4D PhotoStation Manager™

User Manual

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Introducing the 4D PhotoStation Manager™

Overview

Welcome to the 4D Imaging Systems' PhotoStation Manager™, a software solution for capturing, organizing, and annotating your Photo Documentation. The PhotoStation Manager brings together all the features you will need to run a fast, efficient, and smooth Photo Documentation capture, organization, and reporting workflow. With the PhotoStation Manager, you can free yourself from the drudgery of cataloging large numbers of digital Photo Images by enabling you to define and implement a simple, easy-to-repeat, all-digital Photo Documentation workflow.

The PhotoStation Manager is available in four different Editions. Each Edition provides functionality tailored to particular needs. Each Edition comes in one or more Versions that offer different levels of photo documentation capabilities. The Editions and Versions include the following.

Edition	Versions	Use
• Healthcare Edition	• Loader / Indexing • Essentials / Reporting • Enhancer / Measurements	• General healthcare, dermatology, plastic surgery, dental, and others
• Wound Care Edition	• Enhancer / Measurements	• Wound care, burn care.
• Medi-Spa Edition	• Essentials / Reporting • Enhancer / Measurements	• Cosmetic and medi-spa.
• Commercial Edition	• Essentials / Reporting • Enhancer / Measurements	• Construction, law enforcement, real estate, home improvement, and others.

Table 1- PhotoStation Manager Editions and Versions

This User Manual is primarily focused on showing the features of the Healthcare Edition Essentials and Enhancer version products. Generally for the Healthcare, Wound Care and Medi-spa products have similar interfaces. The Commercial Edition is a more basic product with fewer features. Each Version includes the capabilities of the lower Version product. The Essentials product includes Indexing. The Enhancer product includes Reporting and Indexing.

The PhotoStation Manager can be used as a standalone or networked system. If you are a single user needing to create and manage a Photo Documentation collection, you can run the PhotoStation Manager on your own

computer and store your photo image collection on your computer or on the network. If you work in an office where more than one user needs access to the photo image collection, each user's computer can run the PhotoStation Manager to access a centralized photo image collection on the network. If your business is currently using an Electronic Records System (ERS) from which you'd like to access your Photo Documentation, you can easily import photo images or reports from any PhotoStation Manager Record directly into your ERS. No matter how your Photo Documentation and business records needs are organized, you can now effectively and efficiently capture, store, mark up, and access your Photo Images using the PhotoStation Manager.

A picture is worth a thousand words, especially when it comes to documenting the "as-is" condition of some important feature of interest. You will find your PhotoStation Manager provides an excellent tool for visually comparing change over time and documenting those changes. The PhotoStation Manager enables your organization to fully benefit from visually documenting all work performed before, during, and after performed assessments, treatments, or procedures specific to your field of practice.

By fully utilizing the 4D PhotoStation Manager in your organization you can:

- Improve service performance and delivery. Visually compare changes over time. See things exactly as they were before, or see what's new that wasn't there before.

- Increase revenues with photo imaging based procedures. Quickly capture photography, document project or procedure steps of improvement or development.

- Support word-of-month marketing about your organization by providing customers with visual evidence of successful procedure or project results that they can share with peers and associates.

- Reduce or eliminate transcription and notational read errors by capturing key documentation data once at the point of image capture. Visually document your Subjects rather than relying on handwritten or typed notes to detail what is seen.

- Improve back office staff productivity and lower operations costs. Eliminate manual digital picture file management procedures. Reduce hard copy output costs to print only what is really needed verses creating a hardcopy printout for all Record photo files.

- Decrease threat of non-performance or negligence lawsuits. Reduce insurance premiums over time. Show exactly what work was performed and when it done.

The PhotoStation Manager enables you to maximize the benefits from using Photo Documentation in your organization. Whether you are still on a paper-based records system or have fully implemented or in the process of implementing a digital system, the PhotoStation Manager is a simple an easy way to get the most from your Photo Documentation.
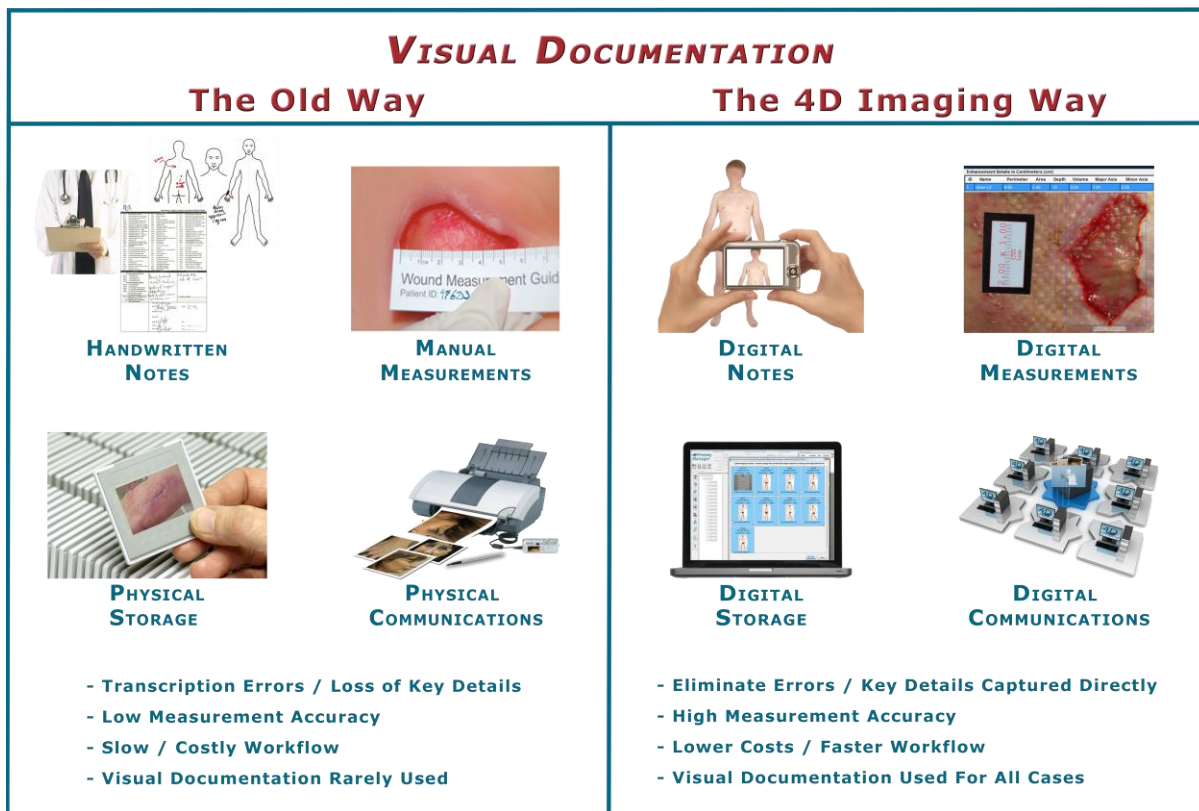
Figure 1 - 4D Photo Documentation Approach

Conventions for This Document – To Get Started

We assume you have a basic knowledge of Microsoft Windows. The key items include:

- When we say "press the *whatever* button" (or "click the *whatever* button), we mean: move the mouse until its pointer is over that button, then press and release the left mouse button (once).

- To double-click an item, you use the mouse to place its pointer over that item, image, or line. Then, without moving the mouse, you press and release the left mouse button twice.

- Click with the right mouse button by pressing and releasing it once, to view the special "context" menu. This only works when the mouse is over the History List or Photo Image Display Panels.

- When we say "select an item from a menu or list", this means for you to either a) click on one of the lines (it is now *highlighted* in a different color) and then press the OK button, *or* b) simply double-click on one of the lines.

- Your disk drive (in fact all of your storage) is divided into folders. (When you look at them with the Windows Explorer or other applications, they even look like folders.) Folders contain files, documents, images – and perhaps more folders. You select and open them by double-clicking on the one you want. Each Record in your PhotoStation Manager collection is a single folder containing photo images, reports, and Record Data.

- Each Photo Image is a file of type JPEG. Each Record consists of all of Photo Image files, plus another file of type XML, containing all the documentation you have entered for this Record, as well as Date Entries which logically group Photo Images based on the Date of capture / collection. Please don't make any changes to these files: PhotoStation Manager will take care of this for you.

- When you see a menu, you may move the mouse up and down over the list until the pointer is over the item you want to use. Then, click on that item once with the left mouse button.

- A *field* is a box (with a title next to it or over it) that contains information. You can click the mouse inside this box, and in many cases, you can then type in information – or change what's there.

We have been careful to make the operation of the PhotoStation Manager identical to the way most of your other Windows programs work, so you will find it easy and natural to use.

In this document, you may see us use the word photo or image when we refer to Photo Images. They are all the same thing.

Also, we refer to this software as the **PhotoStation Manager** and sometimes **PSM** for short.

Quick Start: Understanding the System

Know Your PhotoStation Manager Window

The PhotoStation Manager lives inside a *window*, as do most applications available that run under Microsoft Windows®. Like most windows, it can be resized and repositioned around the screen. However, for simplicity's sake, we suggest you press the maximize button near the upper-right of the window to *maximize* the PhotoStation Manager window to entirely fill the working area of the screen, which is shown below. (*Note:* if you don't see the maximize button there, you are already maximized.)
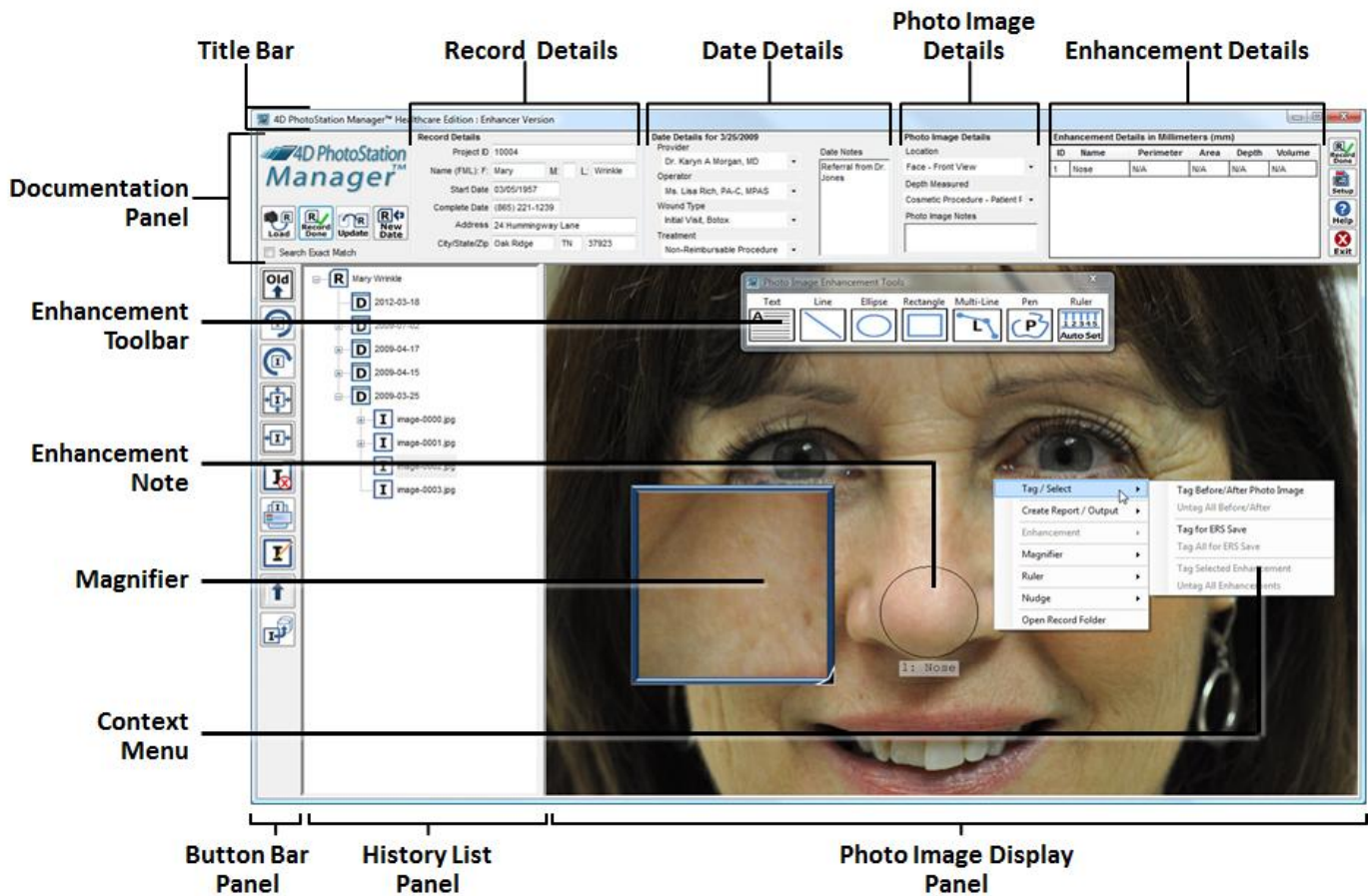
Figure 2 - Basic Window Layout

The PhotoStation Manager window has the following features:

- Title Bar – the thin strip across the very top, which tells you the Edition and Version of your PhotoStation Manager software. (The right-hand side has the maximize button.)

- Documentation Panel – a much taller strip all the way across the top part of the window, where you enter and view information. This is divided into several areas:

- The 4D PhotoStation Manager Logo, which if clicked on with the Left Mouse Button, shows Information about your PhotoStation Manager Edition and Version. If clicked with the Right Mouse Button, executes Photo Image Record Collection Checkup Tools.

- Command Buttons, for creating, and managing Record and Photo Image workflow steps.

- Record Details, corresponding to the information added about a single Subject to be photo documented (i.e. a person, place, or object)

- Date Details, displaying the information entered related to the currently selected Date Entry in the History List Panel

- Photo Image Details, displaying the information entered related to the currently selected Photo Image in the History List Panel

- Details on the Photo Image Enhancements (annotations, notes, and measurements) that have been added to the currently selected Photo Image in the History List Panel.

- History List Panel – seen only when a Record is loaded. Shows all Date Entries, Photo Images, Reports, and Output Photo Images for this Record.

- Date Entry Preview Panel (Not Shown) – a display showing a Preview of each Photo Image associated with a selected Date Entry. You can create Reports or Tag Photo Images from the Date Entry Preview Panel, or click on any Preview to display the selected Photo Image in the Photo Image Display Panel.

- Photo Image Display Panel – shows the Photo Image, Report Output, or Output Photo Image selected / highlighted in the History List Panel (if any).

- Context Menu – a Context Menu, shown opened up inside the Photo Image Display Panel. Note that the Context Menu is available from either the Photo Image Display Panel, the History List Panel, or the Date Entry Preview Panel. The Context Menu displays commands that can be performed based on the currently selected Photo Image or Enhancement(s).

- Button Bar Panel – has buttons to control the images, Reports, and Output Photo Images shown in the History List Panel and the Photo Image Display Panel.

- Enhancement Toolbar – in the Enhancer Version of PhotoStation Manager, pops up when you press the Enhancement button $\boxed{I}$ (or when you select a Photo Image that already has Enhancements), allowing you to select tools to annotate the Photo Image. You may move this anywhere you wish.

- Enhancement Note – in the Enhancer Version, you can "draw" text notes or graphics onto the Photo Image. Each Enhancement can be named, and if there is detected size ruler in the Photo Image, certain Enhancements can have a Length and Area.

- Magnifier – this interactive tool allows you to click onto the Photo Image Display Panel and show a zoomed-in or out view of what the "arrow-pointer" corner of the Magnifier is pointing to. This is an alternative way of seeing details in a Photo Image to using the Control-Key with either the "+" or "-" keys which will actually zoom the Photo Image in its entirety.

Note that PhotoStation Manager is always in one of two modes:

- No Record Details or Photo Image visible – you do not see the History List Panel, Photo Image Display Panel, or Button Bar Panel. From here you can Search for a Record, or Load Multiple Photo Image Sequences.
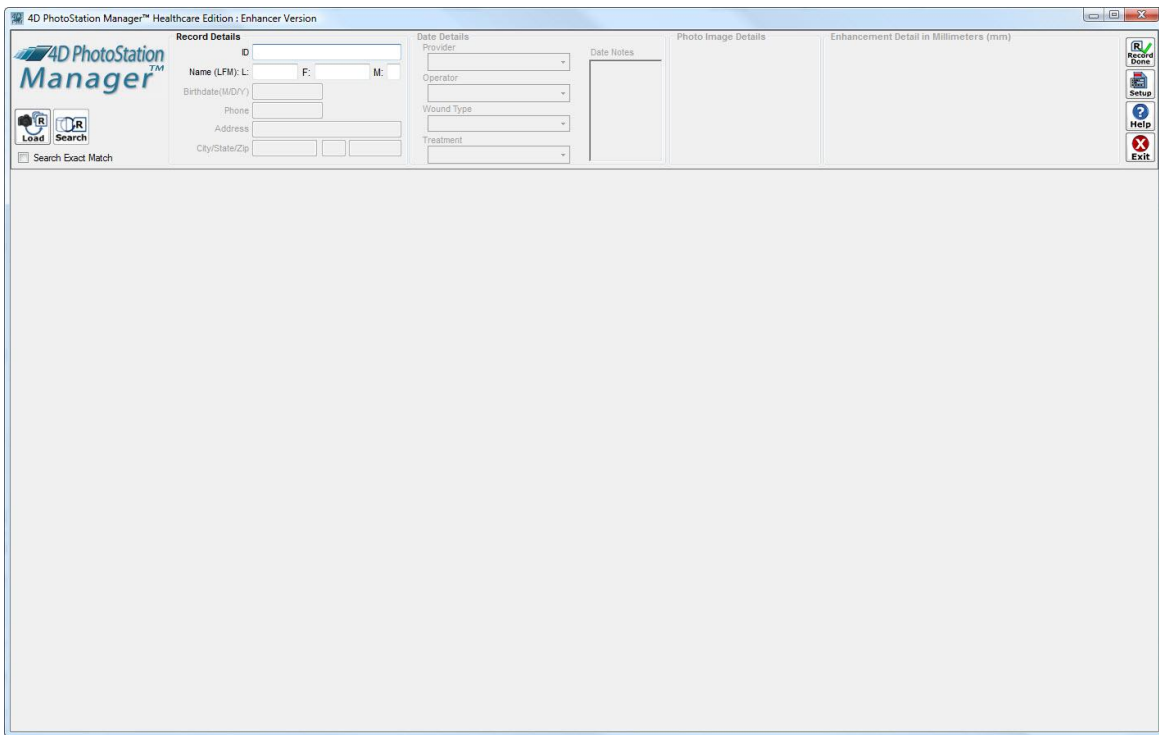
Figure 3 - PhotoStation Manager Startup Layout

- Record visible and loaded – you see those panels (as in the Figure 1 above). From here, you can perform all possible operations on a single Record or any of its components (Photo Images, Reports, Output Photo Images, Enhancements, etc.).

Note also that the buttons at the left side of the Documentation Panel change, and sometimes are "greyed out" (not pressable), so that you will see and be able to click on only the buttons that actually *do* something in context of the work that you are actually doing at the time.

PhotoStation Manager Workflow Overview

The PhotoStation Manager makes it easy to photo document your Subject(s). The following shows the basic workflows you will use within the PhotoStation Manager System. These include:

1. Add a New Record
2. Search for an Existing Record
3. Import Photo Images into One or More New or Existing Records
4. Add Photo Images to a Record using either by Import or Nikon Capture
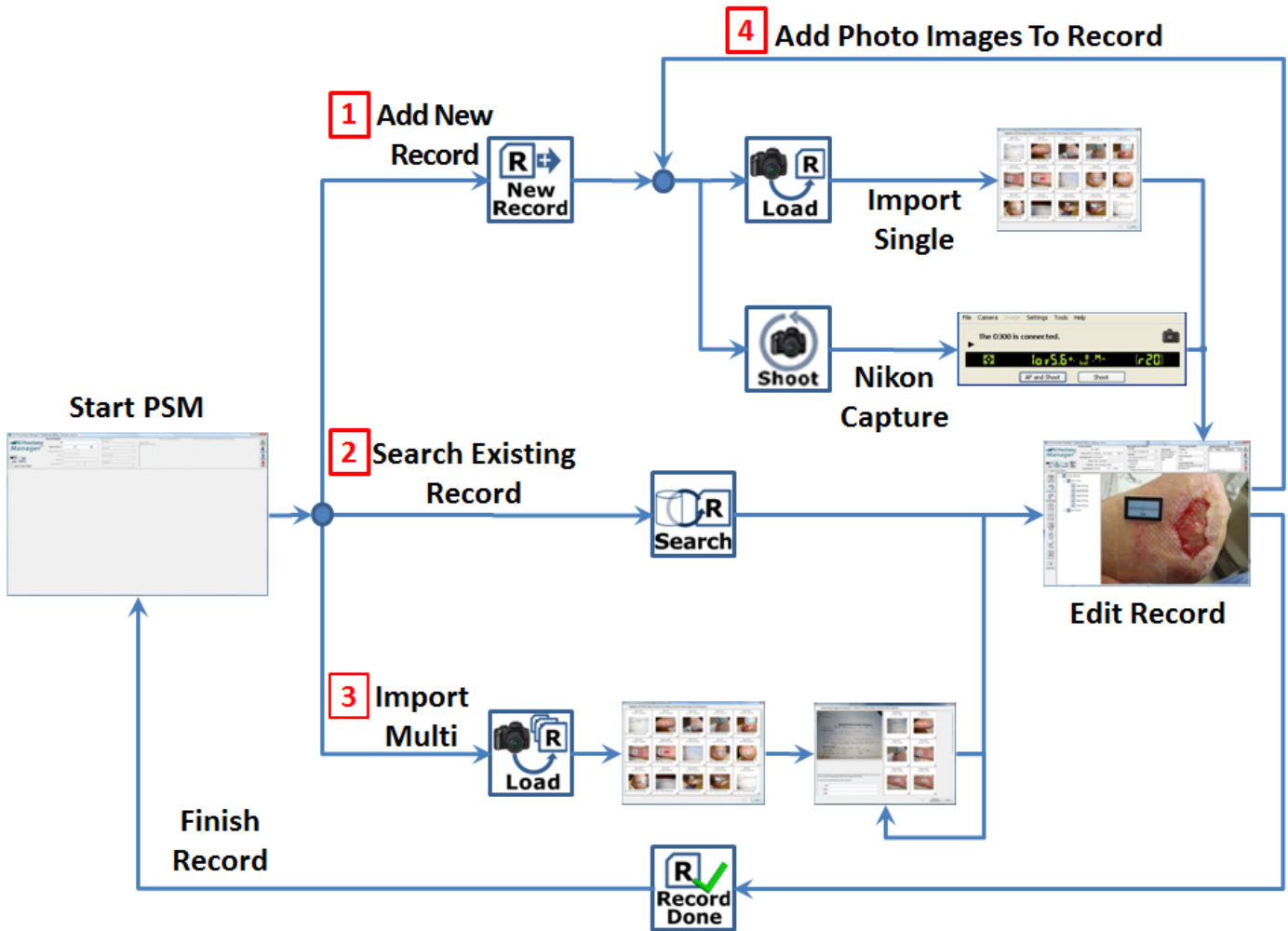
Figure 4 - PhotoStation Manager Workflow Steps

These key workflows are detailed further below.

PhotoStation Manager Introduction

It is important to understand the approach used by the PhotoStation Manager for organizing your Photo Documentation Collection. The PhotoStation Manager manages a single Collection of Records, where each Record is uniquely tied to a single Subject (person, place, or object). The complete Collection of Records is stored in a file system folder you can specify using the Storage tab of the Setup dialog. The location you specify can be either on your personal computer, your local area network, or a remote on-line "cloud" storage service. The PhotoStation Manager uses a unique Record ID to organize a Collection of Photo Documentation, taken over time, of a single person, place, or thing. Each unique Record subfolder includes all Photo Images, Reports, Output Photo Images, Annotation notes, measurements, and entries you make over time related to that Record. In the PhotoStation Manager software you will see several graphical icons used in feature buttons, information panels, or displays. These icons are as follows:

Icon	Description	Button Icon Example Uses	
R	**Record** A Single Record containing a Collection of related photos documenting a single Subject (person, place, or object).	**R** New Record	Add a new Record to the system for a Collection of Photo Images related to a single Subject
		R Record Done	Save all changes made to the currently loaded Record and reset the PhotoStation Manger to search for another Record or exit.
D	**Date Entry** A Date Entry within a single Record. All Photo Images captured for the particular date are grouped together via Date.	**D** New Date	Create a new Date Entry based on today's date for the currently loaded Subject Record.
I	**Image** A single Photo Image. A Photo Image, or digital picture, is what you get when you click the shutter release on your camera.	**I**	Send the currently displayed Photo Image to the printer
		I	Display the currently selected Photo Image to fit completely within the display window.
(cylinder)	**Records Collection** A Collection of Records. Depending on the feature, this could refer to your PhotoStation Manager's Collection of Photo Image Records, or possibly another Collection of business Records.	**R** Search	Search for a Record in the PhotoStation Manager Record Collection.
		I	Send selected Photo Images to a remote business Records Collection.

Table 2 - Standard PhotoStation Manager Icon Graphics

While the PhotoStation Manager software can be used in a wide variety of markets, in Healthcare, we assume the "Subject" of your Photo Documentation is your patient. So whenever we refer to "Subject" or the "person, place, or object of interest", or the "Record", we are referring to Photo Images, notes, measurements, and reports created for each of your individual Subject-Patients. In Healthcare, the Record ID can be thought of as your Patient-ID. You can use whatever ID format is currently in use in your organization.

PhotoStation Manager Quick Start Guide

This section presents with an overview of the steps you need to take to quickly being organizing Photo Documentation images and creating reports or notations using the PhotoStation Manager. The steps for capturing Photo Images are shown in the following chart (assuming no Record is currently load – if a Record is visible, finish up first by pressing the Record Done [icon] button).

Step A: Create A New Record **-or-** **Select An Existing Record**	**Step B: Take Photo Image** **-or-** **Import Existing Photo Image**	**Step C: Review / Annotate / Print**
1. New Record? Carefully type in the Record ID, First, and Last Names into the Record Details area, then press the new Record button. 2. New Photo Date to Add to Record? Type any or all of the Record ID, First, and/or Last Names, then press the Enter key. Choose the correct Record from the list. 3. Optionally, add additional Record Details needed. 4. Select a Date in the History List Panel, *or* create a new Date for today by pressing the New Date button. 5. *Alternately*, do not select a Record, but go directly to Step B(5) and mass-import a batch of image Sequences for many Records and/or Record Dates, in one operation.	1. Have the optional Nikon Photography Package or an Auto Load Camera Option? Aim the camera and press the shoot button. You are finished! 2. Using your own camera? Take photos as usual. 3. Make the photos available to your computer by either copying them, attaching a sync cable, or removing a memory card and inserting it into a card reader. 4. Press the Load Multiple button and follow the onscreen procedure to import a Sequence of photos for this Subject's Record. 5. *Alternately*, you can input many photo Sequences for many Records and/or Record Dates in one operation: do *not* load any Record, but instead press the load multiple button.	1. In the History Panel, expand the Date Entry you wish to work with. 2. Click on an image to highlight it. 3. Examine the image in the Photo Image Display Panel, optionally using the Magnifier (by right-mouse-clicking it). 4. If you have the Enhancer Version: you can annotate the image by pressing the Enhance button in the Button Panel, then using the toolbar to select Enhancement tools. 5. Create Reports with the right-mouse-click menu. 6. 7. Print any selected Report *or* photo with the *Print* button .

Step A.1: New Record

If you are documenting your Subject (person, place, or thing) for the very first time, you will need to create a new Record. Enter a unique ID Code for this item, the Name field(s) *exactly as you want them to appear on a printed report*, and press the New Record button. Notice that below, the Button Bar Panel, the History List Panel, and the Photo Image Display Panels appear.

Step A.2: Existing Record

Enter any part of the ID and/or the First Name and/or the Last Name, then press the Enter key on your Keyboard. If only one Record matches, that Record will be brought up. Otherwise, a list of possibly matching Records will be displayed; choose the correct one (double-click on that row). Notice that below, the Button Bar Panel, the History List Panel, and the Photo Image Display Panels appear.

Step B: Add Pictures

There are a couple of ways you can add photos to your system depending on if you are importing directly from a point and shoot or SLR digital camera, or if you have the tethered Nikon Camera option.

Using Your Own Camera

You can import photos from any digital camera you own. Once you have taken a series of digital photos, to copy the Photo Image files to your computer you must do one of four things:

- Connect a sync cable from the camera to the computer, OR

- Remove the memory card from the camera and insert it into the reader attached to the computer, OR

- Setup a wireless transfer using a technology like Eye-Fi®, OR

- Copy the Photo Image files to a folder on the computer by some other means.

(In any case, the Photo Image files must be visible to the computer within a folder (with a name and location known to you, so that you can find them.)

Now, you can press the Load-Single [icon] button; this will start the Import procedure into your currently loaded Record. Select the folder location where the Photo Image files are located, then go through the steps to select the beginning and end of the single Sequence of photos for this Record ID. You will be automatically guided through the process – when finished, you will see all the photos selected added to Date Entries in the History List Panel.

You may also Batch Load photos into your PhotoStation Photo Image Collection. If there is no currently loaded Record, you will see the Load-Multi [icon] button .You can import photos into not just one Record, but any number of Records and they can be for any Dates. In this case, multiple Photo Images Sequences will be identified, and each single Sequence will be loaded into a selected Record. The import procedure will *automatically* create new Records and new Date entries as necessary until all of the Photo Image Sequences, from one common import location, have been completely processed. In addition, you can choose to intentionally omit individual Photo Images from the import.

You will need to know the exact Record ID, First Name or Last Name for each Sequence; however, if you start each Sequence by photographing a *Slate* Records sheet (that you filled out before shooting Photo Images), the whole process is a snap.

Using the Nikon Photography Option (PhotoStation System Users)

If you have the Nikon Photography Option, you will first need to create a Date entry for the currently loaded Record. The New Date button [icon] will be active if there is not a Date entry for today. Press the button to begin shooting. If the Date entry for today exists, then the Shoot button [icon] will be active. You have the choice of shooting with the camera mounted in position on the POS cart, or releasing the camera and shooting freehand. Either way, you will need to frame the shot.

To frame the shot with the camera mounted, use the Live Preview feature of the camera control dialog. For the best framing, you can adjust the position of the POS Cart, and if needed, adjust the position of the PhotoStation System Camera by carefully loosening and adjusting the camera mount arm. If you have a variable focal length ("zoom") lens (optional), you may also adjust the camera's field of view by adjusting the lens.

You will use buttons on the camera control dialog to focus the camera lens and take the Photo Image. To frame the shoot freehand, release the camera from the mount, and use the camera view finder to frame the shot. Press the shutter release on the camera to focus and shoot the Photo Image. This entire process is covered in the separate document titled **4D PhotoStation System™ User Manual**. Whether shooting using the Live Preview

command buttons or freehand using the camera shutter release, as soon as you take the Photo Images, they are automatically uploaded into the PhotoStation and stored in the Photo Images directory under a folder unique to the Record ID. All newly captured Photo Images are added to today's Date entry. You can repeat this process for as many pictures as you need in order to visually document the person, place, or thing of interest.

Step C: Review / Annotate / Print

After you have loaded a Record and loaded photos that are sorted by Date, the photos are available for review. Then, depending on the PhotoStation Manager Version (Level) you are using, you can add notes to each Date Details entry or each Photo Image Details entry, or even within the Photo Image itself via Enhancement graphics or notes. You can also create Reports, Output Photo Images take measurements within the Photo Images, and/or print out the Photo Images and Reports. At any point, you can continue shooting, repeating Steps B & C as needed. When you have finished working with the current Record, click on the Record Done Button .

Now, you can repeat the entire process for next person, place, or object of interest.

Product Version Features

		PhotoStation Manager	
		Essentials	**Enhancer**
Capture	Details	✓	✓
	Collection ID	✓	✓
	Name	✓	✓
	Address	✓	✓
	Details Keyword 1	✓	✓
	Details Keyword 2	✓	✓
	Preference Panel	✓	✓
	Set ID Name String	✓	✓
	Set Details Keyword 1 Name String	✓	✓
	Set Details Keyword 2 Name String	✓	✓
	Search indexing for fast network access to Collection Records	✓	✓
	Import from any digital camera	✓	✓
	Images stored in industry standard jpeg	✓	✓
	Image storage - Local or Network	✓	✓
	DES-256 Bit Encrypted Data	✓	✓
Organize	Images indexed by ID	✓	✓
	Images organized by Date	✓	✓
	All project data accessible and loadable by external apps via XML	✓	✓
	User notes per date entry	✓	✓
	User notes per photo image	✓	✓
	User customizable information fields for each date entry	✓	✓
	User customizable information fields for each photo image	✓	✓
Photo Image Viewing	Display Images	✓	✓
	Zoom and pan in zoomed in Photo Images	✓	✓
	Display Images Image Annotations	✓	✓
	Display Measurements	✓	✓
	Image magnifier / Zoom In	✓	✓
Image Annotations	Image Enhancement Edit (drawing capability)		✓
Image Measurements	Predefined Ruler Support		✓
	Recognize 2D Ruler Marker		✓
	Supports multiple sized Ruler Markers		✓
	Set Ruler to Legend Scale		✓
	Set defined ruler sizes and scales		✓
	Display Measurements of all graphical items in image		✓
	Preference Panel		✓
	Select Unit System and Scale		✓
	English		✓
	Metric		✓
	Select Displayed Columns		✓
	Select Display Real-time while dragging		✓
	Measure Graphic Items		✓
	Measure Length		✓
	Measure Area		✓
	Enter Depth / Estimate Volume		✓
	Circularity		✓
	Major Axis		✓
	Minor Axis		✓
Report Generator	Reports stored in jpeg format	✓	✓
	Print reports	✓	✓
	Create new Photo Image output reports	✓	✓
	Full View	✓	✓
	Zoom detail	✓	✓
	Before and After	✓	✓
	Gallery	✓	✓
	Full View with Annotations		✓
	Zoom detail with Annotations		✓
	Before and After with Annotations		✓
	Full View with Measurements		✓
	Zoom detail with Measurements		✓
	Before and After with Measurements		✓
	Selected Feature Change in Size Report		✓
Options	Integrates with EMR System Using HL7	✓	✓
	Integrates with Nikon Control Pro	✓	✓

Table 3 - PhotoStation Manager Product Version Features

PhotoStation Manager Basic Concepts

Photography Workflows

The Slate

We recommend you routinely use a *Slate* sheet to help you track individual Records and Photo Image Collection Dates, especially if you might photograph multiple persons, places, or objects of interest with the same camera before uploading the resulting Photo Images into the PhotoStation Manager.

The Slate is a paper form (sample original is in Appendix A) which we install in the default PhotoStation common application data folder, named `Slate.doc`. It permits you to record the name and ID number, plus the photo Collection date. The Slate is provided as a convenience. You can take a picture of an order sheet, paper record chart, or other detail information form you used to track and initiate your Photo Documentation process.

Figure 5 - PhotoStation Manager Sample Slate

Whenever you need to document more than one person, place, or object, or your digital camera is being used by more than one person, you should fill out a copy of the Slate sheet prior to beginning the documentation shoot. When you are ready to take photos, make sure that the *first* photo of the group you will take is a full-screen shot of the Slate sheet.

Now, when you import this set of images into the PhotoStation Manager, you will be able to immediately recognize the start of a group of images belonging to a specific person, place, or object taken on a date. We call this group a *Sequence*.

The Load procedure, which imports Sequences of Photo Images, assumes that the first image in every set of Photo Images for a single Date. The operator importing the Photo Images will be able to see and copy the basic information from the slate – the ID and Name details (at the least). By using this procedure, you will see immediate benefits in workflow efficiency, convenience, and accuracy.

Integration with Your Filing System

Selecting your Record ID for use with the PhotoStation Manager

You will have a unique code to uniquely identify a Record, which we call the *ID or Record ID*. Most likely, your organization already has selected some form of ID to use for this purpose. PhotoStation Manager is designed to be able to accept (in most cases) the ID codes you already use today. Once you select a system for creating ID codes, you will want to continue to use it for all future new Records. Thus, you need to determine what type of ID number you will use in the PhotoStation Manager, and then use it consistently.

You may use the following characters:

- A thru Z
- a thru z
- 1 thru 9 and 0 (zero)
- - (dash)
- a blank space.

If you type multiple blank spaces next to each other within the ID, they are always reduced to a single blank space. Blank spaces before or after the ID Code are removed automatically.

It does not matter if you have upper-case or lower-case letters; they are treated identically. 'A' and 'a' are, for the purposes of the ID, the same character. The only difference is how they look when printed out – so you should be careful to type the name fields the way you want them to look. For example:

- If you enter " AB1234 " as a new ID, then it will be changed to "AB1234".
- If you type "123 MAR JON" (note the multiple spaces), as a new ID, then it will be changed to "123 MAR JON" (one space in each case).
- If you type "aBCd" as a new Record ID, then it will be treated as identical to "ABCD"

We recommend your ID number in PhotoStation Manager be identical to the ID number in your current paper and/or electronic file systems. If you plan to import your PhotoStation Manager Photo Image Records to your electronic Records system, the IDs used in the PhotoStation Manager must match those used in that system. Here are a few examples:

- 123-456-7890 (the Social Security Number of the Subject)
- HST 123456 (the name initials followed by an office-created serial number)

- 12345Smith (an office serial number followed by the Record name
- 12345-WT (an office serial number followed by an location code

If you use your selected ID code consistently for all your Records, you will benefit from ease in searching and locating your Records and better integration with your existing or future Records systems.

Works with Paper or Electronic Records System

While the PhotoStation Manager creates and manages electronic Photo Image Records, you can also use the system to generate paper-based Photo Image Records. If you are still using paper-based Records, you can still benefit from electronic storage and access to your Photo Images, and incorporate selected paper-based Photo Image Reports for inclusion into your existing paper-based record file.

The flexible report system allows you to generate printed copies of some or all photos, with or without custom annotations (that we refer to as E*nhancements*), with the ID code and name clearly displayed. This makes it easy to add the photo images to your paper Records.

The reports also permit you to easily mail the image to peers, users, customers, or other required reviewers. Finally, you can easily give customers a report that demonstrates, for instance, before-and-after progress of a course of treatment or project development.

Electronic Record System Interface Option

PhotoStation Manager can be extended to implement a direct interface to your organization's Electronic Record System (ERS). With this option, you will be able to automatically "upload" your Photo Image Records electronically into your ERS Record chart. 4D Imaging Systems currently supports a select number of ERS systems. Even so, we can quickly provide support for additional ERS systems if your current ERS is not one of the ones we support.

