 Confirm that the destination directory displayed at the bottom of the dialog box is the location to which you wish to export the patient record. To select a different export destination, click **Change Directory** and browse to the desired folder. If you wish to make this directory the default export destination, select the **Save Directory Setting** check box.

4 The software automatically assigns a name for the export file composed of the patient's name and a unique number. You may enter a different filename if you wish.

✅ **IMPORTANT: The output filename must end in ".dix" or ".dx2" in order to be imported into a Canfield system.**

5 By default, the software overwrites any file in the export destination that has the same filename as the current export. To be prompted when a file with the same name is encountered, select the **Prompt before deleting existing files with the same name** check box.

6 Click **Export** to save the export file to the selected destination or click **Cancel** to close the Export Patient Records dialog box without saving a file.

Exporting multiple patients

1 Open the Patient Search tab.

2 If you wish, you may enter data in the search fields to filter the patient list (see *7.7 The Patient Search Tab* for details).

3 In the patient list, click on the patient's ID photo to select that patient (clicking a second time deselects the patient). Select all of the patients that you wish to export. You may use the **All/None** buttons above the patient list to select/deselect all patients in the list at once.

4 Select **Export Patients** from the **File** menu. The Export Patient Records dialog box opens displaying a list of all patients in the active database. All patients selected in the Patient Search tab are automatically selected in the dialog box.

5 Confirm that the destination directory displayed at the bottom of the dialog box is the location to which you wish to export the patient record. To select a different export destination, click **Change Directory** and browse to the desired folder. If you wish to make this directory the default export destination, select the **Save Directory Setting** check box.

6 Select the **Export each record to a separate file** check box if you wish to allow patient records to be imported on an individual basis. With this option selected, each patient record is stored as a separate file that is independent of the others. The software automatically assigns a filename to each of these files made up of the patient name and a unique number.

If you wish to export all selected patients to a single file, clear the **Export each record to a separate file** check box. Patients exported to a single file cannot be imported individually. Opening a file that contains multiple patient records imports all patients in that file. (However, patient records will be separate once they are imported.) The software automatically assigns a name for the export file. You may enter a different filename if you wish.

✅ **IMPORTANT: The output filename must end in ".dix" in order to be imported into a Canfield system.**

7 By default, the software overwrites any file in the export destination that has the same filename as the current export. To be prompted when a file with the same name is encountered, select the **Prompt before deleting existing files with the same name** check box.

8 Click **Export** to save the export file to the selected destination or click **Cancel** to close the Export Patient Records dialog box without saving a file.

Exporting patient data as text files

Export and import of patient data as standard text files (*.txt or *.csv) allows exchange of patient demographic data with other programs.

1 Select one or more patients in **Patient Search**.

2 Select **Export Patients** from the **File** menu or right-click on a selected patient and select **Export Patients**.

3 Under **Data format for export** select "Export patient data only to a standard text file (*.csv)".
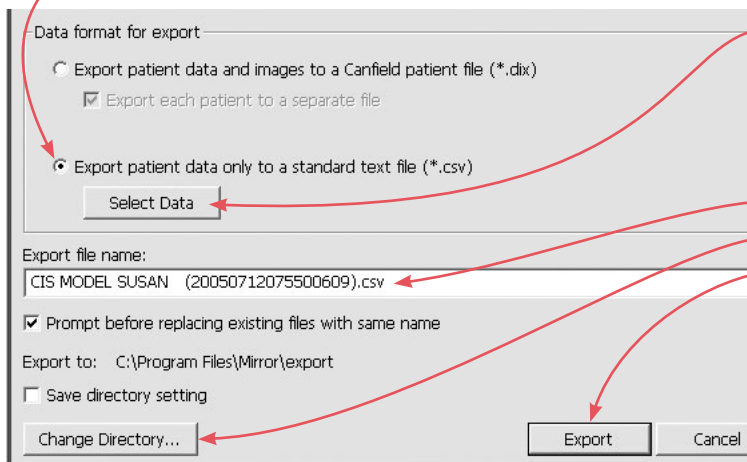
4 Click **Select Data**.

5 Select the desired data fields and click **OK**.

6 Enter a file name, select a directory and click **Export**.

You can now open the exported CSV file in MS Excel or any other program that supports CSV files.

Data format for export
- ○ Export patient data and images to a Canfield patient file (*.dix)
  - ☑ Export each patient to a separate file
- ◉ Export patient data only to a standard text file (*.csv)
  - Select Data

Export file name:
CIS MODEL SUSAN (20050712075500609).csv

☑ Prompt before replacing existing files with same name

Export to: C:\Program Files\Mirror\export

☐ Save directory setting

Change Directory...   Export   Cancel

Import patients

Use the Import Patients command to open a patient record previously exported from a Canfield system into the same system or into a different Canfield system.

1 Select **Import Patients** from the **File** menu. The Import Patient Records dialog box opens displaying a list of all Canfield patient record (.dix) files in the current directory.

2 If the desired file does not appear, click **Change Directory** and browse to the correct folder. If you wish to make this directory the default for future imports, select the **Save Directory Setting** check box.

3 Click to select one or more files in the list. You may use the **Check All** and **Uncheck All** buttons to select or deselect all files at once.

4 If you wish to automatically delete the files from the import directory after they are imported, select the **Delete Record Files When Done** check box. If this check box is cleared, the files will remain in their original location after the records are extracted.

5 Click **Import** to open the selected record files or click **Cancel** to close the Import Patient Records dialog box without importing any patient records.

- If a file contains records for multiple patients, each patient is imported to a separate chart.

- If an imported patient already appears in the active database, the imported record is merged with the existing record.

- If data or images exist in the imported file that are not present in the existing record, the new data or images are added.

- If incoming data or images conflict with existing data or images, the existing record takes precedence.

Importing patient data

1 From your practice management or other software, export patient data as a Comma Separated Values (CSV) file. (For instructions on exporting a CSV file, consult your software's documentation.)

✅ **IMPORTANT:** If you are importing patient data into a Mirror database that already contains data and images, **make sure you have a current backup of that Mirror database before proceeding.**

2 In Mirror, select **Import Patients** from the **File** menu.

3 Click **Change Directory** and browse to the folder with the CSV file.

4 Click a check box to select the desired file in the list.

5 If you are importing patient data into a Mirror database that already contains data and images, you may wish to check for duplicate records as the new data is imported:

- Select **Check for duplicate records**.
- Click **Settings**.
- Select one or more fields to be considered when checking for duplicates. (**Note:** A unique identifier, such as Medical Record Number or Social Security Number, is recommended.)
- Click **OK**.

6 Click **Import**.

7 Select options for field separator and header data that are appropriate for the file being imported.

8 Map data fields in the imported file to data fields in the Mirror database. Imported fields appear on the left. You may use the arrows below this list to view individual records in the imported data. Click to the right of an imported field to select the Mirror data field that should receive that data.

9 Select how you would like to handle any matches that may be detected during import. Unless both your imported data and your existing Mirror data contain a unique identifier such as Medical Record Number or Social Security Number, it is recommended that you select "Prompt for each duplicate found."

10 Click **Finish**.

Merging patient records

Over time, you may find that your Mirror database comes to contain duplicate records for one or more patients. You may clean up your database using one of the following methods:

Merge two selected patients

1 Select two patients in Patient Search.
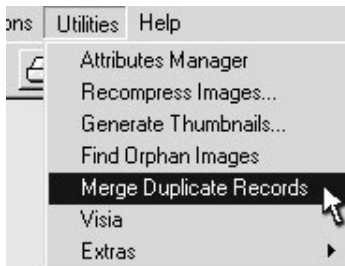
2 Select **Merge Duplicate Records** from the **Utilities** menu.

3 At the prompt, select **Merge two selected records** and click **OK**.

Images from both selected patients are merged into the newer of the two charts and the redundant record is deleted.

Search database and merge duplicate records

1 Select **Merge Duplicate Records** from the **Utilities** menu.
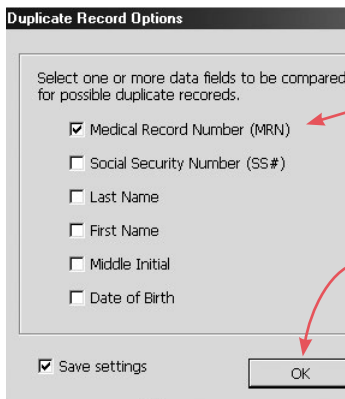
2 Select one or more fields to be used in determining that records are duplicates. (**Note:** A unique identifier, such as Medical Record Number or Social Security Number, is recommended.)

3 Click **OK**.

4 Select how you would like to handle any matches that may be detected. Unless all of the Mirror patient records contain a unique identifier such as

Medical Record Number or Social Security Number,
it is recommended that you select "Prompt for each
duplicate found."

5 Click **OK**.

7.5 DELETING PATIENT RECORDS

The Delete Patients command may be used to remove
one or more patient records from the active database.
It is typically a good idea to export a patient record
(see *7.4 Exporting and Importing Patient Records*) prior
to deleting it.

Removing a single patient record

1 Open the patient chart for the patient you wish to
delete.

2 If you have not already done so, make an archive of
the patient record using the Export Patients command
(see *7.4 Exporting and Importing Patient Records*).

3 Select **Delete Patients** from the **File** menu.

4 When a confirmation message appears, click **Yes** to
remove the patient record or click **No** to cancel the
deletion and keep the record in the database.

Removing multiple patient records

1 Open the Patient Search tab.

2 If you wish, you may enter data in the search fields
to filter the patient list (see *7.7 The Patient Search Tab*).

3 In the patient list, click on the patient's ID photo to
select that patient (clicking a second time deselects the
patient). Select all of the patients that you wish to delete.
You may use the **All/None** buttons above the patient
list to select/deselect all patients in the list at once.

4 If you have not already done so, make an archive of
the patient records using the Export Patients command
(see *7.4 Exporting and Importing Patient Records*).

5 Select **Delete Patients** from the **File** menu.

6 When a confirmation message appears, click **Yes** to remove the patient records or click **No** to cancel the deletion and keep the records in the database.

Restoring a patient record

The Delete Patients command moves patient records to a temporary holding area, similar to the Windows Recycle Bin. If you later change your mind about the deletion, you may restore a patient record back to the active database.

1 Select **Undelete Patients** from the **File** menu. The Undelete Records dialog box appears and displays a list of deleted patients. If the Undelete Patients command is not available, either no patients have been deleted or the deleted records have been purged (see below).

2 Click to select one or more patients in the list. You may use the **Check All** and **Uncheck All** buttons to select or deselect all patients at once.

3 Click **Undelete** to restore the selected patient records or click **Cancel** to close the Undelete Records dialog box without restoring any patients.

Permanently deleting patient records

Although the Delete Patients command removes patient records from the active database, it does not permanently delete them. Deleted records continue to consume storage space on the hard drive or network server until they are purged.

1 Select **Undelete Patients** from the **File** menu. The Undelete Records dialog box appears and displays a list of deleted patients. If the Undelete Patients command is not available, either no patients have been deleted or the deleted records have already been purged.

2 Click to select one or more patients in the list. You may use the **Check All** and **Uncheck All** buttons to select or deselect all patients at once.

3 Click **Purge** to permanently delete the selected patient records or click **Cancel** to close the Undelete Records dialog box without purging any patients.

⚠ **IMPORTANT: Once a patient record has been purged, it cannot be recovered using the Undelete Patients command. Make sure patient records have been properly archived before purging them.**

Purging deleted records automatically

If you wish, you may configure the software to automatically purge all deleted records every time the program exits. This prevents deleted records from consuming storage space unnecessarily.

1 Select **Set Database Options** from the **Options** menu.

2 Select the **Options** tab.

3 Select the **Auto-purge deleted records and images at program exit** check box and click **OK**. Whenever you exit the program, any patient records or images that have been deleted using the Delete Patients or Delete Image commands will be purged automatically.

⚠ **IMPORTANT: When the auto-purge option is selected, you will be unable to restore patient records or images using the Undelete Patient or Undelete Images commands. Make sure all users of your system are informed if you select the auto-purge option.**

7.6 DELETING IMAGES

The Delete Image command may be used to remove one or more images from a patient record.

Removing images from a patient record

1 Open the Chart.

2 Select the image(s) you wish to delete.

3 Select **Delete Image** from the **Image** menu.

4 When a confirmation message appears, click **Yes** to remove the image(s) from the patient record or click **No** to cancel the deletion and keep the image in the chart.

Restoring a deleted image

The Delete Image command moves images to a temporary holding area, similar to the Windows Recycle Bin. If you later change your mind about the deletion, you may restore an image back to it's original patient record.

1 Open the appropriate patient chart.

2 Select **Undelete Image** from the **Image** menu. The Undelete Images dialog box appears and displays a list of deleted images for the current patient. If the Undelete Images command is not available, either no images have been deleted from the current patient record or the deleted images have been purged (see below).

3 Click to select one or more images in the list. You may use the **Check All** and **Uncheck All** buttons to select or deselect all images at once.

4 Click **Undelete** to restore the selected images or click **Cancel** to close the Undelete Images dialog box without restoring any images.

Permanently deleting images

Although the Delete Images command removes images from the patient record, it does not permanently delete them. Deleted images continue to consume storage space on the hard drive or network server until they are purged.

1 Open the appropriate patient chart.

2 Select **Undelete Image** from the **Image** menu. The Undelete Images dialog box appears and displays a list of deleted images for the current patient. If the Undelete Images command is not available, either no images have been deleted from the current patient record or the deleted images have been purged.

3 Click to select one or more images in the list. You may use the **Check All** and **Uncheck All** buttons to select or deselect all images at once.

4 Click **Purge** to permanently delete the selected images or click **Cancel** to close the Undelete Images dialog box without purging any images.

⚠ **IMPORTANT: Once an image has been purged, it cannot be recovered using the Undelete Images command.**

Purging deleted images automatically

If you wish, you may configure the software to automatically purge all deleted images every time the program exits. This prevents deleted images from consuming storage space unnecessarily.

1 Select **Set Database Options** from the **Options** menu.

2 Select the **Options** tab.

3 Select the **Auto-purge deleted records and images at program exit** check box and click **OK**. Whenever you exit the program, any patient records or images that have been deleted using the Delete

Patients or Delete Image commands will be purged automatically.

⚠️ **IMPORTANT: When the auto-purge option is selected, you will be unable to restore patient records or images using the Undelete Patient or Undelete Images commands. Make sure all users of your system are informed if you select the auto-purge option.**

7.7 THE PATIENT SEARCH TAB

The Patient Search tab allows you to enter search criteria to locate an individual patient. When all tabs are collapsed, click on the Patient Search tab at the right edge of the screen. When either the Chart or Image Data tab is open, you may switch to the Patient Search tab by clicking on it (all tabs are located at the left edge of the active tab). The Patient Search tab may also be reached by clicking the 🔍 **Patient Search** button located next to the navigation controls in the Chart.

✔️ To preserve the privacy of other patients in your database when using the software in front of a patient, select the **Privacy** check box at the top of the Patient Search tab. The display of personal information is suppressed when Privacy is selected: patient names, social security numbers and ID photos are replaced by the word "(privacy)."

The Patient Search tab opens, allowing you to enter search criteria to locate an individual patient or you may click **Show all patients** to display a list of patients in the active database.

The total number of patients found appears above the Patient List next to the "Matches" label.

The Patient List may be sorted by last name, by date of birth (D.O.B.) or by medical record number (MRN). Select the desired option from the drop-down list located above the Patient List.

Click the **Clear Search** button at the top of the Patient Search tab to clear all search results.

Patient Search tab

The list may be filtered by entering patient data or image data into the search fields.

The scroll bar to the right of the Patient List may be used to view additional patients.

The number of currently selected patients is displayed above the Patient List. Click on the patient's ID photo or data to select that patient. Click again to deselect. The **All** or **None** buttons may be used to select or deselect all patients in the list at once.

Selected patient records may be exported or deleted by choosing the appropriate command from the **File** menu (top left corner of the screen).

Double-click on an ID photo or on the patient data to open the chart for a particular patient.

Filtering the Patient List

To make it easier to locate specific patients in the database, you may filter the Patient List using any of the patient data or image data that you have entered.

Click in the field that you wish to search by and enter the desired value. As you type, the Patient List is filtered to display only those patients that meet the entered criteria. The total number of current matches is displayed above the Patient List.

If you use a pen and tablet and do not wish to switch between the pen and keyboard, you may type by selecting the alphanumeric buttons located to the left of the Patient List.

If you wish, you may enter data into additional fields. Entering more than one search value returns only patient records that match *all* entered criteria.

Entering a value into one of the image data fields returns every patient that has at least one image meeting the entered criteria. Entering data into more than one image data field returns patients with at least one image that matches *all* entered criteria.

Filtering by name or ID number

Select the desired field (Last Name, First Name, MRN or Social Security) and enter a value. If you pause briefly after typing a letter, the Patient List is filtered to display patients whose data starts with the value in the search field. For example, typing "S" into the Last Name field may show "Samson," "Sanders" and "Smith." Typing "Sa" will narrow the search to "Samson" and "Sanders." Typing "San" will return only "Sanders."

Filtering by dates

Search fields for Date of Birth, Procedure Date, Patient Age, and Image Date are presented as ranges. As long as no data appears in either field for a range, that criterion is ignored.

Entering a value in the **From** field for a date range displays all patients that have a date which is the same as or later than the specified date. Patients with no date entered are excluded from the filtered list.

Entering a value in the **To** field for a date range displays all patients that have a date which is the same as or earlier than the specified date. Patients with no date entered are excluded from the filtered list.

Entering a value in both the **From** and **To** fields for a date range displays all patients that have a date which falls within the specified range. Patients with no date entered are excluded from the filtered list.

Filtering by image attributes

To search based on image attributes, select an attribute type from the Image Attributes drop-down list, then pick a value from the **Selection List**. The selected value appears in the values list. If you wish, you may select additional values for the same attribute or select values for different attributes.

Filtering by notes

Type the desired text into the Notes field. When you stop typing, the Patient List is filtered to show patients having image notes containing the entered text.

7.8 THE IMAGE SEARCH TAB

The Image Search tab allows you to view all images in the database that meet specified criteria.

When all tabs are collapsed, click on the Image Search tab at the right edge of the screen.

When the Chart, Patient Search or Image Data tab is open, you may switch to the Image Search tab by clicking on it; all tabs are available at the left edge of the active tab. The Image Search tab may also be opened by selecting **File ▸ Search for Images…**.

Performing a search

Performing an image search is similar to performing a patient search. You can search for a specific image by patient identification such as name, date of birth (D.O.B.), medical record number (MRN), social security number, sex or race. You can also search for an image or set of images based on parameters such as procedure, diagnosis, or patient age. For example, you can display all images in the database of male patients between the ages of 20 and 70 with Alopecia by entering that criteria.

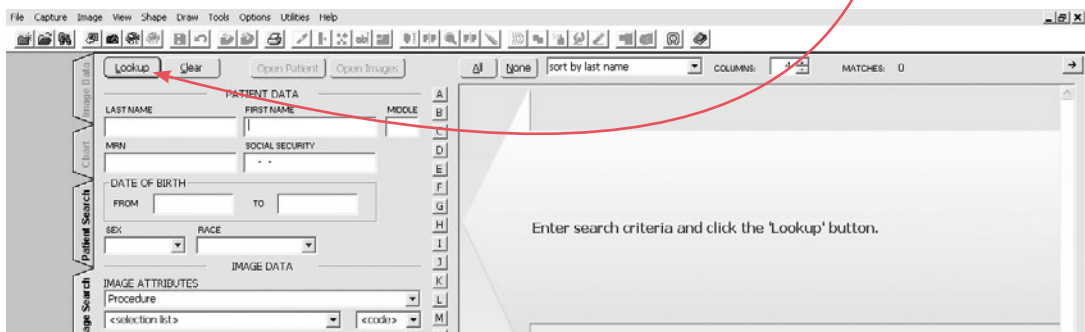After entering search criteria, click **Lookup** to execute the search.

Image Search tab

Note: If the **Lookup** button is flashing, click **Lookup** to refresh the search.

Image search results

Search results in the Image Search tab produce an image list that looks and functions the same way as the images displayed in the Chart. Click to select/deselect images. Use the main menus and toolbar to perform commands on the selected images. Double-click on an image to open the image in the Image Gallery. Right-click on any image for a pop-up menu of common commands.

Images can be sorted using the **Sort by** drop-down list at the top of the screen. Thumbnails can be resized by changing the **Columns** setting.

Opening a patient chart from Image Search

Right-click on an image in the Image List and select **Open Patient**. The Chart opens displaying only those images for that patient that meet current search criteria. To view all images for the selected patient, select **View All** from the Search Results Filter drop-down list.

7.9 WORKING WITH IMAGES IN THE CHART

The typical approach to working with images is as follows:

1 Use the Patient Search or Image Search tab to locate a specific image.

2 Open the Chart.

3 Select one or more images.

4 Select commands from the toolbar or menus.

When the Chart is open, the availability of commands depends upon the selection of images. Some commands are always available. Some commands are available only if one or more images are selected. Some commands require that exactly one or exactly two images be selected. Still other commands require that one or more simulation images be selected.

Any modifications made to images while the Chart is open—either with tools in the Image menu or with simulation tools—are saved automatically.

When images are captured or imported (by selecting a command from the **Capture** menu) with the Chart open, new images are automatically saved to the current patient.

Refer to *7.1 Thumbnail Images In the Chart and Image Search Tabs* for more information about working with thumbnails.

7.10 WORKING WITH IMAGES IN THE IMAGE GALLERY

About the Image Gallery

The Image Gallery provides a workspace that allows you to focus on a small number of images with a minimum of screen clutter. This is helpful when using the software during a patient consultation. The Image Gallery also provides a convenient method of working with images from multiple patients.

The Chart, Patient Search and Image Search tabs must be closed for the Image Gallery to be active (the Image Data tab has no effect). As long as the Chart, Patient Search and Image Search remain closed, any commands selected from the main menus or toolbar are performed on either the active image or on all open images (depending on the specific command).

Opening images

1 Locate and open the patient chart containing images you wish to open or perform a search in the Patient Search or Image Search tab.

2 Click one or more images to select them. (Clicking on a selected image deselects it.) The **All/None** buttons may be used to select/deselect all images at once.

3 Click **Open Images** (or double-click on an image) to open the selected images in the Image Gallery. The Chart or Image Search tab retracts to the right edge.

Viewing open images
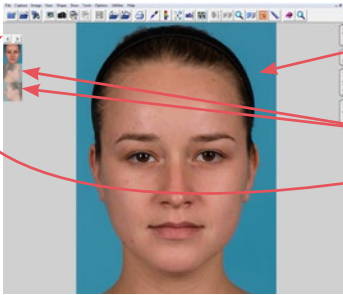
One open image—the "current" or "active" image—appears full-size in the viewing area of the main screen.

The other open images are represented as small "stamps" in the Image Gallery.

The left and right arrows at the top of the Image Gallery may be used to view additional stamps. Clicking on a stamp switches to the corresponding image.

If an open image has been modified using a simulation tool, or if an image contains both standard and UV image data (from VISIA, for example), one of three different cursors appear as you move the mouse over the corresponding stamp:

Normal Select Cursor — The Normal Select Cursor appears as you float over the right side of a stamp. Clicking with the Normal Select Cursor displays the image in the main screen.

Side-by-Side Cursor — The Side-by-Side Cursor appears as you float over the middle of a stamp. Clicking with the Side-by-Side Cursor opens the original and modified versions of the image in the Side-by-Side tool. (For more information, see *8.1 Side-By-Side*)

Compare Cursor — The Compare Cursor appears as you float over the left portion of a stamp. Clicking with the Compare Cursor opens the original and modified versions of the image in the Compare tool. (For more information, see *8.2 Compare*)

New/modified images in the Image Gallery

Any modifications made to images while the Chart is closed—either with tools in the Image menu or with simulation tools—are saved to the Image Gallery. In order for such modifications to be available for viewing at a later time, they must be saved to the Chart (see *Chapter 6, Saving Images*).

When images are captured or imported (by selecting a command from the **Capture** menu) with the Chart closed, new images appear in the Image Gallery. In order for such images to be available for viewing at a later time, they must be saved to a patient record (see *Chapter 6, Saving Images*).

The Image Data tab

The Image Data tab displays patient and image information for the active (full-size) image displayed in the Image Gallery. Refer to *Chapter 6, Saving Images* for details about the Image Data Tab.

CHAPTER 8
View Tools

8.1 SIDE-BY-SIDE

Use Side-by-Side to view two different images—or the original and modified versions of an image—next to each other on the screen.

Viewing two different images

1 Select two images in the Chart.

2 Without closing the Chart, select **Side-by-Side** from the **View** menu, or click the ⬚ **Side-by-Side** button on the toolbar.

✔ You may save the side-by-side view as a single image: Click ⬚ in the upper right corner.

3 Optional: With PhotoTools, you may use the Whiteboard tool to temporarily mark up the images. Right-click to return to Side-by-Side.

4 To view a magnified portion of each image, click on the 🔍 **Loupe** tool. Move the cursor to view different areas of the image. Click the **+** or **−** keys to adjust magnification.

5 Click on the main image to freeze the magnified area. Click on the Loupe image to reactivate it.

6 To save the Loupe images, right-click on the Loupe image and select **Save Image**.

7 To exit the Loupe tool, right-click on the Loupe image and select **Close Loupe**.

8 Right-click to exit the Side-by-Side tool and return to the Chart.

Viewing original vs. modified

1 Select or open a modified image. (*Note:* A modified image is created by using the simulation tools.)

2 Select **Side-by-Side** from the **View** menu, or click the 🔲 **Side-by-Side** button on the toolbar.

3 Optional: With PhotoTools, you may use the Whiteboard tool to temporarily mark up the images. Right-click to return to Side-by-Side.

4 Right-click to exit the Side-by-Side tool.

Side-by-Side image size

You may use either of two methods for viewing images with the Side-by-Side tool:

Best Fit — Images are sized so their heights match the height of the screen. A horizontal scroll bar appears as needed to allow viewing of the full width of the images.

Full Image — Images are sized so both full images appear on screen at once without scrolling.