Even without an implemented ERS option, you can very easily import your photo image Record collection into any ERS that supports a photo import interface. Simply used the Open Record Folder menu entry to open a Windows® Explorer view of your Record and select the photo images or reports you want to import.

Open approach for compatibility

The PhotoStation Manager uses widely accepted Internet, computer, and industry standards to make it easy to use your Collection of Photo Image Records into the foreseeable future:

- Records are stored in Windows® NTFS file system folders. Folders can be easily accessed and backed up using your current tools and procedures.
- Images are stored in standard *JPEG* format. This is viewable by virtually any hardware device and any software available for looking at images.
- *XML* file format is used for all additional data. This is readable by virtually any software as common, understandable text, which means that future custom software or electronic record or document management systems can be easily created or modified to understand and use your valuable Records.

- Standard, easy-to-understand folder layout is used throughout. All Records for a single Subject are stored in a folder whose name is the Record ID code you established.

- Records may be manipulated with standard computer software for purposes such as making backups, incorporating images into reports or presentation, or emailing photos or reports as attachments in an email message.

Our open approach to storing your data ensures compatibility with future computer systems.

Photo Image Sources: Cameras and Requirements

Dates Embedded in Photos

An almost universal capability of digital cameras is the ability to automatically add a date and time to every photograph you take. PhotoStation Manager leverages this feature and the information stored in the Photo Image files (sometimes referred to as "EXIF data"). As a result, it is critical to use your camera's menus to set the correct time and date. Most digital cameras require the setup of the time and date immediately upon initial power up after purchase. After this initial setup, most cameras will use an internal battery to maintain the date and time, even if you remove all batteries from the camera. Most cameras provide a flashing indication on the camera's display LCD panel when the date and time are not set. So be sure to review your camera's user instructions to understand how to set up the date and time using the built-in menu on your camera and how to recognize when the date and time are not properly set.

Remember, photos are assigned to Date Entries *based on the Date the photo was taken* according to the EXIF data. For the system to work correctly, you must ensure the camera's date is correctly set.

Camera Quality

You must select a digital camera whose quality and usability are suitable to the photo imaging requirements of your organization. PhotoStation Manager is intentionally designed for great flexibility in the area of cameras. Most digital cameras will work with the software, but you may find that some cameras are not suitable for your needs.

Here are some key factors that may affect your choice of camera.

Quality requirements for the image:

- A bit of fuzziness, blurring, or "noise" (dots, or small mottled patterns in the image) is acceptable. Most cameras will be acceptable.

- Small details or features rendered sharply are important to your diagnosis or interpretation. You will need a better quality camera with a better quality lens.

Color fidelity requirements

- You have no color requirements – or, black-and-white is fine. Most cameras will be acceptable.

- The precise color of the feature being observed – or its change in color over time – is important to documentation or diagnosis. You will need a better quality camera.

Distance of camera from person, place or object being documented?

- Three feet or further – you are trying to photograph large areas or entire body regions (or the entire object). Most cameras will do this acceptably.

- Close-up – trying to photograph features smaller than the size of the hand (also called *macro photography*). You need a camera with a *close* focusing or a *macro lens*, or a camera with an interchangeable lens (and then get an appropriate lens for it).

- Close-up, and taking measurements (using the optional Enhancer Version features). In this case we strongly recommend a macro lens.

Lighting available?

- Bright lighting or camera lighting (such as an electronic flash). Most cameras will work acceptably in this case. (The lower-quality cameras may not have an effective built-in flash.)

- Not bright lighting, such as: existing room lighting which is variable or unusual, or when the camera is very close to the Subject, possibly partially blocking the light. You need a camera with a quality lens that is larger, and features a larger maximum lens opening (that is, a numerically smaller f/stop number for the "widest" setting).

Do I need a camera mount?

- Photos will be taken hand-held with bright lighting or using electronic flash. Most cameras will work acceptably, although the electronic flash on most assume you will be between 5 and 15 feet from the Subject (approximately).

- Lighting is not the brightest, *or* you will be taking photos with the camera close to the Subject (under three feet), *or* you will be using the "telephoto" feature of the lens to "zoom in" and see a feature much larger, *or* you need the sharpest, blur-free photos for better examination of feature details. In any of these situations, you will likely need a good camera mount, such as an adjustable arm or a tripod.

Here are some more important considerations in selecting a camera.

Viewfinder choices

The ability to see what you are about to photograph comes in several varieties on cameras. The first is when you are solely using a display screen on the back of the camera. Unfortunately, holding the camera at arm's length (so you can see the image clearly) usually results in camera shake. In bright lighting, this is acceptable, but in lower lighting, it can be objectionable. Using a mount to hold the camera mechanically can eliminate these problems.

The second variety is called a *rangefinder*: you hold the camera to your face and look through a separate viewfinder usually above and to the side of the lens position. Unfortunately, while this removes most of the "shake", it adds a small amount of inaccuracy as to what will be in the photo. This error increases the closer you get to the Subject. (Relatively few digital cameras use this method today.)

The third variety is called *single-lens reflex*: you hold the camera to your face and look through a viewfinder, which allows you to see directly through the lens exactly what will end up being photographed. This is especially appropriate for macro photography, and helps reduce "shake".

Finally, some digital cameras use what looks like a viewfinder to look through (reducing the "shake"), but use a small display screen inside the camera. While this provides the same accuracy as a single-lens reflex, sometimes these small displays are of lower quality and misrepresent the higher quality of the image as photographed.

Quality

Quality can be a tricky thing to define. More lighting and better lens means better quality. A camera held still increases the quality. More megapixels can mean better quality. However, the type of image sensor in the camera can greatly affect this, too.

Lower-cost, consumer cameras use lower quality sensors. They are smaller, meaning each pixel is tinier, and use technology that is noisier, resulting in a poorer quality photo. (For instance, you might see "dots" in the dark areas.)

Better quality cameras, especially the *digital SLRs (Single Lens Reflex)*, use a physically larger sensor of a different kind called *CCD*. This results in better overall image quality, less noise in the picture, and better performance in lower light. Also, these cameras usually allow higher-quality and often interchangeable lenses.

For all of these reasons, when you want uniformly high quality under varying conditions, we generally recommend a digital SLR with 12 megapixel images or better, for the most demanding of documentation photography needs. In fact, we offer an optional equipment package that comes with a highly adjustable mounting arm plus a Nikon D90 DSLR with macro lens.

This notwithstanding, and understanding the limitations of lower-cost cameras and your specific needs, you can be quite successful with many lower-cost cameras in many cases. In particular, several manufacturers are now offering very compact-sized cameras that look a lot like low-end point-and-shoot digital cameras; however, they use interchangeable lenses and have the highest quality image capture technology.

We will further discuss camera selection later in this manual.

Photo Image Sources: Importing Other Photos from Files

You may have existing photographs that come from other sources. PhotoStation Manager can easily accept them. Photos are typically in *JPEG* format and they should reside in a folder that is visible to the computer on which you have installed the software. This includes locations available through a local area network. The PhotoStation Manager can also import TIFF and bmp files.

Dates Embedded in Photos

As previously noted, Photo Images can have information embedded within them, using an industry-standard format called *EXIF*. The key piece of information is the time and date on which the photograph was taken. PhotoStation Manager will use that to automatically place the photograph into an *Date Entry* which is presumed to have occurred on that date.

If you have photos that were taken without any time or date set on the camera, or if the time and date were set incorrectly, then you can still import the photos. However, you will need to first edit the EXIF information on each Photo Image to correct the date. Although we do not recommend any particular method, it is possible to obtain free software for editing your EXIF dates. Here is a Web location that lists several:

`http://www.freedownloadscenter.com/software/edit-exif-freeware/freeware.html`

If there are no problems with the date, and the photos to import are in a single folder (visible to the computer running PhotoStation Manager), then the Photo Images are ready to be imported as described in this documentation.

Printer Considerations

You can use almost any printer with PhotoStation Manager, and see acceptable results. However, selecting the correct printer for your needs will result in better quality and more useable output. This section will help you to understand the various considerations.

Possible Uses

There are many ways to use the printouts from the PhotoStation Manager to improve your organization. For instance:

- Adding photos to a paper file.
- Sharing with your customer, perhaps with you indicating significant features, either with the Enhancements feature, or perhaps just by writing on the printout.
- Showing to a colleague.
- Mailing to a peer-level practitioner for their files.
- Using a photo for careful diagnostic scrutiny.
- Side-by-side comparisons with another photo of the same Subject or a similar related Subject.

4D Imaging Systems does not supply or recommend any specific printer, and the installation of the printer is not part of our service. The PhotoStation Manager software is designed to work with any properly installed Windows-based printer. However, the following information is provided to help you better reach an informed decision on which printers to consider.

Key Decisions

These are the key decisions you need to make:

- Is the photo needed for diagnostic purposes?
- Are photo-realistic colors significant to your evaluation?
- Is accurate color matching ability significant to your evaluation?
- How many pictures do you print each week?
- Do you need to use different types of paper for different purposes other than for use with the PhotoStation Manager – say, different letterheads, or plain vs. letterhead, or standard vs. high-quality?

- Are you going to share the printer with many users from different computers?

Printer options

Here are some of the various features you will find in printers:

- Ink-jet *vs.* laser -- use laser if you are printing a lot of output each week, even if that output is from other applications besides the PhotoStation Manager.

- Color *vs.* Black-and-White.

- Duty Cycle – more expensive printers are designed for printing more output each week, and thus cost less in terms of ink or toner consumption, and are also capable of working more constantly without service difficulties.

- Paper handling – more expensive printers have more options for different types of paper, such as having both high- and low-quality paper in separate trays, letterhead and non-letterhead in separate trays, or allowing other sizes (such as envelopes).

- Resolution – for super-high-quality images for diagnostic purposes, this may count (but remember, if the resolution of your camera is low, this may not matter.) A low-quality paper choice will often effectively reduce the resolution the printer can provide.

- Networkable – allows it to be attached to an Ethernet jack in your office so that many computers, with the driver properly installed, can share use of the printer, without the printer having to be physically connected to any specific computer.

- Wireless – another form of networkable, working without Ethernet wires, but can be more challenging and problematic to set up correctly so it functions successfully in all cases.

Paper quality options

If you need photo-realistic or accurate color, and/or need a clear, accurate image quality for diagnostic purposes, then you need to use special "photographic" paper. Significantly more expensive than ordinary office copy-machine paper, this paper has several key characteristics:

- Ink dots form clearly, and don't smudge irregularly during the print process.

- Colors appear more accurate.

- A larger range of tonality (light-dark variation) is visible.

- The paper surface is both more white, and reflects light more, than ordinary paper.

This paper comes rated for different uses (ink jet or laser), and is readily available. And, the driver provided by many better printers allows you to tell it what kind of paper is being used, so the most effective use is made.

If you use a printer for more than one purpose, and you choose to use photo-quality paper, then you might find convenient a printer with more than one paper source. PhotoStation Manager will print to the default printer using the default paper tray. However, for other uses, you can choose a different tray with less expensive paper in it from many applications (e.g., word processing).

If your Photo Image applications do not require a photo-realist level of accuracy or fidelity, more ordinary printing paper – even ordinary office copy-machine paper – may be entirely suitable, and with noticeable savings.

Accurate (Calibrated) Color

If it is necessary to be able to accurately match color tones between separate images, or if color shifts or inaccuracy might affect diagnosis or treatment, then you may wish to use calibrated devices. If you do so, then the PhotoStation Manager's display and printing of images will be improved.

Most quality cameras and printers have the capability to adjust their image data (for instance by selecting a color space or a specific profile). They may also have a color management or profile file to copy to your Windows PC. Additionally, there are calibration devices for use with printouts and with monitor screens to build very accurate color profiles, to account for age and manufacturing variation.

Windows has color management features built in, where you can specify the color space by selecting the correct profile. We suggest that, if you need this additional quality, you consider these features.

4D Imaging Systems does not supply, support, or recommend any specific procedure, feature, or calibration product. However, if repeatable and accurate color is important to your organization, it may be well worth consulting a specialist in properly configuring your computers.

For more information, you can start with this overview on the web:

`http://en.wikipedia.org/wiki/Color_management`

A nice step-by-step guide to setting up a typical PC, monitor, and printer (ignore the Photoshop info) is here:

`http://www.pearsoned.co.uk/bookshop/article.asp?item=1204`

Another useful site with references to other reference material is at:

`http://www.normankoren.com/color_management.html`

Best Quality Black and White

If in addition to photo imaging your Photo Documentation requires high-quality black-and-white photography (such as x-rays or scans), then instead of using a photo-quality paper, you should use a specific Epson ink jet printer with six ink cartridges, and MIS Ultratone 2, EZN, or EZW ink cartridge set. A selection matrix with discussion of the different inks is available from InkSupply.com at `www.inksupply.com/qn.cfm`. This will result in a major improvement in appearance over conventional methods, better permitting diagnostic evaluation.

Printer Selection Matrix

Purpose	Type Of Printer	Type of Paper
Simple visual identification, low volume	Ink Jet printer	Simple office copy paper
Simple visual identification, high volume, don't care about color	High-end Ink Jet printer, or Black-and-White Laser Printer	Simple office copy paper
Black-and-white diagnostic-quality	High-end Ink Jet Printer with special black-and-white inks	Photographic Printer Paper

Color diagnostic-quality	High-end Ink Jet Printer, or Photographic Quality Laser Printer	Photographic Printer Paper
Sharing printer between several PCs	Network Printer with built-in print server (usually has Ethernet port)	Depends

Table 4 - Printer Selection Options

If you often write on the printout, we strongly recommend you use the features of the PhotoStation Manager to annotate your Photo Images using the predefined note and keyword fields. If you still feel the need to write on your Photo Image print outs, you will find it easiest to do so using simple office copy paper. However, if you are using photographic quality paper which is not easy to write on, try using a Sharpie™ marker. For glossy paper, you may find it easier to use a "china pencil", which come in both black and red.

Cost Considerations

Lower quality ink-jet printers are undoubtedly the cheapest to purchase. However, in general the ink refills are more expensive, so that producing quantities of prints becomes costly. More expensive printers often save you money in the long run if you *do* produce quantities of prints. Usually, the high-volume print needs are most effectively served by laser printers. Therefore, be sure to compare cost of the ink/toner for your printer selections, taking into account the quantity of prints per unit.

Keep in mind that the manufacturer quotes number of prints per cartridge based on 10% or less coverage (text only). Photos might cover 50% of the paper, and thus you will use up the cartridges two to ten times faster than that spec (depending on Report Output style selected).

Preserving Your Records From Disaster

Your data is precious. As part of your record-keeping system, you should have a plan for recovering from one of many situations that would affect your data, including the images you have added to PhotoStation Manager.

Types of Disaster

There are several types of situations that can affect your data:

- Someone accidentally erases some or all of your data on your computer disk drive
- Your disk drive fails, as all do with a certain amount of age
- Water, fire, smoke, or other type of damage
- Theft
- Mechanical damage (a dropped computer system, earthquakes, falling trees)

Basic Back-up Techniques

PhotoStation Manager is designed for ease of back-up and restore. In fact, just about any method of back-up will work with no fuss. If you are the primary administrator for the PhotoStation Manager, please carefully read this section, since it is your responsibility to backup all PhotoStation Manager files. If you have technical support

provided by an internal or 3rd party Information Technology (IT) department, please make sure your IT department is involved in the setup and maintenance of the PhotoStation Manager.

Some versions of computer systems come with simple backup software pre-installed. Feel free to use it.

The PhotoStation Manager main program is installed by default in the following location:

- `C:\Program Files\4D Imaging Systems Inc\4D PhotoStation Manager`

The PhotoStation Manager documentation and sample workflow files are installed by default in the following location:

- `C:\Program Files\Common Files\4D Imaging Systems Inc\4D PhotoStation Manager`

The PhotoStation Manager Record Collection is installed by default on the Desktop in the following folder:

- `C:\Users\[Your User Name]\Desktop\PSM Collection`

In the PSM Collection folder, there is a file called PSM.xml. This is the main settings file for your single or networked installation of the PhotoStation Manager.

The above folder may be in another location; this is the default. You can view the currently selected location or select an alternate location after the initial PhotoStation Manager installation by pressing the Setup button from within PhotoStation Manager and going to the Storage tab.

When any software is in the process of modifying a file, it cannot be backed-up. PhotoStation Manager is designed to minimize this problem. However, to completely be sure that this situation does not occur, we recommend that you exit from PhotoStation Manager before your back-up procedure. (Very sophisticated back-up software can sometimes automatically take care of this, too.)

If you do not have any software for making back-ups, you can simply copy the two files and the folder to an alternate location – anything from a second disk drive to a DVD burner to a flash drive to a network location. This will provide effective protection. Many versions of Windows come with its own simple back-up software.

Copying protects against the loss of a disk drive. Some of the other disasters that can occur, listed above, are more severe. To protect yourself against all loss, the back-up copy needs to be kept at a different physical location from your PhotoStation computer.

Disaster Recovery

Using any restore software, or simply copying the back-up to the original folders on your PhotoStation computer, will automatically allow PhotoStation Manager to continue processing as if nothing has transpired. (Remember, the PSM.xml file corresponds to the contents of the PSM Collection folder at any instant, and they must be backed-up and restored together as a pair.) Again, we recommend that PhotoStation Manager not be running at the time you do this copy or restore.

What if your computer system is lost completely? Then, you must replace it with a new computer. Re-install PhotoStation Manager on this new computer, specifying the same folder location for the Photo Images. Then, do the restore process (or copy the saved files and folders to these locations), intentionally overwriting the standard

PSM.xml file created during install. The next time you start PhotoStation Manager, everything will be back to normal, as it was when you copied or backed-up those files.

Finally, we recommend you take advantage of a technique that is becoming widely available on PCs, called Raid 1. This means that you install a second hard drive, of identical size to the first, and perform special configuration of your computer (please let an expert do this). Then, any use of your first drive will be duplicated exactly on the second. If the first drive fails, the second will immediately take over as if nothing happened, giving you the time to replace the defective drive. (Remember, this does not protect you against physical damages or theft.)

Record Information Model

Overview

This section details what types of information are stored with each Record in your PhotoStation Manager Photo Image Collection.

The PhotoStation Manager manages a single Collection of Records, where each Record contains all the information for a single Subject (person, place, or object). The Record Information Model corresponds to the various fields in the Documentation Panel you can customize to better track information about your Subject. Each Record is stored in its own unique subfolder located in the top-level file system folder you specify using the Storage tab of the Setup dialog.

A single Record consists of Subject information (Record Details), capture date information (Date Details), photo images (Photo Details), Enhancements to photos (Enhancement Details), Reports, and Photo Image Outputs. It is organized as follows.

- Record ID – unique to a single object / person / location. One Record ID for each Subject being photo documented.

    Each Record ID can have multiple:

    - Date Entries – each date entry is the calendar date at which documentation photos were taken.

        Each Date can have multiple:

        o Photo Images – These are the Photo Images you have taken to document your subject. The Date you took the photo image is the Date Entry under which the Photo Image is sorted.

            Each Photo Image may contain one or more:

            ➢ Enhancement Text Notes

            ➢ Enhancement Graphical Objects with Measurements

            Each Photo Image may contain a single Ruler Marker detected to provide a reference size for Enhancement Graphics Object drawn onto the Photo Image

        o Reports– ready for printing or viewing

        o Photo Image Outputs – Photo images created with additional information or processing effects for increased measurement accuracy (Enhancer Version).

The Record ID is the unique identifier for a single Record. You can use the ID as the quickest way to search for and retrieve a single Record. The Record ID and all of the other fields described in this section consist of upper and lowercase letters, digits, and can have a space or a dash embedded within. (Upper and lowercase are treated as the same: "A" matches "a". Also, multiple consecutive blank spaces will be condensed to a single space.) More information on the ID can be found in Chapter 1 – System Requirements.

Record Details Fields

Record ID

Every individual Record has a unique Record ID Code. This ID is used to uniquely identify the Subject. All information contained in a single Record should relate to the Subject being documented with the particular Record ID.

Each Record ID is unique and no duplicate IDs are allowed. The PhotoStation Manager will not allow you to enter in the same exact sequence of character and/or numbers for a Record ID if that sequence is currently being used for another Record.

Record Name

In the PhotoStation Manager Healthcare, Wound Care and Medi-Spa Editions, since we assume your Record Collection will be for Photo Documentation of your patient population, the Subject is your Patient. We default the Record Name to include fields for a First, Middle, and Last Name. It is required that a First and Last Name be entered to create the new Record; however, the values can be anything you wish.

In the Commercial Edition, the Name is a single field that can contain any sequence of characters, numbers, and separating spaces. You can search for Records using the Record Name.

In all Editions of the PhotoStation Manager, more than one Record may have identical Record Names, but different Record IDs.

In all Editions of the PhotoStation Manager, you can perform a Record Search using the Name field.

Record Keyword 1

The Record Details Keyword 1 field allows you to store information about your Subject in the Record Details. The field can contain any sequence of characters, numbers, and separating spaces. How you use this field is up to you. You can change the name of this field in the Labels tab of the Setup Dialog. No data entry formatting is enforced on this field. Therefore, it is important that you standardize on a single format for whatever data value you choose to use this field for.

In the Healthcare, Wound Care, and Medi-Spa Editions, we default this to "Birthdate". You can change this as needed.

In the Commercial Edition, the Record Keyword 1, no default value is assumed. Set this field up after completing the installation of the PhotoStation Manager.

Record Keyword 2

The Record Details Keyword 2 field allows you to store information about your Subject in the Record Details. The field can contain any sequence of characters, numbers, and separating spaces. How you use this field is up to you. You can change the name of this field in the Labels tab of the Setup Dialog. No data entry formatting is enforced on this field. Therefore, it is important that you standardize on a single format for whatever data value you choose to use this field for.

In the Healthcare, Wound Care, and Medi-Spa Editions, we default this to "Phone". You can change this as needed.

In the Commercial Edition, the Record Keyword 2, no default value is assumed. Set this field up after completing the installation of the PhotoStation Manager.

Record Address

Record Address consists of three Record Detail fields in which you can document a single line Address, City, State, and Zip. Use these as you wish. No format is enforced. Therefore, it is important that you standardize on a format.

Date Details Fields

Each Record ID may have any number of Date Entries, grouping together Photo Images that were taken on the same date. If there are multiple separate Photo Documentation shoots of the Subject during the same date, all of the photos of that Subject throughout that Date collectively constitute one Date Entry. Each Date Entry may have any number of Photo Images, Reports, Output Photo Images associated with it.

All Editions of the PhotoStation Manager include a Date Notes field. Additionally, with the PhotoStation Manager Healthcare, Wound Care, and Medi-Spa Editions, you have several additional fields for documenting the Date Entry:

- Two fields each of which may contain a person's name selected from a list. Each of these has its own list of names, so they may be different. Example: the first may be a service provider, and the second may be a technician.

- Two fields each of which permits you to select one or more items from a list. Each of these has its own list of possibilities, from which you can check (and thus include) one or more items. Example: the first may be a type of service provided, and the second may be instruments used.

You use the *Setup* button to define the names and items which can be selected from each of the name fields, and each of the multi-selection fields. Each field has its own selection list that you create when setting up PhotoStation Manager.

Date Notes

With every Edition of the PhotoStation Manager, the Date Details includes a *Date Notes* field which can contain anything you wish. This is completely free-form. You may enter any text you wish, and it will appear on-screen (and in your Reports, space allowing). You can type sequence of characters, numbers, tabs, new lines, and separating spaces. You have room for up to 4096 characters of any type. You may add to or re-edit the text at any time. If you enter more text than the space on the display, you will be able to scroll through the text to see it all.

Date Person 1 and 2 Name Lists (Healthcare, Wound Care, and Medi-Spa Editions)

There are two name fields, each of which is completely separate. You may define, in Setup, the title of each. As shipped, you will see them listed as *Date Person 1 Title* and *Date Person 2 Title*. You should decide how to use them: for instance, you might choose to make the first position Title to be *Physician* and the second *Assistant*.

In Setup, you will enter a list of names for each of these fields. Each name may have a salutation, first name, middle initial, last name, title, and even an ID of some sort (that you determine, but may refer to the ID used in your company's Electronic Records System). For instance, a full name might be *Dr. John Q Public MD FACS id#123456*. (Of course, you don't need to use all of these fields.)

Since these fields are all documentary in nature, you may use any appropriate characters on your keyboard. However you enter each name – that is how they will appear on the screen and print in the Reports.

You may place as many names in each list as you wish, re-arrange them in any order, and name the position in any way you decide is appropriate. You may even decide that you don't need to select a name, and use it for other purposes.

The key thing about each of these two positions is that for each Date, you can select exactly one of the names (from the list you created in Setup) to appear on any one Date Entry.

You may re-edit these fields at any time.

Date Keyword 1 and 2 Lists (Healthcare, Wound Care, and Medi-Spa Editions)

There are two other fields, one being a multi-select keyword list, and the other a single-select keyword list, each of which is completely separate. You may define, in Setup, the title of each. As shipped, you will see them listed as *Date Keyword 1* and *Date Keyword 2*. You should decide how to use them: for instance, you might choose to make the first one *Reason* and the second one *Billing Code*.

In Setup, you will enter a list of names for each of these fields. Since the fields are documentary in nature, you may use any appropriate character on your keyboard. However you enter each name – that is how they will appear on the screen and print on the Report Outputs.

You may place as many names in each list as you wish, re-arrange them in any order, and name the position in any way you decide is appropriate.

For the first field, Date Keyword 1, you may select zero, one, several, or all of the items (from the list you created in Setup) to appear on any one Date Entry – what we call a *multi-select keyword field*. If, for instance, you selected (by checking next to) the items *abrasion* and *excision*, then on the display and on the reports, it will appear as "abrasion, excision". You may re-edit these fields at any time, simply checking or unchecking boxes to choose what will appear for this Date Entry. Uncheck them all, and the field will again display as a blank line.

The other field, Date Keyword 2, is a single-select keyword field (list). When documenting a single Date Entry, you can choose any one item on the list, which is then displayed. Once you have made a selection, the field will no longer show as a blank area, and there is no way to return the field to a blank entry. However, you can at any time change the field to another choice from its list. *Hint*: in *Setup*, create an entry in the list that consists of a

single period ("."), or alternatively set the First Name to "Not" and Last Name to "Set". You can then select this line from the list, which looks effectively blank.
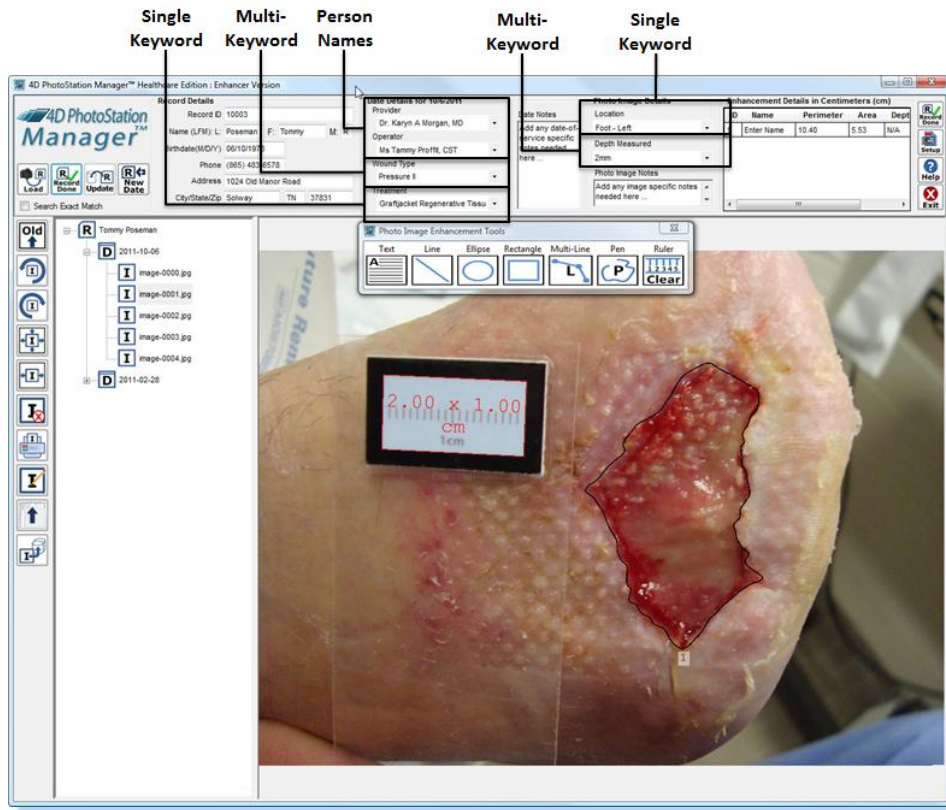

Figure 6 - Healthcare, Wound Care, and Medi-Spa Editions Name Fields and Keyword Fields

Photo Image Details Fields

Each Photo Image in the History List can have details added. When you select a Photo Image in the History List Panel, the Photo Image Details for that Photo Image are loaded into the Photo Image Details panel. Several fields are available depending on the Photo Station Manager Edition you are using

Photo Image Notes

With every Edition of the PhotoStation Manager, the Photo Image Details includes a Photo Image *Notes* field which can contain anything you wish. This is completely free-form. You may enter any text you wish, and it will appear on-screen (and in your Report Outputs, space allowing). You can type sequence of characters, numbers, tabs, new lines, and separating spaces. You have room for up to 4096 characters of any type. You may add to or re-edit the text at any time. If you enter more text than the space on the display, you will be able to scroll through the text to see it all.

Photo Image Keyword 1 and 2 Lists (Healthcare, Wound Care, and Medi-Spa Editions)

There are two list fields, one being a single-select list, and the other a multi-select list, each of which is completely separate. You may define, in Setup, the title of each. As shipped, you will see them listed as *Photo Image Keyword 1* and *Photo Image Keyword 2*. You should decide how to use them: for instance, you might choose to make the first one *Location* and the second one *Diagnosis*.

In Setup, you will enter a list of names for each of these fields. Since the fields are documentary in nature, you may use any appropriate character on your keyboard. However you enter each name – that is how they will appear on the screen and print on the Report Outputs.

You may place as many names in each list as you wish, re-arrange them in any order, and name the position in any way you decide is appropriate.

For the first field, Photo Image Keyword 1, you may select any one choice. Once you have made a selection, the field will no longer show as a blank area, and there is no way to return the field to a blank entry. However, you can at any time change the field to another choice from its list. *Hint*: in *Setup*, create an entry in the list that consists of a single period ("."). You can then select this line from the list, which looks effectively blank.

In the second field, Photo Image Keyword 2, you may check zero, one, several, or all of the items (from the list you created in Setup) to appear on any one Date Entry – what we call a *multi-select keyword field*. If, for instance, you selected (by checking next to) the items *abrasion* and *excision*, then on the display and on the reports, it will appear as "abrasion, excision". You may re-edit these fields at any time, simply checking or unchecking boxes to choose what will appear for this Date Entry. Uncheck them all, and the field will again display as a blank line.

Enhancement Details

The Enhancement Details panel shows in table format, information about each of the Enhancements placed onto a Photo Image.

All Enhancements can be given a user supplied name. You can click in the cell in the Name column for a single Enhancement and type Name. The name will appear in the cell and will also be displayed next to the Enhancement ID in the Photo Image itself.

All Enhancements except for the Text Enhancement have measurements. The details of each Enhancement's measurements are displayed in separate columns, including Perimeter and Area, which are determined by correlation to a ruler size marker detected in the Photo Image. Also, you can enter a Depth estimate to calculate a Volume estimate. Other columns include Major and Minor Axis and Circularity.

Columns to be included in the Enhancement Details Panel can be setup in the Measurements tab of the Setup Dialog.

Installing PhotoStation Manager

To install PhotoStation Manager, you need the original installation disc or download installation package provided by 4D Imaging Systems.

Before installing the software, we recommend you make decisions based on the information provided in Chapter 2: PhotoStation Manager Requirements, and Chapter 3, Record Model. We have included a form in Appendix A to help you record your decisions.

Another very important decision must also be made: where to store your Photo Image Records, managed by PhotoStation Manager.

Installation Options

Where Should The Photo Images Be Stored?

There are several possibilities as to where you might store your image data:

- On the computer to which you have installed PhotoStation Manager
- On another computer workstation, accessible through your office's Local Area Network (LAN)
- On a *file server* located on your office LAN
- In the *cloud*, somewhere on the Internet outside your office
- On a *cloud storage* device under your control, inside or outside your office

Photo Images can be sizeable, and thus your decision here will impact the overall performance. But also, there are issues of data security and disaster recovery. Let's discuss the pros and cons of each of these storage locations.

On a computer

This will give you the fastest possible response. You will always be able to transfer data to-and-from a disk drive built into your workstation running PhotoStation Manager. And, with ultra-fast, incredibly high-capacity drives now inexpensively and widely available, you can't go wrong.

The drawback is that if anything physically happens to this particular computer, all the data is at risk. It is important that you have frequent back-ups to another location in your office – or outside your office – to protect you from this prospect.

Also, if you have more than one copy of PhotoStation Manager – for instance, one in your private office to review various images and annotate them with Enhancements – then they will have to access the data on this computer. When more than one program is trying to access data at one location, your performance will decrease.

On another workstation through your office LAN

This is exactly the opposite situation from above. You are sitting in your private office using PhotoStation Manager to access the Photo Images on your workstation in the remote networked location. Your performance will be much slower. In addition, if someone is actively using that other workstation (where the data is stored), your performance will take another hit.

Luckily, you don't have to worry about backing-up your workstation. However, you had better be sure that other workstation is properly backed-up.

If you are having any technical problems with your LAN, this option will temporarily stop working until the problem is corrected. You must make sure your network administrator has *shared* the folder containing the actual Photo Image Records.

On a networked drive on a file server

File servers in your office, such as various Windows Server Editions, are designed for many users to access. (It is also a usual practice that servers not also be used as workstations.) Thus, you will get the optimal level of performance, and ease of sharing, along with security.

Another benefit is that it is common for file servers to be backed-up regularly. As a by-product, your Photo Images will be properly preserved.

Unfortunately, you are still dependent on the proper configuration and operation of your LAN. Any problems there may temporarily cut you off from your data.

Cloud storage

An exciting new option that is becoming more intriguing is the storage of your Records "in the cloud" – that is, at an Internet-based location. This can have some interesting benefits.

In these cases, your data is not only already preserved off-site, but is backed-up regularly, with no need for you to manage that process. Also, you have equal access from multiple offices or sites, allowing you to even take a portable computer somewhere else (with Internet access) and still being able to view and use your Records.

For this to work, you must have a good, high-speed Internet connection. Most users don't realize that the typical connection to the Internet is only a small fraction of the speed of connecting to anything using a physical LAN connection in your office (typically Ethernet wiring). The slowest of local wiring runs two to ten times faster than the fastest affordable Internet links. Faster links are available, but are very expensive at this time. (For instance, you may have heard of the T1 connection available through your telephone connector. The cheapest office Ethernet runs 66 times faster.)

That notwithstanding, a decent (although slow) speed of access can be had for a reasonable price – for instance, a 10Mb/s (mega-bits per second) link is currently available from Comcast in limited areas for under $200 per month. Although this is certainly useable, it still is ten times slower than the most inexpensive office Ethernet LAN connection.

There are numerous services which provide storage available over the internet – and this area is expanding rapidly.

Although there are typically strong measures used to maintain the confidentiality of your data, they are not totally perfect. Any time your data has a physical connection to the Internet, it is conceivable that at some future time it might be illegally accessed. (This includes when you store the data in your office, but your office computers have internet access.)

Do-It-Yourself Cloud storage

Not only is cloud storage becoming more reasonable, but you can be your own provider. For just a few hundred dollars, you can purchase a cloud device (such as Buffalo's *CloudStor*) which will provide you a large amount of storage that can be used as if it were a local drive on your computer.

In form, it appears as a small box, the size of a couple of books, attached to a network connection in your office. Inside, it is a tiny dedicated computer and disk drive.

When used inside your office exclusively, it is also called a *storage-area network* server, or SAN. This device has the identical pros and cons of a file server (however, you have to separately arrange for it to be backed-up).

What makes it interesting is that if you have Internet access, it behaves to users at other locations as if it is a cloud storage system, so you have the best of both worlds. In one office – high access speed. In other locations – useable access speed.

If you go this route, we recommend you use Raid 1 protection – that is, the device will have two identical disk drives, and be configured so that all usage of the first drive is exactly copied on the second. Then, if any one drive should fail, the other provides a complete backup as if nothing happened.

Important: as handy as this sounds, you still need to back-up the device off-site on a regular basis, to protect you from physical damage or theft from destroying your Records.
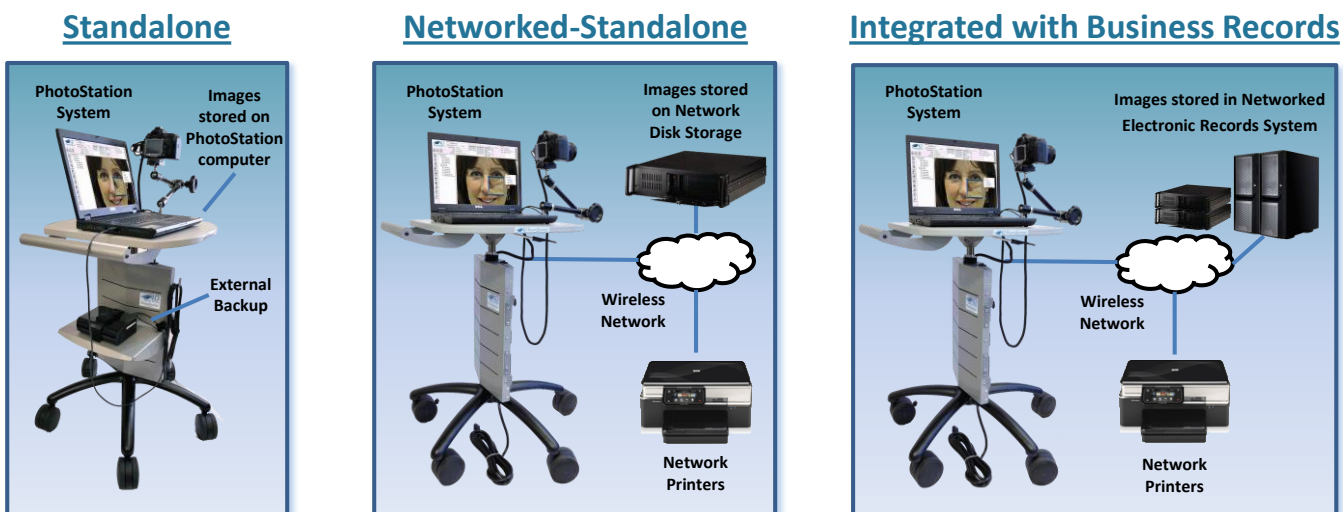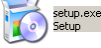
Figure 7 - PhotoStation Manager Storage Options
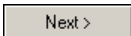
Installing the Software

1. Insert the disc into the CD or DVD drive on the computer or double click on the file icon for the downloaded installation package. The installer should automatically appear on the screen after a few seconds.