1 Select **Set Tool Options** from the **Options** menu.

2 Click the **General** tab.

3 Under **Side-by-Side Image Size**, select either "Best Fit" or "Full Image."

4 Click **OK** to close the Tool Options dialog box.

8.2 COMPARE

With PhotoTools or Rejuvenation, you may use Compare to fade between two different images (typically pre-op and post-op) or to fade between the original and modified versions of a single image.

Comparing two different images

The compare tool is most effective when used on two images of the same view with the same framing and magnification. For best results, you may wish to use the Match Orientation tool prior to using Compare.

1 Select two images in the Chart.

2 Without closing the Chart, select **Compare** from the **View** menu, or click the 🖼️ **Compare** button on the toolbar.

3 Move the cursor up and down on the screen to fade between the two images.

4 Optional: Click at any point during the fade to activate the Whiteboard tool. Right-click to return to Compare.

5 Right-click to exit the Compare tool and return to the Chart.

Comparing original to modified

1 Select or open a modified image. (*Note:* A modified image is created by using the simulation tools.)

2 Select **Compare** from the **View** menu, or click the 🖼️ **Compare** button on the toolbar.

3 Move the cursor up and down on the screen to fade between the original and modified images.

4 Optional: Click at any point during the fade to activate the Whiteboard tool. Right-click to return to Compare.

5 Right-click to exit the Compare tool.

8.3 COMPARE METHOD

From the **View** menu, select **Compare Method** to set how the program displays images in Compare and Side-by-Side mode (requires PhotoTools).

Normal — The image appears in color.

Embossed — The image's features are embossed onto a grayscale screen.

Embossed mode is useful for showing wrinkles and edges, or showing a patient's image in a less personal way.

8.4 ZOOM

Use Zoom to magnify an area of the active image for closer examination. Images cannot be edited in zoomed mode.

Note: To make the Zoom tool available in the **View** menu, select **Customize** in the **Options** menu. In the **menu** tab, select **View**. Be sure **Zoom** is checked in the Available Tools list.

1 Open or select an image. (*Note:* When working from the Chart, you must select only a single image. The Zoom tool is unavailable if more than one image is selected.)

2 Select **Zoom** from the **View** menu.

3 Click on the center of the area you wish to magnify.

4 Move the cursor up or down to interactively change the magnification.

5 Click to freeze the magnified area. The Whiteboard tool is activated automatically.

6 Right-click to return to a full-image view. If you wish, you may repeat steps 3–6 to magnify different areas of the image.

7 When you are finished, right-click to exit the Zoom tool.

8.5 THE LOUPE TOOL

The Loupe tool may be used to magnify areas of an open image for closer on screen examination. You must open an image to view it with the Loupe tool (the Loupe tool is not available from the Chart).

Using the Loupe tool

1 Open one or more images. (*Note:* The Loupe tool is not available from the Chart.)

2 Select **Loupe** from the **View** menu, or click the 🔍 **Loupe** button on the toolbar.

3 Move the cursor to view different portions of the image.

4 Click anywhere on the main image to freeze the current image in the Loupe tool. Click in the Loupe window to reactivate it.

The Loupe tool window

The Loupe tool window may be moved by dragging the title bar. The window may be resized by dragging the window borders. (*Note:* The Loupe tool must be open but not active in order to move or resize the window. Click in the main image to deactivate the Loupe tool.)

Switching views in the Loupe tool

Mirror's Loupe tool allows you display any available view in the Loupe window: Simply roll the mouse wheel to cycle through the views. If your mouse does not have a wheel, right-click and select the view you want from the pop-up menu. If UV and/or cross-polarized images are available, you can display processed (i.e., RBX Red, RBX Brown, UV Spots, Porphyrins) and unprocessed images, as well as the "enhanced" view.

The Loupe tool pop-up menu

While the Loupe tool is active, right-click in the Loupe window to open a pop-up menu of commands. The pop-up menu allows you to select the view to be displayed in the Loupe window, select a level of magnification, save a copy of the image currently displayed in the Loupe window, or close the Loupe tool.

Keyboard commands

The following keyboard commands are available while the Loupe tool is active:

+/– — The plus and minus keys may be used to change the level of magnification.

↑ ↓ ← → — The arrow keys may be used to move the target area in small increments.

5, 1, 2, 3, 4 — Number keys may be used to jump directly to magnification levels of 50%, 100%, 200%, 300% or 400%.

Space bar — Used to save a copy of the image currently displayed in the Loupe tool.

8.6 THE ENHANCE TOOL

Use the Enhance tool to display the standard image side-by-side with an enhanced image. The enhanced image makes pigment, fine lines, and other surface features more apparent.

1 Open an image.

2 Select **Enhance** from the **View** menu or click on the ⬚ **Enhance** button on the toolbar.

3 If you wish, adjust the Brightness and Contrast of the enhanced image.

4 To view a magnified portion of each image, click on the 🔍 **Loupe** tool. Move the cursor to view different areas of the images. Click the + or – keys to adjust magnification.

5 Click on the main image to freeze the magnified area. Click on the Loupe image to reactivate the Loupe.

6 To save the Loupe images, right-click on the Loupe image and select **Save Image**.

7 To close the Loupe image, right-click on the Loupe image and select **Close Loupe**.

8 To save the Enhanced image, click 💾 **Save**.

9 Right-click to exit the Enhance tool.

10 From the **File** menu, select **Close All Images**. At the prompt, click **Yes**.

11 On the Save Images window, select the images you wish to save to the chart and click **Save & Close**.

8.7 LAYERS

With PhotoTools, you may use layers to display various data associated with the active image.

Analysis — All markings and values created with the Measurements tool (distances, angles, proportions and areas).

Comparative Analysis — All markings and values created with the Comparative Analysis tool (distances and angles).

Labels — All labels and callouts created with the Labels tool.

ImageCheck — The ImageCheck symbol that appears in the lower right corner of each image.

Composite — When an image is added to a layout board, any visible layer data for that image gets combined into a single "Composite" layer.

Density — All markings and values created with the Density (hair counting) tool.

Modesty — All privacy panels created with the Modesty tool.

8.8 PRIORITIZE

The Prioritize tool is used to display modifications made to selected areas of an image. If, for example, you have used the simulation tools to simulate both wrinkle removal and laser resurfacing on a single patient image, you may use Prioritize to show just the wrinkle simulation or just the resurfacing simulation. Prioritize is a feature of Rejuvenation.

1 Open or select a modified image.

2 Select **Prioritize** from the **View** menu.

3 Circle one or more areas of the image for which you wish to display modifications.

4 Click inside any circled area to enter Compare mode.

5 Move the cursor up and down to fade the selected modifications in and out.

6 Optional: To include additional areas of the image, click to stop Compare mode then click again. Repeat steps 3–5 as needed for additional areas.

7 Optional: To replace the current selection by selecting a different area, right-click to exit Compare mode then repeat steps 2–5 as needed.

8 Right-click to exit the Prioritize tool.

8.9 CONSULTATION TOOLS

PhotoTools includes several features that may be used to incorporate images into aesthetic consultations. **All of the features described in this section require PhotoTools.**

Mirror

Use Mirror to present the patient's image the way the patient sees it in a mirror. Mirror is normally used on frontal images.

The Mirror tool has two modes: full screen and side-by-side. Full screen is the standard setting.

1 Select an image. From the main menu, select **View** then **Mirror**. A mirrored version of the image appears on the screen.

The image is labeled "Mirrored" and the cursor appears as a whiteboard pen.

2 With the whiteboard cursor, tap and drag with the pen or click the left mouse button and drag to mark non-destructively on the image. Press the pen's side button or right-click the mouse to exit the whiteboard tool.

3 Tap or click to display the normal-view image. The image is labeled "Normal."

4 Optional: Tap again to toggle between mirrored and normal versions of the image.

5 Press the pen's side button or the right mouse button to return to the Chart.

You can set the side-by-side mode as the standard mode for showing mirrored images (see *3.3 Setting Tool Options*).

In side-by-side mode, when you select the Mirror command, the normal-view image is displayed next to the mirrored image. The image on the left is

labeled "Normal" and the image on the right is labeled "Mirrored." The view in side-by-side mode does not toggle as in Step 4.

Asymmetry

Use Asymmetry to show the natural asymmetry of the patient's unmodified image. The Asymmetry tool displays two left sides of the patient's features combined and two right sides of the patient's features combined, side-by-side. Asymmetry is typically used on anterior or posterior images.

1 Select an image. From the main menu, select **View** then **Asymmetry**. The cursor becomes a vertical line.

2 Move this line to the center of the image and tap or click. A "Right Side" and a "Left Side" image appear next to each other on the screen and the cursor changes to a whiteboard pen.

3 Optional: Tap and drag the pen or click the left mouse button and drag to draw with the whiteboard cursor. Press the pen's side button or right-click the mouse to exit the whiteboard tool.

4 Optional: tap or click and reset the vertical line.

5 Press the pen's side button or the right mouse button to return to the Chart.

Show Edges

Show Edges displays the active image in embossed mode. Embossing the image removes the color from the image and enhances edges, highlights, and depressions. Its purpose is to draw a patient's attention to a profile or wrinkles in the skin rather than the patient's overall appearance.

✅ You cannot edit an image in Show Edges.

1 Select an image. From the main menu, select **View** then **Show Edges**.

2 Move the cursor up and down to reduce or increase the embossed detail.

3 Tap or click to freeze the image. The cursor appears as a whiteboard pen.

4 Tap and drag the pen or click the left mouse button and drag to draw non-destructively on the image.

5 Press the pen's side button or right-click the mouse button to return to embossing.

6 Press the pen's side button or right-click the mouse button to return to the Chart.

Blank Screen

Blank Screen serves to keep patient data private when you are temporarily away from the system. The blank screen can also serve as a view box for x-rays.

Select **Blank Screen** from the **View** menu. The screen becomes blank. Click to return to the program.

Note: To make the Blank Screen tool available on the **View** menu, select **Customize** on the **Options** menu. On the **menu** tab, select **View**. Be sure **Blank Screen** is checked in the **Available tools** list.

CHAPTER 9
Printing

9.1 THE PRINT SCREEN

1 Select or open the images you wish to print.

2 Select **File ▸ Print ▸ Print Page(s)**. The Print screen appears.
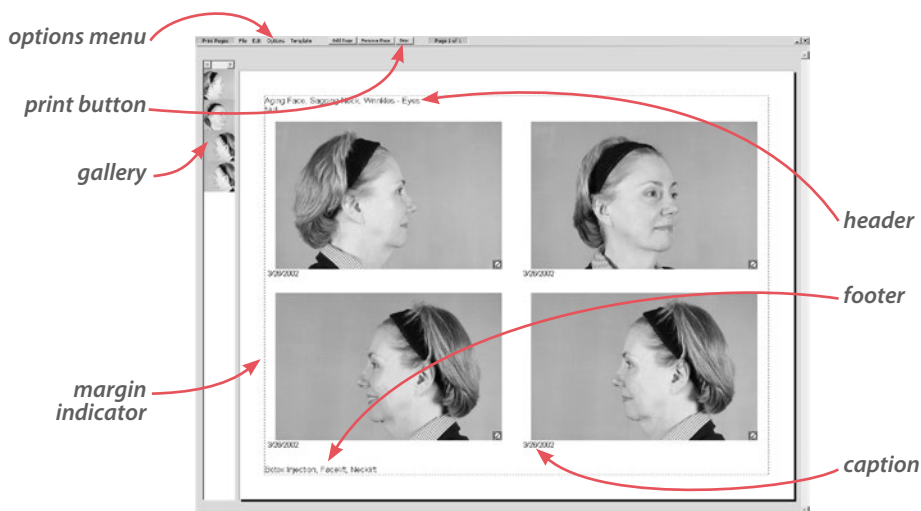
The Print screen provides a preview of how the printed page(s) will appear. Using the menus and the interactive preview area, you may adjust the page layout, change the number or images per page, add captions, etc.

3 When the page appears as desired, click **Print** to send the page(s) to the selected printer (or right-click to exit without printing).

9.2 PRINT OPTIONS

General printing options

The upper portion of the Options menu contains submenus for selecting the printer, number of copies, paper size and page orientation. When **Optimal** is selected from the **Orientation** submenu, PhotoFile automatically selects either a horizontal (landscape) or vertical (portrait) orientation based on the first image on each page. You may override this automatic selection by selecting landscape or portrait orientation.

Page Properties

Select **Page Properties** from the **Options** menu to open the Page Options dialog box.

Print Headers and Footers — If you wish, you may enter text to appear at the top and/or bottom of every page. Up to two lines of header text and two lines of footer text may be entered. The check boxes at the top of the Page Options dialog box determine which headers and footers will be printed. To enter text for headers and footers, click the **Edit Headers/Footers** button.

Minimum Page Margins — Enter values in inches for the minimum margins at the left, right, top and bottom of the printed pages. Depending on the aspect ratio of the images and the layout of the page, the actual margins may be larger than the minimum values entered.

Between Image Spacing — Enter a value in inches for the minimum space between images when multiple images appear on a page.

Maximum Images Per Page — Enter the number of images you wish to print on each page.

Save Settings — When selected, the current settings will be saved as default values. Clear this check box to apply settings only to the current print job.

Image Properties

Click to select one or more images on the preview page (a green border appears around selected images). Click again to deselect an image. If you wish, you may use the **Select All** and **Select None** commands in the **Edit** menu.

Select **Image Properties** from the **Options** menu to open the Image Properties dialog box. This dialog box is used to set printing options for the selected image(s).

Print From — For images that have been modified using the simulation tools, you may choose to print the original image, the modified image or both images side-by-side. This setting has no effect on images that have not been modified.

Print Layers — You may choose to selectively print or suppress the Analysis and Labels layer as well as the ImageCheck symbol.

VISIA options — For each VISIA image, a specific skin feature may be selected for printing. Select the VISIA image, then select the skin feature from the drop-down list. Check the **Mask Overlay** box if you wish the mask overlay to be printed. If **Mask Overlay** is checked, select a line width from the drop-down list.

Document Properties

Select **Document Properties** from the **Options** menu to open the settings dialog box for your printer. Refer to the printer documentation to determine the best settings for photographic output.

9.3 THE INTERACTIVE PREVIEW

The print preview allows you to interactively adjust the page layout. Use the scroll bar at the right edge of the screen to move among multiple pages.

Adding an image to the page

1 Drag a stamp from the image gallery to the preview page. (Once the thumbnail starts to move, you can release the mouse button.)

2 Move the stamp into an empty or occupied location on the preview page.

3 Click to place the image in the desired location. If there was already an image in this location, it is replaced but still remains in the image gallery for use.

Moving an image on the page

1 Drag an image on the preview page. (Once the image starts to move, you can release the mouse button.)

2 Move the image to a new location.

3 Click to place the image in the desired location. If there is an image in this location, it trades places with the moved image.

Removing an image from the page

1 Drag an image on the preview page. (Once the image starts to move, you can release the mouse button.)

2 Move the image off the preview page.

3 Click outside the preview area to remove the image. The image is removed from the page but still remains in the image gallery for use.

Changing the page margins

1 Move the cursor over the dashed margin indicator. The cursor changes to a double-headed arrow. Click to activate margin adjustment.

2 Move the margin indicator to the desired position.

3 Click to place the new margins.

Editing headers and footers

You may click any header or footer on the preview page to open the Edit Headers and Footers dialog box. If no headers or footers appear on the page, you may add them by using the Page Properties command (see above).

Image captions

A single line of text may be printed below each image.

1 Move the cursor to the bottom of an image on the preview page. The cursor changes to an I-beam.

2 Click with the I-beam cursor to open the Edit Caption dialog box.

3 Enter the desired caption and click **OK**.

Adding image data to captions

If you wish, you may instruct the software to automatically pull patient data and/or image data from the database to be included in a caption.

1 Click with the I-beam cursor at the bottom of an image to open the Edit Caption dialog box.

2 Click in the Caption field to position the cursor at the point where you wish the data to appear.

3 Click the **Insert Field** button.

4 In the Insert Field dialog box, select the desired data field and click **Insert**. The name of the data field appears in the caption surrounded by two "%" symbols.

You may add text or other data fields either before the first "%" or after the second "%." Do not edit the text between the two "%" symbols.

5 Click **OK** to close the Edit Caption dialog box. The data field name is replaced by the appropriate value for the image. If no data has been entered, no text appears.

9.4 PRINTING EVENT REPORTS

1 To print event reports, from the **Utilities** menu, select **Extras**, then **Security Reports**.

2 At the prompt, log in. (Only Canfield DB Administrators or Power Users may log in to view reports.)

3 The Event View screen appears for the currently selected database. (To switch to another database, select **Database** from the **File** menu. Enter your login and select the database from the drop-down list.)

4 Database event reports may be generated by user, patient, or event. Double-click on one of these options.

5 To display patient details for a specific event, double-click on the event. To view more detail, on the Description window, click on **Patient Details** if this option is available.

6 System event reports may be generated by database, user, workstation, or event. Double-click on one of these options.

7 To display details for a specific event, double-click on the event.

8 To customize the displayed information, select **Configuration** from the **Action** menu at the top of the screen.

9 Click on **Select all events** or enter start and end times to view events during a specific time period. Select the order in which to display events (Newest first, Oldest first, or Original order). Select the

information you wish to view from the Displayed columns window.

10 To generate a printable Event Report, select **Create Report** from the **Action** menu. Use the icons at the top of the screen to print or export the report, reduce or enlarge the on screen page size, search for text, or refresh the screen.

11 To view and print event reports for another database, select **Database** from the **File** menu. Enter your login and use the drop-down menu to select another database. Click **OK**.

9.5 PRINT TEMPLATES

Print templates allow you to save complete sets of print settings (general options, page properties, image properties and captions) for future use.

Creating a print template

1 Open the print tool and make all desired adjustments to the page layout.

2 Select **Add Template** from the **Template** menu.

3 Enter a name for the template and click **OK**.

Applying a print template

Any print templates you have created will appear in the **Template** menu. Select a template from the menu to apply it to the current print job. If you have created many templates, you may need to select **More** from the **Template** menu to see the full list.

Deleting a print template

1 Open the print tool. Select **More** from the **Template** menu.

2 Select a template in the list and click **Delete**.

CHAPTER 10
ViewMyConsult® Patient Portal

With the ViewMyConsult patient portal you can upload patient images to a secure website directly from the Mirror application. Patients then receive a personal log-in which allows them to view these pictures in any web browser. From here they can also access your licensed educational material from The Aesthetic Society (ASAPS) or Understand.com®, or click through to your practice website. Your access to ViewMyConsult requires an active license from Canfield Scientific and a current Canfield Care Support & Upgrade agreement. For more information, contact your Canfield representative.

10.1 MONITORING PORTAL STATUS

To access the Canfield Services utility control panel, click the 🌀 **Canfield Services** icon on the Windows desktop. From here you can monitor upload activity and portal status. In order to upload images, there must be green check marks (✓) next to "local service connection" and "Canfield Cloud connection" in the **Portal Connection** area, and in the **Active** column next to the "Mirror" application. If a red ✗ appears in any of these areas, contact your IT administrator.
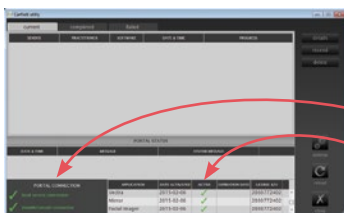
10.2 UPLOADING PATIENT IMAGES

1 From the patient chart in Mirror, click to select those pictures that you want to appear in your patient's ViewMyConsult session. The frame around selected images will turn blue.

2 Under **Tools** on the menu bar, select "Patient Portal" from the dropdown.
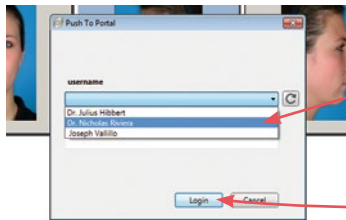
3 In the "Push to Portal" dialogue, select the user name of the staff member who is performing the upload from the dropdown. If prompted for a password, enter the user's ViewMyConsult password, then click **Login** to continue.
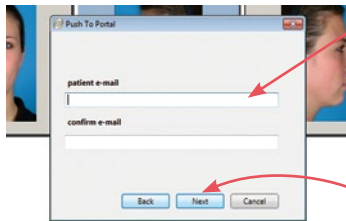
4 Enter the patient's email address. If there is an existing email address in the patient record, it will appear in the patient e-mail field. Otherwise, enter an email address where you want the patient's login information to be sent. Confirm the email address and click **Next**.
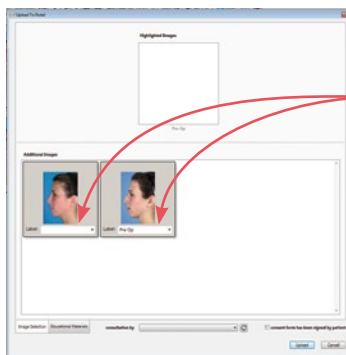
5 The selected images are displayed in the "Additional Images" window in the "Upload to Portal" dialogue. Select or enter the desired label for each image. This label is displayed to the patient in ViewMyConsult and may also be saved to the patient chart.
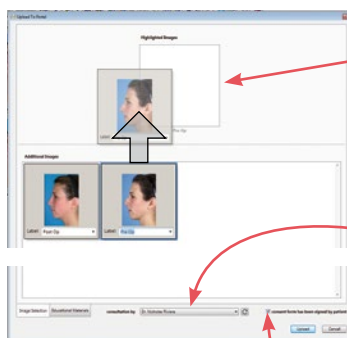
6 If a Pre-Op image is displayed in the "Additional Images" window, drag it to "Highlighted Images". The patient will be able to view the designated Pre-Op side-by-side with any of the images in the "Additional Images" window, such as simulations or Post-Op.

7 From the **Consultation By** drop down menu, select the name of the practitioner who is associated with this consultation. This name is displayed to the patient in ViewMyConsult.
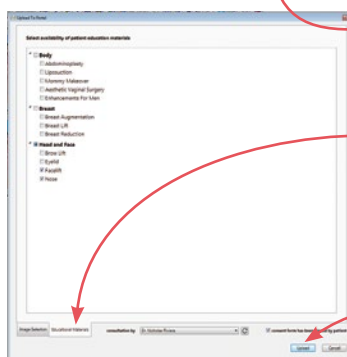
8 Check the box to confirm that the patient has signed a consent form for the upload.

9 *Optional:* Click the **Educational Materials** tab to make selected patient education materials available to the patient in ViewMyConsult. *This option is only available if you have licensed the materials from The Aesthetic Society.*

10 Click **Upload**. The "Save Image Label" dialog is displayed if you entered new labels for any of the images (step 5). Click **Yes** if you wish to save the new image labels to the patient chart.
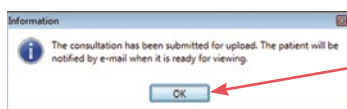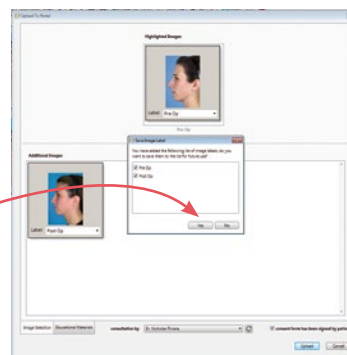
11 When the "submitted for upload" confirmation message is displayed, click **OK** to return to the Mirror patient chart. **Note:** The status of current (in process), completed, or failed consultation uploads can be viewed in the Canfield Services control panel.

Integrating Mirror with Other Programs

Mirror software allows you to transfer images directly into other programs (such as Microsoft Word) using a simple cut and paste function. It also allows you to export images saved in standard file formats, which can be opened or imported into other software. Mirror includes a command specifically for exporting images to PowerPoint.

Images captured using Canfield's VISIA complexion analysis system can be imported into Mirror.

11.1 COPY AND PASTE

Often, the most straightforward way to transfer an image to another program is to use the Windows Clipboard (i.e., Copy and Paste).

1 Open or select a single image. (*Note:* The Clipboard may not be used to transfer multiple images at once.)

2 Select **Copy Image** from the **Image** menu.

3 Switch to another program that supports images on the Clipboard.

4 Select the Paste command in the other program (see the manufacturer's documentation for details).

5 Repeat steps 1–4 as needed for additional images.

☑ It is also possible to Paste images from the Clipboard into the Image Gallery or the Chart (using the **Paste Images** command in the **Image** menu). Importing

images in this manner, however, does not capture any image data for Image History (see *5.5 Image History* for details on Image History). It is generally better to import images using the **Import Images** command (see *5.2 Importing Previously Captured Images*).

11.2 EXPORTING IMAGES

The **Export Images** command may be used to save images as standard image files. These image files may then be opened or imported into other software.

1 Select or open one or more images.

2 From the **Image** menu, select **Send To** then **Export Images** to open the Export Images dialog box.

3 Select the images you wish to export (if you wish to export all displayed images, you may skip this step).

4 Select a file format from the **Export Format** drop-down list.

5 Select the **Export Modified Data** check box to export the modified versions of images (if present). Clear this check box if you want to export only the original versions of images. *Note:* For images with no modified data, this setting has no effect.

6 Confirm that the Export Directory (displayed to the right of the **Change Directory** button) is the location to which you wish to export image files. If not, click **Change Directory** and browse to the correct folder. If you wish to make this the default destination for the Export Images command, select the **Save Directory Setting** check box.

Export Image Settings

(*Optional*) Click **Settings** to open the **Export Image settings** dialog for additional options.

Export file names

- *Default* — A file name is generated using the patient name and the unique database record number for each image (this is the file name format used in previous versions of Mirror).

- *Sequential numbering* — File names will start at the specified number and increment by one, with leading zeros added to always create a six-digit file name.

- *Custom file name format* — File name format is specified by typing and/or using the **Insert Field** button (a three-digit number is appended to all file names to ensure uniqueness).

An example file name based on the selected option is displayed below the "Export file names" controls.

Subfolders

By default, all images are exported to the same Windows folder. If you wish, you may choose to separate exported images into subfolders based on a selected data field. If you select an attribute with multiple values for a single image (e.g., Procedure), only the first value for each image will be considered.

Data file

By default, the Export Images feature generates image files only. If you wish, you may now choose to export applied data along with (or instead of) images. This feature generates a Comma Separated Values (CSV) file that may be opened in MS Excel or a number of other programs. Use the Select Fields button to define which data you wish to export. If you select an attribute with multiple values for a single image (e.g., Procedure),

only the first value for each image will be exported to the data file.