2. If no installer pops up, or if you have downloaded the installation software: press START, click on Computer, and "drill-down" to the folder containing the installation software. Double-click on the icon for the software: setup.exe Setup

3. You will see the following dialog for a few seconds:
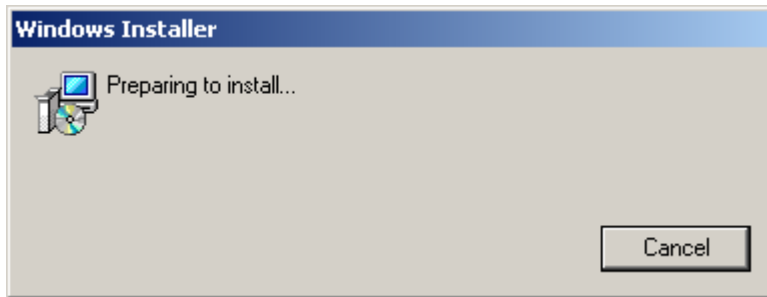
4. The dialog will automatically change to show this:

Press the next button   Next > .

5. The dialog will now show this:
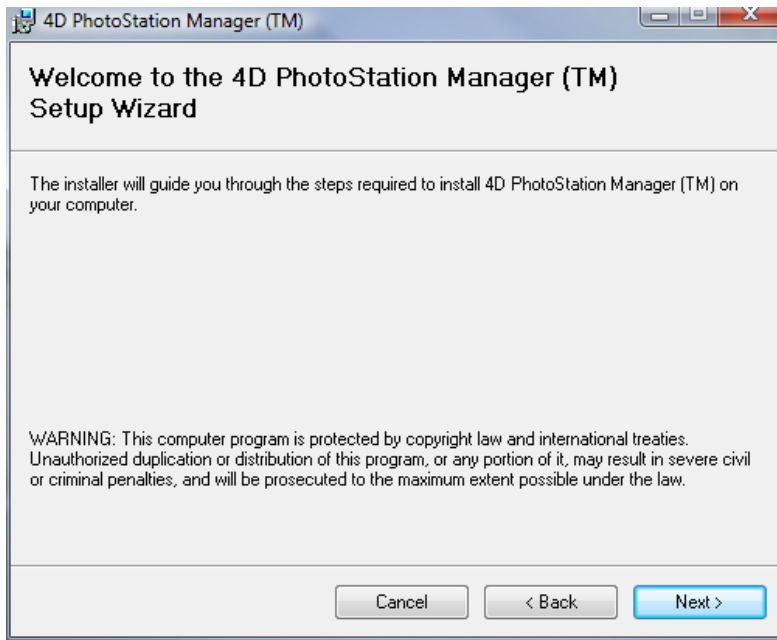
Press the next button [Next >] .

6. Now you will see this:
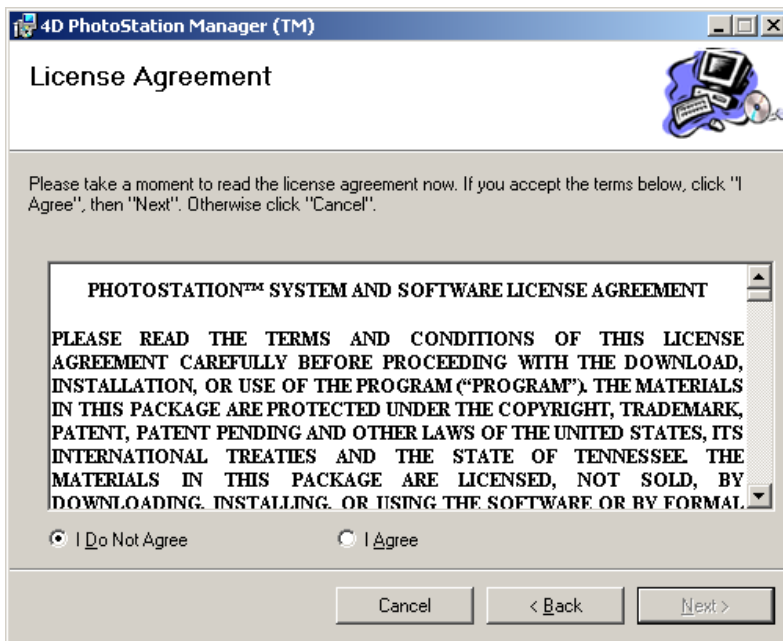
Read the license agreement and click on the [○ I Agree] checkbox to signify your agreement to the license. It will be marked with a dot. Now, press the next button . [Next >]

7. The following dialog appears:
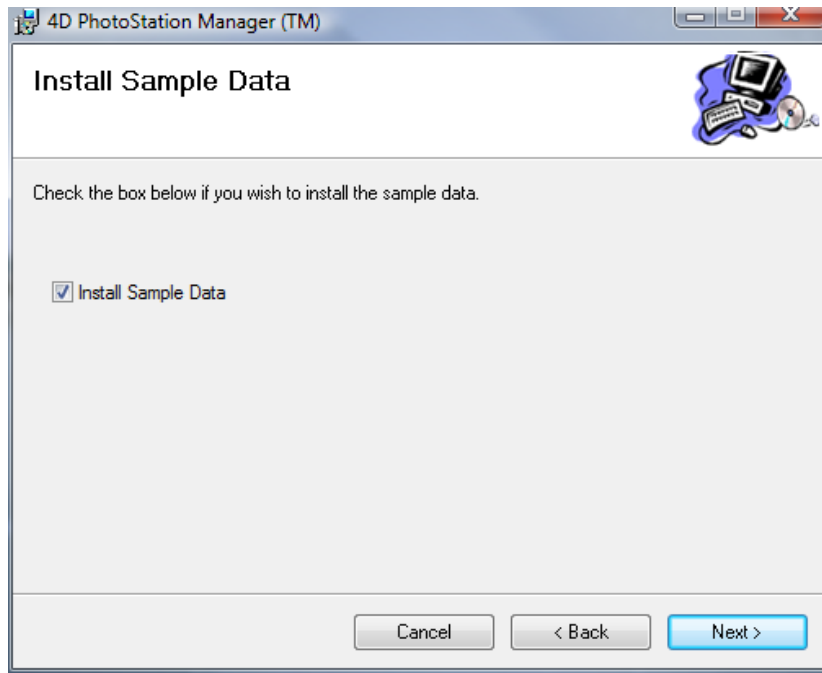
Sample data includes predefined Photo Image samples under six Record IDs (10001 - 10006(). Depending on the Edition selected, a sample PSM.xml settings file is also provided with predefined keywords, company information, and person names). Click on the checkbox to signify your agreement to the license. It will be marked with a dot. Now, press the next button.

8. The following dialog appears:
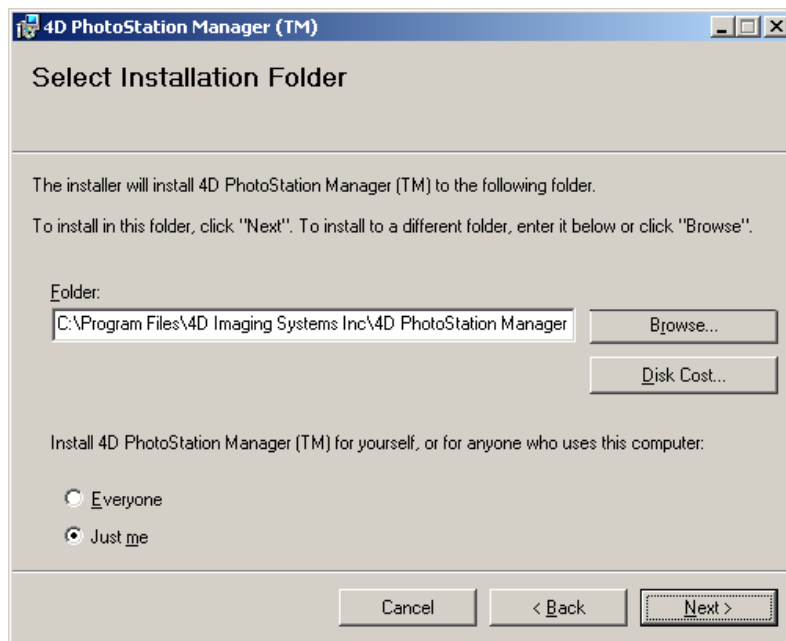
You may select any folder for installing the software, by either typing in the folder or by using the Browse button to locate the exact folder. The Disk Cost button will let you know how much space the installation will take.

Windows XP, Vista, and 7 all feature user accounts. If you use this feature, when you start your computer, you must click on a user name – and enter a password – before you reach the desktop. If you have enabled user names, then you can choose whether the software should be installed for all users of the computer or for one specific user (and you might wish to create a user named "PhotoStation Manager"). If user names are not enabled, no change is required to this.

When you have made your choices, press the Next Button.

9. The software will now start installing. The following dialog is shown during this process. The "thermometer" will advance, perhaps several times, to indicate the computer is working on the installation.
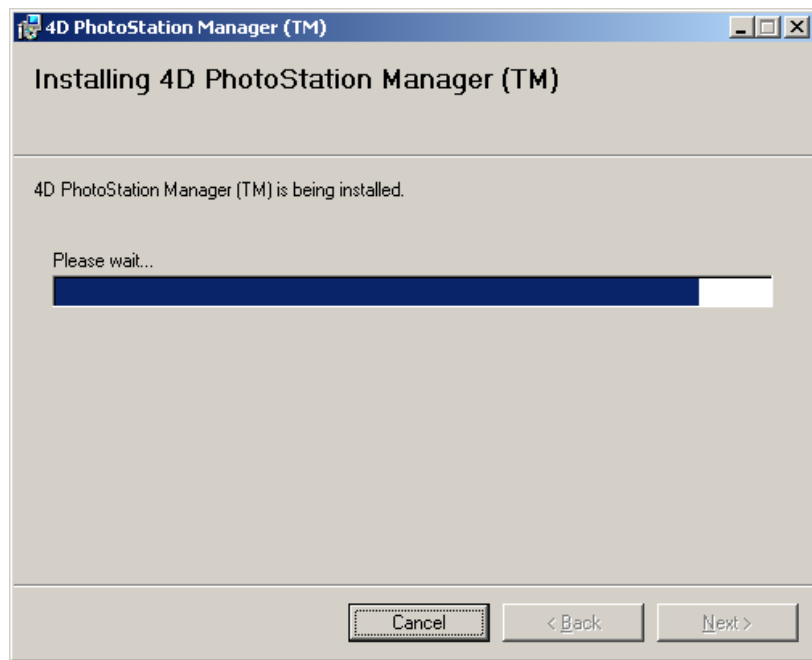
10. When the files have been installed on your computer, you will see:
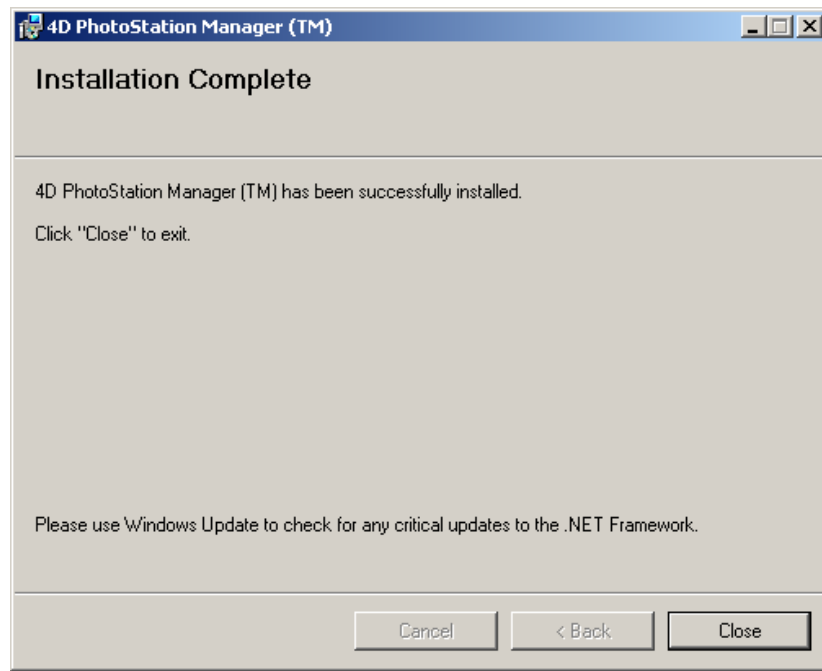
Press the Close button to exit the installation software.

11. The software is now installed. Not only is it available via the Start menu (All Programs) under 4D Imaging Systems, but also you will see this icon on your desktop, ready to double-click and start the PhotoStation Manager.

12. Note that, from time to time, Microsoft updates software called *The .Net Framework*. This software is used by numerous applications on your computer, including PhotoStation Manager. We recommend you use the *Windows Update* process to keep this software up-to-date. Contact your systems administrator for information on how to do this.

Activating the Software

PhotoStation Manager requires activation before you can use it on any computer system. This is handled by sending us your machine key – and we will send you the activation key. This can be done via e-mail or over the phone.

When you first start PhotoStation Manager, depending on which Edition you installed, the following screen, or one with a different product Edition title and graphic will appear:
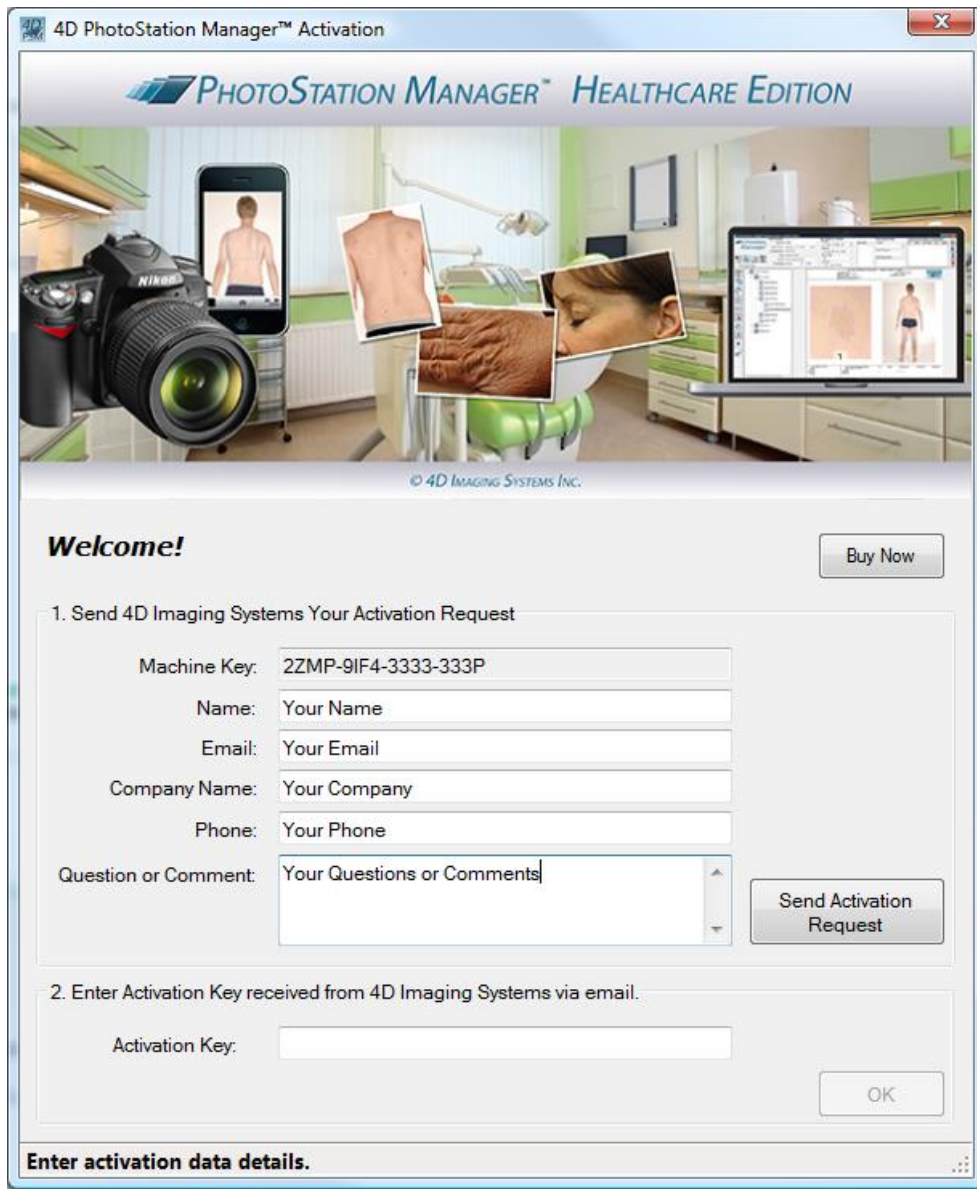
Figure 8 - PhotoStation Activation Panel

The Machine Key will be unique to your installation software AND this specific computer on which you are running the PhotoStation Manager software. The Activation Key is a unique code that we will create and send to you – it will only work on this very same computer.

Enter the name, e-mail address, and company name of the person who needs the Activation Key. This information is documentary in nature and does *not* affect how PhotoStation Manager works. However, it helps us to make sure we get the activation key to the right person.

Once the required information is entered, click the "Send Activation Request" button. A web browser will open to display information about next steps. Since there may be up to a 24 hour delay until you receive your Activation Key, you may exit the PhotoStation Manager application at this time. You can restart the PhotoStation Manager application at any time by clicking on the application icon on the desktop or within the Start Menu.
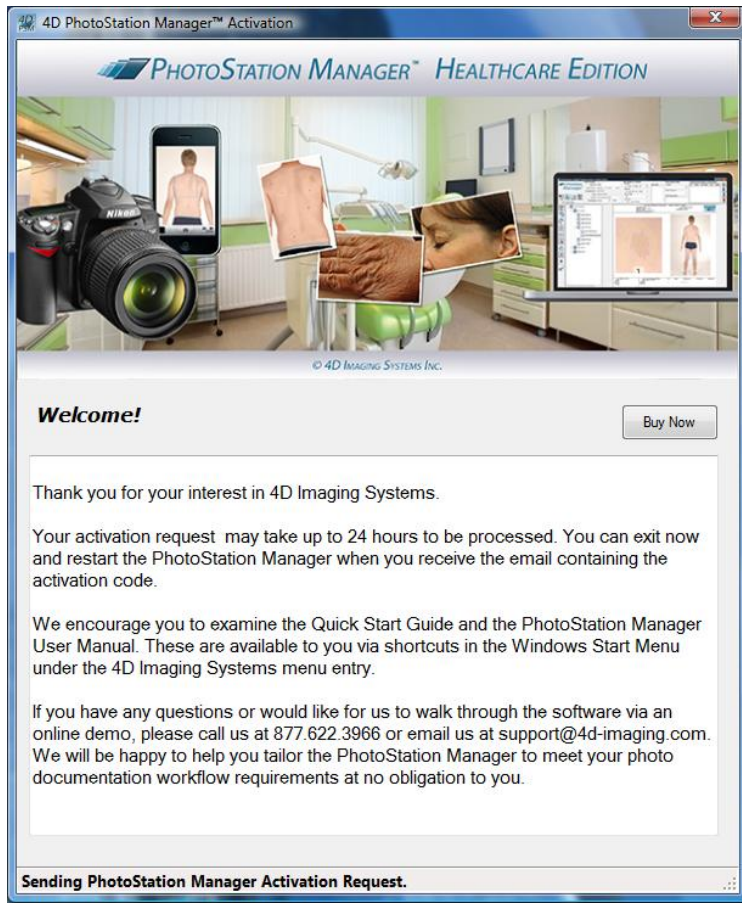
Figure 9 - Activation Request Complete

Within 24 hours or less, depending on business hours, your activation code will be emailed to you. The email body will contain the following information.

```
Dear Your Name,

Your 4D PhotoStation Manager Software Activation Key is: FBW7-NIWW-JHPD-B33T

Please email Support@4d-Imaging.com or call us at 877-622-3966 if you need further assistance.

Click here to Buy Now.

If you are interested in a trial of one of our other products, please email us your request.

Kind Regards,

4D Imaging Systems Support
```
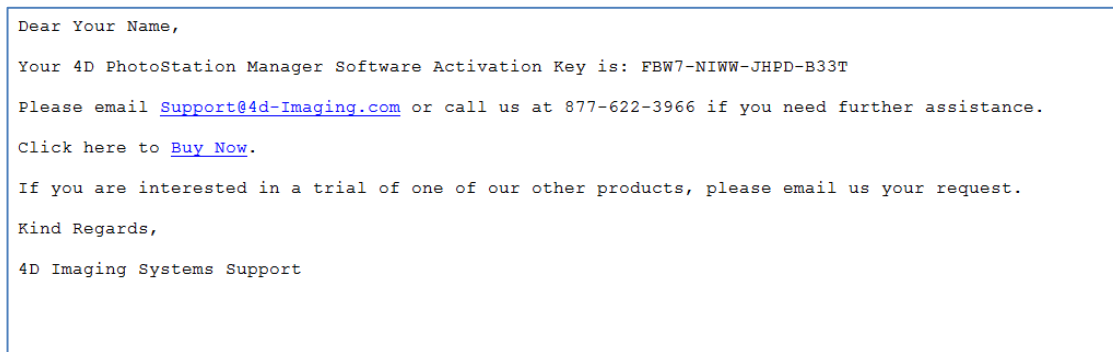
Figure 10 - Activation Key Number Return Email

You can select the Activation Key, then copy and paste it into the PhotoStation Manager Activation Panel. To get to the Activation Panel, double click on the PhotoStation Manager Menu icon on your desktop or located in the Start Menu to start the PhotoStation Manager.

PhotoStation Manager Setup

Overview

Setup is your key to configuring PhotoStation Manager to best support your Photo Documentation needs. At any time, you may enter Setup by pressing the Setup button with the mouse. It is located at the left-hand side of the screen in the top panel.

Setup allows you to work with the following areas:

- Labels – custom configure the names for selected Record Detail Fields

- Storage – determine where your files will be stored, and how to import Photo Images

- Configurable fields – this is where you set up the fields described above:

    - Date Person 1 Title (Date Entry)

    - Date Person 2 Title (Date Entry)

    - Date Keyword 1 (Date Entry)

    - Date Keyword 2 (Date Entry)

    - Photo Image Keyword 1 (Photo Image)

    - Photo Image Keyword 2 (Photo Image)

- Print – allows you to configure options for printing Report Outputs

- Company – where you document your organization information, for printing on the Report Outputs

- ERS – for those with the Electronic Records interface option (all Editions)

- Measurements – setup how you will calculate and display measurements

- Calibration – setup your camera and lens focal length combination and calibrate to be able to more accurately take measurements from your Photo Images.

After pressing the Setup button, you are shown a window on the screen that has a series of tabs at the top. Imagine you have a bunch of index cards, each of which has a tab sticking out from the top, with the name of the card. If you want to see one of the cards, you look for the tab with its name, and move that to the front.

In a similar sense, when you click on an individual tab, it brings that card to the front. You can then see the configurations for setup of that particular item. When you click on another tab, the entries you have just made are not lost; just think of it as "the index card was just covered up by the new one I just selected."

Understanding Flexible Fields

Healthcare, Wound Care, and Medi-Spa Editions, Essentials and Enhancer Versions

As we saw in Chapter 3: Record Information Model, there are several fields that allow you to include additional Details for the Record, the Date Entries, and the Photo Images. They can be divided into:

- Date Person Name Lists

- Date and Photo Image Single-selection Keyword Lists

- Date and Photo Image Multi-selection Keyword Lists

Person Name Lists

These two fields are associated with each Record Date Entry. For each of these, you may use Setup to assign a title for the field, and then populate the field with a list of names. Initially, after installation and before you assign your selected titles, these fields are set default to *Date Person 1 Title* and Date *Person 2 Title, but should be changed as needed for your company*.

When you use PhotoStation Manager, you are presented with what in Windows we call a *combo box* as shown below. When you use the mouse to press the button on the left, with the downward-pointing triangle, a box of choices will drop down, from which you will then be able to select one of those names by clicking on it. This will then close the box, displaying your selected name in the field.
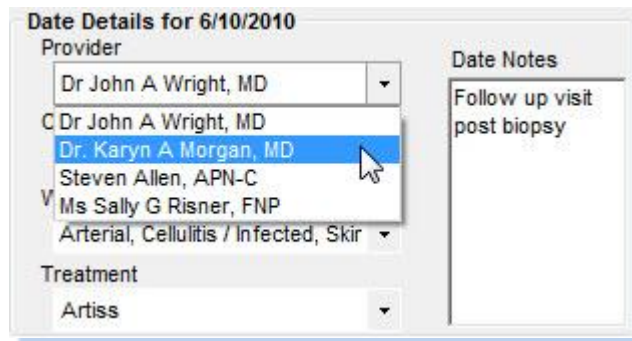
Figure 11 - Person Name List Operation

Since you have two fields, you can use them differently. For instance, the first can be labeled "Practitioner", while the second might be labeled "Technician".

It is even possible to use one or both of these fields for something other than a name. It could be a facility, or a name of a piece of equipment. When filling the list in Setup, just use the Last Name portion for each entry. In effect, these two person fields are a special type of Single-Selection List that assists you in listing names of persons.

Single-Selection Keyword Lists

There are two single-selection lists in PhotoStation Manager. One is used to help document a specific Date Entry; the other is used to document an individual Photo Image.

For each of these, you may use Setup to assign a title for the field, and then populate the associated list with names from which to choose. Initially, after installation and before you assign your selected title; these fields are set as default to *Date Keyword 1* and *Photo Image Keyword 2*. The Date Keyword field is part of the Date Entry documentation; the Photo Image Keyword field is part of the documentation for a single Photo Image.

This is also a combo-box control that operates just like the Person fields described above. You may select any one entry from the list, which will then appear in the field.
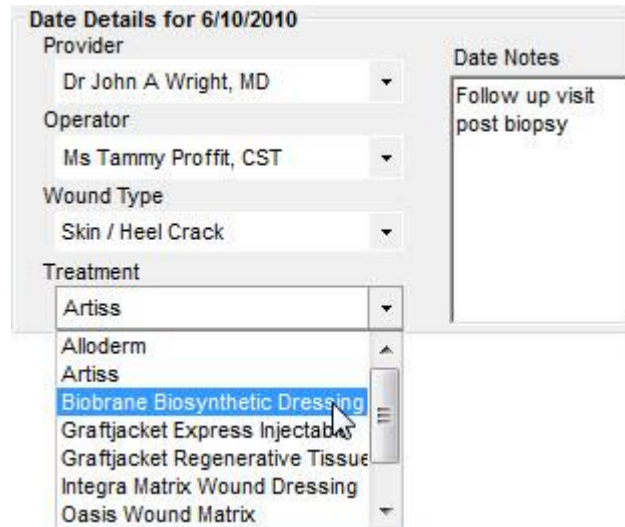
Figure 12 - Single Select Keyword Operation

You may use these fields for anything you wish. For instance, the Observation field for the Date Entry documentation may be renamed "Diagnosis", while the Photo Image keyword for the Photo Image documentation may be renamed "Feature Type".

Interestingly, it is possible to use one or both of these fields to document a particular Subject. Although you are not presented with a template to enter each part of a person's name, you still may use Setup to enter a list of people names here.

Once a choice is made from the list, the corresponding field can never be made completely blank. However, you can add an entry to the corresponding list that consists of a single period ("."). You can choose this entry to return the field to (nearly) blank.

Multi-Selection Keyword Lists

There are two multi-selection lists in PhotoStation Manager. One is used to help document a Date Entry; the other is used to document an individual Photo Image.

For each of these, you may use Setup to assign a title for the field, and then populate the associated list with names from which to choose. Initially, after installation and before you assign your selected titles. These fields are set as default to *Date Keyword 2* and *Photo Image Keyword 1*. The Date Keyword field is part of the Date Entry documentation; the Photo Image Keyword field is part of the documentation for a single Photo Image.

This operates similar to the Person fields described above. However, when the box appears with a list of choices, you will notice that there is a checkbox by each name on the list. You may check none of these, one of them, or

any number of them (including all of them) – and when you do, a small check will appear in the box. (Click on the name again, and the check will be removed.)
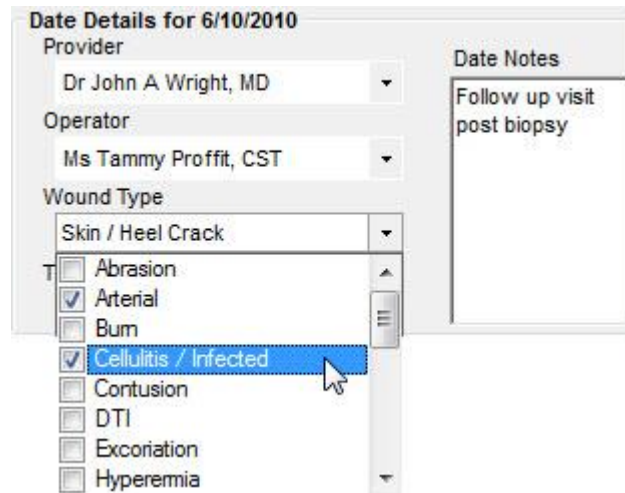
Figure 13 - Multi-Select Keyword Operation

When you finish making your selection, by either clicking elsewhere on the screen or by pressing the Enter key, this field will contain a list showing each of your checked items, separated by a comma. For instance, if you check "Scar" and "Wound", then the field will subsequently read "Scar, Wound". The order will be the same as the items appear in the list, and by re-ordering the list in Setup, you can change the order to "Wound, Scar" (for example).
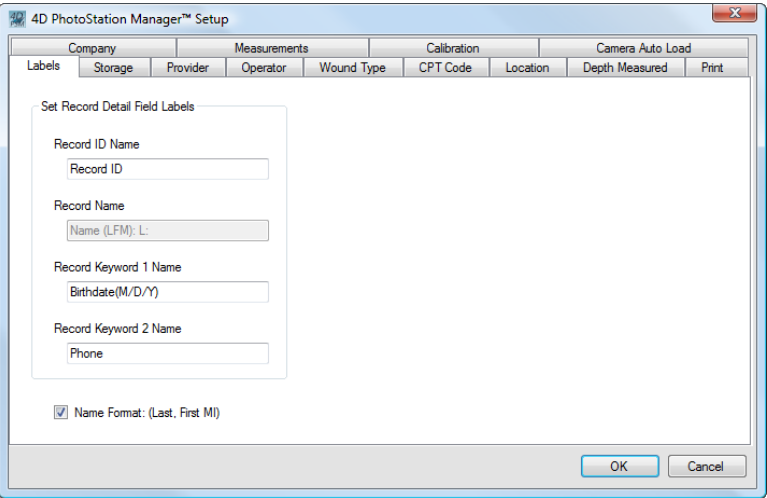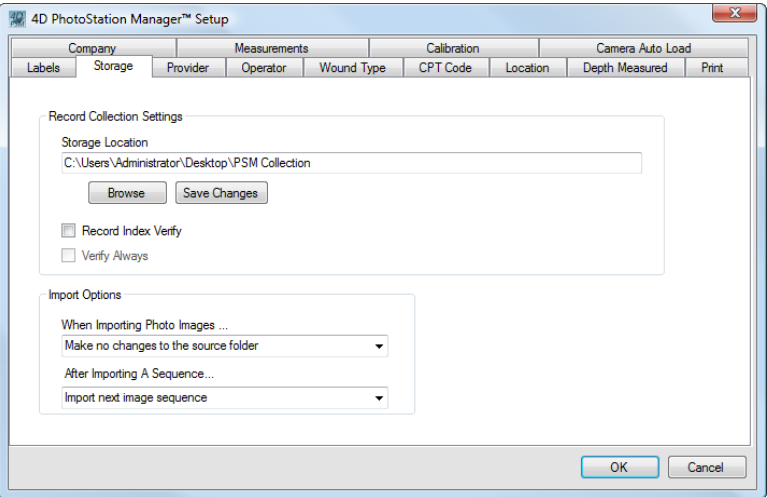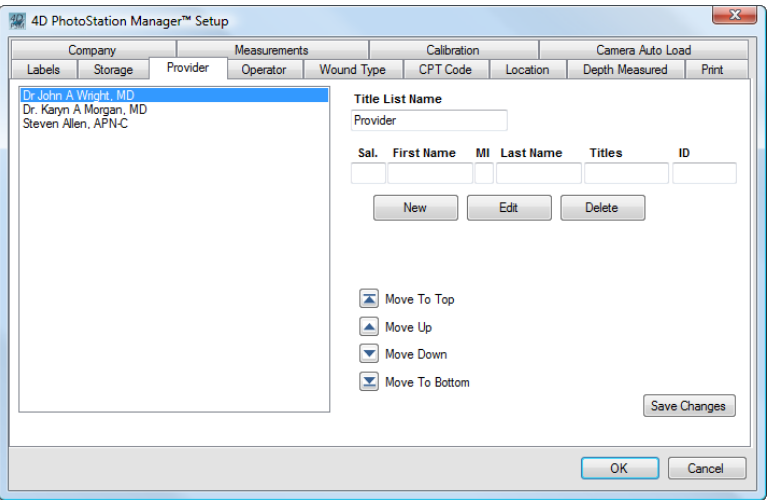
You may use these fields for anything you wish. For instance, the Observation field for the Date Entry documentation might be renamed "Treatments", while the Photo Image keyword for the Photo Image documentation might be renamed "Characteristics". The key difference with multi-select fields is that you can select more than one item, and all of them (space allowing) will be displayed in the field.

Uncheck all items from the list, and you will return the field to a blank line again.

Interestingly, it is possible to use one or both of these fields to document a particular person. Although you are not presented with a template to enter each part of a person's name, you still may use Setup to enter a list of people names here. Also, just because you are permitted to choose more than one item, you don't have to: you may also decide to use these fields as single-selection lists.

Default Setup Tabs

The default screens are shown here as they appear after installation. The tabs available to you will depend on the Edition and Version of PhotoStation Manager software you are running. All customizable tab fields, including tab names, list fields, etc. are shown with their generic names or are unfilled.

Tab Name	
Label	
Storage	
Date Person 1 Title	

Date Person 2 Title	
Date Keyword 1	
Date Keyword 2	

Photo Image Keyword 1	
Photo Image Keyword 2	
Print	
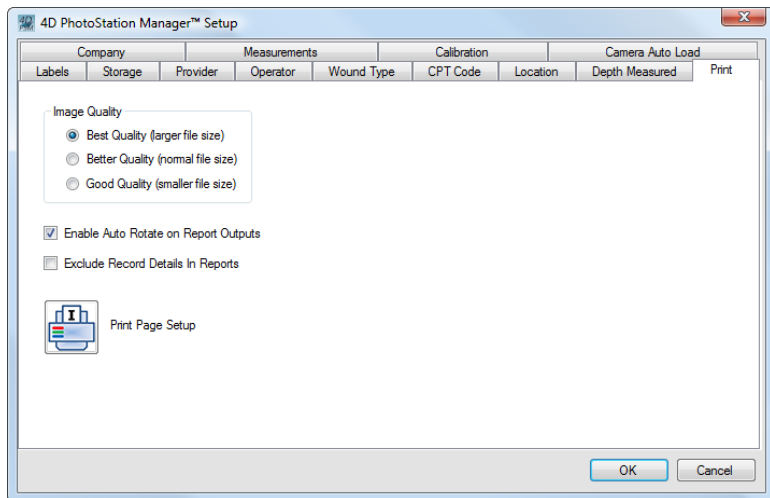
Company	
ERS	
Measurements	

Calibration	4D PhotoStation Manager™ Setup Labels · Storage · Provider · Operator · Wound Type · CPT Code · Location · Depth Measured · Print Company · Measurements · Calibration · Camera Auto Load **Enter or Select Configuration** Configuration Name New Camera Model Edit Focal Length in mm Delete Calibration Status **Select Files and Calibrate** Calibrate · Status Save Changes OK · Cancel
Camera Auto Load	4D PhotoStation Manager™ Setup Labels · Storage · Provider · Operator · Wound Type · CPT Code · Location · Depth Measured · Print Company · Measurements · Calibration · Camera Auto Load Select Camera Auto Load Option Edit Camera Control Program Browse Camera Auto Load Directory Browse ☐ Enable For Shoot Button OK · Cancel

Table 5 - Setup Dialog Default and Demo Sample Panels

Setup Dialog Overview

The following sections provide you with a quick overview of each Tab in the Setup. Please note that the names of Person Name List and Keyword List tab pages will change once setup has been complete. The following displays show the setup configuration after a typical customization of the setup tabs has been completed.

Labels

The Labels Tab contains fields you can customize the name of the Record ID, Record Name, and two keyword fields.

Healthcare, Wound Care, and Medi-Spa Editions

Set the Collection ID Name to correspond to the name you currently use to identify a Record. Some examples are "Record ID" or "SSID". The Healthcare, Wound Care, and Medi-Spa Editions assume the Subject being documented is a person, and therefore the Collection Name field label cannot be changed. Depending on

whether or not the Name Format check box is selected or not, the Collection Name changes to reflect the name field order. User Data Fields 1 and 2 can be used for whatever additional data you need. The recommended default values are set to Date of Birth and Phone.
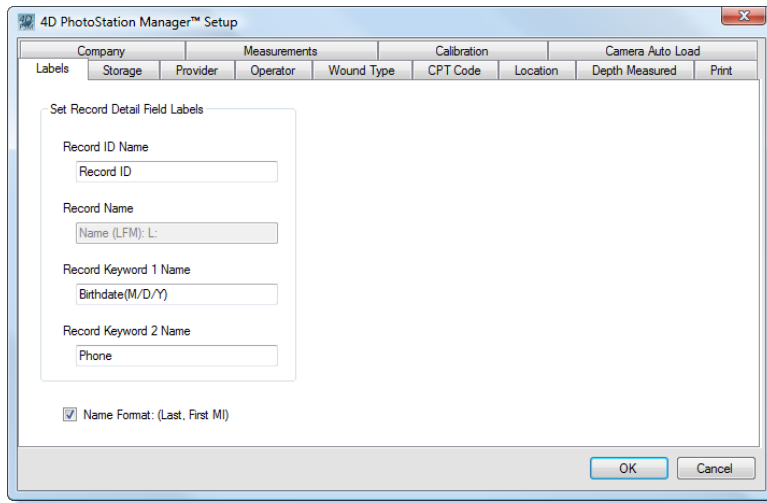
Figure 14 - Labels Setup Tab

Name Format – if unchecked, the Record Details at the top will have the Name entry fields displayed in order First, Middle Initial, Last (such as: John Q Public), and the Report will show the name displayed in this same format. If checked, the display will show Last, First, Middle Initial (such as: Public, John Q), and the Report will also show the name in this format.