Image size

This feature allows you to specify the size and/or output resolution of exported images. This is most useful for the following:

- *Reducing image size for internet use* — Check with your web developer for an appropriate resolution, then enter the desired width and/or height in inches and enter 100 in the **Resolution** field. For example, to export images at 400 ✕ 300 pixels, enter "3" for **Width**, "4" for **Height**, and "100" for **Resolution**.)

- *Journal submissions* — Many scientific journals specify a minimum required output resolution for submitted images (e.g., 300 dpi). Enter the required value in the **Resolution** field. If you know the desired width of the image when printed, enter that in the **Width** field. You may leave the **Height** field blank.

✔ **Note:** The "Make images smaller but not larger" option prevents images from ever being "up-sampled." Since up-sampling increases file size without improving image quality, you should generally leave this option selected.

7 Click **Export** to export the selected images or click **Export All** to export all displayed images, whether they are selected or not.

✔ **Note:** The software automatically assigns a file name to each exported image file. **If a file with the same name already exists in the Export Directory, it is replaced by the new file.** If you select the **Prompt on Replace** check box in the Export Images dialog box, whenever a file name conflict occurs you will be prompted to choose whether or not to replace the existing file.

11.3 SEND TO POWERPOINT

The Send To PowerPoint command provides an easy way to transfer images to a Microsoft® PowerPoint® presentation.

Note: You must have Microsoft PowerPoint 2000 or later installed on the same computer to use the Send to PowerPoint command. Microsoft PowerPoint *is not* included with Mirror software.

1 Select or one or more images in the Chart or Image Search tab.

2 Right-click on a selected image and select **Send To PowerPoint** from the pop-up menu. (Or, select **Image ▸ Send To ▸ PowerPoint….**)

3 Select a PowerPoint presentation:

- **Open Presentation** — Add slides to the end of a presentation that is currently open in PowerPoint.

- **New Presentation** — Automatically create a new, blank presentation and add slides to it.

- **Saved Presentation** — Automatically open the selected PowerPoint file and add slides to the end of it. (Use the **Browse** button to select a file.)

select a PowerPoint presentation
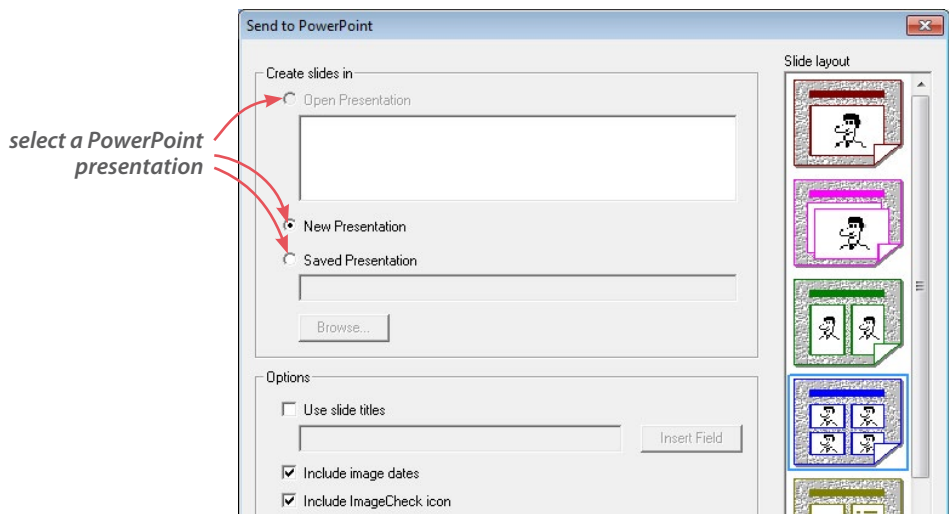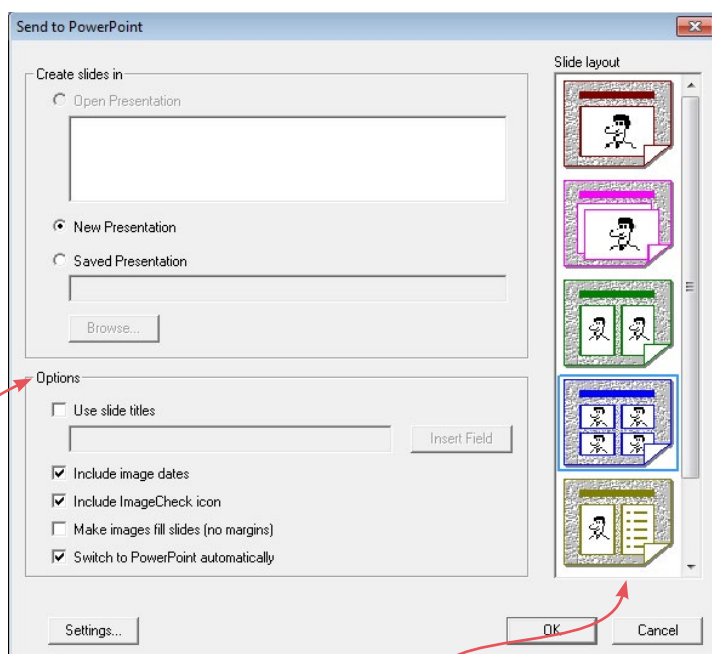
4 Select a slide layout from the list. You may choose to place one, two or four images per slide, or create slides with one image and associated data, or overlay images with fade.

5 Select the desired options:

- **Use slide titles** — Select this option to include a title text box on each slide. If you wish you may enter title text in the field provided. Click **Insert Field** to automatically create slide titles based on patient/image data (when placing more than one image per slide, only data from the first image on each slide will be used).

- **Include image dates** — Automatically place the image date as a caption below each image in PowerPoint.

- **Include ImageCheck icon** — Send images with an ImageCheck icon in the lower right corner reflecting the current image status.

- **Make images fill slides (no margins)** — Disregard the slide margins as defined in PowerPoint® and maximize the size of images on the slides. May be used with any of the slide layouts.

- **Switch to PowerPoint automatically** — The presentation automatically opens in PowerPoint after you click **OK**.

6 (Optional) Click **Settings** to open a dialog box with the following options:

- **Patient/image data** — Select which patient/image data you wish to send when using a slide layout that includes data.

- **Resize images** — Select the resolution at which you wish to send images to PowerPoint. Choosing an appropriate image size can produce smaller PowerPoint files that display faster with no noticeable difference in image quality.

- **Modified images** — Select desired option for modified images:
  - Send original image data
  - Send modified image data
  - Send both images with fade.

7 Click **OK**.

Microsoft PowerPoint automatically opens and images are added to new slides in the selected presentation. (You may need to switch programs manually: Hold down the **Alt** key while you press the **Tab** key.)

Send multiple images with a fade effect
(Requires MS PowerPoint 2003 or higher.)

1 In **Chart** or **Image Search**, select two or more images (e.g., a pre-op and a post-op image).

2 Right-click on one of the selected images and select **Send to PowerPoint**.

3 Select the second slide layout, "Overlay images with fade", and click **OK**.
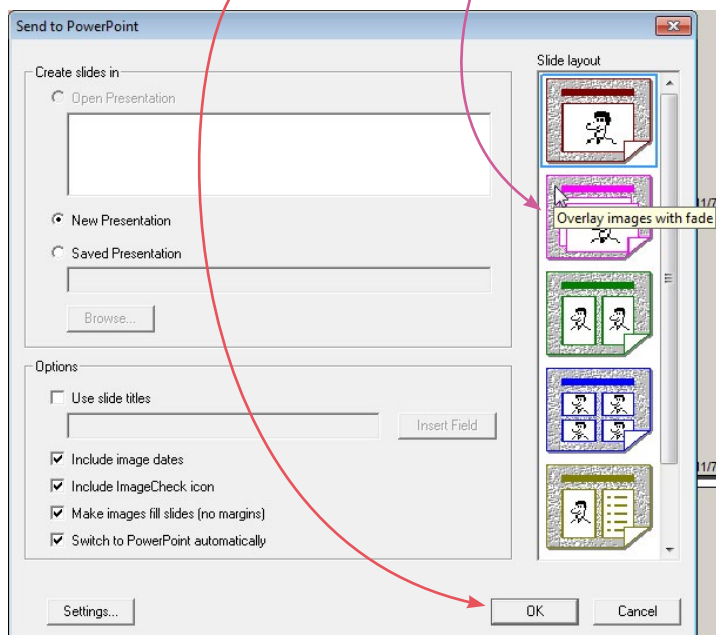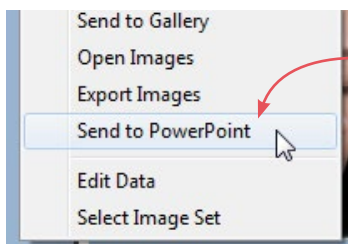
In PowerPoint, the images will be placed one on top of the other with a Custom Animation automatically set to fade from one image to the next when the presentation is run. For more information on Custom Animations, please refer to the MS PowerPoint documentation.

Send simulation images as original and modified with a fade effect

(Requires MS PowerPoint 2003 or higher.)

1 In **Chart** or **Image Search**, select a Modified image (an image that has been modified with Mirror Simulation tools).

2 Right-click on the selected image and select **Send to PowerPoint**.

3 Select the first slide layout, "1 image per slide".

4 Click **Settings**.
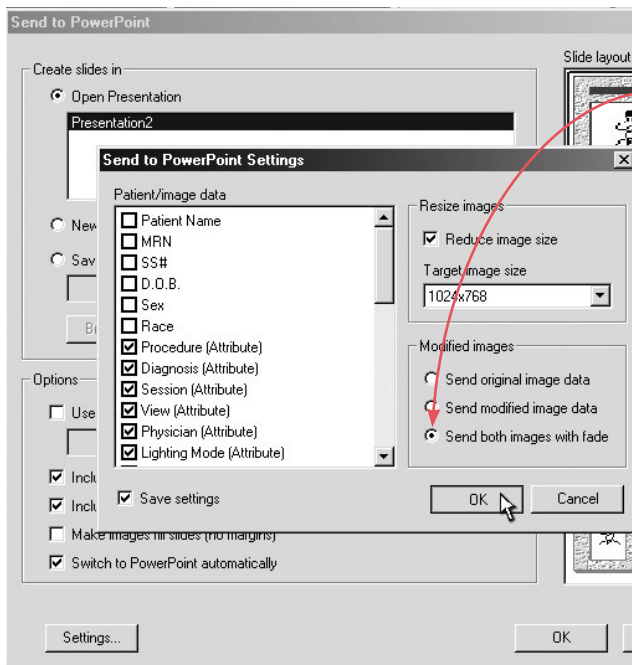
5 Under **Modified images** select "Send both images with fade."

6 Click **OK** in the "Send to PowerPoint Settings" window.

7 Click **OK** in the "Send to PowerPoint" window.

In PowerPoint, the original and modified versions of the image will be placed one on top of the other with a Custom Animation automatically set to fade from one image to the next when the presentation is run. For more information on Custom Animations, please refer to the MS PowerPoint documentation.

11.4 MIRROR–VISIA INTEGRATION

Mirror software is fully compatible with images captured using Canfield's VISIA® Complexion Analysis system. You can either import VISIA images into Mirror as needed or maintain a single, integrated database for both programs.

Importing VISIA images into Mirror

If you wish to maintain separate databases for VISIA and Mirror but occasionally wish to work with specific VISIA images using Mirror tools (for example, to prepare a presentation), the export and import commands provide a quick and easy solution.

1 In VISIA, open the **Database Management** tab in the Set Up screen and click **Export Clients**.

2 Select the patient record(s) you wish to copy to Mirror.

3 Click **Change Directory** and select a location for the export files. Be sure to note the location. (**TIP:** You may wish to select an easy-to-remember location such as the Desktop or the My Documents folder.)

4 Click **Export**.

5 In Mirror, select **Import Patients** from the **File** menu.

6 Click **Change Directory** and browse to the folder containing the export files (the same directory as in Step 3).

7 Click to select the patient record(s) you wish to import.

8 Optional: Select the "Delete record files when done" check box to automatically delete the temporary export files after they are imported into Mirror.

9 Click **Import**.

Your Mirror database now contains a copy of the patient records exported from VISIA. The original patient records still reside in the VISIA database. Changes made to a patient record in one program have no impact on the corresponding record in the other program.

If you repeat the export/import process for the same patients at a later date, the records will be appropriately merged upon import into Mirror.

Using an integrated database

If you capture both VISIA and non-VISIA images of many of your patients, or if you frequently wish to work with VISIA images using Mirror tools, you may wish to create a single, integrated database for both programs.

⚠️ **IMPORTANT: If you choose to use an integrated database, you will need to maintain compatible versions of Mirror and VISIA from this point forward. All future upgrades must be performed for both products simultaneously. Upgrading just one program may render the database unusable by the other program.**

1 Perform a full system backup of your VISIA and Mirror data. (Refer to *Appendix A* for information.)

2 Contact Canfield Scientific to have your hardware key authorized for VISIA–Mirror integration, and to ensure that you have the latest version of VISIA installed.

3 In VISIA, open the **Database Management** tab in the Set Up screen and click **Export Clients**.

4 Click **Check All**.

5 Click **Change Directory** and select a location for the temporary export files. *Note:* Be sure to select a location with sufficient free drive space to store all of your VISIA images.

6 Click **Export**.

7 In Mirror, select **Import Patients** from the **File** menu.

8 Click **Change Directory** and browse to the folder containing the temporary export files (the same directory as in Step 5).

9 Click **Check All**.

10 Optional: Select the "Delete record files when done" check box to automatically delete the temporary export files after they are imported into Mirror.

11 Click **Import**.

12 In Mirror, select **Switch Database** from the **File** menu. Note the name of the Current Database (displayed at the bottom of the dialog box).

13 In VISIA, open the **Database Management** tab in the Set Up screen and click **Database Options**.

14 Click to select the Mirror database (noted in Step 12) and click **Set Startup Database**.

15 Exit and re-open both Mirror and VISIA. Confirm that the same patients now appear in both programs.

Viewing VISIA images in Mirror

Whenever a VISIA image is opened in the Mirror main screen, the Side-by-Side tool, or the Compare tool, the VISIA Image Viewer appears automatically. The VISIA Image Viewer provides the controls needed to select one of the available skin features and to turn the mask overlay on or off.

Note: The VISIA Image Viewer only works for original VISIA images (images with "VISIA" appearing above the thumbnail in the Chart).

Working with VISIA images in Layout Board

When a VISIA image is dragged onto the Layout Board, the VISIA Options dialog appears automatically. The VISIA Options dialog provides the controls needed to select one of the available skin features, to turn the mask overlay on or off and to select the line width for the mask overlay. If you wish to change the options for a VISIA image that is already on the Layout Board, click the **VISIA/UV** button on the Layout toolbar, then click on the VISIA image.

Printing VISIA images from Mirror

Click to select a VISIA image in the Print Preview screen, then select Image Properties from the **Options** menu. The Image Print Options dialog contains VISIA Options controls that allow you to select one of the available skin features, to turn the mask overlay on or off and to select the line width for the mask overlay.

Using simulation tools on VISIA images

If you select a VISIA image and open one of the simulation tools (Warp, Airbrush, etc.), Mirror automatically creates a copy of the VISIA image according to the settings in the VISIA Options dialog. No modifications are ever made directly to an original VISIA image.

Mirror PhotoTools

software to help you get the most from your images

This section of the Mirror User Guide details functionality specific to the Mirror PhotoTools module.

CHAPTER 12
Tethered Image Capture

12.1 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.)

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

See www.canfieldsci.com/imaging-systems/mirror/ for camera/operating system combinations currently supported for tethered capture in Mirror.

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 *12.3 Capturing Still Images from a Video Source*.

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

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**).

3 Open or create a patient chart.

4 Select **Capture Images** from the **Capture** menu.

5 In the Capture window, select the desired camera settings template from the **Settings** drop-down list. (For more on using and editing Settings Templates, see *12.6 Settings Templates for Tethered Digital Still Cameras*.) *Note:* If a setting on the camera is inconsistent with the selected settings template, a prompt appears on screen 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.
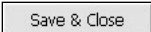
8 Click [Capture] **Capture** to capture the image.

• 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.

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

9 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.**

10 When you are finished capturing images, click [Save & Close] **Save & Close** to exit the capture tool.

12.3 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 procedure for *Capturing pre-op images with a digital video camera* below.

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 **Space bar** to freeze the image. Left-click or press **Space bar** 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. In addition, the Pre-op Capture tool provides a grid overlay to assist with patient positioning. (See *12.7 Customizing Pre-op Image Sequences* for more on editing image sequences.)

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 on screen 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 on screen 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.)

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

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. (See *12.7 Customizing Pre-op Image Sequences* for more 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 on screen 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 *12.6 Settings Templates for Tethered Digital Still Cameras*.)

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.

✔ 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.

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**.

✔ 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* at the beginning of this section). 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.

✔ 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**.

12 Repeat Steps 7 through 11 to capture additional images.

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

12.5 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 **Space bar** or click anywhere in the preview area to start recording.

5 Press the **Space bar** 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 **Space bar** 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.

12.6 SETTINGS TEMPLATES FOR TETHERED DIGITAL STILL CAMERAS
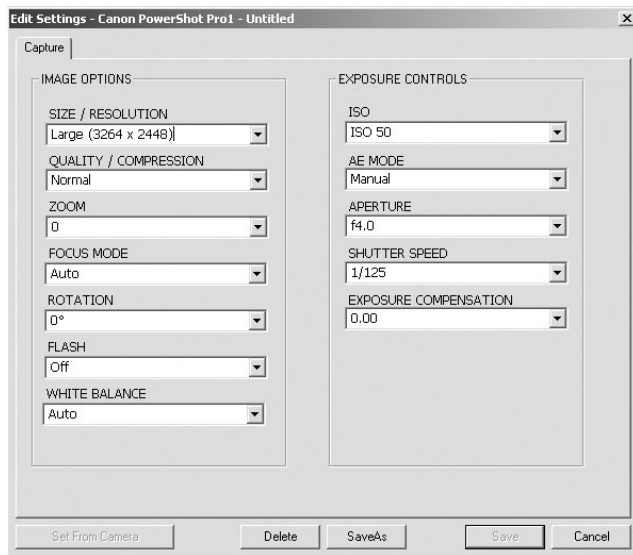
The capture tools for digital still cameras contain a list of user-definable settings templates. By default, this list includes templates for capturing horizontal and vertical images, or for Body, Face, Close-up, or Studio images. (The default templates included depend on the type of camera being used.) 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 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. (See *3.1 Setting Program Options* for more about 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.

- 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.

12.7 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 section (12.7).

✅ *Tip:* 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.

<div style="background:orange">

CHAPTER 13
Image Editing and Annotation

</div>

13.1 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 (upper right).

- The image you want to match to the target goes into the Original area (upper left).

- 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 *13.2 Adjust Colors*).

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 cursor onto the original image (the cursor 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 (for details on the Adjust Colors tool, see *13.2 Adjust Colors*).

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.

13.2 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.
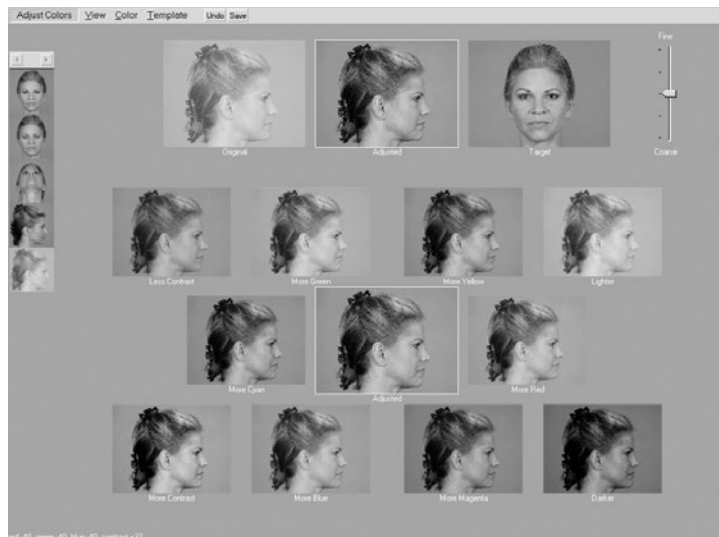
The image you want to adjust goes in the Original area. If you wish, you may drag a reference image to the Target area (useful if you are attempting to match the color of another image). The Adjusted areas show any changes you make to the Original image.

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 *13.1 Match Colors*).

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.

13.3 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.
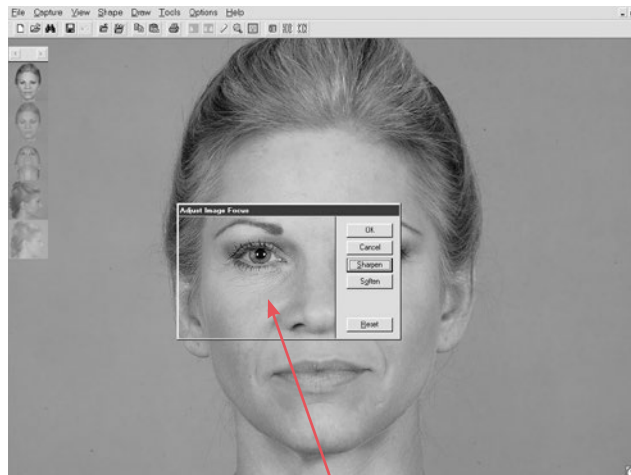
This dialog contains a "transparent" window through which you can preview adjustments you make to the active image.
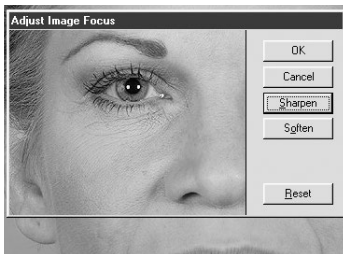
3 Click **Sharpen** one or more times to sharpen the image or click **Soften** one or more times to soften the image. You may click **Reset** at any time to discard the changes and start again.

4 Click **OK** to apply the focus change or click **Cancel** to exit the Adjust Image Focus dialog box without modifying the image.

13.4 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.
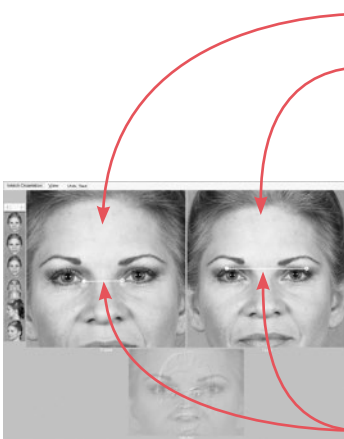
- The Original area holds the image you want to adjust.

- 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 cursor (open hand) is available 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 appear inside the original and target areas. These bars have 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 Determine 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 cursor 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 cursor 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.

13.5 WHITEBOARD

Use the Whiteboard tool to highlight changes, mark areas of interest, etc., by adding temporary markings on a patient's image. The whiteboard markings are non-destructive; they do not become part of the image you are drawing on, but 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 right 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 right 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.

13.6 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.

T̲ Used to place a text label.

↙̲ᵀ 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 cursor 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), cursor 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 cursor 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.

13.7 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).

☑ 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.

✅ **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.

✅ 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 cursor 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 cursor 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 cursor 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 it's 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 cursor to the image you wish to flip. The cursor changes to a horizontal arrow.

2 Click anywhere on the image to flip it horizontally.

✅ 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 cursor 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.

Down-sampling 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 14
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.

14.1 CALIBRATING

Because measurements in Analysis are most easily calibrated based on a known measurement, we suggest you use a ruler or mm stickers in at least one of the images you take of a patient.

✔ **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 ruler or sticker

1 Open the patient's image.

2 From the main menu, select **Tools ▶ Analysis ▶ Measurements**, then click **Calibrate** in the toolbar.

3 Click to select two points on the ruler or sticker; the Calibrate dialog appears. (If the dialog covers the ruler or sticker, move the dialog aside by dragging the dialog's title bar.

4 Enter the measurement in the **Enter known distance** field. Select a unit of measure from the drop-down menu, if desired.

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 **Tools ▶ Analysis ▶ Measurements**, then click **Calibrate** in the toolbar.

3 Click to 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. Select a unit of measure from the drop-down menu, if desired.

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 measure is set to **cm**.

14.2 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 Template menu

Add Current — Saves the current Analysis items as a 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 tools

Calibrate — Select this option to calibrate the Distance 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 and perimeter of any circled portion of the image.

✐ **Chain** — Select the Chain tool to connect measurements. This tool is used with the Distance and Angle buttons. When selected, 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 From the main menu, select **Tools ▶ Analysis ▶ Measurements**.

3 If the ✐ **Chain** button is selected, tap or click it to deselect.

4 Calibrate your measurements as shown earlier in this chapter in *14.1 Calibrating*.

5 Click ╱ **Distance** in the toolbar.

6 Click the start point, then click the end point of the measurement (e.g., the right, then left pupil).
The distance is calculated and displayed.

Measuring distances with the Chain tool

When the ✐ **Chain** tool is selected before you measure distances, the system automatically starts another measurement at the end of the previous measurement. That is, the measurements are "chained" together.

1 Calibrate the **Distance** tool (see *14.1 Calibrating*).

2 Select the 🖉 **Chain** tool, if it is not already selected.

3 Click ◻ **Distance** in the toolbar.

4 Click the start point, then click the end point of the first measurement.

5 Move the cursor; the system is ready to calculate a new measurement from the end point of the previous measurement.

6 Click the end point of the next 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 **Tools ▶ Analysis ▶ Measurements**.

✅ If the 🖉 **Chain** button is selected, click to deselect.

2 Click ◻ **Angle** in the toolbar.

3 Click 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 naison). As you move the cursor, the first side of the angle appears.

4 Move the cursor 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 is calculated and displayed near the vertex.

Measuring angles with the Chain tool

When the ⊘ **Chain** tool is selected before you measure an angle, 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 **Tools ▶ Analysis ▶ Measurements**.

3 Select the ⊘ **Chain** tool, if it is not already selected.

4 Click ∠ **Angle** in the toolbar.

5 Click the start point, then click the end point of the angle's first side to form a line tangent to the glabella and ending at the naison.

6 Move the cursor 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.

7 Move the cursor, and the second side of the connecting angle appears. Select the tip of the chin to paste this side of the angle.

8 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 **Tools ▶ Analysis ▶ Measurements**.