Storage

The Storage Tab contains key setup values related to where Photo Images are stored, and how Photo Images are handled when they are loaded into the system.
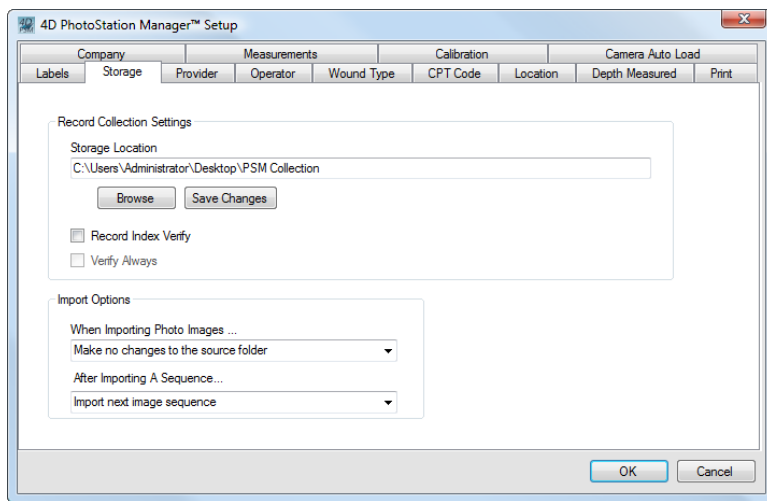
Figure 15 - Storage Setup Tab

Photo Image Storage Location

This tab fundamentally affects the operation of PhotoStation Manager. In fact, during installation, you were asked where you want your data to be stored. This tab allows you to see where that is, and to change the location.

Changing the location for your data does *not* move your data to that new location. This is your responsibility. We recommend you *copy* your data to the new location using any standard Windows method, then change the location in this tab in Setup; and finally, after verifying your data is safe, deleting the old copy of data from the old storage location.

There are two buttons for this entry. The *Browse* button brings up a standard Windows tool that assists you in examining folders accessible to you from this workstation, to identify the correct one where you wish to keep your Records. (You can also use a button there to create a new folder if the correct one does not already exist.) Although you can always enter the correct folder path in the field provided, the Browse button lets you select it from a list, guaranteeing the folder path is spelled correctly.

The *Save Changes* button should be pressed after you have finished selecting your new folder. It will place the changes into immediate effect.

Importing Photo Image procedures

In this tab, you can also control the process for importing new Photo Images into the system. There are two choices to make.

When Importing Photo Images… (choose one of the following):

- *Make no changes to the source folder*. This setting (the default) will allow you to import Photo Images into PhotoStation Manager. When the Photo Images are imported, a fresh copy of each will be made. The original Photo Images are left untouched. This is most appropriate when importing from (say) a memory card taken out of your camera – when you wish to save that memory card (as if it were digital film) as a separate camera-original copy of the Photo Images.

- *Delete copied Photo Images from source folder*. This setting will remove the source (original) copy after the new copy is added to the PhotoStation Manager. Think of it as *moving* the Photo Images from the source location to the destination. This is most appropriate when you copy the Photo Images into a folder on your workstation for the sole purpose of a speedy import, and have no need or desire to have them remain in that folder after a successful import. You would also use the Delete copied Photo Images from source folder option if you configured your digital camera with a wireless WIFI upload card such as those offered by EyeFi®.

After Importing A Sequence… (choose one of the following):

- *Import next image Sequence*. During the import procedure, after you selecting one Sequence (consecutive set of Photo Images) to import, and press the *Select Image Sequence* button, then that Sequence will be imported, and you will immediately go to the next Sequence to import without interruption. This is most appropriate when your preferred workflow is to import all the Sequences in this import session as soon as possible, and to add documentation at a later time.

- *Edit Record before importing next image Sequence*. During the import procedure, after you selecting one Sequence (consecutive set of Photo Images) to import, and press the *Select Image Sequence* button,

you will be taken to the main screen of the PhotoStation Manager, showing the Date Entry you just imported. You can now add documentation, such as Date Entry information and individual Photo Image information using the panel at top. You can also edit the photo to create Enhancements, take measurements, and/or create Report – and even print them. When you press the *Record Done* button at the left side of the top (documentation and control) panel, you will then return to the image import procedure, to select and import the next Sequence in the set of Photo Images you are importing. This is most appropriate when your preferred workflow is to select a Sequence of Photo Images to import, immediately enter the documentation for the Date Entry and/or images, and only then import the next group of Photo Images.

Configurable Fields

Healthcare, Wound Care, and Medi-Spa Editions Essentials and Enhancer Versions

There are six tabs in Setup that allow you to configure four fields used for documenting details related to Date Entries, and two fields used for documenting an individual Photo Image. They all work in a very similar way. Each of them may be renamed, too, so that you will see your preferred title identifying each field (as well as each tab in Setup). We will use the default name created during installation to discuss each of them below.

Date Person 1 List Title and Date Person 2 List Title

Both of these fields are displayed as part of the Date Entry Details documentation. Each Record's Date Entries will have these fields, and different values may be selected for each Date Entry to better document the situation. The unique characteristic of each of Person List Fields is that you are allowed to enter any or all of: salutation, first name, middle initial, last name, set of titles, and ID code – for each person. The following illustrates the Person Name 1 field filled out for tracking the "Provider".
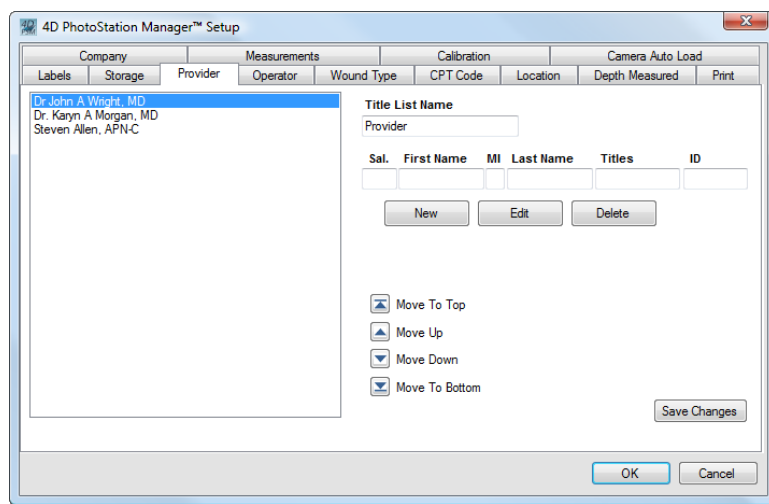
Figure 16 - Person List Setup Tab

Date Keyword 1 and Date Keyword 2

Both of these fields are displayed as part of the Date Entry Details documentation. Each Record's Date Entries will have these fields, and different values may be selected for each Date Entry to better document the situation. Note that Keyword 1 is a multi-selection field, and Keyword 2 is a single-selection field. The following illustrates the Date Keyword 1 field filled out for tracking the "Wound Type".
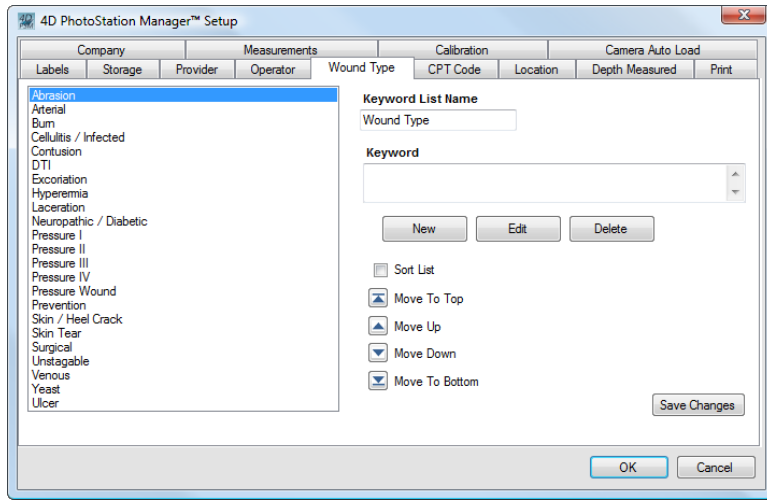
Figure 17 - Date Keyword Setup Tab

Photo Image Keyword 1 and Photo Image Keyword 2

Both of these fields are displayed as part of the documentation for a single Photo Image. Each Photo Image for each Date Entry for each Record will have these fields, and different values may be selected for each image to better document that Photo Image. Note that Keyword 1 is a single-selection field, and Keyword 2 is a multi-selection field. The following illustrates the Photo Image Keyword 1 field filled out for tracking the "Location" of what is being documented in a particular photo.
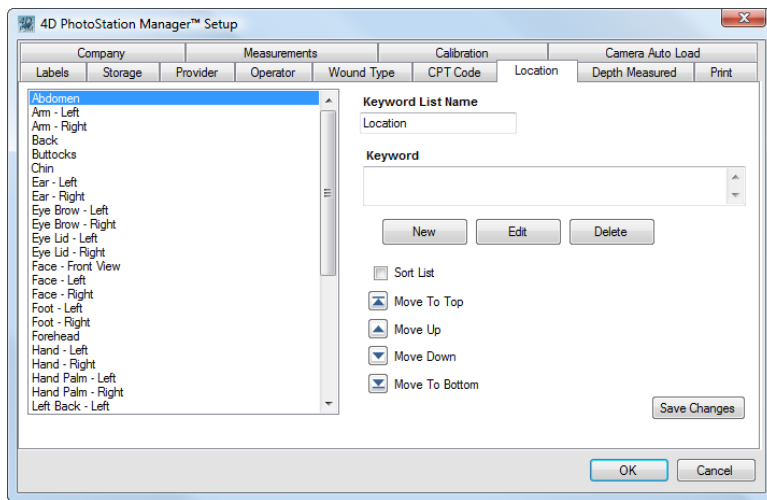
Figure 18 - Photo Image Keyword Setup Tab

The Setup procedure for each of the above fields is identical. Each field is essentially a list of items that, after you have finished with Setup, will be shown for you to make a selection. When using PhotoStation Manager, you will only be permitted to select from the list you create in Setup using this procedure.

1. Decide how you will be using this field. You can now enter the appropriate title in the text area under Position Name (for persons) or Keyword Name (for the other fields). After saving this choice, the tab in Setup will change to match the name you entered, and that name will be used to title the field in the main screen of PhotoStation Manager and in all Report Outputs.

2. Enter a name or keyword in the area(s) supplied, labeled either Salutation, First Name, etc. (for persons) or Keyword (for the other fields).

3. Press the Add button.

4. Continue entering names and pressing Add until your list is complete.

5. Press the Save Changes button to finish making changes.

You may re-order the names in the list. Simply click on one of the names in the list, highlighting it. Then use the mouse to press the up and down arrows to move that name to any position in the list.

You may edit any name in the list. Simply click on a name in the list, highlighting it. Then press the *Edit* button. That entry will be copied to the keyword entry area. You may edit it as you wish, then press the *Add* button.

Finally, you may remove a line from the list. Click on the name that needs to be removed, then press the *Delete* button.

(After any change, be sure to press the *Save Changes* button to make sure the changes are actually saved permanently.)

With each of these fields, you will only be able to select from the names you place in the list with this Setup procedure. However, at some future date, you may remove a name from a list. (For instance, a technician no longer works at your organization needs to be removed.) In this case, every Date Entry or Photo Image Record that has this name as part of its documentation will continue to display that name. However, if you try to change that Record (or any other record), you will only be able to choose between the names currently in the list you created using Setup, as it currently stands.

Print

The print tab is shown here.
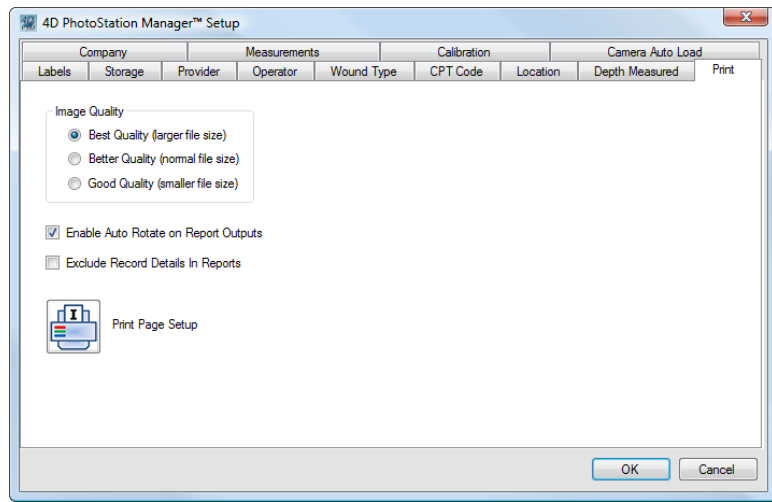
Figure 19 - Print Setup Tab

The Print tab has the following functions.

- Image Quality – does not affect printing, but affects the creation of reports that will be printed later. This setting controls the amount of JPEG compression used when creating new Report Outputs. In particular, if you create an output of type *Photo Image With Enhancements*, a new JPEG Photo Image will be created with the amount of compression set by this control. *Better Quality* means less compression and a larger file. *Better Quality* generates images with average compression. *Good Quality* implies more compression to reduce file size. In general, compression can add visible defects to the images; you will need to experiment with different sizes to determine if your Photo Images are affected visibly by this setting. (If you have plenty of disk storage space and a fast computer, just set it at *Best Quality*.)

- Enable Auto Rotate on Report – if you check this box, then the output will be automatically rotated to ensure the Photo Image is printed in the largest possible output size. The Photo Image may or may not be rotated depending on if the Photo Image is in portrait or landscape mode and on the Report Output format selected.

- *Print Page* Setup button – will show the basic Windows Page Setup dialog, which will affect the current default printer for this computer. You will be able to set paper size (letter, legal, or other choices); the paper source (auto select or choose a particular paper tray); Orientation (portrait, or wide, vs. landscape, or tall); and the margins on all four sides. (Note that all printers have a minimum allowable margin, and you will not be permitted to select a margin that is "too small".) Press the *OK* button to accept the changes you have made, or *Cancel* to not accept any changes and keep the previous settings.

When you press *OK* to exit the Setup dialog, any changes made here will immediately go into effect. If you leave Setup by pressing *Cancel*, none of these changes (except the Page Setup ones) will take effect.

Company

In this tab, you can enter information to identify your organization. This information will be added to every Report Output you create and print. Other than that, it is purely documentary, and you can choose to fill out any or all of these fields. They include:

- Company Name

- Address / Address 2

- City / State / Zip

- Phone / Fax

- Website

- Logo File
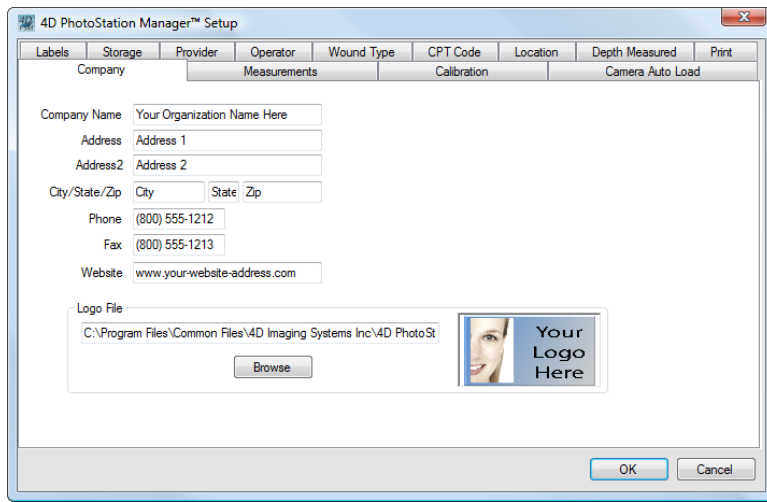
Figure 20 - Company Setup Tab

The last field, Logo File, is special. You use this to select an image file that will be reproduced at the top of every report, and has your logo or any other graphic/image you wish to see on your report.

ERS

All Editions, All Versions

If the Electronic Records System (ERS) option is enabled, a tab for ERS Setup appears in the setup.
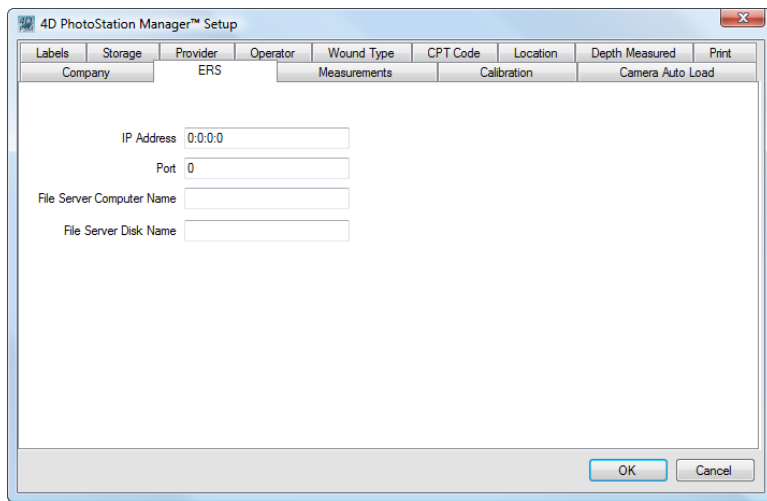
Figure 21 - ERS Setup Tab

The value in the ERS tab include the network addresses the ERS interface server the PhotoStation Manager will communicate with to send Photo Image information. These details to be entered will be specific to your network environment and will be provided by 4D Imaging Systems in conjunction with your ERS vendor and your IT department.

Measurements

In the Essentials Level of all Editions, you can take measurements of objects within a Photo Image. The Measurements Setup Tab allows you to configure how the PhotoStation Manager handles certain aspects of how measurements are calculated and displayed.
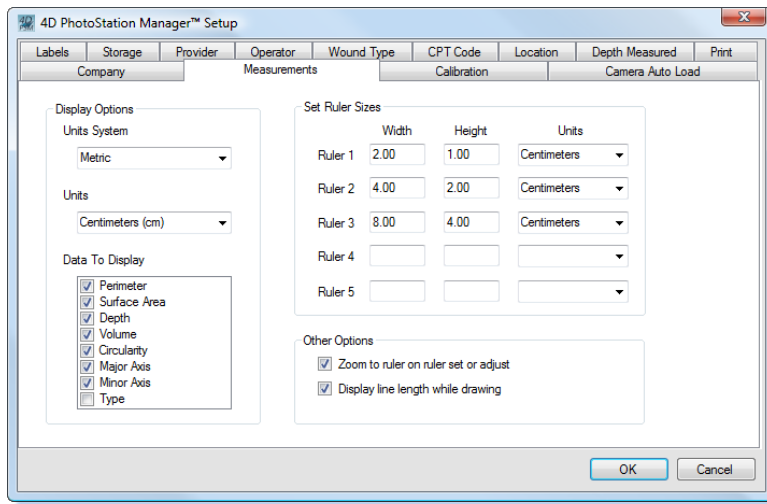
Figure 22 - Measurements Setup Tab

You can setup Display Options to show / display calculated measurements in either Metric or English Units. Depending on if you select Unit System as Metric, the Units can be selected to correspond to the general size of features you will be measuring in the Subject. All measurements are performed internally using fractions of a millimeter. Output display units are converted to the appropriate System and Units.
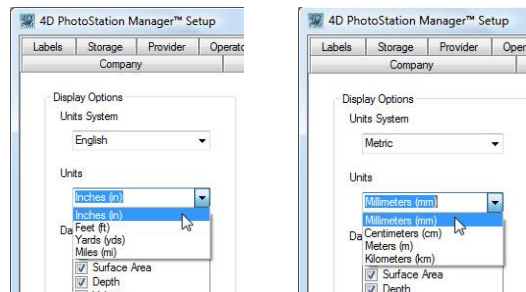
English System / Units   Metric System / Units

Figure 23 - Select Display Measurement Units

All measurements are displayed in the upper right hand corner of the PhotoStation Manager, under the Enhancement Details panel. You can control what data is displayed in the Enhancements Details panel and in the various Report using the Data To Display section of the Measurements Setup.
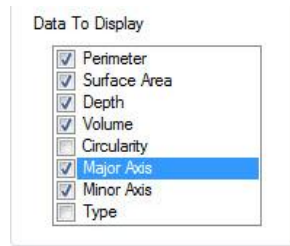
Figure 24 - Select Display Columns

Check or uncheck the box next to the values you which to have displayed (or not).

You can define your own rulers using the Set Ruler Sizes section of the Measurements Setup Panel. You can specify the Width, Height, and Units of the ruler. Up to 5 ruler sizes can be defined, based on the relative sizes of objects you will be measuring for your particular application.
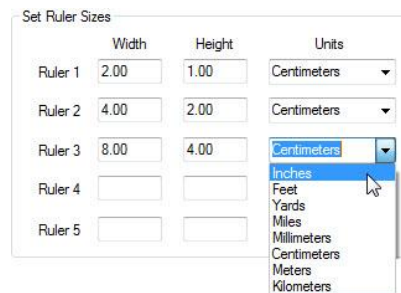
Figure 25 -Setup Standard Ruler

Finally, you can control whether or not the PhotoStation Manager will zoom into the ruler area in the Photo Image when you set or adjust a ruler. You can also choose to display measurements on the Line tool, which can be useful for having the PhotoStation Manager work like a digital tape measure. These are set with the following check boxes.
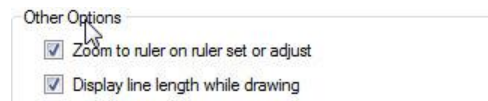
Figure 26 - Additional Measurement Options

Calibration

The Calibration Setup Tab allows you fine tune the way your PhotoStation Manager software calculates measurements. Lens distortions result in straight lines in the real world looking curved in your photo images. The Calibration Setup panel allows you to define a Configuration for a particular camera and lens focal length and run through a calibration procedure that creates a configuration file you can use to correct distorted images.
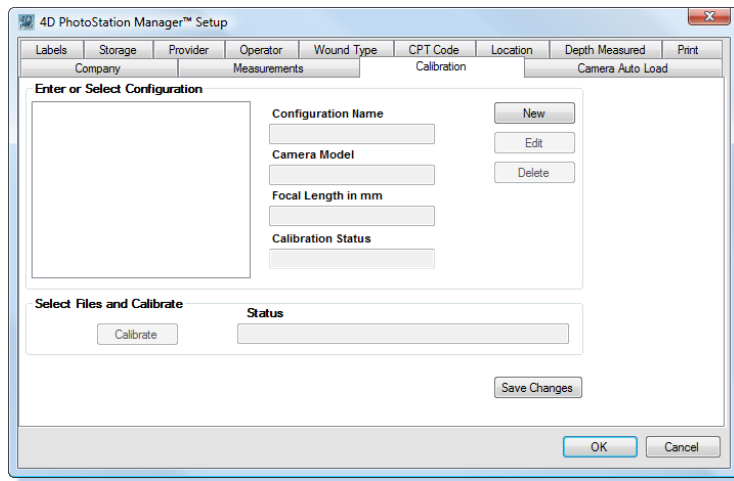
Figure 27 - Calibration Setup Tab

Camera Auto Load

The Camera Auto Load allows you to set up your PhotoStation Manager software to automatically receive and organize photo images that are captured from one or more of the following sources:

- A digital camera with an EyeFi® WiFi communications card

- The Nikon Control Pro Camera program

- An integrated tablet or laptop camera or webcam
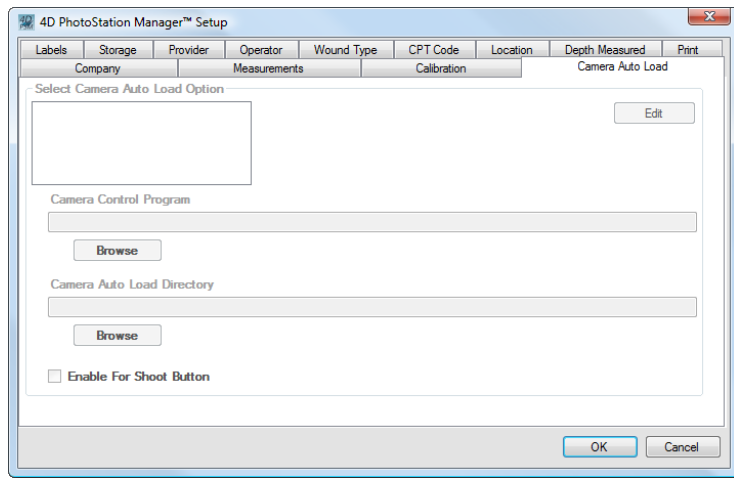
Figure 28 – Camera Auto Load Tab

In the setup panel, select the installed Camera Auto Load option you want to configure. If the option has an executable program associated with it, click on the Camera Control Program browse button to set up the path to the program.

Click on the Camera Auto Load Directory browse button to setup the location where the photo images will be saved by the Camera Control Program. Check the Enable for Shoot Button if this option is the default you want to be able to run using the PhotoStation Manager Shoot button.

Work Flow Basics

The design of PhotoStation Manager is to intentionally permit the greatest flexibility in how you use it with your existing photography workflow. If you currently do not have a photography workflow, you will find it simple to establish a workflow that minimizes the amount of time you need to capture and process your photography.

There is a logical and simple progression to using the PhotoStation Manager system that can guide you in creating efficient office photography procedures. In general, you may wish to follow this procedure:

- Create a new Subject Record, or select an existing Subject Record to work with.
- Create a Date Entry for this Record to prepopulate information for the current day, or use the History List Panel to select the appropriate prior Date Entry to work with.
- Load photos, importing them into PhotoStation Manager. (The import procedure will create new Records and add new Date Entries and Photo Images for you automatically based on the Photo Image time stamp (see Setting your Camera's Date / Time). See the Load Photo Images section below)
- Alternately: shoot photos directly from PhotoStation Manager if you are running the Nikon Option with your own Nikon camera or as part of the all-inclusive 4D PhotoStation System.
- Work with the Subject Record, adding documentation for Date Entries and Photo Images.
- Work with the photos, examining them.
- Annotate Photo Images within the picture by adding Enhancements (requires the Enhancer Version).
- Take measurements based on the detection of a fixed sized ruler marker in the Photo Image (requires the Enhancer Version).
- Create Report (from either the Essentials or the Enhancer Version).

Let's examine each area step-by-step.

Understanding The PhotoStation Manager Display

Nearly every application in Windows appears to run inside a single *window*. As a Microsoft Windows® application, there are several key aspects of the PhotoStation Manager window you should be familiar with. These are shown in the following figure.
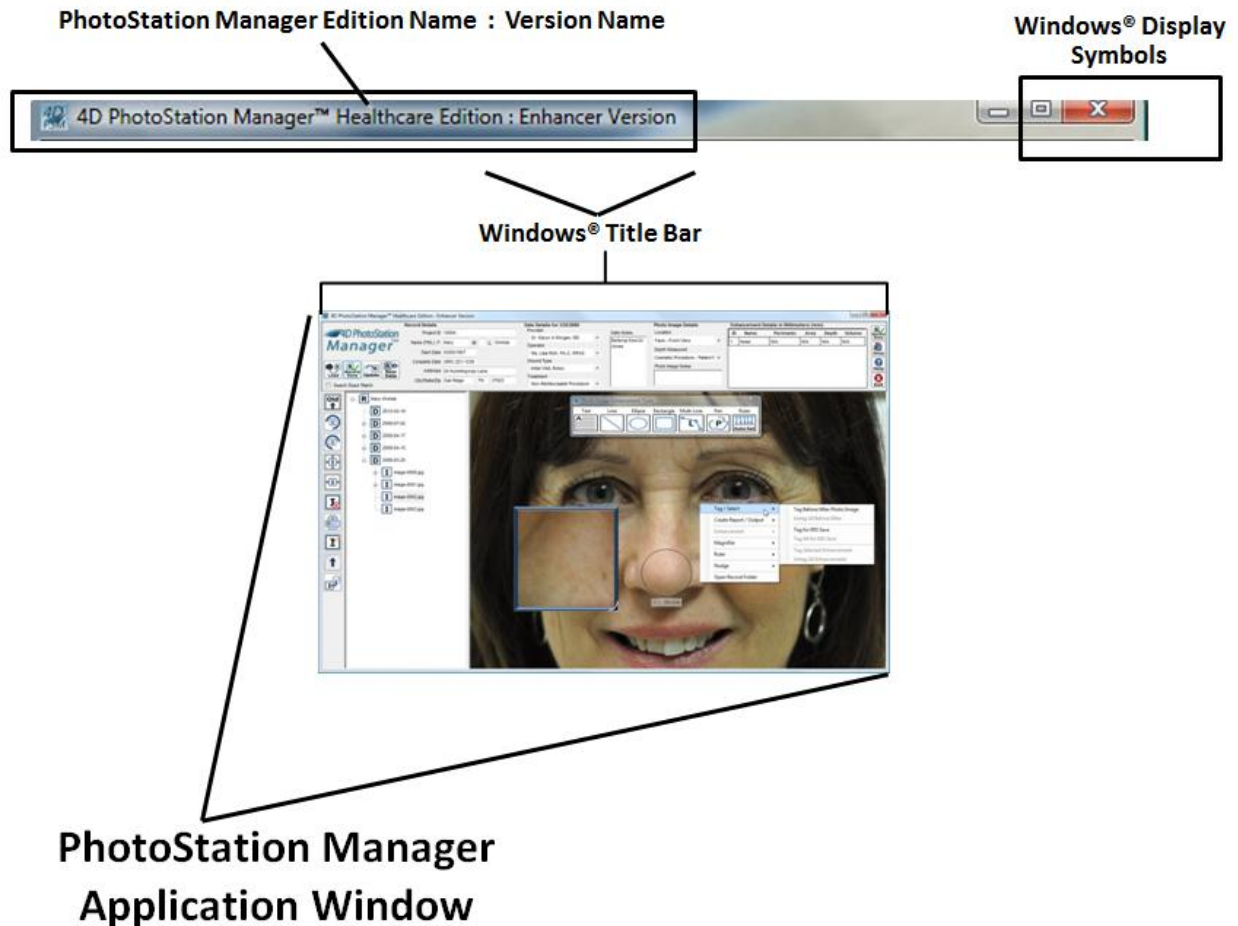
Figure 29 - PhotoStation Manager Windows® Controls

The Microsoft Windows application window has several standard characteristics. The title bar – labeled *4D PhotoStation Manager™* -- is at the very top. At the upper-left of the title bar are three Windows Application Display symbols:

- ☐ – when you click on this, the window shrinks down and moves to the Task Bar at the bottom of a standard Windows screen. This is referred to as *minimized*. This reveals your desktop and any other applications that you need to use on your computer. When you then click on the 4D PhotoStation Manager rectangle in the task bar, the PhotoStation Manager software will be enlarged to appear as it did before, without you losing your place. This is called *restored*.

- ☐ – when you click on this, the PhotoStation Manager window will be enlarged until it fills the entire screen (and thus, has no need for any borders). That icon will change its appearance to: . This is referred to as *maximized*.

- ☐ – if you see this, PhotoStation Manager is maximized. When you click on it, the window will shrink back down to the size it was before you maximized it, and the borders will reappear.

- ☒ – if you click on this box, the application will close. If there is any data to save, you will first be asked if you want to save it. This performs exactly the same function as the *Exit* button in the Documentation Panel.

- Borders – unless the window is maximized or minimized, it appears as a standard window, with what is referred to as *thick borders*. You may now place the mouse on one of these borders; the pointer will change to indicate you can now grab the border with the left mouse button and resize the window as you see fit. If you grab any corner of the window, you can resize both horizontally and vertically at once.

Note that we suggest most people prefer the PhotoStation Manager to be maximized. When you have your screen resolution set to (at least) 1280x1024, you will find it easiest to see all the information in a comfortable layout.

The PhotoStation Manager window is divided up into four major areas called *Panels.*
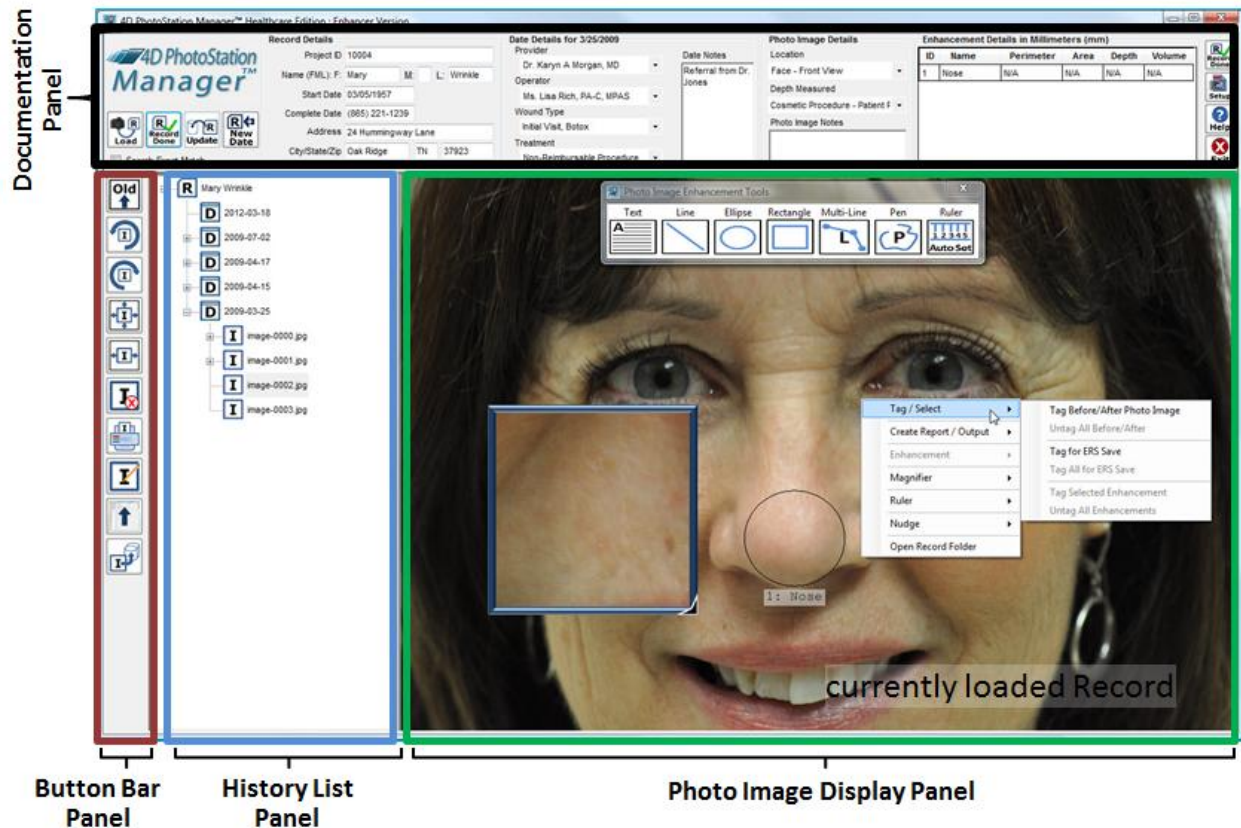
Figure 30 - PhotoStation Manager Main Panels

These areas are:

- Documentation Panel

    The *Documentation Panel* is a bar across the top of the display. It shows the information for the current Record, including the Record Details, the currently selected Date Details, and the currently selected Photo Image Details. It also has buttons permitting you to create new Records and Date Entries, to Load or Shoot Photo Images, and to setup your software and exit from the Record or from the PhotoStation Manager application. When there is nothing displayed in the ID and Name fields, you are not working on a specific Record. By the way, this panel can be hidden from the control panel. And, the buttons on the left side of this panel will change, only showing you the buttons that make sense at the time.

- Button Bar Panel

The *Button Bar Panel* is at the left-hand side. The Button Bar Panel appears when a single Subject Record is loaded. It has buttons for controlling the History List Panel and the Photo Image Display Panel. It also has a (*hide*) ⬆ button, which will make the Documentation Panel disappear temporarily, so that you have more space to work with the history and Photo Image Display Panel. Pressing *Hide* again will restore the Documentation Panel.

- History List Panel

    The *History List Panel* organizes all your Record Date Entries and within each Date, the Photo Images and Report Outputs. The Button Bar Panel appears when a single Photo Image Record is loaded. Its functionality is described below.

- Photo Image Display Panel

    The *Photo Image Display Panel* shows the Photo Image you have selected from the History List Panel. It is blank when you have no Photo Images, or if you do, until you select one to view from the History List Panel. (When you select a Record to work with, the first Photo Image (typically the most recently taken photo) in the Record is automatically displayed at first.)

The other panels do not appear until you are working on a loaded Record. As soon as you select a Record in the Documentation Panel, the following appears.