3 Click ⊡ **Vertical Proportions** in the toolbar.

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

5 Move the cursor to the patient's hairline, and a line appears.

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

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

8 Select the menton to set the final line.

9 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 **Tools ▸ Analysis ▸ Measurements**.

3 Click ⊬ **Horizontal Proportions** in the toolbar.

4 Select a location outside the patient's face at left and a proportion line automatically appears.

5 Select the outer edge of the left ear to place the proportion line.

6 Select the outer corner of the left eye to place a second proportion line and percentage appears between the two lines.

7 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.

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 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 **Tools ▸ Analysis ▸ Measurements**.

3 Calibrate the **Area** tool (see *14.1 Calibrating*).

4 Click 🔲 **Area** in the toolbar.

5 Circle the tattoo with the pen; the circled region automatically fills with crosshatching. The area and circumference are calculated and displayed within the circled region.

Hint: To circle, drag the cursor 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.

14.3 FORMATTING CONTENTS OF THE ANALYSIS SCREEN

Deleting a single measurement

1 Move the cursor over a measurement until the Move cursor (open hand) or a double-arrow cursor appears; tap or click.

2 Press **Clear** in the toolbar; the measurement disappears.

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

Formatting measurement text

1 Move the cursor over the measurement text until the Move cursor 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** to apply 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 cursor over a measurement line arrowhead until a spinning color wheel appears. 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**.

3 Click **OK** to apply or click **Cancel** to exit the dialog without changing the color.

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

Formatting measurement areas

1 Holding down the **CTRL** key, move the cursor over a measurement area until a spinning color wheel appears. 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**.

3 Click **OK** to apply or click **Cancel** to exit the dialog without changing the color.

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

Moving measurement labels

1 Move the cursor over the measurement text until the Move cursor appears.

2 Click to select the label and move the cursor to reposition the label (all proportion labels move as a unit).

3 Click to paste the label in its new location.

Adjusting a measurement

1 Move the cursor over the measurement line until the Move cursor appears.

2 Click to select the measurement and move the cursor to reposition.

3 Click to paste the measurement in its new location.

Adjusting proportion lines

1 Move the cursor over the end of a proportion line (opposite the percentage end) until one of the double-arrow cursors appears and tap or click.

2 Move the cursor to reposition the line (percentages change as you move the line).

3 Click to paste the line in its new location.

14.4 COMPARATIVE ANALYSIS

Use Comparative Analysis to show the amount of change you made to a modified feature (e.g., that the angle of a patients 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 **Tools ▸ Analysis ▸ Comparative Analysis**; the original and modified images appear next to each other.

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.

5 Click the start and end points of the distance (or angle) of interest in the original image. The corresponding measurement appears in the modified image.

6 Adjust the measurement on the modified image (see *Adjusting a measurement* earlier in this chapter). The number in parenthesis under the corresponding measurement shows the amount of change.

7 When finished, press the pen's side button or the right mouse button to exit comparative analysis mode.

✅ To format the appearance of the comparative analysis screen, see *14.3 Formatting Contents of the Analysis Screen* earlier in this chapter.

✅ To create a template from the comparative analysis you've made, see *14.6 Measurement Templates* later in this chapter.

14.5 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 *14.6 Measurement 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 for density

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 From the main menu, select **Tools ▶ Analysis ▶ Measurements**.

3 Select **Lense ▶ Calibrate**.

4 Click to select the start and end points of the known measurement or the ruler/sticker. A distance line and the Calibrate dialog appear.

5 In the **Enter known distance** field, type the distance between the start and end points. Select the appropriate units (mm, cm, or inches).

6 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.

7 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.

8 Click **OK** to set the calibration or click **Cancel** to exit the dialog without making any changes.

Using density

1 Use the Scalar Video Loupe template or calibrate the density measurements as described in *Calibrating for density* above.

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.

14.6 MEASUREMENTS TEMPLATES

Creating a measurements 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 screen, select **Template ▸ 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 measurements template

1 From the Measurements or the Comparative Analysis screen, click on the **Template** drop-down menu. The first twelve templates appear in the menu.

2 Select the name of the desired template.

✅ To select a template from the full list of templates, select **Template ▸ More…**, click to highlight the desired template in the Templates dialog, then click **Select**.

Deleting a measurements template

1 From the Measurements or the Comparative Analysis screen, select **Template ▸ More…**. The Templates dialog listing all the templates appears.

2 Select a template and click **Delete**.

3 In the confirmation dialog, click **Yes** to delete the template or **No** to cancel without deleting the template.

4 Click **Close** to exit the Templates dialog.

CHAPTER 15
Creating Presentations

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

15.1 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 green. 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.

15.2 EDITING PRESENTATIONS

The Presentation Editor screen

From the main menu, select **Tools ▸ Presentations ▸ Presentation Editor** to display the Presentation Editor screen.
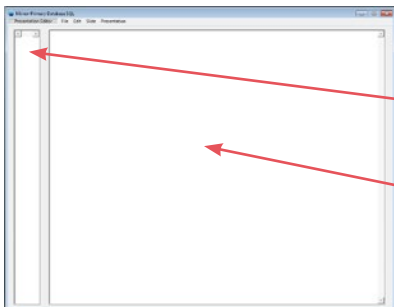
- If no images are selected or open, the Presentation Editor is blank.

- Any selected or open images appear in the Gallery.

- The Slide List Area is where you create the presentation.

Moving images from the Gallery to the Slide List Area

1 Click an image in the Gallery. The Move cursor (open hand) appears and a green border indicates that the image is selected.

2 Drag to the Slide List Area and click to release.

Once in the Slide List Area, images are displayed inside a slide-mount border with a number representing the order in which the slide appears during the presentation.

Rearranging images in the Slide List Area

1 Click an image in the Slide List Area. The Move cursor (open hand) appears and a green border indicates that the image is selected.

2 Drag to desired position in the Slide List Area and click to release. Any images below and to the right of the image shift to the right.

Deleting images from the presentation

1 Click to select one or more images in the Slide List Area (a green border indicates that the image is selected).

2 Select **Edit ▸ Delete**. The image(s) are removed from the Slide List Area but remain in the Gallery.

Moving images between presentations

1 Click to select one or more images in the Slide List Area (a green border indicates that the image is selected).

2 Select **Edit ▸ Cut** (to move the selected images) or **Edit ▸ Copy** (if you wish to copy the selected images to another presentation).

3 Select **File ▸ Open Presentation…** (you may be prompted to save the current presentation).

4 Click to highlight the presentation to which you want to paste the images, then click **Select** to open it.

5 Select **Edit ▸ Paste** to add the images to the Slide List Area of this presentation.

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.**

1 From the **Presentation Editor** screen, select **Presentation ▸ Self-Contained**; a program dialog appears.

2 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.

1 Deselect all of the images in the Slide List Area before you test the presentation. Otherwise the presentation begins from the first selected slide.

2 Select **Presentation ▸ Test**. The active presentation begins.

To exit the presentation at any time, press the pen's side button or the right mouse button to display the media control interface in the bottom left corner of the screen, then click the ■ **Stop** button.

15.3 SETTING PRESENTATION PROPERTIES

From the **Presentation Editor** screen, select **Presentation ▸ Properties...** to determine the way a presentation runs on screen. 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 cursors appear on each slide when you run the presentation. Use these cursors to draw on slides. Remove the selection and whiteboard cursors 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 *15.4 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

1 Click to select image(s) in the Slide List Area. (Selected images are outlined in green.)

2 From the **Presentation Editor** screen, select **Slide ▶ Properties…**; the Slide Properties dialog appears.

Allow whiteboarding on this slide — Use the whiteboard tools to temporally 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 *15.3 Setting Presentation Properties*.

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 *15.3 Setting Presentation Properties*. 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 *15.3 Setting Presentation Properties*. To select a different transition, remove the selection from **Use presentation transition** and select a transition from the Transition for this slide list.

15.4 SHOWING PRESENTATIONS

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

1 From the main menu select **Tools ▸ Presentations ▸ Run Presentation**; 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:

- **Space bar**: Advances to the next slide.

- **Backspace**: Returns to the previous slide.

- **ESC**: Exits the presentation.

15.5 EXTRACTING 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 **Tools ▶ Presentations ▶ Extract Images**.
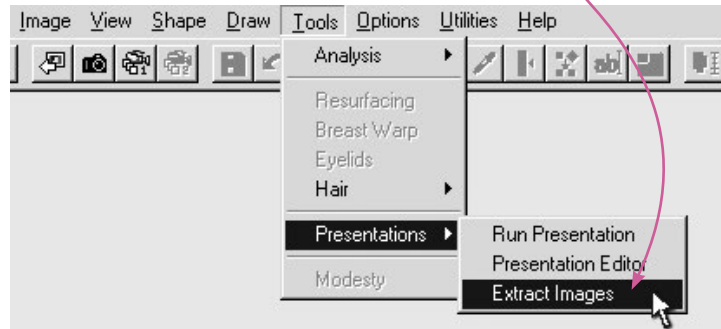
3 Click to highlight the desired presentation in the Select Presentation dialog, then click **Select**.

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.

MIrrOR
Rejuvenation
software for simulating
skin rejuvenation procedures

This section of the Mirror User Guide
details functionality specific to the
Mirror Rejuvenation module.

Wrinkle Tool

The Wrinkle tool is used for removing or softening wrinkles. The tool is also useful for applications such as tattoos or blemishes.

1 Select a brush size and an opacity percentage from the menu bar.

Tip: Best results are typically achieved using opacity values of 50% or 75%.

2 Freehand draw over the area you wish to soften. As you draw, the area to be softened will be highlighted.

3 Lift the pen or release the mouse button. Wrinkles and blemishes in the selected area will be softened.

4 Press the pen's side button to exit the Wrinkle tool and save all changes to the gallery.

Note: Unlike other draw tools, the Wrinkle tool does not support drawing along a curved line. The Wrinkle tool may only be used in freehand mode.

CHAPTER 17
Resurfacing Tool

Use Resurfacing to show a patient the potential results of laser resurfacing, including showing standard or custom post-op redness. This tool helps demonstrate realistic results.

17.1 RESURFACING VIEW MENU

Compare – Transforms an edited image from its original version to its edited version.

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

Method – Shows Compare and Side-by-Side views in normal or embossed mode.

Show Redness – Displays varying degrees of post-op redness in selected areas.

Layers – Opens a dialog through which you can show or hide the layers of information associated with the image.

17.2 RESURFACING OPTIONS MENU

Select Shade – Opens a dialog through which you can choose the shade of red that best represents the patient's post-op redness. This shade is applied when you select **Show Redness**.

Reset Shades – Resets the Custom Shades in the Select Shade dialog to their default settings. Reset Shades is available only if you have modified the Custom Shades palette in the Select Shade dialog.

17.3 RESURFACING TOOLS

Undo – Removes edits made since the last save or since the tool was activated.

Save – Saves the edited image to the gallery. To save the edits to the patient's chart, select **File ▶ Save Images** from the main menu.

Fade – Blends an edit with the original image to soften edits.

17.4 DEMONSTRATING RESURFACING
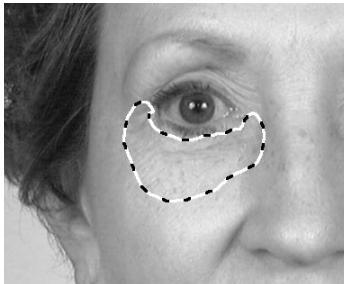
1 From the main menu, select **Tools ▶ Resurfacing**.

2 Circle one or more areas on the patient image.

3 Click inside any circled area.

4 Move the cursor up and down to adjust the amount of simulated resurfacing. Tap or click to select the current results.

5 Optional: To show simulated post-op redness, select **View ▶ Show Redness**. Move the cursor up and down to demonstrate the healing process.

6 Press the pen's side button or right-click to exit the Resurfacing tool and save all changes to the gallery.

CHAPTER 18
Airbrush Tool

18.1 USING DRAW TOOLS

Draw tools are available once you open a picture. Select a tool and a tool menu appears containing tool-specific options.

- You can draw freehand or along a set line.

- Press the pen's side button to return to the main menu.

- Select the **Undo** button to erase all changes made since the last save or since the tool was activated.

- Select the **Save** button to save the edited picture to the gallery.

- To save the changes to the patient's record, select **File ▸ Save Pictures** from the main menu.

- Select the **Fade** button to interactively blend the recently edited area of the picture with the original version to soften the edit.

- Select a brush for the drawing tool.

- Select an opacity tool to set the tool's opacity or intensity. Use less than 100 percent opacity when you want to overlay colors. As you continue to apply color to the same area, the percentage increases to a maximum of 100 percent.

Freehand drawing

- Tap and drag the pen to draw and lift the pen to stop.

- Tap and drag the pen to continue freehand drawing, or tap with the cursor dot to place a curved line (see *Drawing with curved lines* below).

- Press the pen's side button once to return to the tool's menu and twice to return to the main menu.

Drawing with curved lines

- With the cursor dot, place the beginning and ending points of the curved line.

- Move the pen to shape the curve (along a profile for instance).

- Tap and drag the curve, to apply the tool along the line and lift the pen to stop.

- Tap and drag the pen to resume drawing along the line.

- To reset the line, press the pen's side button.

- Press the pen's side button twice to return to the tool's menu and three times to return to the main menu.