Starting PhotoStation Manager

You can start the PhotoStation Manager by double-clicking on this icon:

Figure 31 - PhotoStation Manager Icon

Alternately, press Start, Programs (or All Programs), click on the 4D Imaging Systems folder, and then the 4D PhotoStation Manager icon. You will see this screen:
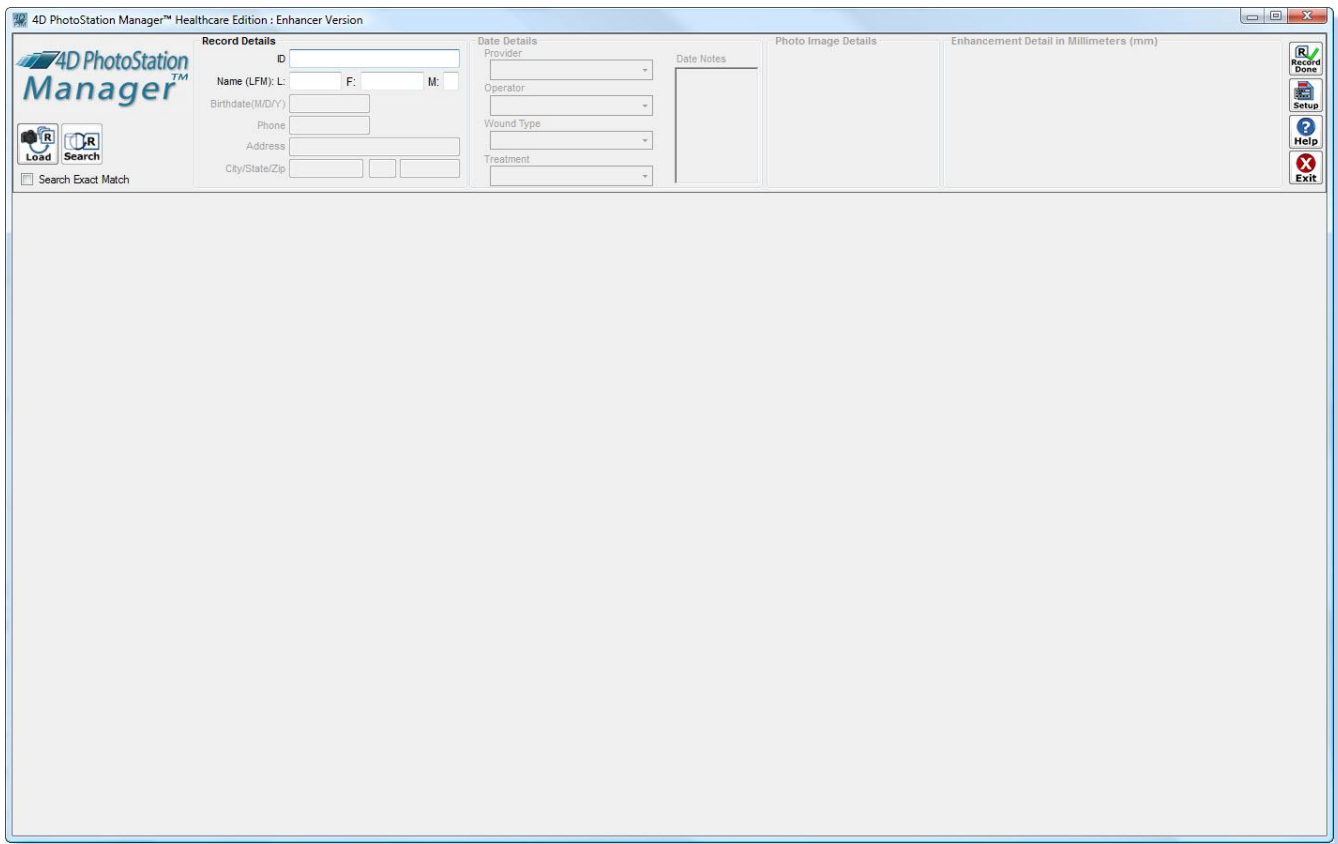
Figure 32 - PhotoStation Main Window After Launch

Upon application startup, you can perform the following with the PhotoStation Manager:

- Search for an existing Record by searching by ID, first name, or last name.

- Create a new Record by entering a new ID and name.

- Load newly captured Photo Images into one or more existing or new Records.

Understanding the PhotoStation Manager Command Buttons

Icon	Function	Notes
Search	Search For Existing Record	Searches the exiting Collection of Photo Image folders for matching Records. Search can be performed by entering the ID and / or the Record Name. Search operation will vary based on whether the "Exact Match" check box underneath the Search Button is unchecked or check. If checked, the search will return Records that exactly match the entered ID, first name, or last name. If uncheck, the search will return any Record with an ID, first name, or last name that contains the information entered for the search.
Load Multiple Load Single	Load Photo Images from Folder in Multiple Records or Single Records	Load Photo Images from Folder. If you are at the startup screen, with no Record currently loaded, the Load Multiple button will be displayed. This starts the workflow procedure allowing you to select a folder for import into the PhotoStation Manager system. you to load Photo Images into multiple Records, one Record at a time. If a Record is loaded the Load Single button will be displayed. Pressing this Load button will allow you to select Photo Images to load directly into that single Record.
New Record	Add New Record	Adds a new Record to the system. Adding a new Record requires a unique ID and a Name. Additional Record Details can be included.
Update	Update Record Details	Automatically saves changes to the currently loaded Record. This button is active after a change is made either to the Record, Date, or Photo Image Detail fields, or if any Enhancement has been added, changed, or deleted.
New Date	Create A New Date Entry For Today's Date	This button appears and is active when a Record is loaded and there is not a Date Entry for the current date. Clicking on the New Date button will add a new dated entry into the Record's History List. The Date Details panels are enabled, allowing the operator to select operator, provider, and reason list items and enter Date notes.
Shoot	Shoot Photo Images	This button is active when a Record is loaded and a Date Entry has been created for the current date. When the Shoot button is clicked for the first time during a new Date Entry, the camera control program is launched. Afterwards, clicking the shoot button causes the camera control program to appear as the topmost window.
Record Done	Record Done	Tells the PhotoStation Manager to end the current session of the Camera Control program. All Record, Date Entry, and Photo Image Detail fields are cleared in preparation for taking a new round of pictures of the next Subject. If the camera is capturing new Photo Images, the capture program and Live View mode windows are closed and the camera is reset.
Setup	PhotoStation Setup	Opens the application configuration dialog. Configure storage options, Date and Photo Image Detail keyword list names, print options, and more.
Help	Online Help	Displays this help file.
Exit	Exit PhotoStation Manager	Exit the PhotoStation Manager application. Restart by double-clicking the PhotoStation Manager icon on the desktop.

Table 6 - PhotoStation Manager Command Buttons

Creating a New Record

There are two ways to add a new Record to the system.

- Create a new Record using the Documentation Panel

- Use the Import Procedure (documented in the Adding Photos section below)

Here is how to create a new Record using the Documentation Panel:

1. Make sure you are not viewing or working with another Record. Press the *Record Done* button at the right side of the top (documentation and control) panel.

2. Enter a complete new ID code into the blank field.

3. Completely enter a Name (at the least). For the Healthcare, Wound Care, and Medi-Spa Editions, enter at least the First and Last Name. For all other Editions, enter the Name.

4. (Optional) Enter a middle initial and/or any other Detail fields under Record Details.

5. Press the *New Record* button.

6. Assuming you have not duplicated the ID code for another, existing Record, you will be notified that the Record does not exist, and asked if you want to create a new one. Press the *Yes* button. (If a duplicate ID code already exists, please correct and enter your unique new ID code for the new Record.)

7. Observe that the other panels of the window, below, are now populated. The Record has been added, and you are ready to continue working with the various Record, Date, or Photo Image Detail fields, or you can begin importing or capturing Photo Images.

8. If you have not already entered Record Detail fields other than ID and Name, you may enter it now or at any future time.

Selecting an Existing Record

If you are currently working with a Record, you will see their ID and Name(s) under Record Details and you will see the History List Panel below, with various control buttons to the left. If not working with a Record, then these areas will all be blank. If you are already working with another Record, then press the *Record Done* button at the upper-left to exit from this loaded Record, so you search for and load another Record.

To select a Record you want to work with, do one of the following:

- Type the exact Record ID code into the blank field under Record Details, and press the Enter key. The Record corresponding to the ID will be loaded and displayed within the various information panels in the PhotoStation Manager.

- Use the Search function. Type a partial ID, and/or Name. Then, either press Enter, or press the *Search* button.

  - If there is no Record that could possibly match, you will receive an error message alerting you.

  - If there is only one Record matching what you entered, that Record will be displayed.

- If there are several Records that might match, then a list of all possible matches is displayed. Click on the line representing the Record you want to work with, then press the OK button. That Record will be displayed. Hint: you can double-click on a Record Name – and that Record will be immediately loaded.

Conveniently, when using Search, you can type any part of the ID and / or Name. You can also type characters from the middle or end of the ID or Name. Search will thoroughly look through all the Records for a possible match. Example: you type ABC into the ID field and click on Search. If you have a Record whose ID is 13579-XABCD-32, it will find this particular Record (along with any other matches).

Now you are ready to work with the loaded Record.

Creating a New Date Entry

Each Record will eventually contain one or more Date Entries. There are two ways to create a new Date Entry for a loaded Record:

- Use the Import Procedure (documented in the Adding Photos section below) – will create a Date Entry for the date recorded in the images.
- Create a new Date Entry – will create an entry for today's date.

Here is how to create a new Date Entry. First, make sure you are not working with another Record; if so, press the *Record Done* button to save and exit the currently loaded Record. Then, search for and load the Record for which you'd like to add a new Date Entry, using the procedure below.

1. Select a Record to work with using the procedure in the above section.

2. If there is an existing entry for today's date, nothing more is needed. If there is not an entry, then the New Date button will be displayed and enabled.

3. Press the *New Date* button. You are now ready to work with this Date Entry.

4. If you have a point and shoot or SLR camera, you can now load Photo Images directly into the Record using the Load Single button

5. If you have the Nikon Control option or an optional Camera Auto Loader installed, you can use the Shoot button to begin the process of capturing and loading Photo Images directly into the currently load Record.

Note that you can only create a Date Entry for today's date, and once you have done so, you no longer have access to the New Date button.

Selecting An Existing Date Entry: Working With the History List Panel

You really don't have to select a specific Date Entry within a single Record to work with it. More accurately, you select individual Photo Images and Report that belong to that Date Entry. The History List Panel provides you a comprehensive way of dealing with this.

When you are working with a Subject's Records, all the information is organized with the unique History List Panel feature. This feature permits you to manage large numbers of Date Entries, Photo Images, and Output Reports in an easy-to-understand format. It works very similar to Windows Explorer and several other Windows features, to help you be more familiar with it. Please refer to the illustration.

The History List Panel basically has four different "levels". Each icon at each level that can have sub-levels, has a small box to the left. That box has either a ⊞ or a ⊟. If you see the ⊞, that indicates that there are more levels below this one particular icon. Click on the + to expand the next level; you see the box now contains a ⊟.

If you click on the ⊟, all the levels below this one particular item will be collapsed and hidden, and the box will change to a ⊞. This permits you to hide all the details that you do not need to work with at this session, to give you a simpler view of what's going on. You will want to click on the ⊞ next to the Date Entry you want to view, in order to expand the layers below it and view the details.

Another way to expand or contract the history outline is to double-click on the icon (or the name of the icon). This will alternately contract and expand the lower levels.

Level 1: A Single Record
Level 2: A Single Date Entry
Level 3: A Photo Image
Level 4: A Report Output
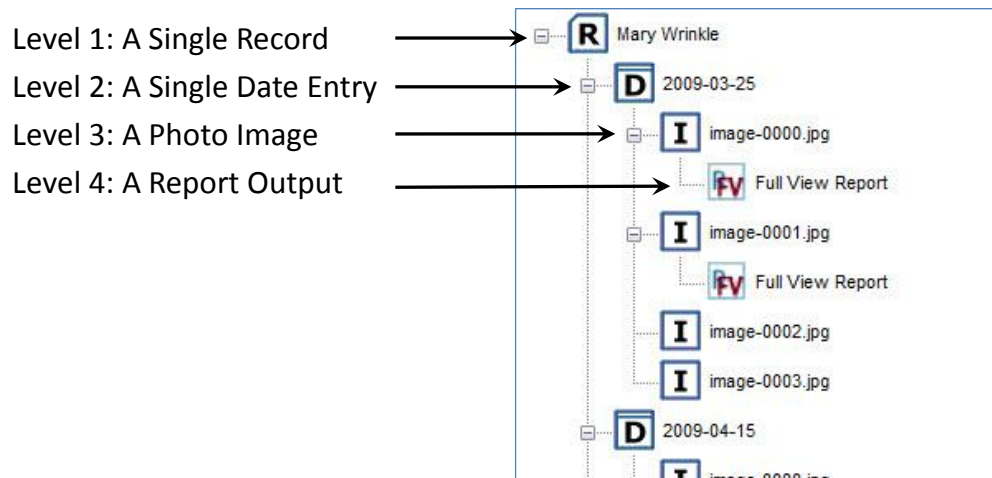
Figure 33 - History List Panel

The top level is the Subject Record. You will see the Record icon 🆁 and the Record name. Only one Record at a time can be loaded into the PhotoStation Manager.

The second level is the Date Entry. There will be one Date Entry icon 🆛 for every Collection of Photo Images added to the system either on by the Single or Multi Load (import) or by using the Nikon Control option. Each Date Entry shows the actual date (remember, all Photo Images captured on the same calendar date are part of a single Date Entry). By using the *Date Sort* button or in the control panel to the left, you can re-order the Date Entries so that the list starts either with the most recent Date [New], or with the oldest Date [Old]. It will change between the two each time you click the button.

The third level is for what we call source Photo Images. A source Photo Image is loaded into the system from a camera, or captured using the Nikon Capture. Each image imported into a Date Entry will be displayed with an image icon 🄸 and the standardized name of the Photo Image next to it. The names of the Photo Images are all different within a single Date, but will be duplicated / reused within other Date Entries. So, if you are referring to image 0012, you must also specify the Date to make it unambiguous which photo you are referring to.

The fourth, and lowest level, are Reports and Photo Image Outputs. Reports and Photo Image Outputs are created based on one or more Photo Images. As you create Reports or Outputs, they are stored as part of the Record and added under the most appropriate Photo Image (if more than one is involved in a report, it is generally placed under the last image used).

There are two different types of Photo Image Outputs (Enhancer Version Only), and these are Photo Images what are created by selecting a single source Photo Image at the third level, and creating either a Photo Image with Enhancements or a Photo Image with Corrections.

- A Photo Image with Enhancements requires at least one Enhancement in the photo. This Photo Image Output is a new JPEG file that is an exact duplicate of the original Photo Image, but with the addition of any Enhancements added to the source Photo Image. The Enhancements are permanently "drawn" into the image file itself.

- A Photo Image with Corrections requires that you use Setup to perform a camera calibration with a selected lens and focal length. The resulting Output Photo Image uses the calibration data to correct for lens distortions that may affect the accuracy of measurements taken for Photo Images.

While you are viewing the Photo Images in the History List Panel, you may hover the mouse over an image (icon or name). When you do so, a box will pop up under that, showing a small view of the image under the mouse pointer, along with the date of creation, the value you selected for the first field in Photo Image Details, and the start of the notes all associated with this image.

This is to help you more easily select which of many photos you want to work with. Moving the mouse pointer up or down – or off the History List Panel – will cause this small *thumbnail* view to disappear, or change to the Photo Image now under the mouse pointer. The thumbnail preview includes the Photo Image name, its date of creation (i.e. date the Photo Image was taken), the image keyword and note, and any tags.
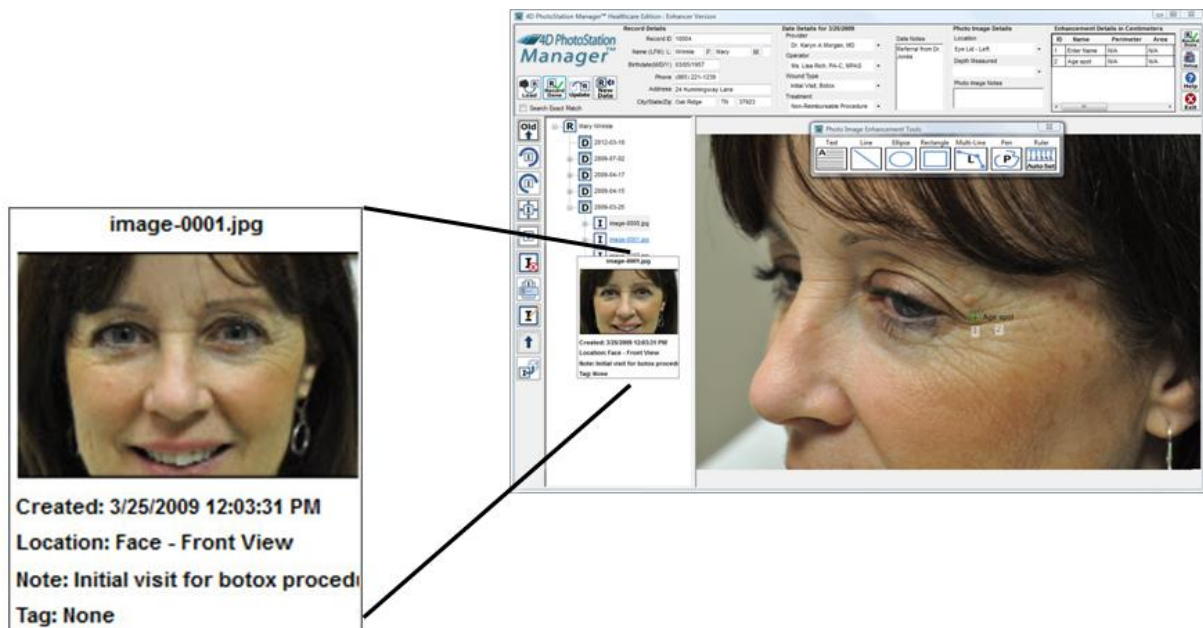
**Mouse Hover Preview
in History Panel**

Figure 34 - Photo Image Preview Using Mouse

When you identify the Photo Image to work with, click on it, and thus highlight the entry. The full-sized photo will then be displayed in the Photo Image Display Panel to the right. You can also select Report to similarly view in the Photo Image Display Panel this way.

Once a Photo Image or Report Output is selected, you can remove it, permanently, by pressing the Image *Delete* button 🗑 in the control panel. You can also select and delete an entire Date Entry record. However, the Date Entry cannot be deleted until all of the contents listed indented below it, including Photo Images and Report Outputs, are each individually deleted first. As this is a permanent action, you should use it sparingly. PhotoStation Manager will ask you to verify the deletion before making it final.

Each item in the Record's Photo Image History list has an icon. The icons are as follows.

con	Name	Notes
R	Record Icon	Only one Record is loaded at a time into the History list.
D	Date Entry Icon	The Date Entry icon has the date of service as its label. Selecting a Date Entry node will display the details of that date in Date Details area of the PhotoStation Manager.
I	Photo Image Icon	The Photo Image icon has the short Photo Image file name as its label. Selecting a Photo Image node will display the Photo Image in the display area, and will display the Photo Image name, date of capture, and notes in the Photo Image Details area of the PhotoStation Manager.
I_E	Photo Image with Enhancement	This is a Photo Image that you create from the Create Report / Output menu. The Photo Image includes all Enhancements you placed onto the originating Photo Image. Use this for emailing or printing high-resolution Photo Images with notes.
I_C	Photo Image with Corrections	This is a Photo Image that you create from the Create Report / Output menu. The Photo Image is remapped using the Camera Calibration settings you setup. Use this Photo Image for calculating the most accurate measurements possible.
BA	Before and After Tagged Photo Image Icon	Photo images that have been selected for inclusion in a before and after framed image output will be shown with this icon
ER	ERS Tagged Photo Image Icon	If ERS support is enabled, Photo Images that have been selected for upload to the ERS system will be shown with this icon.
EC	Enhancement Change Tagged Photo Image Icon	Photo Images that have been an Enhancement selected for an Enhancement Change Report shown with this icon.

PFV	Full View Photo Image Report Output	The selected item is a generated report showing the full Photo Image with header and footer info.
RZ	Zoom Detail Photo Image Report Output	The selected item is a generated report showing the zoomed in detail on a selected image with header and footer info.
BA	Before and After Photo Image Report Output	The selected item is a generated report showing either 2 or 3 Photo Images showing the same view over time with header and footer info.
RG	Gallery Photo Image Report Output	The selected item is a generated report showing all Photo Images captured during a single Collection Date with header and footer info.
EC	Enhancement Change Report Output	The selected item is a generated report showing the change in size measurements of a feature that was outlined in two different Photo Images.

Table 7 - History List Panel Icons

Loading Photos

Now that you have created a Record, and perhaps created a Date Entry, you will want to add photos. You can do it two ways:

- Use the Load procedure
- Take Photo Images using the optional Nikon Control Option (included in the PhotoStation Manager software option or standard with the 4D PhotoStation System)

When you import Photo Images with the Load procedure, it will automatically create new Date Entries for existing Records, or create new Records and Collection capture Date Entries, if need be. You control the process by entering information during the Load procedure.

Taking Photos

With the Nikon Control Option, you can take photos, controlled by the PhotoStation Manager software directly. This requires you to create the new Date Entry for today first.

When you press the *New Date* button, an icon is created in the Record, marked with today's date. Notice that the New D*ate* button changes to now read *Shoot*. For the rest of today, you will see this new Shoot button whenever you look at this Record. All new Photo Images taken today will be part of this Date Entry – as you can only have Date Entry for a Record in any one day.

Pressing Shoot will take a Photo Image using the attached Nikon camera.

Adding Photos

The key feature for smoothly importing new photographs is the Load procedure. Remember the prerequisites:

1. Make sure your camera is always configured with the correct date.

2. When you start to photograph a Subject (person, place, or object), always start with a photo of the Slate sheet.

3. Only import photos from one camera at a time, so that the pictures will be in Sequence with unique names.

With that in mind, let's acquire some Photo Images.

Loading Photos (Import)

Source of Photo Images

First, you have to place the Photo Images somewhere visible to the computer running PhotoStation Manager. Recall that you will do one of the following:

- Use a sync cable from your camera to the computer (usually, the USB port) so that the camera appears to be a folder on a disk drive. If you use a cell phone camera, this will be the typical method for connection.

- Use the sync cable, but then copy the photos to a folder on the computer. (This speeds the import process to come.) With many cameras and sync cables, when you attach the camera, the computer will actually suggest that it do this, usually offering to move the photos to a folder called *Pictures* or *My Pictures.* (Make sure that the destination folder is empty and not used for any other purpose, so you won't mix your documentation photos with, say, vacation pictures.)

- Remove the memory card from the camera and insert it into a card reader, either built-in to the computer or attached (usually, to the USB port), so that the memory card appears to be a folder on a disk drive.

- Plug in the memory card, but then copy the photos to a folder on your computer. Again, in most cases the computer will suggest that it do this for you.

- Use an external storage location, such as a CD or DVD, an external drive, or a shared folder somewhere in the Cloud or on your office LAN. As long as you know the exact folder name, you are ready to go.

- Use a wireless memory card, such as those offered by Eye-Fi, to wirelessly transfer Photo Images from your camera to your computer. Make sure you set up the wireless connection to transfer files to an easily accessible folder on the computer you are running the PhotoStation Manager software.

Once you decide on the appropriate procedure, you will be able to repeat it every time the same way. The next time you use the Load procedure, the folder you selected the previous time will already be highlighted, so you need only press the *OK* button to select the same folder.

See the chapter on Loading Photo Images for details.

Shooting a Photo (Requires Nikon Control Option)

To take a photo with the Nikon Control Option, first make sure you have created a new Date Entry for today. The *Shoot* button will become active. Press the Shoot button. (This button is not available if you do not have the Nikon package.) See *Optional Component: Using the Nikon Photography Package* for step-by-step details.

Working with the Record

After you have created the Record, created Date Entries, and imported Photo Images, you are ready to work with the Record. When a Record is loaded, you see three key panels appear below the Documentation Panel:

- Button Bar Panel
- History List Panel
- Photo Image Display Panel

You will use these to navigate through the Record and all its Date and Photo Image Details.

History List Panel

The History List Panel organizes all the Records in an easy-to-understand outline view. You may expand or contract parts of the outline so that for a single Record with multiple Date Entries, you only need to see the details of the Date Entry you are examining.

When you expand a Date Entry (by clicking on the [+] or double-clicking on the Date Entry icon or date), you will see the all Photo Images collected during that Date. And, you can expand Photo Images to see Report you created based on those images.

Date Entry Preview Panel

When you click and highlight a Date Entry (or a Photo Image listed under a Date Entry), you will see the a Date Entry Preview Panel showing all the Photo Images and Report for that Date and the Date Details displayed in the Documentation Panel above.

When you click on any Date Entry in the History List Panel, a preview of all the Photo Images for that Date is displayed. In the following, the Date Entry for March 25, 2009 is clicked on. The collection of Preview Images provides a quick and simple way to view all the Photo Images captured on that Date, and all the resulting Reports or Output Photo Images (with Enhancements or Corrections).
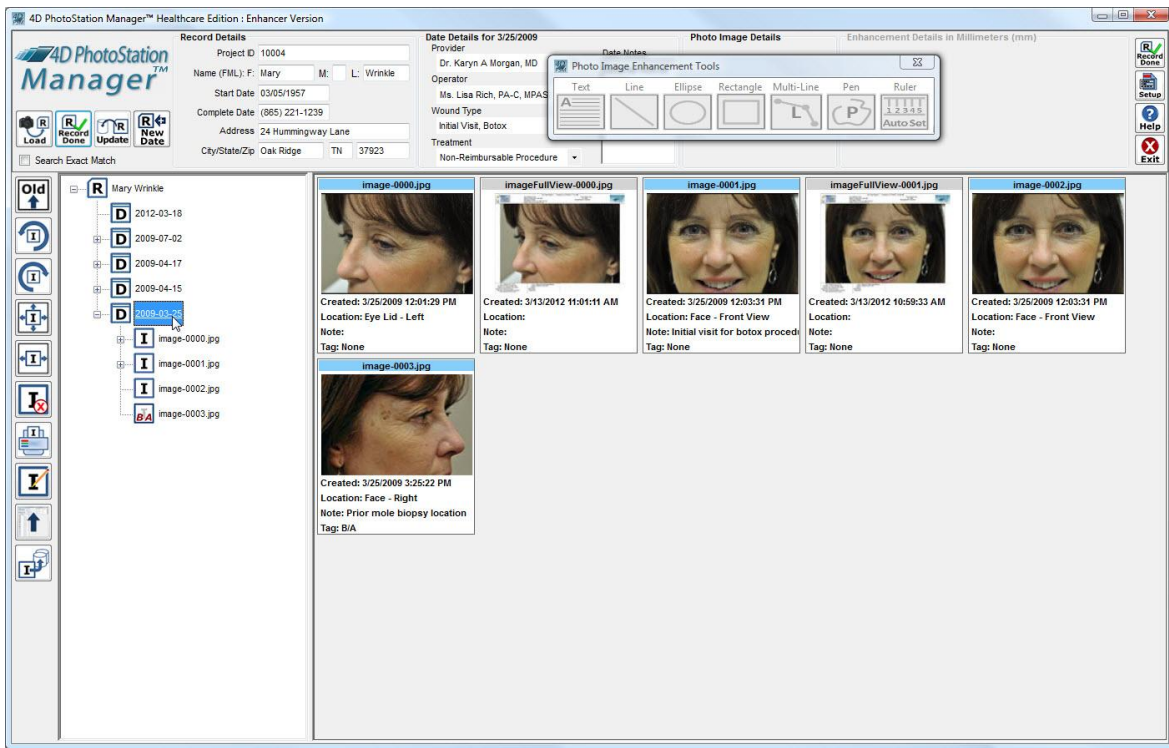
Figure 35 - Date Entry Preview Panel

You can select any of the Photo Images Reports, or Output Photo Images shown in the Date Preview by click on the Preview with the Left Mouse Button. You can bring up the Context menu and Tag the Photo Image or create Reports or Output Photo Images.
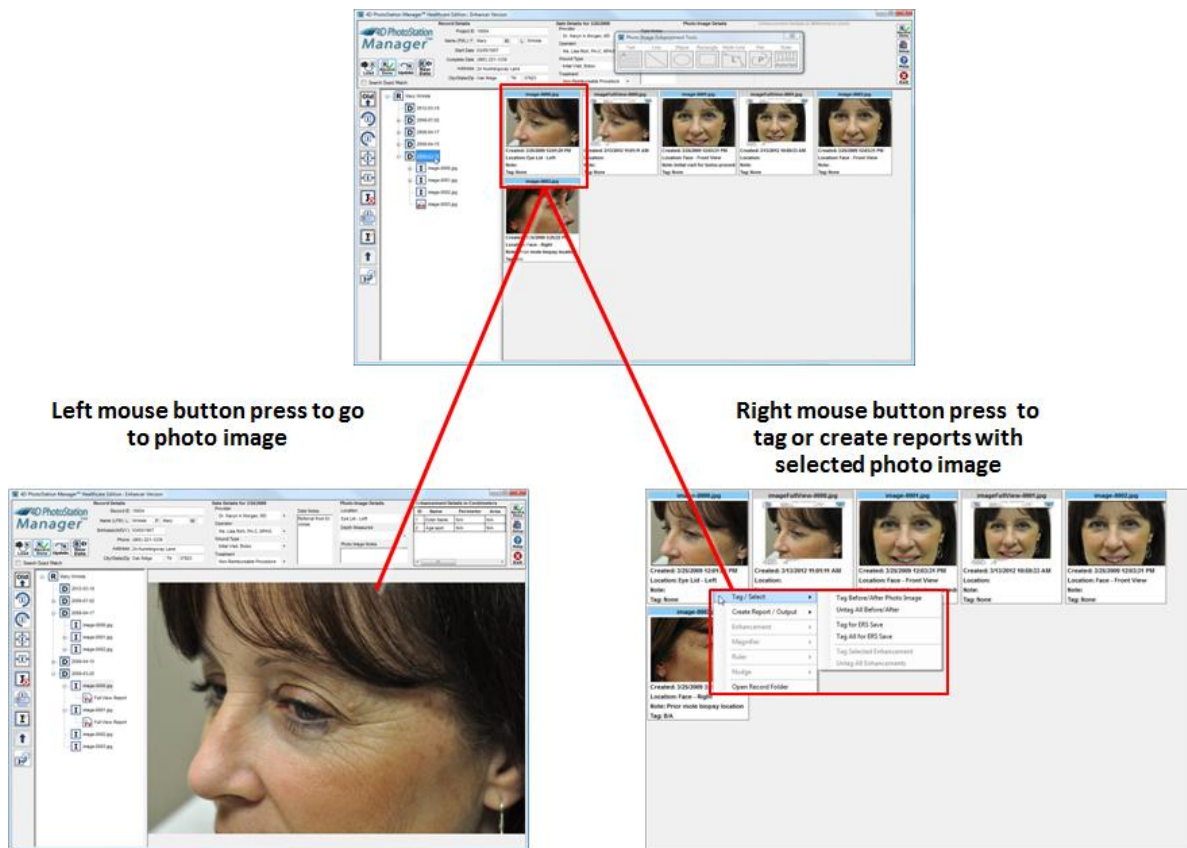
Figure 36 - Date Entry Preview Mouse Commands

When you click on and highlight a Photo Image (either from the History List Panel or from the Date Preview Panel), you will see not only the Date Details above, but also the Photo Image details. You are also able to edit or update the Date Details and/or Photo Image Details; in particular, you can add additional Date Notes or Photo Image Notes, by scrolling to the end of the existing notes, clicking in the entry box, and adding additional information as desired.

Photo Image Display Panel

When you click on, and highlight, a Photo Image or Photo Image Report / Output icon (or its name) in the History List Panel or the Date Preview Panel, you will see a large view of the image, taking up the lower-right portion of the PhotoStation Manager screen. When you edit the photo by adding Enhancements or you identify the Marker for feature measurement (Enhancer Version only), you will be clicking on this panel.

The vertical line separating the History and Photo Image Display Panel is moveable. Place the mouse over the line; the mouse pointer will change to two arrows to indicate you can move this line. Hold down the left mouse button and drag the line left or right as you wish.

Hint: to enlarge the Photo Image Display Panel even more, use the *Hide* button to make the Documentation Panel above to disappear. Click the *Hide* button again to restore it to normal visibility.

Buttons

When a Record has been selected and loaded, the left side of the PhotoStation Manager will have a column of buttons. Here is what they do:

Icon	Function	Notes
New↑ **Old↑**	Specifies current sort order. Sort History List with newest Date Entry at the top, or the oldest Date Entry at the top.	Reorders the Date Entries in the History List Panel. The normal view is that of each Date Entry starting with the newest Date Entry at top, with the Records getting older until you finally at bottom reach the oldest (first) Date Entry. Pressing the button will re-order the Date Entries, so the oldest Date Entry is first, and the newest is at bottom. Pressing it again will restore the original order.
	Rotate Photo Image to the left or counter clockwise.	Takes the photo and physically rotates the entire image 90° to the left (counter-clockwise). The image file will actually be rewritten so that it will always be displayed in this new orientation. You may rotate more than once. The image file may *not* be write-protected.
	Rotate Photo Image to the right or clockwise.	Takes the photo and physically rotates the entire image 90° to the right (clockwise). The image file will actually be rewritten so that it will always be displayed in this new orientation. You may rotate more than once. The image file may *not* be write-protected.
	Fit 100%	The default view; the image is sized in the Photo Image Display Panel so that it is entirely visible.
	Zoom to fit width.	If there is any white space to the left or right of the image, will enlarge the Photo Image to fill that space completely. This may result in the top or bottom of the image being clipped. This does not affect the image as stored; it is simply there to help you enlarge the window a bit more.
	Photo image delete.	Removes the image permanently. This will physically delete the image file from the data store. Use this to remove duplicate or unneeded photos. There is *no* way to reverse its action. You will be asked to confirm the deletion: only click *OK* if you truly want to erase the Photo Image file.
	Print selected Photo Image	Takes you to the Windows Print dialog. You may select which printer to use (it suggests the default printer for this computer); change the properties of the printer for this print (this is supplied by the printer manufacturer and will be different from brand to brand and model to model); allow you to print to a file; and select number of copies. (Print range and collating Sequence are not changeable, as all Photo Images and Report are one page long.)
	Upload Photo Images to ERS	If you have added the Electronic Records System interfacing module, this will send push the selected Photo Image files to your ERS.
	Enhance	If you have the Enhancer version of PhotoStation Manager, this displays the Enhancements editing bar and permits you to add annotations ("Enhancements") to the Photo Image being displayed. Once you have Enhancements added to your image, the Enhance button will be

		automatically pressed when the image is again displayed.
	Hide Panel / Show Panel	Causes the Documentation Panel at top to disappear and the History List slider to move fully to the left, allowing the Photo Image to be enlarged to the additional screen display area. Pressing Hide again restores the Documentation Panel and the History List Panel to its original state.

Table 8 - Photo Image Command Buttons

Finishing Your Work

You are considered to be working with a single Record until you press the *Record Done* button at the right side of the Documentation Panel. When you do so, you can then select another Records to work with.

Examining Photo Images

There are several techniques available to allow you to view the Photo Image in the Photo Image Display Panel in great detail and to best advantage.

Adjusting the View

By using the Fit 100%, Fit Width, and Hide buttons, plus by adjusting the position of the line dividing the History List Panel from the Photo Image Display Panel, you can affect the size of the Photo Image being displayed in the Photo Image Display Panel, making it larger or smaller. Also, rotating the image to "landscape" or horizontal orientation, wider than tall, you can often view the image at larger size.

Rotation

By using the Rotate Left and Rotate Right buttons, you can rotate the Photo Image to an orientation that makes the most sense to you, the trained observer. You must rotate the image before you start adding Enhancements (if you have the Enhancer Version of PhotoStation Manager); after Enhancements are added, you may no longer rotate the image.

Using the Magnifier

With the Magnifier feature, you can easily examine the smallest detail, limited only by the quality of the original Photo Image. You can control the Magnifier feature when the mouse pointer is either over the History List Panel or over the Photo Image Display Panel itself.

There are two ways to turn on the Magnifier. If a Photo Image is selected, type the "M" key on the keyboard. To turn off the Magnifier using the keyboard, type either the "M" key a second time, or hit the escape "Esc" key.

A second way is to use the Context Menus. Right-click the mouse *or* press the keyboard's Menu key. (On most keyboards, this button is immediately to the left of the rightmost Ctrl button.) A *context menu* will appear. From

this menu, choose Magnifier by either left-clicking on that word, or by using the Tab and/or arrow keys on the keyboard to highlight the word Magnifier and then pressing the right-arrow or Enter key. Then either left-click on *Magnifier On* or use Tab and/or arrow keys to highlight *Magnifier On* then press the Enter key. To turn the magnifier off, you repeat the same exact operation, but instead select *Magnifier Off*.
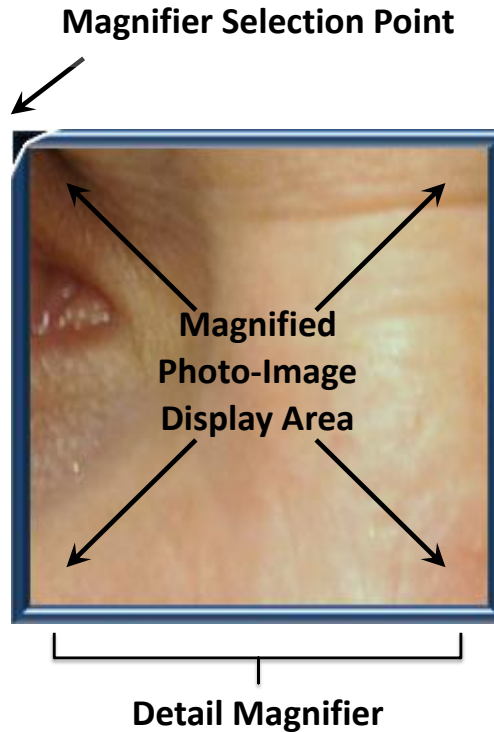
Figure 37 - Detail Magnifier

Note that the mouse cursor changes to a small magnifying glass when the Magnifier is on. When you click on any feature of the Photo Image, the Magnifier will move so that one corner (with a black arrow) points to that location. The Magnifier will then show an enlarged image centered on that feature.
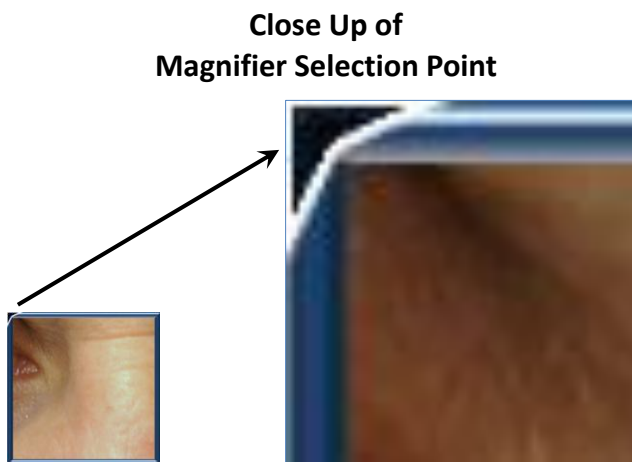
Figure 38 - Detail Magnifier Selection Point Close Up

You may zoom in or out with the magnifier to see more details or less details. Simply return to the Magnifier Context Menu and select *Zoom In* or *Zoom Out*. The zoom setting and initial location are not saved and must be re-set whenever you re-display the Photo Image.

The magnifier has another feature, called *Nudge*. By returning to the Magnifier's Context Menu and selecting the nudge size, then you can "nudge" the magnifier in any direction by that distance. This is particularly handy if you do not have a mouse to use on this system for some reason, and you need to reposition the Magnifier with keyboard commands. Use the keyboard arrow keys to nudge the magnifier up, down, left or right.