Erasing

To erase in freehand or curve mode, press the pen's side button while drawing and lift the side button to stop.

18.2 USING AIRBRUSH

Use Airbrush to apply a custom color or a color from the picture to a picture. Apply the color freehand or apply it along a contour line.

Common applications include rhinoplasty (lateral view), submental liposuction (lateral view), adding shadows or highlights and adding surgical markings or incision lines.

The cursor appears as a brush in the Airbrush screen.

Selecting a custom color

1 Select the **Color Palette** button and the Color dialog appears.

2 Select a color under Basic colors or Custom colors and click **OK**, or create your own color.

3 Select an existing custom color to overwrite.

4 Tap and drag the target to a color.

5 Optional: Tap and drag the cursor in the slide bar to edit the color's saturation.

6 Click **Add to Custom Colors** and tap **OK** to apply the color to the brush.

Technique

1 Select a brush and opacity for the tool.

2 Select a color from the picture or select the color palette and choose another color (see *Selecting a custom color* above). The menu disappears.

3 Freehand draw or draw with a curved line (see *18.1 Using Draw Tools*).

✔ To draw on another picture, select it from the gallery.

4 When finished, press the pen's side button.

5 Optional: Select a new color with the cursor and repeat.

✔ **To erase a drawn line, press the pen's side button as you draw.**

APPENDIX A
Data Backup

⚠ **IMPORTANT: Canfield recommends you consult a qualified IT professional to assist you in developing a backup plan. An IT professional should install and configure the necessary equipment and software, and train the staff member designated to perform backups.**

A.1 WHY DO I NEED TO BACK UP MY MIRROR SYSTEM?

Canfield's Mirror software is a highly reliable program that will function predictably under ordinary circumstances. However, problems may occur as a result of power surges, disk failure, viruses or other damaging events that could render your database inaccessible or unusable. For this reason, it is essential that you regularly create backup copies of your data and images so that you can restore the database if you experience a problem.

After reviewing this summary of backup procedures and options, you should be able to develop a backup strategy to protect your system from unrecoverable loss of data.

Backup vs. archive

It is important to note the difference between backing up your system and archiving files. A backup is essentially a snapshot of your hard drive at a particular time. The backups you create should contain only the files, data, and images you are currently working

with in your practice. The purpose of the backup is to provide you with the capability to restore your system to its current working condition if necessary.

While backups must be done on a regular schedule to be useful, archiving files is an activity you should do whenever you have files on your hard drive that you are not currently using. These unused files should be removed from your hard drive (not just copied from it) and stored on media separately from your backup. Removing old files from your hard drive ensures you will have sufficient space on the drive for current files, and enables the computer to function at peak efficiency.

A.2 WHAT DO I NEED TO BACK UP?

All information that you cannot readily re-create should be backed up. Obviously, this includes patient data and images you have input into the system. You may back up your data and images only, or you may choose to back up all files on your computer, including the Mirror program files. Each option has advantages and disadvantages.

Backing up your Mirror database only

The chief advantage of backing up only your database is the speed of the backup process. Also, a database-only backup requires fewer tapes, CDs, or whatever media you use than a full backup. If you need to re-create your system, you can restore your data and images from your backup, and re-install the Mirror program files from the installation disk. To back up your database and images, you must know the location of the data and image files.
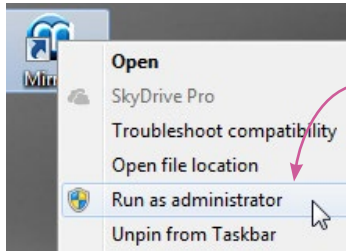
To determine the location of Mirror image files, complete the following steps.

1 Right-click the 🎯 Mirror icon on the Windows desktop and select "Run as administrator" to open Mirror software in Administrator mode.

2 Go to the **Options** menu.

3 From the Mirror Database Options dialog, choose **Set Database Options**.

4 Click on the **Database List** tab.

5 Choose the appropriate database from the displayed list and click **Edit**.

6 The Database Information dialog displays the directory path for the Mirror image files. Select this directory when backing up Mirror image files.

To determine the location of Mirror database files, complete the following steps.

1 From the Windows desktop, click on the **Start** button (in the lower left corner of the screen), and select **Computer** from the right panel of the Start menu.

2 Click **Local Disk (C:)** in the left navigation menu.

3 In the search field (top right corner of the Local Disk (C:) window), type ***.mdf** (if you have a SQL database) or ***.mdb** (if you have an Access database).

4 Locate your database file in the Search Results window.

5 Right-click on the database and select **Open file location** from the drop-down menu. Select this directory when backing up Mirror database files.

Backing up all files

A full backup offers the advantage of making it easy to re-create your system from a single source. However, if you choose to back up all files on your hard drive, the backup process will take longer and require more backup media than would be needed for a backup of your database only.

A.3 WHEN DO I NEED TO BACK UP?

Regularly scheduled backups

Backing up your computer system should be part of your routine office procedures. Regularly scheduled backups ensure that you will be able to restore your most current data and images if there is a problem with your system. Establishing a backup schedule is discussed in detail in the section "How should I back up my Mirror system?" below.

Backups before major system events

In addition to your scheduled backups, you should do a full backup prior to any event that could create a problem with your system so that you can restore the system to a usable state if necessary. These kinds of events include:

- installing new software
- upgrading software
- installing a Windows update
- installing a hardware upgrade
- moving your computer from one location to another

A.4 WHERE SHOULD I BACK UP MY MIRROR SYSTEM?

Computer files can be backed up to various types of media, including another hard drive, tape, CDs, or DVDs. When deciding on a type of backup media, you should consider how easy the backup and restore process is using that media, the data transfer speed and capacity of the media, and the amount of space you have for media storage. You may wish to maintain two sets of backups: one on-site, and one off-site at a secure location. You should take into account the amount of space available at each location.

Tape

Because it is easy-to-use, tape is one of the most commonly used types of backup media. An IT professional can provide you with specifics regarding cartridge capacity, data compression, and rates of data transfer for tape drives.

Second hard drive

Backups can be stored on another hard drive, which can be either internal (physically inside the computer terminal that houses your primary drive), or external.

A second internal hard drive can be set up to mirror any changes made to your original drive. In this way, a duplicate of your hard drive is maintained. The disadvantage of an internal hard drive is that it is subject to the same potential problems as your primary hard drive; for this reason you may not want to rely on an internal hard drive as your chief backup strategy.

An external drive is not connected to your system, and therefore not susceptible to potential problems, such as power surges, that affect your primary hard drive.

CDs/DVDs

Backups can be created by copying data onto CD-ROMs or DVDs. However, because of the limited capacity of these devices, they are probably not practical as a backup medium for a Mirror database.

A.5 HOW SHOULD I BACK UP MY MIRROR SYSTEM?

Developing a backup plan

When developing a backup plan, consider the following:

- Determine what should be backed up. You should back up your patient data and images. You may also wish to back up program files.

- Develop a schedule that includes the type of backup to be performed (Full, Incremental, or Differential), how often backups will be done, and at what time of day.

- Decide which type of media (tape, external hard drive, etc.) you will use for the backup, and how many backup copies you wish to maintain.

- Decide where you will store data once it is backed up. This plan should include both on-site and off-site storage. For both locations, ensure that only authorized personnel have access to the backup.

- Identify the person(s) who will perform the backups.

- Develop a schedule for testing your backup system regularly. The person responsible for backups should test the system periodically by backing up and restoring data to ensure data integrity. All testing should be done in a separate test environment to prevent the possibility of introducing problems into the system during testing.

- Create a backup log where you will record what was backed up, when the backup took place, who performed the backup, and what media was used.

Full, incremental and differential backups

There are three types of backup that can be implemented separately or in combination to ensure that you always have an up-to-date copy of your database. These backup types are Full, Incremental, and Differential. Each type of backup has advantages and disadvantages, which are discussed below.

With a full backup, all files and folders on the hard drive are backed up. An incremental backup provides a backup of files that have changed or are new since the last incremental backup. A differential backup creates a backup of files that have changed since a full backup was performed.

A good model for a backup schedule combines a full weekly backup with daily differential backups. With this schedule, backups can be performed quickly on a daily basis, and restoration of the database requires restoring the contents of only two tapes: the full backup overlain with the differential backup. Incremental backups could also be used for daily backup but are more difficult to restore because of the number of tapes required to keep a full incremental set.

Full backup

When you do a full backup, all files and folders on the drive are backed up. Before initiating a full backup strategy, consider the following:

Advantages:

• All files from the selected drives and folders are backed up to one set of tapes (or whichever media you have chosen).

• In the event you need to restore files, they are easily restored from the single backup set.

Disadvantages:

- A full backup is more time consuming than other backup options.

- Full backups require more tapes, disks, or network drive space.

Incremental backup

An incremental backup provides a backup of files that have changed or are new since the last incremental backup. Before you can successfully use incremental backups, you must do an initial full backup of the drives, folders, or files in question.

The first time you do an incremental backup (following a full backup), all files in the file set are backed up, just as in a full backup. If you use the same file set to perform an incremental backup later, only the files that have changed are backed up. If you use the same file set for a third backup, only the files that have changed since the second backup are backed up, and so on.

The Windows Backup utility (or whatever backup software you use) designates a file for backup in an incremental backup based on the filename, its last modified date, and the date of the last incremental backup, all of which are stored in the file set.

An incremental backup might be done as follows:

Monday   Perform a full backup.

Tuesday   Perform the first incremental backup of selected files and/or folders using a file set with the **Incremental** option enabled.

Wednesday Perform another backup with the backup file set you created Tuesday. Only files that have changed since Tuesday's backup are backed up.

Thursday   Perform another backup with the backup file set you created Tuesday. Only files that have changed since Wednesday's incremental backup are backed up.

Before initiating an incremental backup strategy, consider the following:

Advantages:

- Backup time is faster than for full backups.

- Incremental backups require less disk, tape, or network drive space than a full backup.

- You can keep several versions of the same files on different backup sets.

Disadvantages:

- In order to restore all the files, you must have all of the incremental backups available.

- It may take longer to restore a specific file because you must search more than one backup set to find the latest version of a file.

Differential backup

A differential backup creates a backup of files that have changed since a full backup was performed. A differential backup typically saves only the files that are different or new since the last full backup, but this can vary in different backup programs. Together, a full backup and a differential backup include all the files on your computer, changed and unchanged.

A differential backup might be done as follows:

Monday   Perform a full backup and save the file set.

Tuesday   Perform a differential backup using the same file set. All files that have changed since the full backup are backed up in the differential backup.

Wednesday Perform a differential backup using the same file set. All the files that have changed since Monday's full backup are backed up.

Before initiating a differential backup strategy, consider the following:

Advantages:

- Differential backups require less disk, tape, or network drive space than incremental backups.

- Backup time is faster than for full or incremental backups.

Disadvantages:

- Restoring all your files may take considerably longer because you may have to restore both the last differential and full backup.

- Restoring an individual file may take longer because you have to locate the file on either the differential or full backup.

Automated backup software

Refer to the documentation for your Server Operating System for instructions for using your system's automated backup program.

Storing backup media

Canfield recommends that you maintain two copies of your backups: one to be stored on-site (preferably in a fire-proof container), and one to be stored at a secure off-site location. For both locations, ensure that only authorized personnel have access to the backup.

Testing your backup system

The person responsible for backups should test the system periodically by backing up and restoring data to ensure data integrity. All testing should be done in a test environment to prevent the possibility of introducing problems into the system during testing.

A.6 OTHER WAYS TO PROTECT DATA (IN CONJUNCTION WITH BACKUPS)

In addition to performing regular backups of your database, there are other methods of safeguarding your system so that you are protected against potential data loss.

RAID (Redundant Array of Independent Disks)

RAID is a method of creating one or more pools of data storage space on several hard drives. RAID accomplishes this through one of two techniques: Disk Mirroring or Disk Striping. Both of these techniques create a copy of your primary hard drive on an external drive.

Disk Mirroring provides a way of protecting your data through redundancy. With this technique, a duplicate of your primary hard drive is created on another drive. The data on both drives is continuously updated.

Disk Striping is the process of dividing a body of data into blocks and spreading the data blocks across several partitions on several hard disks. Disk striping also provides data protection through redundancy. This process requires that you have at least three external drives dedicated for this purpose.

Refer to an IT professional for assistance in implementing one of these RAID techniques.

Uninterruptible Power Supply

An uninterruptible power supply (UPS) is a device that has a battery, power conditioning, and surge protection built into it. The UPS plugs into the wall outlet and the computer and monitor plug into the UPS, so that while the AC power from the wall powers the computer, it also charges the UPS battery. If the power goes out, the charged battery takes over and keeps the computer up and running long enough for you to perform an orderly shutdown, which can be important to bringing the

server back up after an outage. If the users connected to the server also have UPSs, they will also have a chance to save their data before powering down. The amount of time the UPS can maintain power to the computer depends on the size of the battery inside the UPS and the amount of power drain placed on it.

In addition to battery backup, a UPS also provides power conditioning and surge protection. Power conditioning "cleans up" the power, removing noise caused by other devices. Surge protection keeps the computer from being affected by sags or spikes in the power flow. Alterations in power flow can occur during thunderstorms even if the power doesn't go out, or when there is a drain on power resources, such as on a hot day when air conditioners are straining power stations.