Note that the Magnifier does not show any Enhancements added to the image (for users of the Enhancer Versions). However, if you create a Report Output of type "Photo Image with Enhancements", then the Enhancements become part of the image itself; you can then use the Magnifier to see that image with its Enhancements. A summary of the Magnifier keyboard commands follows.

Keyboard Command	Function
"M"	• Turn the Magnifier on if it is not currently on. Works the same as the Magnifier On command on the Context Menu. • Turn the Magnifier off if it is currently on. Works the same as the Magnifier Off command on the Context Menu.
"+"	• Zoom the Magnifier in. Works the same as the Zoom In command on the Context Menu.
"-" Minus key	• Zoom the Magnifier out. Works the same as the Zoom Out command on the Context Menu.
"↑" Up Arrow Key	• Move the Magnifier up by the "nudge size" amount. Works the same as the Nudge Up command on the Context Menu.
"↓" Down Arrow Key	• Move the Magnifier down by the "nudge size" amount. Works the same as the Nudge Down command on the Context Menu.
"←" Left Arrow Key	• Move the Magnifier left by the "nudge size" amount. Works the same as the Nudge Left command on the Context Menu.
"→" Right Arrow Key	• Move the Magnifier right by the "nudge size" amount. Works the same as the Nudge Right command on the Context Menu.
Escape Key	• Turn the Magnifier Off

Table 9 – Magnifier Keyboard Control Commands

Zooming In and Out of a Photo Image

When your cursor is in the Photo Image Display Panel, you can zoom into and out of your Photo Image by pressing the Control-Key on your keyboard and using either you mouse scroll wheel or the "+" and "-" keys on your keyboard.

You can zoom in and out as needed to see necessary details.
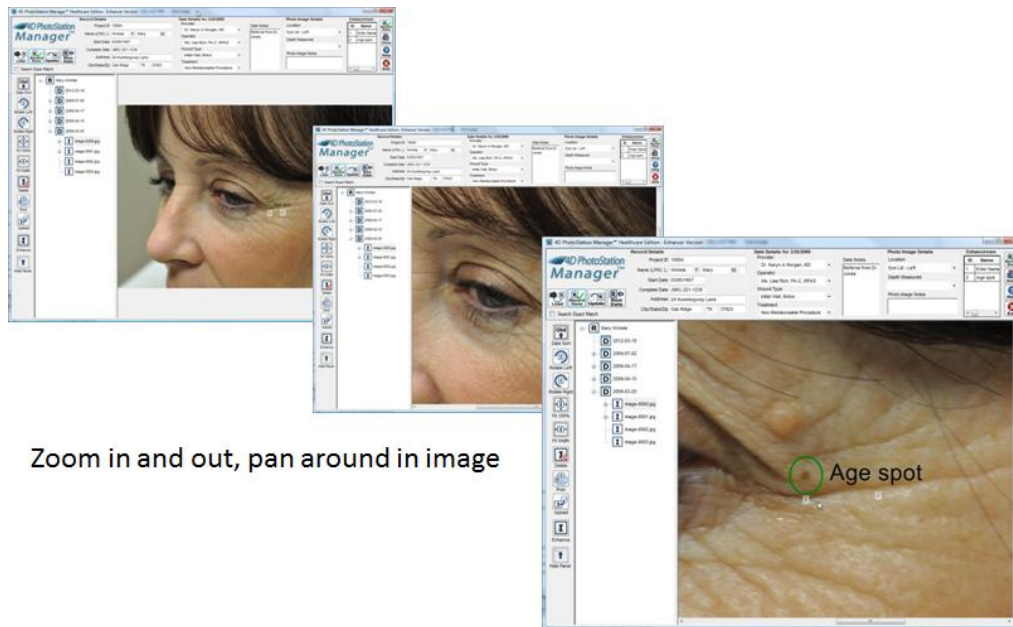
Figure 39 - Photo Image Zoom

While holding down the Control Key of your keyboard:

Action	Result
Clicking the Scroll Wheel In - or – Pressing the "+" Key	Zooms the Photo Image to the next higher level of magnification
Clicking the Scroll Wheel Out - or – Pressing the "-" Key	Zooms the Photo Image to the next lower level of magnification
Pressing the Left Mouse Button Down - and – Moving the Mouse Pointer	Pans the Photo Image in the direction you move the Mouse.
Up, Down, Left, or Right Arrow Key	Pans the Photo Image in the direction of the Arrow-Key, moving by the Nudge-Size Amount.

Table 10 - Keyboard Commands for Photo Image Zoom

Deleting

As discussed previously, there is a *Delete* button, not to be used lightly. It will completely remove the Photo Image from the Records, irretrievably gone. It is handy under the following circumstances:

- The image is a duplicate
- The image is unusable due to blur, poor aim, or the like
- The image is, accidentally, that of another Subject or another Date Entry, not this Subject or this Date Entry, and is therefore not required – or desired.

Updating the Date Entry Details

When a Date Entry icon (or its date) is highlighted in the History List Panel, or one of the Photo Image or Report under that Date Entry are highlighted, then you can view and edit the Date Entry details in the Documentation Panel at top. Note that if the Date Entry currently selected is not for *today's* Date , then the caption will read: "Date Details for mm/dd/yyyy".

Change Date Entry Information

You may edit a Date Details at any time. There are five fields that can be changed:

- Person 1
- Person 2
- Observation 1
- Observation 2
- Date Notes

The first four will actually have titles you have created as part of the setup process. The two person fields will each permit you to choose one person from a list created for that field in Setup. The first Date Keyword will allow you to choose zero, one, several, or all of the items you placed in the list via Setup – and will display the checked items in this format: "One, Four, Seven" (if you checked the first, fourth, and seventh items on the list.) The second Observation allows you to select exactly one item from its list.

The Date Notes are free-form. You may type any quantity of notes you need; you will be able to scroll through the entire set of notes to read, or to find a place (beginning, middle, or end) where you want to add additional notes.

Whenever you change any Date Notes, and subsequently press *Record Done*, you will be asked if the changes should be made. Press *OK* to save the changes, or *Cancel* to keep the previous information unchanged.

Deleting

It is possible to delete a Date Entry completely from the Records. To do so, you must first delete each and every Photo Image and Report Output that belongs to the Date Entry. Then, you click on the Date Entry in the History List Panel (highlighting it), and press the Delete button from the Button Bar Panel to the left. You will be asked to verify this action; upon doing so, the Date Entry will be completely and irretrievably removed.

Updating the Record

At any time when you are working with a Record, you may update the Record, Date, or Photo Image Details in the Documentation Panel. You can update the Record Details by simply re-entering or editing the values in the fields. After any change is made to the Record, the Update Record button will become active. Press the button to update the current set of changes in the Record and continue reviewing or editing the Record.

When you are finished with the Record, you can press the *Record Done* button to save changes and exit the Record. You will be asked if the changes should be made. Press *OK* to save the changes, or *Cancel* to

keep the previous information unchanged.

Record ID Changes

The value for the Record ID cannot be directly changed within the Record Details Panel. The ID is a critical part of the way PhotoStation Manager maintains Records. If you enter an incorrect value in creating a Record, you can correct this using the Record Collection Checkup Tools (below). But, you should be especially careful not to create Records for one Record using one ID for some of the Photo Image Collection Dates and another ID for the Collection Date; there is not currently an automated way to combine two sets of Records into one. If you encounter this situation, please email support@4d-imaging.com for assistance.

Correcting Missteps

If you have made certain types of errors, you can correct them using the PhotoStation Manager Record Collection Checkup Tools. These types of errors include:

- Incorrectly entering a Record ID code or Record Name
- Automatically detect and correct inconsistent Records – re-form each individual XML Record file into the proper form
- Produce a list of Records that have duplicate IDs
- Produce a list of all Records by ID, including the Record Name

Using Record Collection Checkup Tools

To start using the Record Collection Checkup Tools, place the mouse pointer over the PhotoStation Manager logo in the upper-right corner of the window, then right-click on it. The Record Collection Checkup Tools dialog will appear.
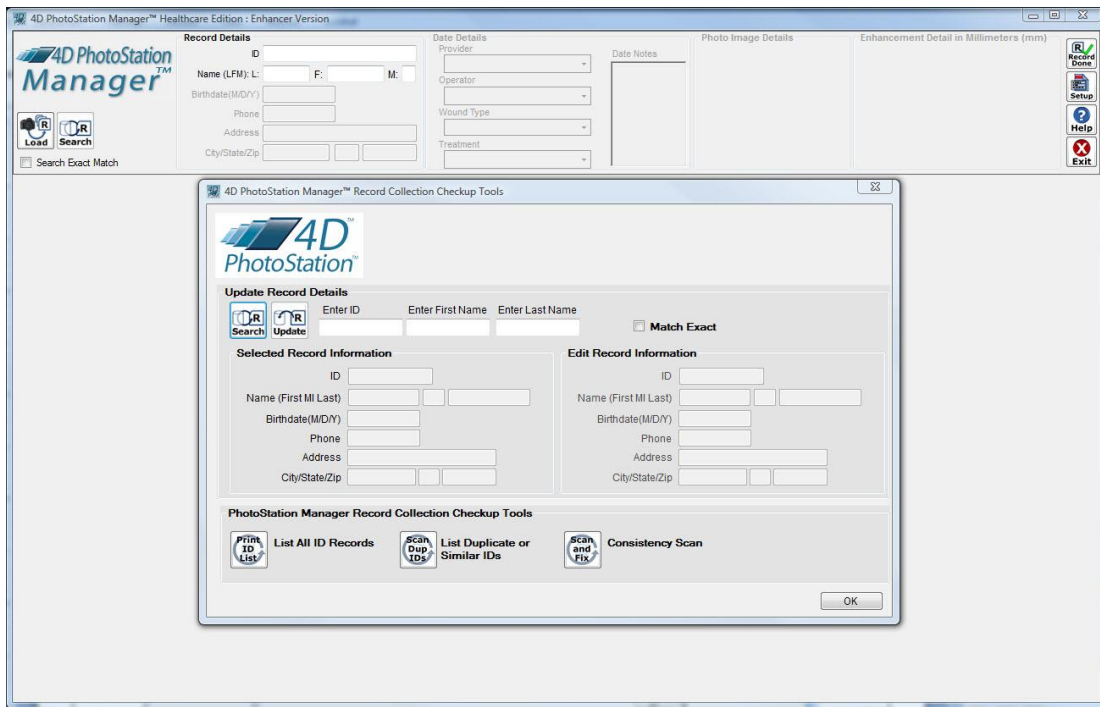
Figure 40 - PhotoStation Record Collection Checkup Tools

The first function allows you to change a Record ID code (it's the only way), along with updating any other fields in this Record Detail fields. Here is how it works:

- Enter some or all of the ID and or Name. If you only want exact matches, check the *Match Exact* box.

- Press the Search button, or just press the Enter key. If there is more than one match, a dialog will pop up showing all matches; select one from the list by double-clicking on it, or by highlighting it and pressing *OK*.

- Under **Selected Record Information**, the current Record Details that matched will be shown in its entirety.

- Under **Edit Record Information**, enter the corrected values.

- Press the *OK* button to complete making the changes. All of this Records will be changed to contain the new values.

There are three push buttons that further assist you in managing your data:

- List All Record IDs – shows a complete list of all Record ID and Names in the PhotoStation Records Collection, ordered by ID. It makes no changes. After viewing the list, press *OK*; you will then be shown a total count of how many different Records in the system.

- List Duplicate or Similar IDs – shows a list of all ID codes that are exact duplicates, but have distinct separate Records (with different Date Entry and Photo Image information, and perhaps different Record Names). There is no feature of PhotoStation Manager that can create a second Record with the same ID code as another, pre-existing Record. However, using someone else's software, or manually editing the Record XML files, can result in this condition. This report will inform you if it has happened, and for which Records.

- Consistency Scan – examines each individual Record's XML file for errors, and re-write the file without the errors, if possible. This also produces a report listing all the Date Entries that have no Photo Images associated with the Date.

Printing Photo Images

Basic Photo Image Printing

You can print any Photo Image that is being displayed by clicking on the print button ![icon]. The print button will display the current list of available printer devices, allowing you to select one for the print job.
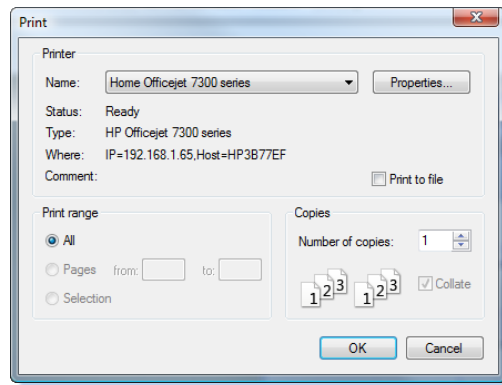
Figure 41 - Windows Print Menu

You may need to try printing using a few different settings before you get the result you desire. Select the printer name you want to print the Photo Image. Click on the properties button to set up the print as either landscape or portrait orientation on the print. Select additional options, which may vary based on the type and model of printer installed.

Additional control for how your printer will work in the PhotoStation Manager can be found in the system setup. Click the setup button and then the Print tab. The Print Page Setup button can be used to set up the print defaults for your particular printer.
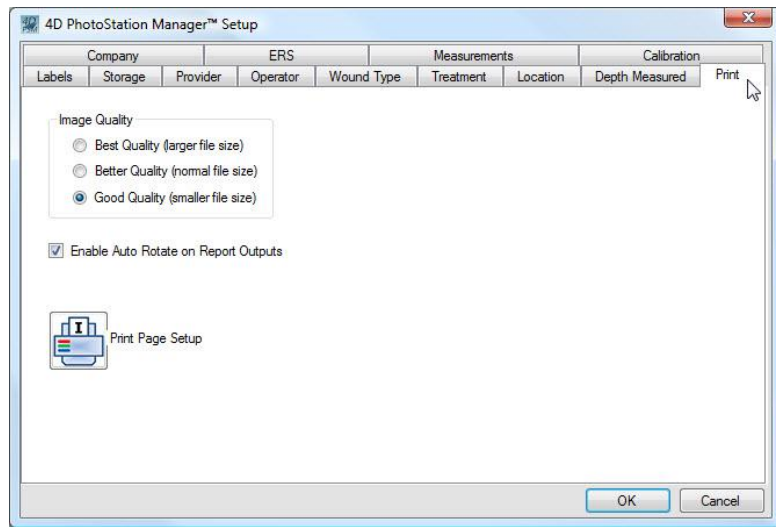
Figure 42 - Print Setup Tab

Annotating Images with Enhancements

Enhancer Version Only

With the Enhancer Version, you can annotate Photo Images by adding "Enhancements" – visual notes on an individual Photo Image. This includes:

- Adding text notes in varying fonts, colors, sizes, and locations – including bold, underline, italic, and aligning paragraphs of text to a left margin, right margin, or centered

- Adding lines of various colors and widths

- Drawing circles, ellipses, and rectangles, again of various colors and widths

- Drawing a figure that consists of multiple line segments

- Free-form drawing a line of any kind

- Recognizing the ruler marker, permitting the above items to be measured in length and area

Annotations are *not* added to the image file itself; the original image is kept untouched. Instead, they are drawn on top of the Image Window to appear as if part of the Photo Image. The annotations may be freely edited at any time, changing position and style information.

A list is maintained of all Enhancements added; you may add to the list a name identifying each. On the Photo Panel, each Enhancement is numbered to help you match it up with the Enhancement data displayed in the Documentation Panel above.

One drawback to Enhancements is that after annotating an image, you may no longer rotate the image to a different orientation. So, be sure to rotate before enhancing. Also, once the image is enhanced, the Enhancer version of the image will always be displayed upon selecting that Photo Image. Pressing the *Enhance* button will remove the Enhancements (and the Photo Image Enhancement Tools bar), until you press the Enhance button again, or re-select that Photo Image.

One additional advantage: once any Enhancement (however trivial) has been made to an image, you may now create a Report Output called Photo Image With Enhancements. This is a duplicate JPEG image file, with the Enhancement permanently added to the image data itself as part of the actual picture.

Creating Reports and Outputs

Essentials and Enhancer Versions Only

You can create a number of different Reports and Output Photo Images – each of which will be recorded in the History List Panel under the Photo Image that was used to make it. Each report may be viewed in the Photo Image Display Panel or printed at any time. Reports (except for Photo Image with Enhancements) are formatted with the selected Record, Date, and Photo Image Details on the report, along with your organization information and logo. There are a variety of useful report types:

- Full View – a basic report showing a single Photo Image, without showing any Enhancements
- Full View With Enhancements – adds the Enhancements to the image
- Zoom Detail – a report with the original image, and a second image that shows the current contents of the Magnifier window
- Zoom Detail With Enhancements – adds the Enhancements to the image
- Before and After – requires you tag Photo Images (perhaps from different Collection Dates), up to three at a time; the report shows up to three images side-by-side
- Before and After With Enhancements – adds the Enhancements to the image(s)
- Enhancement Change – creates a report similar to a 2 shot before and after, but based on a selected Enhancement in two different Photo Images and showing change in measurement of the Enhancement.
- Photo Image Gallery – a report showing *all* the Photo Images for the current Date Entry (even if you select a single image for the Collection Date), where the images are shrunk to fit one sheet of paper

You may also create two different Photo Image Outputs. These are as follows:

- Photo Image With Enhancements – creates a duplicate Photo Image in JPEG format with all Enhancements permanently added to the actual image data
- Photo Image With Corrections – creates a duplicate Photo Image in JPEG format, using the Calibration data created for a particular camera and lens combination.

The Photo Image with Enhancements report, although located underneath the Photo Image it was made from, is identified as a Photo Image; it may be used as one of the photos for any of the other reports.

Uploading to ERS

If your PhotoStation Manager is configured with support for upload to an electronic Records system, you will be able to select individual Photo Images or all Photo Images in a particular Date Entry for transfer to the ERS.

Photo images are selected by using the Tag / Select menu entry in the right mouse button Context Menu. The tagging process will vary according to what you are pointing to in the History List Panel. You may be either pointing to a Date Entry with the icon $\boxed{D}$, and Photo Image with the icon $\boxed{I}$, or an output with one of the four possible Report Output icons, such as the one for a full view output $\boxed{FV}$.
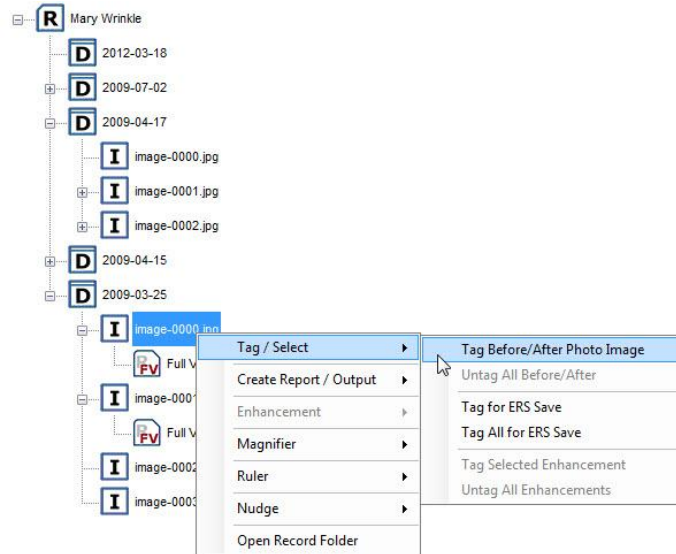
Figure 43 – Photo Image Tag Submenu

At the Date Entry level, you may choose to select for ERS upload all the Photo Images or all the Reports or Output Photo Images contained in the selected Date Entry.

At the Photo Image level, you may choose to select for ERS upload the individually selected Photo Image, or all the Photo Images in the selected Date Entry.

At the Report and Photo Image Output level, you may choose to select for ERS upload the individually selected Report or Output Photo Image, all the Report or Output Photo Image in the selected Date Entry, or all the Photo Images in the Date Entry.

The tagging process can be repeated for multiple Photo Image Collection Dates.

To upload the selected Photo Images, click on the ERS upload button $\boxed{EMR}$.

Depending on the ERS interface implementation, a pointer to the Photo Image location or the full Photo Image file is transferred to the ERS.

Finishing Up a Record

At any time during your session importing, annotating, and detailing Photo Images within a Record, when you are ready to move on to the next Record or on to other work, you can click on the Record button $\boxed{\text{Record Done}}$ to clear the application. This will reset all the fields and allow you to enter the next Record ID to begin the process again. If you select Record Done, but need to make any additional changes, you can immediate restore all the Record Details and Photo Images by entering the Record ID and clicking on the Search button.

If any changes have been made to the Record Detail, the Date Entry Detail, or the Photo Image Details or Annotation notes, the following is displayed.
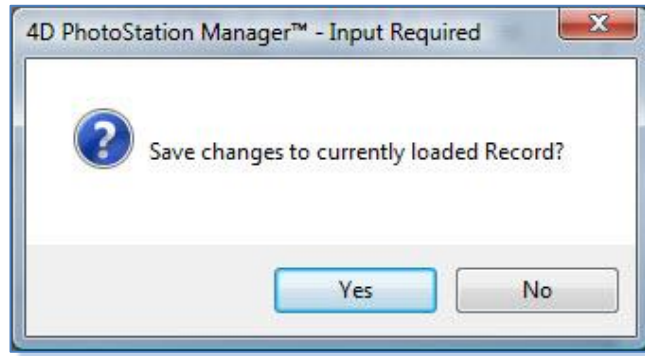
Figure 44 - Record Save Changes Dialog

If Yes is selected, all changes will be saved prior to the clearing out of all the data fields. If No is selected, any changes will be lost. If No is selected, none of the Photo Images are deleted.

Loading Photo Images

PhotoStation Manager features a flexible and powerful method of importing Photo Images you take of the Subject (person, place, or object) you are interested in documenting, collected at one or more times (Dates). The Load workflow interface handles Photo Image imports in such a way as to quickly allow an operator to process large numbers of Photo Images in one simple operation. The workflow will easily and speedily add new Record and Date Entries and record the Photo Images properly, in an automated procedure.

Basic Principles

Photo images can originate in several different ways. They can be taken with cameras or captured from other instruments. They can be in the form of "digital film" such as SD cards, or be copied from a camera using a sync cable. There are several basic principles that guide this.

- A Sequence of photos taken of a Subject starting at a new point in time will start with a photograph of the Slate sheet, which will indicate the Subject's unique ID and name for your filing system.

- This Sequence will be placed in a folder that is visible to the computer running PhotoStation Manager. This includes a location on your office LAN in a shared folder, or a location "in the cloud" accessible via the Internet. Even if you use SD (or some other type of) cards removed from your camera – when inserted into a card reader (an inexpensive accessory that is often included with modern PCs), they appear as a folder containing the images.

- There may be multiple Sequences representing multiple Records captured during multiple Dates, all being imported at the same time, but the images are named in a way that keeps them in the order taken. This is a standard feature of virtually all digital cameras; however, if you use more than one camera to photograph Subjects, we strongly recommend you import the photos from only one camera or source at a time, to guarantee this order is maintained.

What you are going to do is place the image Sequences in a folder, then use the Load procedure in PhotoStation Manager to import them rapidly and efficiently.

Two Ways to Import

PhotoStation Manager supports two main workflows for importing Photo Images into the system:

- When working with a single loaded Record.
- When not working with a specific Record.

You know you are working with a loaded Record when the Documentation Panel has the ID and Name fields filled out, and when the Button Bar Panel, History List Panel, and Photo Image Display Panel are displayed below. If you are thus working with a Record, and press the *Load* (single) button, PhotoStation Manager will assume you want to import photos *into this Record*.

If you are not working with a Record – no ID or Name is displayed and the Button Bar Panel, History List Panel, and Photo Image Display Panel are not present, press the Load (multiple) button ![Load] . The PhotoStation Manager assumes you want to do a bulk import of photos into one or more ![Load] Records. You will be asked for each Sequence of photos you identify, associating loaded Photo Images by either entering the ID and / or Name of an existing Record that you search for, or by entering ID and Name date to add a New Record to the PhotoStation Manager Record Collection.

How Setup Affects Import

There are two options in the Setup dialog under the Storage tab that affect the import procedure. (To get there, press the *Setup* button and then click on the *Storage* tab in the Setup dialog box.)
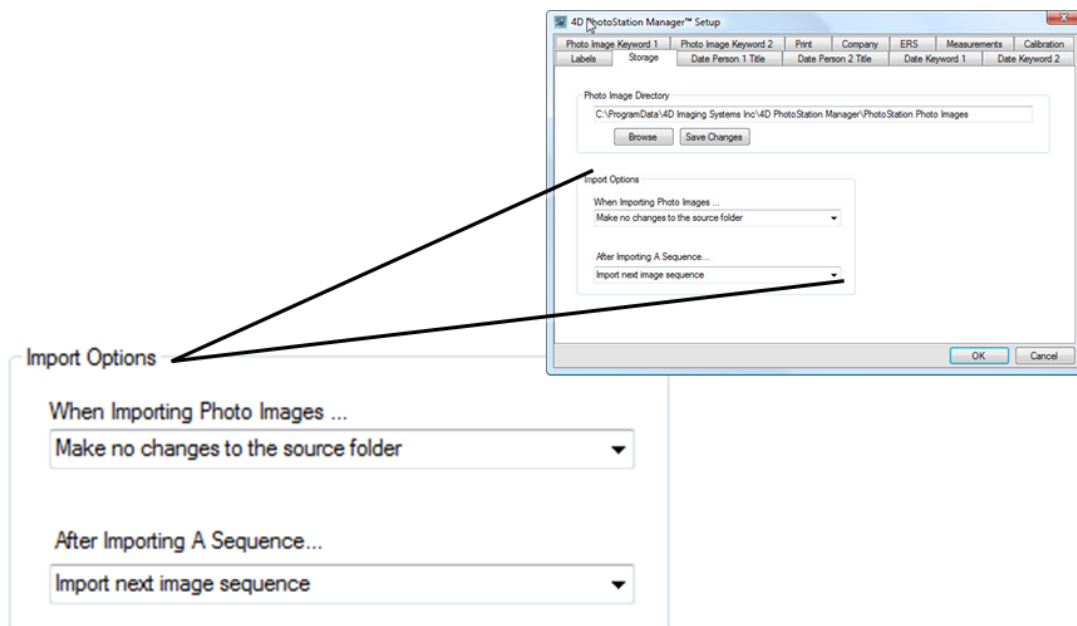
Figure 45 - Setup Dialog Import Options Detail

When Importing Photo Images…

- Make no changes in the source photo – will keep the original copy of the images being imported untouched. Select this option if you are importing from the original location of the Photo Images.

- Delete copied images from source folder – will permanently and irretrievably delete each successfully imported Photo Image from the folder from which you are importing. Select this option if you copy photos from the camera or storage card to a temporary location on your computer for the sole purpose of importing.

When Importing A Sequence…

- Import next image Sequence – when you indicate the start of a Sequence during import (by clicking on the "Check if Sequence start image"), and then you press the "XXXX" button, the Sequences will be imported without further interaction.

- Edit Record before importing next photo Sequence – will take you to the main application screen after each Sequence is identified, permitting you to fill in additional Record, Date, and Photo Image details before importing the next Sequence (which happens when you press the *Record Done* button).

In either case, if you were viewing a Record before pressing Load, then the images will be imported into, and Photo Image Collection Date Entries created (if necessary), for the current Subject Record. However, if you were *not* viewing any Record – that is, if you had exited from any Record by pressing *Record Done* before pressing *Load* – then you will be asked for each Sequence to enter the ID code, first, and last name of the intended Record – which you can read from the Slate image that should be the first image of any Sequence.

Acceptable Files

PhotoStation Manager is designed to be compatible with virtually all JPEG files (whose full filename ends in ".JPG"). While in the past, there were compatibility issues with photos from certain sources, today it is virtually certain than any JPEG photos will be fully compatible. Also, virtually every camera and other picture source today either automatically creates JPEGs as a standard format for saving photos, or can be configured to do so. We recommend you use this format.

JPEG is a compressed form of a file format called TIFF. There are many other formats, such as BMP, GIF, and PNG. The PhotoStation Manager allows you to Import or Load in addition to JPEG, TIFF and BMP files. For these files, there is an extremely wide range of possible formats, some of which may be incompatible with the PhotoStation Manager. In those cases, Windows itself comes with a program called Paint which, in Windows 7, can read all of these formats, permitting you to re-save them as JPEG. If you have an unusual photo source, that generates many photos in a format other than JPEG, then there are many inexpensive photo organization programs that can be set to automatically convert a large batch of photos to JPEG.

Sources of Photos

Usually, a photo will come from a camera. When you have photographed many Subjects (person, place, or object) with a camera, you have several choices:

- Use a sync cable provided with the camera, which usually attaches to a USB port on the computer, to transfer all the photos to a folder on your PC. You will import the photos from that folder.

- Use the sync cable – but, for some cameras, when the cable is attached, they will appear as a folder on your computer. Import the photos directly from the camera.

- Remove the memory card from the camera, and insert into the reader attached to your PC, and just import the pictures from the memory card, which will appear as a folder on your PC.

- Inset the memory card into your PC's reader, but then copy the photos from there to a folder on your PC. Import from that folder.

- Somewhere else, move the photos to a CD/DVD, a flash drive, or a shared location on your office LAN or on the Internet. Import from the CD/DVD drive or from the shared network location.

Interestingly, the PC will often detect you have inserted a memory card or attached a camera sync cable, and offer to copy the photos to a standard place on your PC, such as My Pictures (or just Pictures). If it doesn't, a simple Windows drag-and-drop or copy/paste operation can easily move the images to a folder of your choice – and just about any folder will do.

Why copy to a folder on your PC and import from the folder? For some cameras and memory cards, because of the nature of their hardware, PhotoStation Manager will operate much slower in importing directly from the camera or from the memory card. But, if you import from a folder, then PhotoStation Manager will operate much more quickly.

In any case, you will need to know the exact name/location of the folder, whether it is a folder on your hard drive, a shared folder on your LAN, or the memory card or camera pretending it's a folder on your computer.

Configuring Your Import Procedure

As described previously, you can use Setup in PhotoStation Manager to tweak your import procedure for fastest and most convenient use, by using the Storage tab. You need to make two decisions:

1. Are you going to place the photos to be imported into a folder for the sole purpose of importing them? Then, you will probably want to have them deleted from that folder upon successful import. Alternately, you may be importing them from their source (such as a memory card) that you want to preserve as a back-up record. In that case, you will probably want to leave the original photos untouched.

2. As you import each Sequence of photos, representing one group of Photo Images taken on a given date of a single Subject, are you going to immediately input the documentation for that Sequence? If so, you will want to go to the main PhotoStation Manager screen, so that you can enter data into the Documentation Panel for that Subject's Photo Image Sequence immediately. Or, do you prefer to just import the next Sequences of photos for the other Subject's as quickly as possible? In that case, you will want to continue to import Sequences in the Load procedure until all of them are completed.

In either case, when you are importing a Sequence and specify the Subject's unique ID code and Name, then a new Record and/or a new Date Entry will be automatically created for each Photo Image Sequence, without you having to take any further steps.

Step-by-Step Procedure: Press *Load* While Viewing Record

In this procedure, you will be importing one Sequence of consecutive photos, representing one Date Entry for the current Record. The following illustrates the general workflow associated with loading Photo Images while viewing a Record.

1. Shoot a Single Subject   **2. Search for Record by ID and / or Name to Load the subject Record**   **3. Select Load Single to import Photo Images into Record**   **4. Annotate Single Record, Create Reports, etc.**
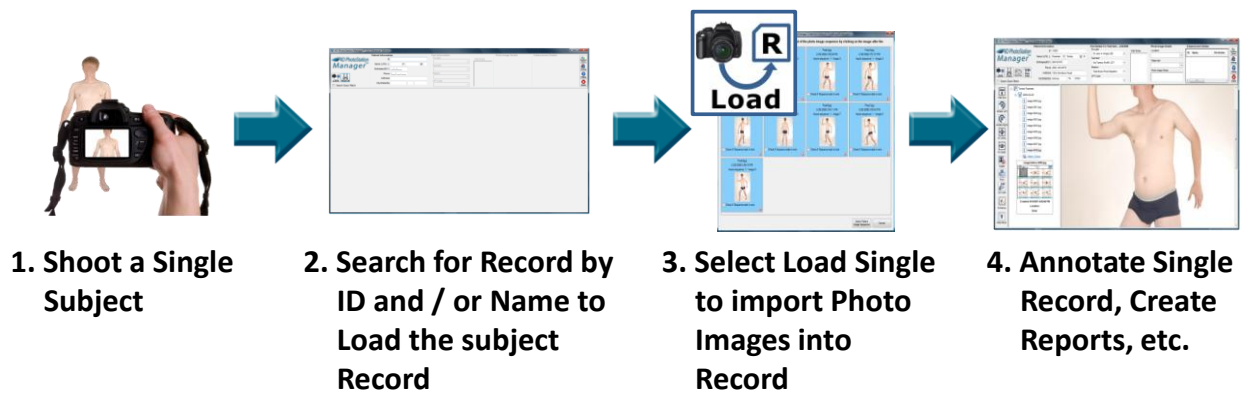
Figure 46 - Loading While Viewing A Record

The specific steps you will use include the following:

1. Shoot Photo Images of the Subject

2. Start the PhotoStation Manager and Search for the Subject's Record by entering in the Record ID and / or Record Name.

3. Press the *Load (single)* button .

4. You will see a dialog appear called *Browse For Folder*. It shows every folder you can access on your computer. The folder you used last time will already be highlighted; to select it again, just press the *OK* button.

5. If you double-click on a name (or just click once on the > to the left of the name), you will see the contents of that item, and can select from those contents – or further expand them – in a process called *drilling down*. Note that under Network are all other computers with shared folders on your office network, and under Computer are all drives, including removable, memory card, and CD/DVD drives.

6. If you have not yet selected the correct folder: drill down until you find the folder (or device that looks like a folder) where your Photo Images are sitting, waiting to be imported. Click on that folder so that it is highlighted, then press *OK*.

7. Wait while PhotoStation Manager examines the photos – a progress window will replace the Browse For Folder window. When all of the Photo Images have been examined, this will be replaced by the Importing Photo Images window.

8. To examine any Photo Image in this window, simply click on it once to show it full-sized. When you have finished looking at this large view, click on the red X in the upper-right of its window to return to the Importing window.

9. Starting at the beginning, look for the first photo in a consecutive Sequence from this Subject's Photo Image Collection. That should be a photo of a Slate sheet. Click on the line that says "Check if Sequence start image". Note that the color of this image will change, along with every image after it – they will all turn blue.

10. Continue to look at the image after that, in order, for the start of the next Sequence – that is, the next Slate sheet – and click on the "Check…" line. This photo, and all the following, will turn gray again. Note that the blue images are the Sequence you have selected.

11. Are there any photos inside the Sequence by accident that have nothing to do with your Subjects? Click on the red X in the lower-right corner. You will be asked to verify that you want to remove this Photo Image. Click on OK to remove, Cancel to keep the image in Sequence.

Now, if you pressed Load while you were viewing a Record, you are done: you have completed selecting the Sequence that will be imported for this Record, which may result in a new Date Entry being automatically created. Press the *Select Record Sequence* at bottom right to complete the import process, or press the *Cancel* button to exit from this process and take no action. In either case, you will return to viewing the Record, and can continue normally.

If you had more than one Sequence of photos for this Subject, perhaps representing more than one Date Entry, then you can press the *Load* button again and repeat this procedure, but instead mark the next Sequence to import.

Step-by-Step Procedure: Press *Load* While Not Viewing A Record

The procedure for when you are *not* viewing a Record is identical to Step 1 through Step 6 above. What you are doing is importing perhaps many Sequences, perhaps for many Subject, and perhaps for multiple Date Entries.

The following Figure illustrates the steps for Loading While Not Viewing a Record.
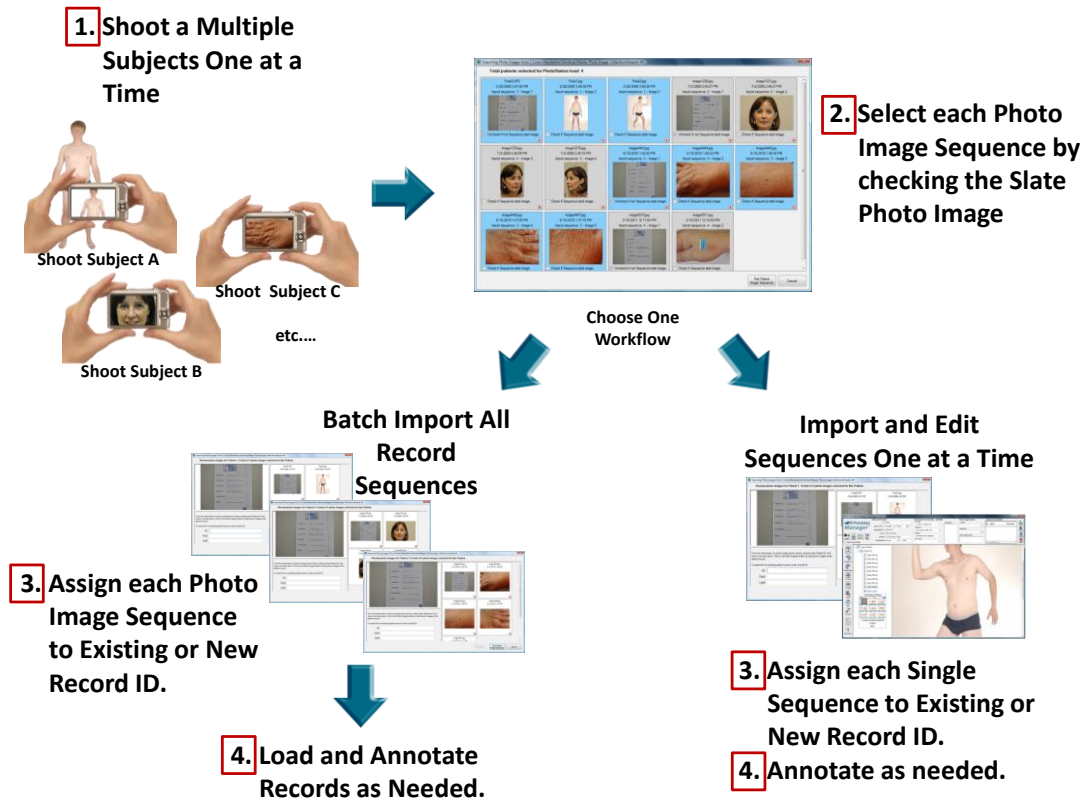
Figure 47 - Loading While Not Viewing A Record

Here are the additional steps:

7. Starting with the first photo, and moving to the left line by line (like reading a page), examine the photos, looking for the first image that begins a Sequence of Subject Photos Images collected on a certain Date. This Sequence of consecutive photos should begin with a photo of a Slate sheet, and usually it should be the first photo you see at the upper-left of the window.

8. Click on the line that says "Check if Sequence start image". Note that the color of this image will change, along with every image after it, all turning blue.

9. Examining the photos in order, look for the first image in the *next* Sequence. Click on the line that says "Check if Sequence start image". Note that the color of this image will change, along with every image after it, all turning back to white.

12. Repeat step 9 for every Sequence start in the photos being imported. In each case, the contiguous Sequence you have marked will be the same color – all blue or all gray – alternating, so that you can easily distinguish each Sequence.

13. Are there any photos anywhere in the window that, by accident, have nothing to do with your Subject, including before the first Sequence, after the last, or in the middle of a Sequence? Click on the red X in the lower-right corner of the image box. You will be asked to verify that you want to remove this Photo Image. Click on OK to remove, Cancel to keep the image in Sequence.

14. If you have checked a starting photo incorrectly, no problem. Just click on the "Uncheck if not Sequence start image". In fact, you can repeat Step 7 through here as much as you want, until you can see that each Sequence has been marked, and there are no extraneous pictures included.

15. Press the *First Photo Image Sequence* button at bottom left of the window. If you don't want to import anything, you can alternately press the *Cancel* button to return you to the main screen without taking any action.

16. Click the *First Photo Image Sequence* button. The screen will change to show just the photos of the first Sequence you marked, with the first photo (presumably of the Slate) enlarged.

17. You may further enlarge any of the small photos (if you need to) by double-clicking on one; a large view of that photo will appear in a window. When you are finished viewing it, simply click the red X at the top-left of that window. You may also remove any photo that does not belong in this Sequence by clicking on the red X in the lower-right of the small image's box

18. Carefully enter the Record ID code (which should be written on the Slate) into the ID field. If this is a new Record, you must also enter the Record Name(s), also being careful to do so correctly. If this *is* a new Record, you will be asked to verify that you want to create a new Record. (Why be so careful? For a new Record, you may only change the Record ID by using the Record Collection Update Tools.)

19. At any time you want to stop the process, you can press the *Cancel* button at lower-right to end the import and return to the main screen. If you want to skip *just this* Sequence and *not* add it to the Record, but continue the process, press the *Next Photo Image Sequence* button. In either case, this particular photo Sequence will *not* be imported.

20. Press the *Add Images To Record* at the lower-right to import these photos as indicated.

21. The photos will be loaded, perhaps creating a new Record and/or a new Photo Image Collection Date Entry.

22. If, in Setup, you had indicated "After Importing A Sequence…Input next image Sequence", then you are done, continue with step 20. But, if you had indicated "After Importing A Sequence…Edit Record before editing next image Sequence": then at this time you will be taken to the main screen with this Record loaded, showing the Date Entry and images just imported. You may work with this Record (perhaps, documenting the Subject more fully) as much as you wish. When you are finished doing this, press *Record Done*. This will return you to the import procedure.

23. Now you will be shown a screen with the *next* Photo Image Sequence from your original selections. Repeat step 14 through step 18 for the second Sequence, and again for each Sequence you originally marked.

24. When you are entering the ID for the last Sequence you marked, you will see that your only choice is *Add Images To Record* or *Cancel* (don't add). Whichever you select, you have completed the import; you are now returned to the main screen.

This set of steps sounds imposing. But, after doing it a few times, we hope you will find it to be simple and fast to perform.

PhotoStation Manager Detail Feature Overview

The PhotoStation Manager provides you with a broad range of editing, measuring, and reporting functionality, depending on the Edition and Version you are using. With the PhotoStation Manager you can:

- Create various Report Outputs

- Add text and graphical notes on Photo Images

- Measure features within Photo Image

The following sections of this User's Manual detail how to perform these and other operations on selected Records within your Collection.

This section introduces certain key concepts common to various operations. In particular, when your cursor is within either the History List Panel, the Photo Image Display Panel, or the Date Entry Preview Panel, when you press the Right Mouse Button, a Context Menu will appear listing operations that you can perform. The selections shown in the Context Menu will vary according to what you are doing, whether or not you have a size ruler you in the Photo Image, and whether or not you have Enhancement objects (text notes or graphics) on a particular Photo Image. In the following, the Context Menu is displayed when the right mouse button is clicked when hovering over a Photo Image in the History List Panel.
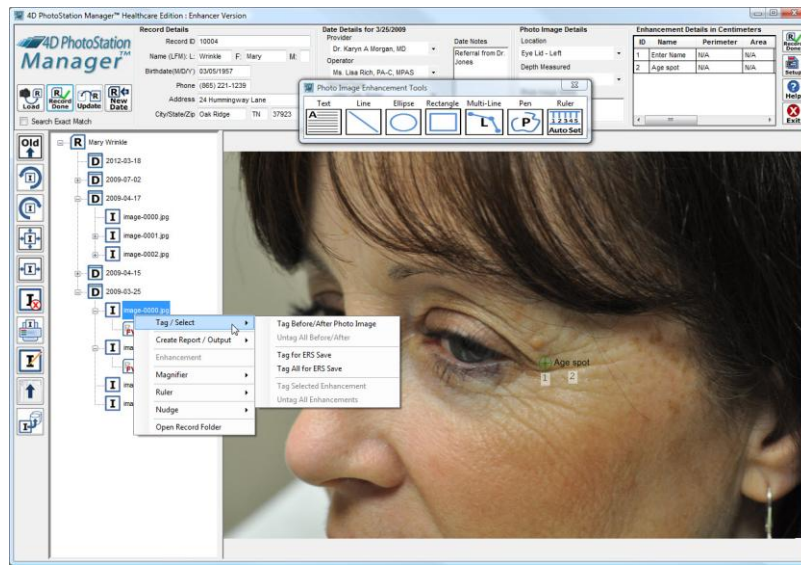
Figure 48 – Context Menus From The History List Panel

In the following, the Context Menu is displayed when the right mouse button is clicked when hovering over a Photo Image in the Photo Image Display Panel.
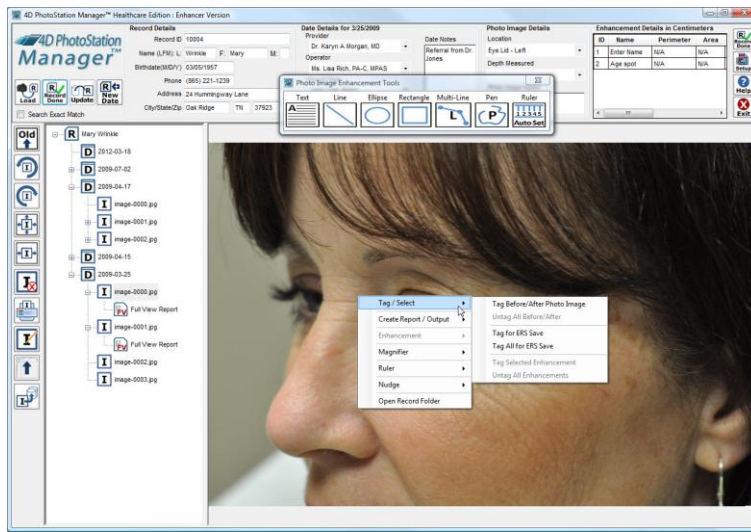
Figure 49 – Context Menus From The Photo Image Display Panel

Let's now look at the features listed in the Context Menu. The Context Menu includes features for selected Photo Images for reports, creating reports, drawing and changing Enhancement notes and graphics, controlling the magnifier, controlling and setting the measurement ruler, nudging the ruler or selected Enhancement, and opening the currently selected Record's folder in the file system.

Tag/Select ▶	Select a Photo Image or an Enhancement for a report
Create Report ▶	Generate a Report based on selected Photo Images or Enhancements
Enhancement	Change the appearance of Enhancements, set the default color and pen size for new Enhancements
Magnifier ▶	Control the Magnifier tool zoom level and on/off status
Ruler ▶	See the size of the ruler in the current Photo Image, manually or automatically set the ruler in the Photo Image
Nudge ▶	Nudge either the selected Enhancement or Magnifier
Open Record Folder	Open a Windows® Explorer window to show the Photo Image files, Reports, and Output Photo Image currently loaded Record.

Figure 50 - Context Menu Option

Creating Reports and Output Photo Images

Introduction

There are a number of Reports that can be created from Photo Images. When you create a Report, the Record Details, Date Details, and Photo Image Detail fields are reproduced into the report in a header you can customize with your firm's logo and contact details.

Once the report is created, it is recorded in the Record, and will not be affected by any subsequent changes to these fields. So, if you want two identical reports with different notes (for instance), you enter notes the way you want them to appear in the first report, create the report output, *then* change the notes to how you want them to appear in the second report, and create the same report type again: this output will show the changed version of the notes.

All Reports are created as JPEG files. They become part of your Photo Image Record Collection, and can be handled, communicated, backed up, and managed just as you would any Photo Image in your Collection.

Output Photo Images are copies of a selected Photo Image, modified to include additional Enhancement details or transformed and corrected to reduced or eliminate optical distortions that may affect measurement accuracy. Output Photo Images, like Reports, are JPEG files and thus handled as you wound any other JPEG file in your PhotoStation Manager Collection. The Output Photo Image with Enhancements is like a Report, without any header, but containing any Enhancement graphic or text notes added. The Output Photo Image with Corrections is like a Photo Image. It can have Enhancements added to it, and addition Reports can be created using it.

Report Types

Let's again refer to all the different types of reports you can create:

- Full View – a basic report showing a single Photo Image, without showing any Enhancements
- Full View With Enhancements – adds the Enhancements to the image
- Zoom Detail – a report with the original image, and a second image that shows the current contents of the Magnifier window
- Zoom Detail With Enhancements – adds the Enhancements to the image
- Before and After – requires you tag Photo Images (perhaps from different Collection Dates), up to three at a time; the report shows up to three images side-by-side. The Before and After Reports Report selection is available only if you select / tag two or three photos images as Before and After. These photos may be in the same or in different Dates.
- Before and After With Enhancements – Works the same as standard Before and After Reports, but adds the Enhancements and details to the image(s).

- Enhancement Change – requires you to tag an Enhancement in two different Photo Images to create a report detailing the change in measurement of the Enhancement. The Enhancement Change Report selection is available only if you select / tag an Enhancement shape in two separate Photo Images. These Photo Images may be in the same or in different Dates.

- Photo Image Gallery – a report showing *all* the Photo Images for the current Date Entry(even if you select a single image for the Date), where the images are shrunk to fit one sheet of paper.

Output Photo Image Types

Photo Image With Enhancements

Creating an Output Photo Image with Enhancements creates a duplicate Photo Image in JPEG format with all Enhancements permanently added to the actual image data

The Photo Image with Enhancements report, although located underneath the Photo Image it was made from, is identified as a Photo Image; it may be used as one of the photos for any of the other reports.

Photo Image With Corrections

Creating an Output Photo Image with Corrections creates a duplicate Photo Image in JPEG format with the selected calibration spec permanently applied to the actual image data. In order to have the option of creating a Photo Image with Corrections, you must calibrate your camera to a specific lens focal length setting. If you have one or more calibrated camera configurations, you will be able to select which type of corrected output you desire from the Context Menu.
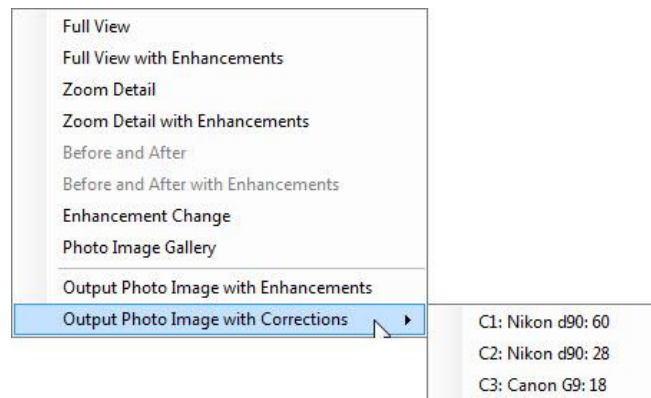
Figure 51 - Output Photo Image With Corrections Submenu

Tagging

You can tag Photo Images (and sometimes Date Entries) for the following:

- Before and After Reports
- Enhancement Change Reports

- ERS Auto Upload

You can use the Right Mouse Button to display the Context Menu for tagging from the History List Panel, the Photo Image Display Panel, or the Date Entry Preview Panel. The following menu is used for all tagging operations:
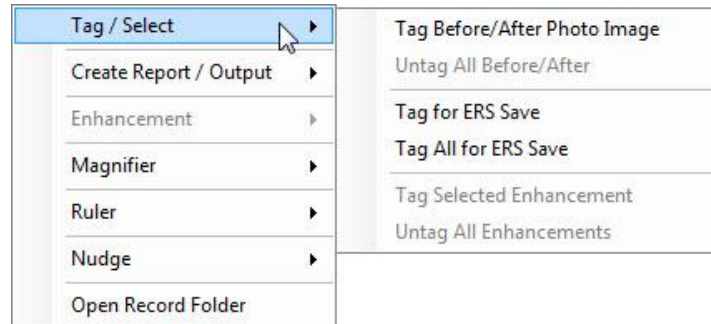
Figure 52 – Tag / Select Submenu

The options displayed are based on whether or not you have any Photo Images tagged for Before and After Reports, or for ERS Save, or if there is a selected Enhancement on the Photo Image. The options displayed with also vary based on if you opened the Context Menu from the History Display Panel, the Photo Image Display Panel, or the Date Entry Preview Panel. For example, from the Date Entry Display Panel, you will never be able to select Tag Selected Enhancement since no Enhancements are being display.

Once you open up the *Context Menu*, Left-click on the "Tag / Select" sub-menu entry selection to tag that image. Please note the change to the image icon and if using the Date Entry Preview, the changes to the preview.

To create a before-and-after report, you may *tag* either two or three photos. Whether two or three Photo Images are tagged, they are displayed in order from oldest to newest in the Report.

You may un-tag the image by the same procedure. Assuming the image currently selected in the is already tagged, you will see an entry to "Untag Before/After Photo Image". If you have tagged two Before/After photos already, you will also have the choice to "Untag All Before/After Photo Images".

If you make a mistake, you can always untag and retag as you wish.

When exactly two images are tagged, you are then permitted to create a Before/After report output.

Creating a Report

It is simple to create a Report. Click the right mouse button to open the Context Menu. Depending on where the mouse is located when you open the Context Menu from within (History List Panel, Photo Image Display Panel, or Date Entry Preview Panel), and depending on the state of the selected Photo Image or Tagged Photo Images, you will be presented with the possible Report / Output options available. Left-click on the Report or Output option you want to create. It will be generated, and added to the History List Panel under the Photo Image that is selected. (For Before and After or Photo Image Gallery, it is added after the *last* image used to create it. The PhotoStation Manager will automatically display the newly created Report or Output Photo Image in the Photo Image Display Panel.

Inside the Photo Image Display Panel, you can use the Magnifier, zoom in or out of the Report, or Tag the Report. You cannot add Enhancements to a Report. Additionally, you can print the report or delete it (if you don't want it anymore).

The report is filled with appropriate information from the Record Details, Date Details, and Photo Image Details as seen in the Documentation Panel – as well as information you entered in Setup under the Company tab. This information is included as it appears when you created the report. If you change any of the information at a later time, it will *not* change the report you already created; if the change needs to be in the report, you will have to create a new report. You can choose to print the image either with or without the Enhancements, by pressing the Enhance button.

When you can also choose to create an Output Photo Images with Enhancements, the current state of the Enhancements will become a permanent part of the Output. If you change the Enhancements you can re-run create additional Output Photo Images with Enhancements for each change. This is useful if you need to send the Photo Image to a peer-level practitioner, customer, or other service provide, for example, including notes placed in the Photo Image. The full resolution and detail of the source Photo Image is carried forward in the Photo Image with Enhancements, enabling the recipient of the Photo Image to digitally view all the visual details.

Report Types
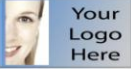
Several standard Report Output templates are provided with the Essentials and Enhancer level software. Each of these is shown below with a description of how they are created.

Full View Report

Full View Reports include the complete Photo Image along with any notes and keyword information entered about the photo. If there are Enhancements on the Photo Image, you will have the choice of creating a full view report with or without Enhancement details.

Figure 53 - Full View Report

Figure 54 - Full View With Enhancements

Zoom Detail Report

Zoom Detail Reports include a zoomed in view of a selected feature along with the complete Photo Image showing the location of the zoomed in detail. Also included are any notes and keyword information entered about the photo. If there are Enhancements on the Photo Image, you will have the choice of creating a Zoom Detail Report with or without Enhancement details.

There are two ways to select a feature for the zoomed in detail. In the first, you can use the magnifier to view a feature in the photo. You can increase or decrease the magnification level using the + or – keys or the Context Menu. In this case, the Zoom Detail Report will include the area under the magnifier.
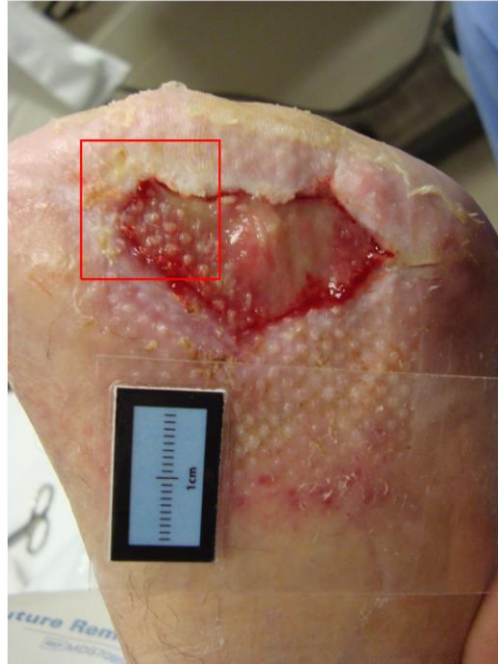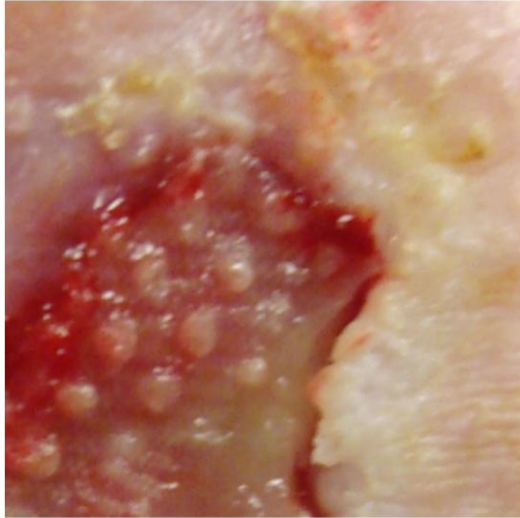
Figure 55 - Zoom Detail With Based On Magnifier

In the second case, you can select an Enhancement on the Photo Image as the basis for zoom detail. In this case, the selected Enhancement area will be shown on the side of the report.

Figure 56 - Zoom Detail With Enhancement Selected

Before and After Report

Creating a Before and After Report is a great way for you to show changes over time. The PhotoStation Manager supports creating Before and After Reports with either two or three Photo Images. Use the Tag Photo Image menu to select which Photo Images to include in the Report. If there are Enhancements on at least one of the Photo Images, you will have the choice of creating a Before and After Report with or without Enhancement details.

Figure 57 - 3 Shot Before and After With Enhancements

Enhancement Change Report

An Enhancement Change Report is similar to a two shot Before and After Report that allows you to show changes over time of a selected feature shown in two Photo Images. Use the Tag Photo Image menu to select which Photo Images Enhancements to include in the Report. The report will include the measurements the selected feature at the two different times the Photo Images were captured. Additionally, the unit and percentage change in the measurements of the selected feature are included in the report.

Figure 58 - Enhancement Change Report

Photo Image Gallery

A Photo Image Gallery Report displays all the Photo Images in a single Date Entry on a single paged report. This is a great way to document conditions before, during, and after a procedure.

Figure 59 - Gallery Report

Adding Details

Enhancer Version Only

One of the outstanding reasons to use the Enhancer Version of PhotoStation Manager is its ability to annotate images, *without affecting the original image at all*. We call these annotations "Enhancements". When you create annotations on a Photo Image (which we call *Enhancements*), they are not a permanent part of the Photo Image, but are instead save and managed as separate data contained in the Record XML file.

To add an Enhancement to any image, select the image by clicking on its icon or file name in the History List Panel, then in the Button Bar Panel, press the *Enhance button* . 　　![I]

After you have added an Enhancement to a Photo Image, the Enhance button will automatically be "pressed" every time you select the Photo Image in the future.

When you press the Enhance button, you will see this toolbar, titled "Photo Image Enhancement Tools".
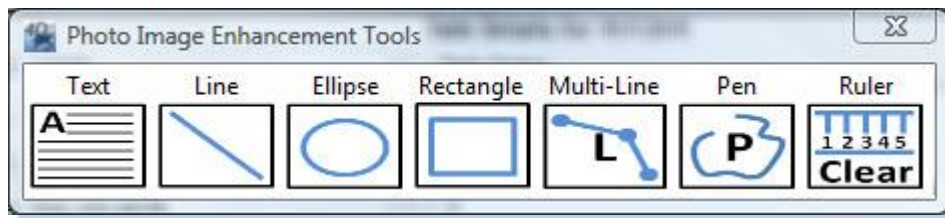

Figure 60 - Photo Enhancement Tools Popup Menu

You may move this toolbar anywhere you want on the screen by using the left mouse button and dragging the title bar of the toolbar. To hide all the Enhancements in an image – and the toolbar, too – just press the Enhance button again. Want to see everything again? Just re-select the image, or press Enhance one more time.

Enhancement Tools Overview

Icon	Description	Measure-ments	Perimeter	Area
	Text Tool. Click anywhere on the Photo Image to enter a text Enhancement notation at that mouse location.	N/A	N/A	N/A
	Line Tool. Draw a line from one point to another.	Yes	Yes	No
	Line Tool. Draw an ellipse / circle from one point to another.	Yes	Yes	Yes
	Rectangle Tool. Draw a rectangle / square from one point to another.	Yes	Yes	Yes
	Multi-Line Tool. Draw a line from one point to another, then click on new point to add a segment. Repeat as needed..	Yes	Yes	Yes
	Pen Tool. Draw a series of curved lines tracing the path of the mouse.	Yes	Yes	Yes
	Automatically detect the ruler located at the point where the mouse left button is clicked.	N/A	N/A	N/A
	Clear the currently recognized ruler from the Photo Image.	N/A	N/A	N/A

Table 11 - Enhancement Tools Overview

Understanding Enhancements

The following illustrates the various aspects of an Enhancement when it has been selected by clicking the left mouse button while hovered over it.
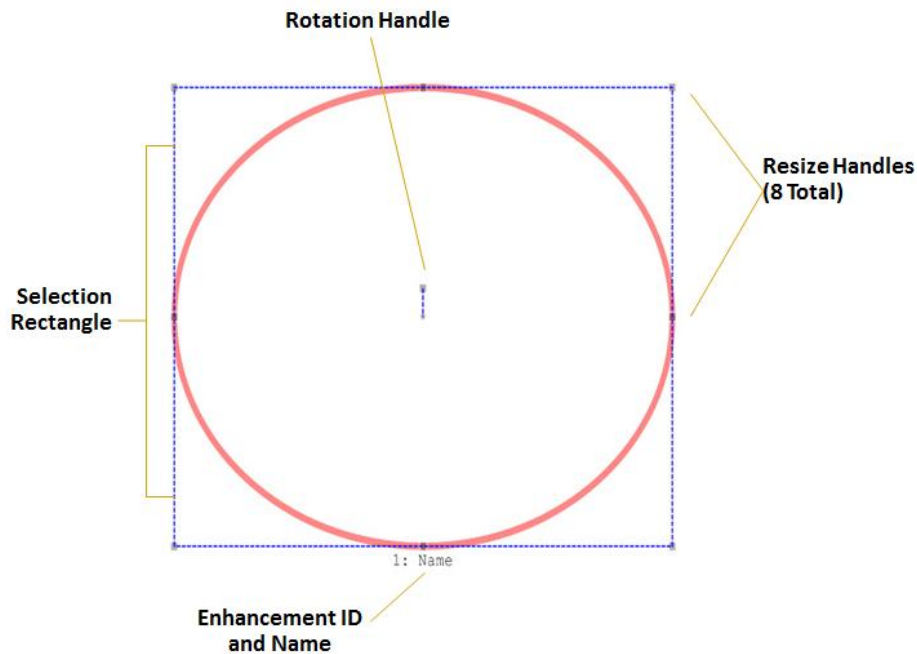
Figure 61 - Parts Of A Selected Enhancement

Enhancement ID and Name

Every Enhancement object will have a unique ID number and a Name. Enhancements are numbered starting at 1, increasing for however many Enhancements are drawn on a Photo Image.

The Enhancement Name corresponds to the user entered Name typed into the Enhancement Details panel for this particular Enhancement.

Selection Rectangle

Each Enhancement lives inside a rectangle on the screen that exactly covers the outside of whatever you drew. We call this the Enhancement's "Selection Rectangle". When an individual Enhancement is selected, its rectangle becomes visible and changes colors, and the "endpoints" of the Enhancement will have little boxes around them. To select a particular Enhancement, just click anywhere inside its "Selection Rectangle". You may freely move an Enhancement around on the screen, if it is selected: just use the left mouse button anywhere inside the rectangle and drag it around. To delete it entirely, if it is selected: press the Delete key. Click anywhere outside the rectangle to de-select it.

Resize Handles

When the mouse hovers over one of the corners, the Resize Handle becomes active. The cursor changes to indicate you can now resize the Enhancement using the mouse. The following illustrates the cursor change when either you select to size from the upper right corner, or from the right edge. Holding the mouse button down and moving the mouse will resize the Enhancement. You can see how much the Enhancement is being resized as you move the mouse. Also, if the Enhancement has a Size, the Measurement values in the Enhancement Details Panel are updated with the movement of the mouse.
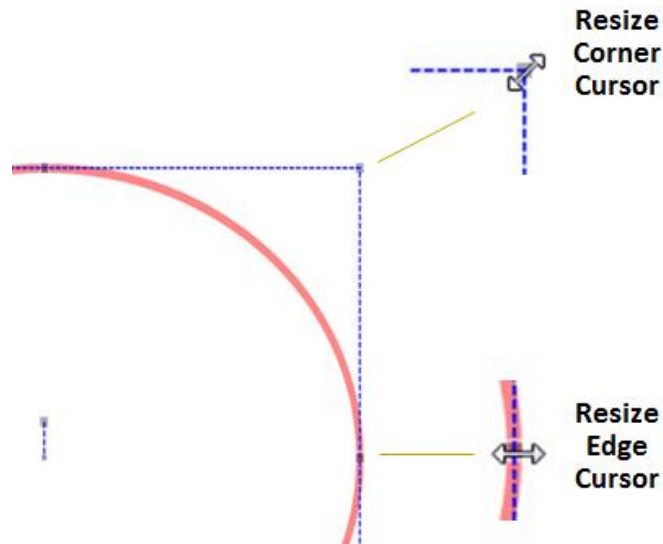
Figure 62 - Enhancement Resize Cursors

Rotate Handle

You can rotate any Enhancement by selecting the Rotate Handle. . The following illustrates the cursor change when you hover the mouse over the Rotate Handle. Holding the mouse button down and moving the mouse will rotate the Enhancement. You can see how much the Enhancement is being rotated as you move the mouse.
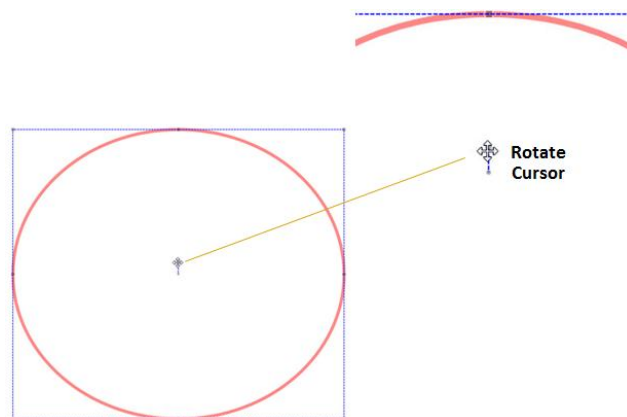

Figure 63 – Rotate Enhancement Cursors

Creating and Editing Enhancements

To add an annotation – an Enhancement – to the image currently selected, you follow this general procedure:

1. Click on the Enhancement icon you want to add, on the toolbar.

2. With your very next use of the left mouse button, draw the Enhancement.

3. If you clicked the mouse anywhere before drawing the Enhancement, you must repeat these steps.

4. The Enhancement is created, selected, and has a rectangle indicating its outside. Now, you can edit the Enhancement.

For example, in the following figure, two Enhancements have been drawn on a Photo Image. The first Enhancement, titled Cut is not selected. The second Enhancement, title Burn Wound is selected showing a blue dashed rectangular box around the object and Handles for resizing and repositioning.
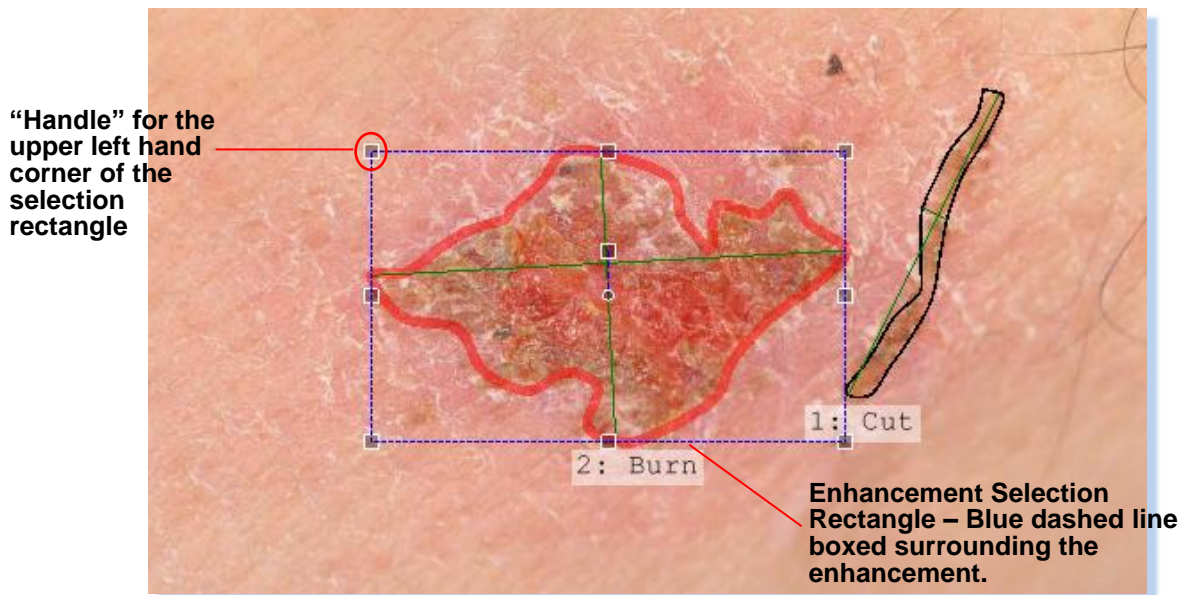

"Handle" for the upper left hand corner of the selection rectangle

Enhancement Selection Rectangle – Blue dashed line boxed surrounding the enhancement.

Figure 64 - Selection Rectangle Handles

The selection rectangle includes the 8 separate Resize Handles that can be used to resize the object. These are at the four corners, and in the center of the four edges of the selection rectangle. Moving the mouse to any one of the eight handles will allow you to resize the Enhancement object.

Editing Enhancements With Many Points

To make it easier to edit Enhancements with many points (Pen and Multi-Line Tools), you can hit the Shift-Key on your keyboard to hid the selection rectangle.
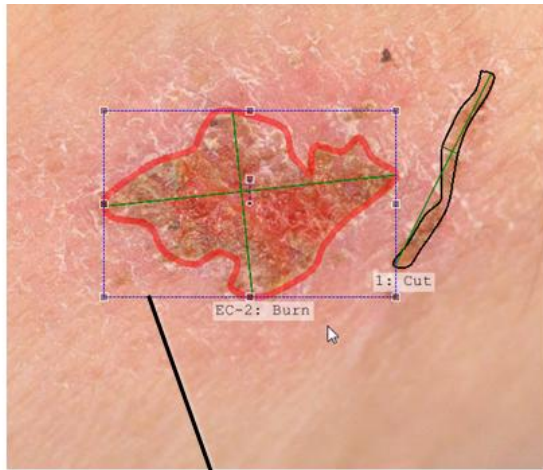
Figure 65 - Editing Individual Points in a Multi-Point or Pen Enhancement

This will make it very easy to select the individual points which can be moved and repositioned as needed.

Enhancement IDs

In the preceding figure, Enhancements numbered 2 and 3 are not selected. You can select a different Enhancement object by moving the mouse over the Enhancement object you want to select, and single clicking the left mouse button.

Each Enhancement is numbered, in the order in which you create them, starting with one (1). These numbers correspond to the list of Enhancements on the right side of the Documentation Panel.

To help you keep track of Enhancements, you can optionally name each one. In the Enhancement table in the Documentation Panel, note the column titled **Name**. Click in this column on the row for the Enhancement you wish to name, and type in a name. You can change this name anytime you wish.

Enhancement Context Menu

To pop up the Enhancement Context Menu, hover the mouse over the Enhancement and press the right-mouse button. Select the Enhancement submenu and the following items appear.
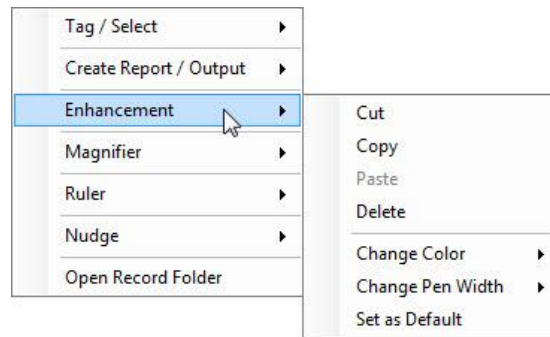
Figure 66 - Enhancement Context Menu

Enhancement Cut, Copy, Paste, and Delete

If you have an Enhancement drawn, you can Cut or Copy it and then Paste it into the same or a different Photo Image. Cut will make the copy and remove the original. Copy will make the copy and leave the original.

This is most useful when you have taken a Photo Image at one point in time and have selected and measured a feature you would like to compare over time. When you capture and import the Photo Image of the feature at a later time, you can then Paste the Enhancement outlining the feature from the earlier Photo Image into the newer Photo Image.

The Delete entry works like the Delete Key on the Keyboard. The selected Enhancement is permanently deleted.

Change Enhancement Pen Color

You can change the color of an Enhancement by selecting the Change Color submenu.
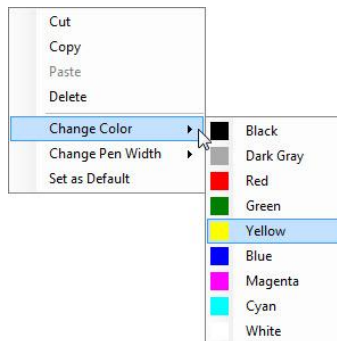

Figure 67 - Enhancement Change Color Context Menu

The current Enhancement color is highlighted. Move the selection to which ever other Color you wish to use.

Change Enhancement Pen Width

To change the pen width of an Enhancement, select the Change Pen Width submenu.
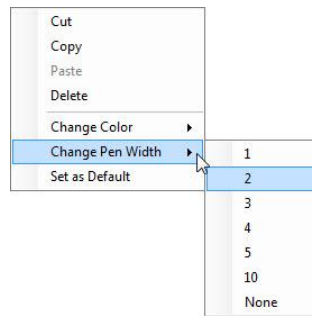
Figure 68 - Enhancement Change Pen Width Context Menu

As with Pen Color, the currently selected Width is highlighted. Move the selection to which ever other Pen Width you wish to use. If you select *None*, each line stroke will become invisible (for now); you can make it visible again by re-editing it and changing the pen width to anything else.

Set As Default

If you want to always use a certain Pen Color an Pen Width for new Enhancements you create, select the Set As Default menu entry. If the Enhancement is a TextBox, the Font Name, Size, Style, and Alignment are saved as well.

Enhancement Tools

Text

Text works a little differently. When you create a rectangle for Text after clicking Text on the toolbar, draw the rectangle to the approximate size you envision your text occupying. When you release the left mouse button after doing this, a text edit box appears.
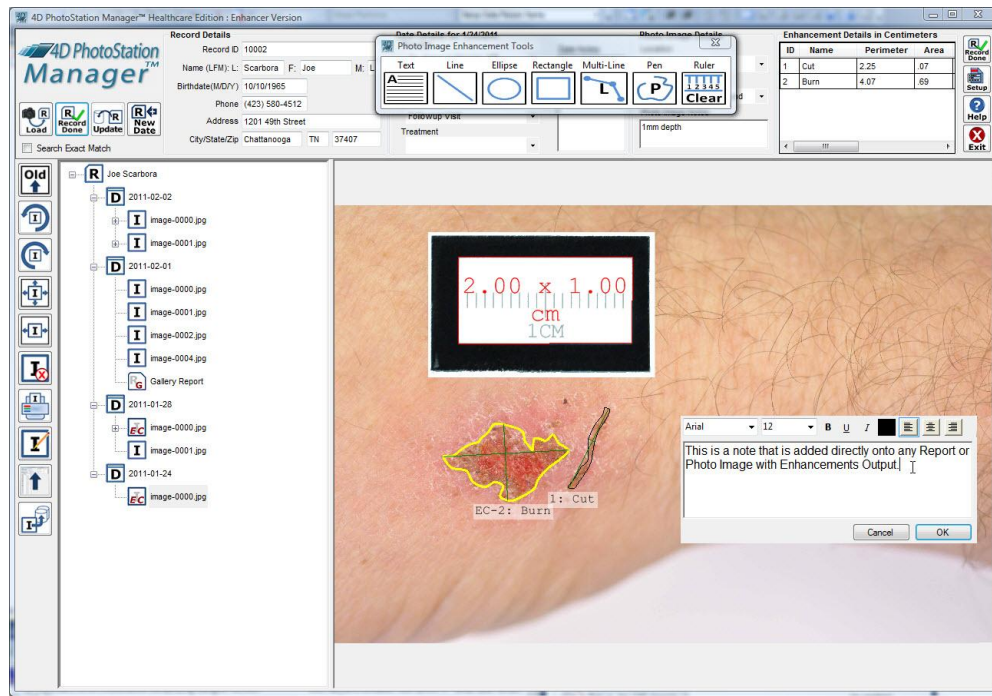
Figure 69 - Text Enhancment

In the large white area, enter the text you wish to see. Above it, select the following options:

- Font – the default is Arial (a proportionately spaced, sans serif, fixed width font that is easy to read).

- Font size, in points – the default is 12.

- Bold, Underline, and Italics – you may choose any combination by pressing the appropriate button (press again to remove it).

- Color – black is the default. If you double-click on the color box, you will bring up the standard Windows color tool that not only gives you many choices, but also lets you create any color Windows is capable of displaying.

- Justification – the default is right-justified, but you can select centered or left-justified by clicking on the appropriate button.

Once you click *OK*, the text will be placed according to your selections, and the rectangle surrounding the box will be resized to exactly fit. To later change any of these settings, including editing the text, just double-click on the text Enhancement to bring the text edit box again.

Line

To draw any line, after clicking on the Line icon on the toolbar, just drag from the start to the end, and the line will be drawn between the two points.
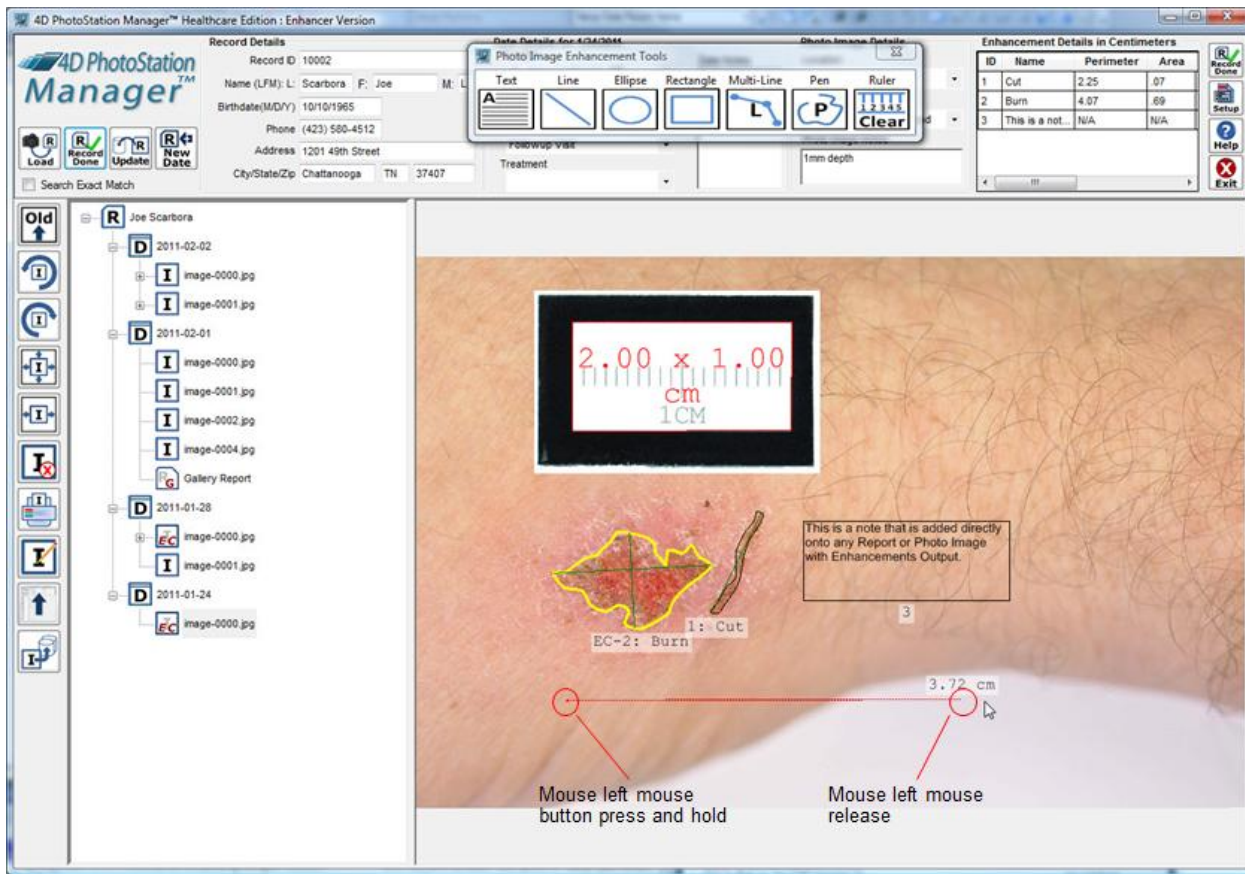
Figure 70 - Line Enhancement

Once the line is drawn, it will appear with two end points. Click on either point while holding down the left mouse button in order to move that point to a new location.
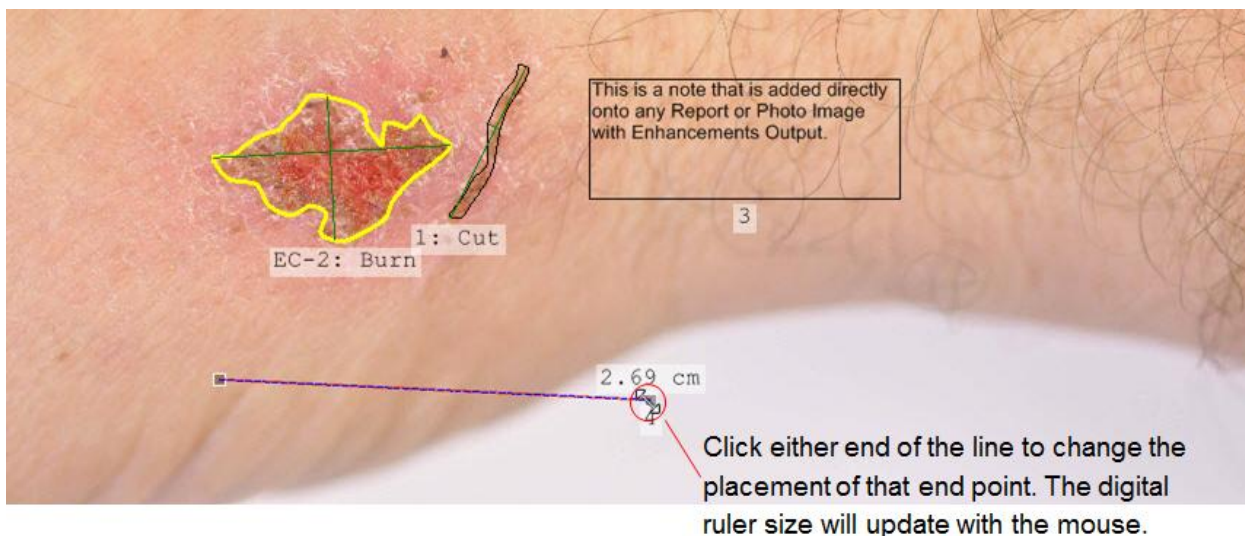

Figure 71 - Repositioning The Line Enhancment

You can redraw the line by selecting it, then grabbing either endpoint's box with the left mouse button. Now, drag that endpoint to the correct place. You can repeat this with the other endpoint. In addition to redrawing the line,

you can (of course) drag the finished line around the image when highlighted: just hold the left mouse down anywhere inside its rectangle but not touching either endpoint box.

Ellipse ◯

You can use this Enhancement to draw ellipses or circles. After clicking on the Ellipse icon on the toolbar, drag a rectangle on the Photo Image. An ellipse will be drawn exactly touching the insides of the rectangle you drew. If you drag a square, a circle is drawn.

To adjust the size and shape of the circle/ellipse, there are two things you can do. First, you can adjust the size of the rectangle by dragging on the boxes around the outside – and the ellipse will be redrawn to fit.

Second, note the short line extending from the center of the circle/ellipse. If you place the mouse over the box on the end of that line, the mouse pointer will change to four arrows. You can now drag that around in a circle to rotate the ellipse to exactly the correct orientation. (This is the one exception to the "bounding rectangle defines the outer limits of the Enhancement" rule.)

Rectangle ▢

After clicking on Rectangle on the toolbar, drag the rectangle you want – and it will be drawn. When selected, you can adjust the size by dragging the small boxes on the edges of the rectangle.

Multi-Line ◺

To draw a multi-line, you must first *double-click* on the Multi-Line icon on the toolbar. Then, drag on the screen to draw the first line segment. When you release the mouse button, you will see the first line segment drawn with black boxes at each end, and a small green box next to the end of the line.

Place the mouse pointer on the green box; it will change to a crosshair. Click on the green box. Notice that a new little black box is added next to the end of the existing line. This new black box allows you to drag an additional straight-line segment, for instance to help you close the final gap back to the beginning of the figure you drew. This helps you use the Pen to measure area.

Click on Green Add-Point Handle to add another point to the line

Click on new point (placed where the Green Add Point Handle was located) and reposition it as needed
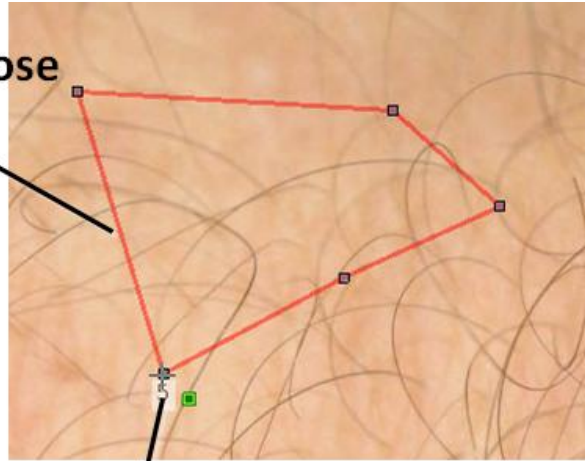
Figure 72 - Creating A Multi-Line Enhancement

Now, you can drag that new box to a new location, drawing the next line segment from the end of the first. Want more segments? Click on the green box again, and another new black box is created, so you can drag another segment. This helps you to close the final gap back to the beginning of the figure you drew, in turn helping you to use the Multi-Line to measure area.

You can edit the figure at any time by grabbing any box with the mouse pointer and the left mouse button, and drag it around to adjust the line.

You can click on any point in the multi-line Enhancement to create a closed area.

Segment added to close the Enhancement

Double Click on any point to close the multi-line segment Enhancement

Figure 73 - Closing A Multi-Line Enhancement Shape

Pen

To draw a freehand figure of any irregular outline, you use the Pen. To do this, you must first *double-click* on the Pen icon on the toolbar. Then, drag on the screen to draw the figure, totally freehand. When you release the mouse button, you will see the figure you drew, with little black boxes at intervals along the figure to allow you to adjust the shape more precisely.

The Pen tool operates very similarly to the Multi-Line Enhancement Tool. The major difference is that instead of add one point at a time; points are added as you move the mouse. Second, the line segments between each point are curved, not straight.

As you move the mouse around the Photo Image, tracing the object of interest, a red line will show you where points are being placed.
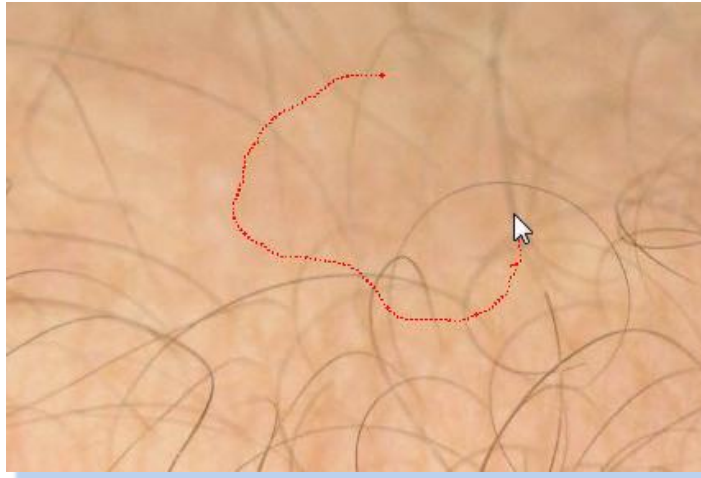
Figure 74 - Creating A Pen Enhancement

Once you release the left mouse button, the Pen will be complete and a selection rectangle will be placed around the area drawn. Like the Multi-Line Tool, you can edit the individual points in the Pen Line by hitting the Shift-Key on your keyboard.
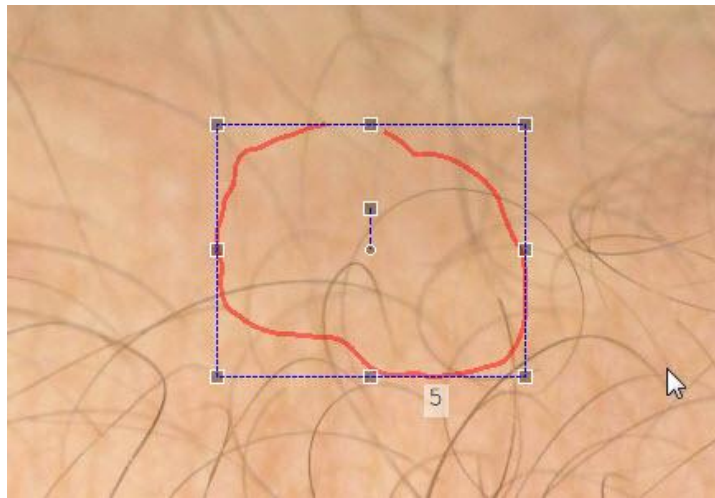

Figure 75 - A Completed Pen Enhancement

Once again when you type the Shift-Key, you can add points by clicking on the Green Add Point Handle. You can also close the area by double clicking on any point.

Feature Measurement

Enhancer Version Only

Overview

A key feature of the PhotoStation Manager software is its ability to accurately measure the length, width, perimeter, and surface area of features observed in a Photo Image. To measure features in a Photo Image, you need to identify a ruler marker contained in an individual Photo Image. The PhotoStation Manager Enhancer Version will recognize the size and orientation of this ruler marker, using the size and perspective values of the ruler marker for calculating measurements. Once a ruler marker is recognized, selected Enhancement shapes (line, rectangle, ellipse, pen) drawn onto the Photo Image will have size measures associated with them.

Standard Rulers

The PhotoStation Manager supports multiple ruler sizes allowing for accurate measurements to be taken of any sized feature. By default, the PhotoStation Manager recognizes three sized rulers upon installation. Up to 5 different sized rulers can be configured into your system using the Measurements tab of the Setup dialog. Further, each Photo Image can have its own unique Photo Image Ruler of a different size. The default rulers are shown here (Note: these are not shown in actual size).

2 Centimeters By 1 Centimeters	
4 Centimeters By 2 Centimeters	
8 Centimeters By 4 Centimeters	

Figure 76 - Default Ruler Markers

A standardized template for ruler markers is installed with the PhotoStation Manager. The template file is called "PSM-Avery5164 Ruler Marker Template.jpg". This template is a jpeg image file that can be printed on your own printer to create ruler markers. The ruler markers are formatted to be printed on an Avery-5164 adhesive label page. The file is shown here.
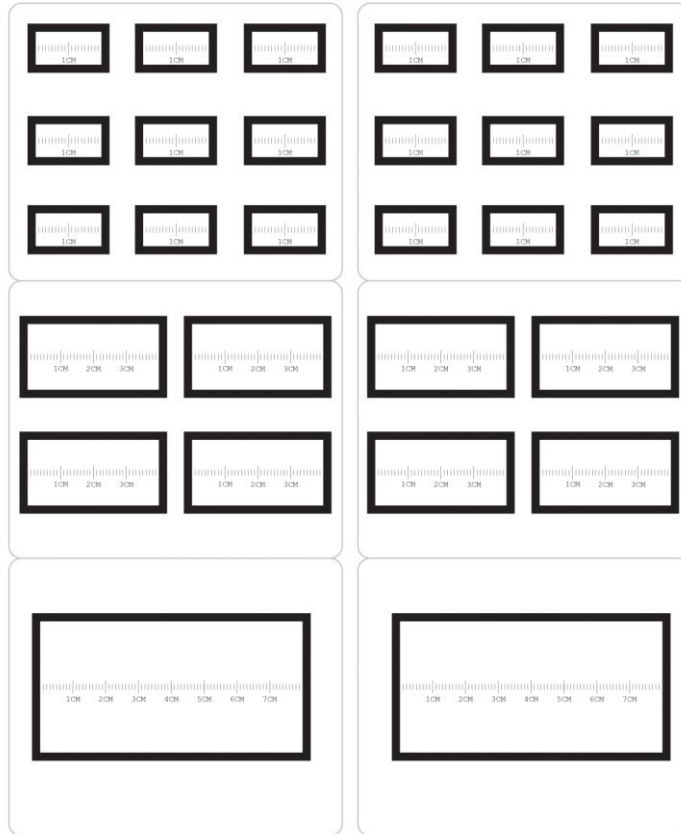
Figure 77 - Default Ruler Avery Template

The ruler marker can be found in the application common program files directory. Typically this is found at the file folder location

"C:\Program Files\Common Files\4D Imaging Systems Inc\4D PhotoStation Manager\ PSM-Avery5164 Ruler Marker Template.jpg".

NOTE: PLEASE VERIFY WITH A RULER THE OUTPUT PRINT SIZE OF THE MARKERS BEFORE USING THE MARKERS AND UPDATE THE MEASUREMENTS IN THE SETUP TAB FOR MEASUREMENTS AS NEEDED. MARKERS THAT YOU PRINT YOURSELF MAY NOT BE REPRODUCED TO ACCURATE SIZES. A MISMATCH BETWEEN THE PRINTED MARKER SIZE AND THE SETUP MEASUREMENTS WILL RESULT IN INCORRECT MEASUREMENTS. TO ENSURE ACCURATE MEASUREMENTS, PLEASE EITHER USE MARKER RULERS OBTAINED FROM 4D IMAGING SYSTEM INC OR VERIFY THE SIZE OF YOUR MARKERS.

Photo Image Ruler

The standard ruler sizes give you the ability to create a measurement workflow based a fixed point of reference. However, an object of known size placed in the Photo Image can be used as a reference for taking measuring. Use the Add Photo Image Ruler menu option to create a custom sized ruler.
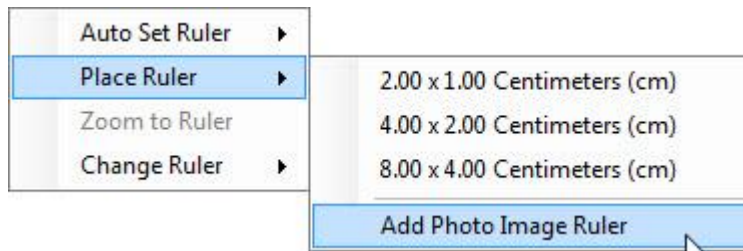
Figure 78 - Add Photo Image Ruler Context Menu

Once selected, you will be prompted to enter values for the width and height of the Photo Image Ruler.

Figure 79 - Set Photo Image Ruler Dialog

Enter the value desired for the width and the height. You may also select the appropriate units for the ruler.

Figure 80 - Setting A Photo Image Rule Size And Units

When you click on the OK button, the ruler outline is placed on the Photo Image. Position the ruler as necessary and click on Lock Ruler to set the scale.

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Shooting Photo Images for Measurements

To ensure the highest possible accuracy in measurements, there are a couple of things you should keep in mind.

- Shoot your Photo Image as closely as possible to perpendicular to the feature you are measuring. The following diagram illustrates this.
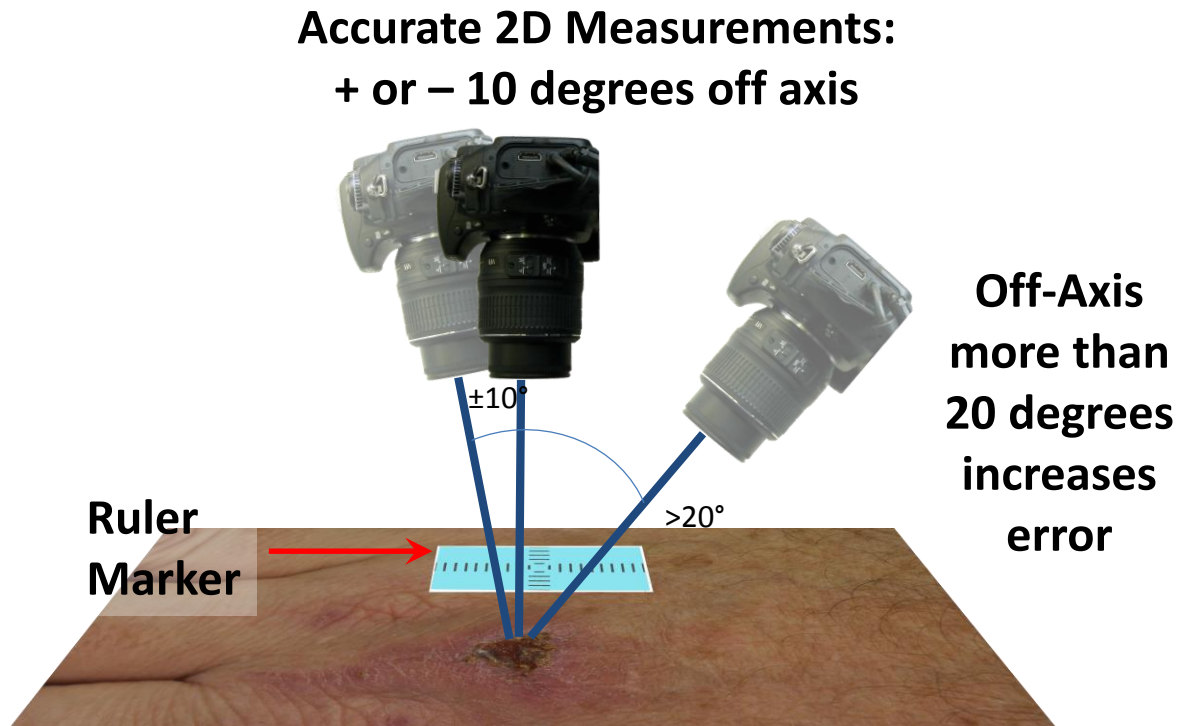

Accurate 2D Measurements:
+ or – 10 degrees off axis

Off-Axis more than 20 degrees increases error

Ruler Marker

±10°

>20°

Figure 81 - Shooting Ruler Markers Straight On

The PhotoStation Manager can account for shooting off-angle around plus or minus 10° off the perpendicular axis. A reduction in the accuracy of measurements will be introduced for off axis angles of more than 20°.

- Always place the ruler marker as close to the feature you are measuring, and level to, or in the same plane as the top-most view of the feature being measured. See example Photo Images below illustrating the correct placement and shooting of the ruler marker.

The following are examples of both how to correctly and incorrectly place the marker ruler relative to the scar feature being measured.

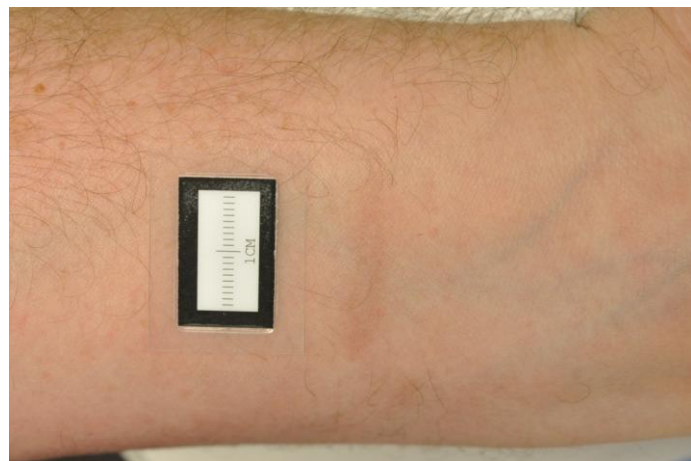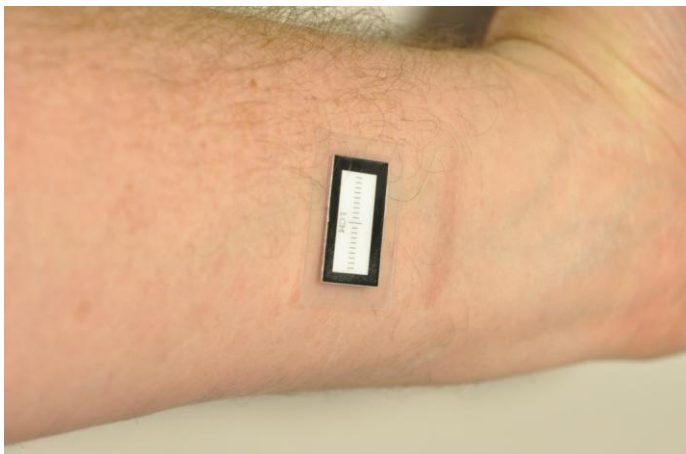|	
Good Placement: • The marker is close to the feature • The marker is in the same plane (flat relative to the feature) • Marker size is large in the picture	
Good Placement. The orientation of the marker is not important. It could be off-axis / rotated and still be in a proper position Similar to the first picture: • The marker is close to the feature • The marker is in the same plane (flat relative to the feature) • Marker size is large in the picture	
Poor Placement / Unclear Marker: • The marker is close to the feature, but it is placed below the plane of the feature. If this marker ruler is used, the measurements of the feature will be larger than actual values. • Also note the glare on the marker. Use of flash set to fire at too high a level of intensity will blow out the edges of the marker ruler. This will likely cause the auto ruler detection to not find the ruler area. Using the manual ruler marker setting will be required.	
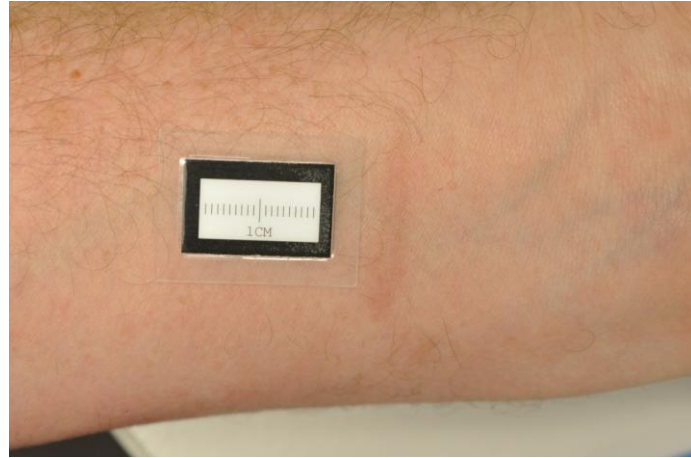
Extreme Off-Angle Marker: • The marker is close to the feature • The marker is in the plane of the feature • Unfortunately, the angle of the shoot is 30 degrees or more off-axis. While the PhotoStation Manager does account for some off-angle measurement correction, an extreme off-angle shoot will not be accurate relative to the actual values.	
Off-Plane and Off-Angle Marker: • The marker is close to the feature • The marker is not in the plane of the feature • The angle of the shoot is 30 degrees or more off-axis.	
Cut Off Marker: • The marker is properly placed relative to the feature, but it is cut off. Automatic detection will fail. Depending on the amount of marker that is cut off, the accuracy of the manual ruler placement may be off.	

Table 12 - Ruler Marker Placement Examples
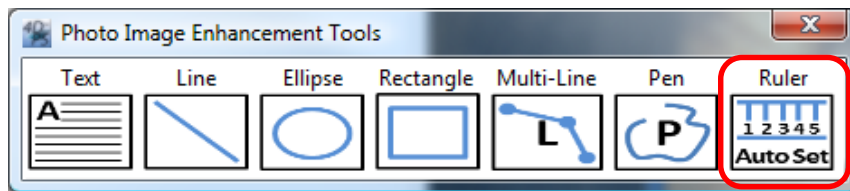
Setting The Ruler Marker

The PhotoStation Manager can calibrate any Photo Image in which there is a ruler marker in the picture. The PhotoStation Manager supports both automatic and manual setting of the Ruler Marker.

To recognize the marker, follow this procedure:

1. Open the Record in question.

2. Using the History List Panel, select and expand the Date Entry containing the Photo Image in question.

3. In the History List Panel, click on the image name where measurement will take place. Observe the marker in the frame.

4. Enable Enhancements by clicking on the Enhance button at the lower left of the PhotoStation Manager window. Observe that the Tools palette appears.

5. In the Photo Image Enhancement Tools palette, click on the Ruler icon, which should say Auto *Set*.

6. On the large image, double-click on the image of the marker. Wait a few seconds.

7. You should now see that the marker has turned into a white box with red borders, and the Ruler icon in the palette now reads *On*.

Ruler Marker Auto Set

1. To calibrate the ruler, click on the set ruler button

**Auto Set
Ruler Button**

Figure 82 - Auto Set Ruler Button

2. Next, double-click on the ruler marker in the Photo Image. For the best results, double click on the white area of the marker. Clicking on the Black Edge or the Millimeter Tick Marks may result in the ruler not being correctly recognized.
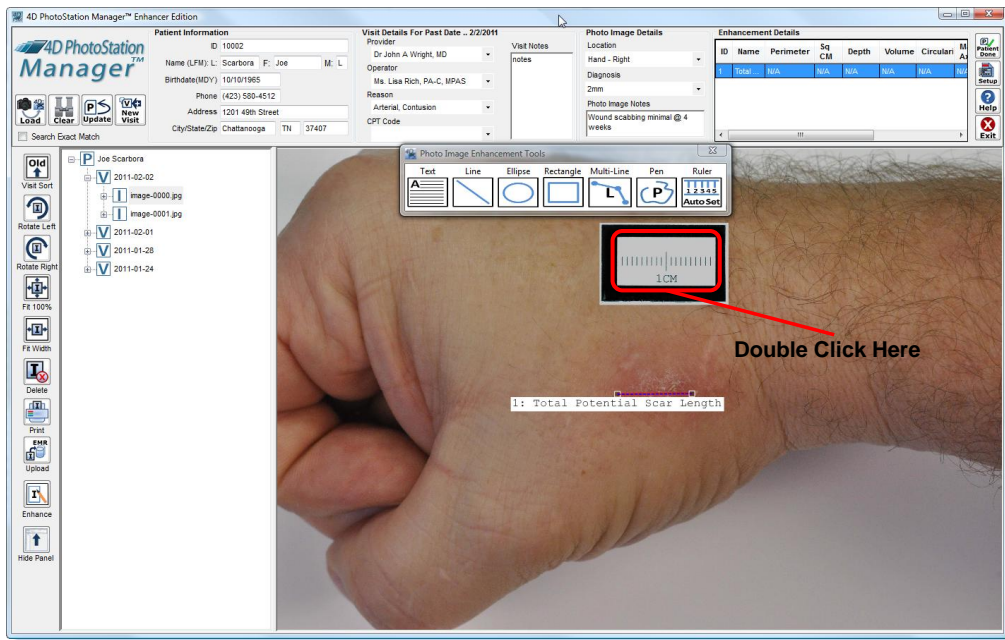
Figure 83 - Double Clicking The Auto Set Ruler

The PhotoStation Manager remembers the latest selected ruler. By default, the ruler size used by the PhotoStation Manager is a 2 centimeter by 1 centimeter marker. When you double click on the Photo Image, the PhotoStation Manager will remind you which ruler is currently being used. The following message is displayed.
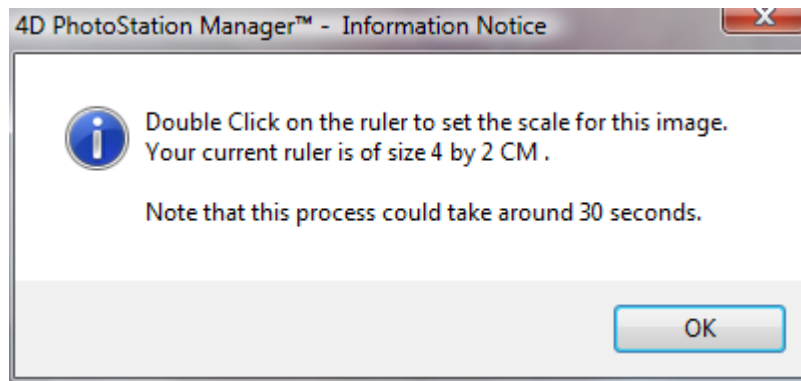

Figure 84 - Ruler Size Verification Dialog

The PhotoStation Manager then proceeds to perform an analysis on the Photo Image at the selected location. The ruler size and orientation is detected.

3. The ruler marker is recognized when the area in the Photo Image selected as the ruler marker is overlaid with a red-lined rectangle. The size of the detected marker is indicated in the marker area, as shown in the following figure.
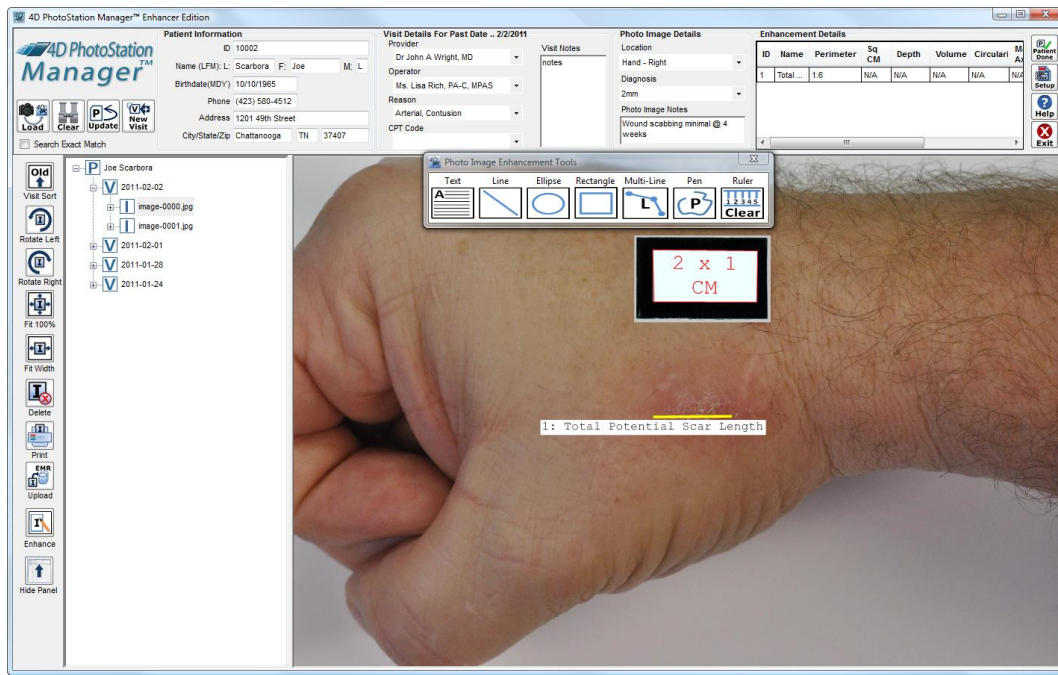
Figure 85 - Successful Ruler Marker Detection

Upon successful detection of the ruler marker, the Line, Ellipse, Rectangle, Multi-Line, and Pen tools, when used, will have measurements associated with them.

Ruler Marker Auto Set Correction

There are a couple of main reasons the ruler marker will not be automatically set. Several of these were illustrated into the table in the section Shooting Photo Images for Measurements. To summarize, rulers that area blown out, cut off, or totally out of focus will likely not be corrected detected.

In the event that the PhotoStation Manager does not correctly detect the ruler marker, the following message will be displayed.
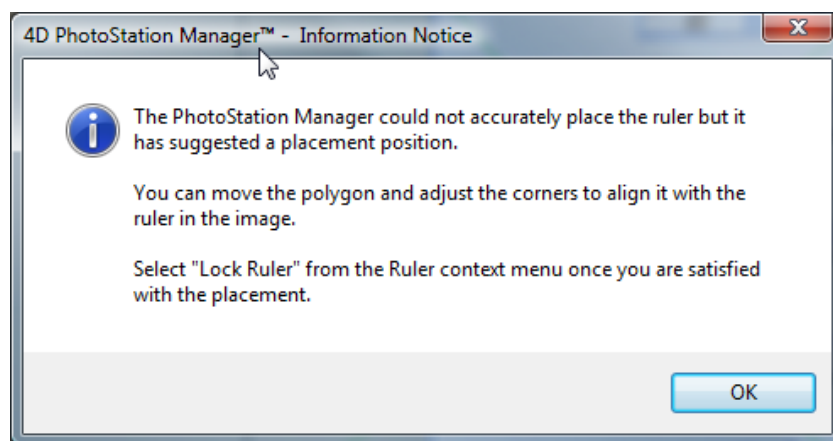
Figure 86 - Ruler Marker Not Detected Message

The process for setting the ruler described here is the same procedure that is used when directly placing a ruling (instead of using the Auto Set).

The PhotoStation Manager will place a resizable rectangle of four points you can use to manually set the ruler. The user settable ruler work works exactly like the Multi-Line and Pen tools. The selection rectangle for the ruler allows you to place the rectangular object in the roughly correct position on the Photo Image.
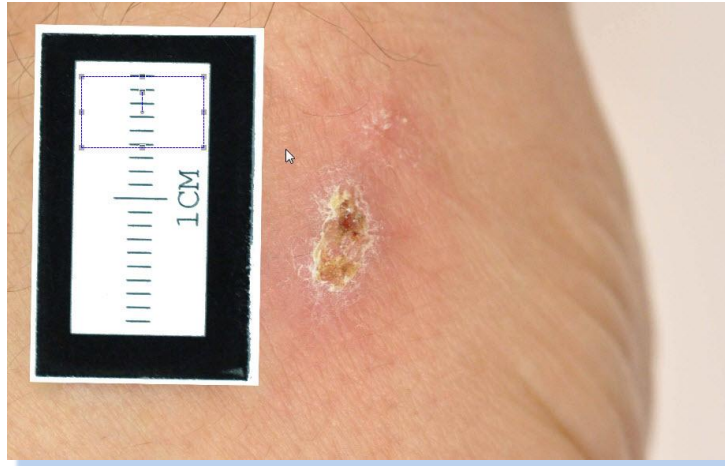

Figure 87 - Manually Placing A Ruler

As show here, we recommend that you move the upper left hand corner of the ruler's selection rectangle approximately over the upper left hand corner of the ruler marker in the Photo Image. Then, selecting the lower right hand corner of the selection rectangle, stretch the size of the selection rectangle to cover the ruler marker in the Photo Image as best as possible.
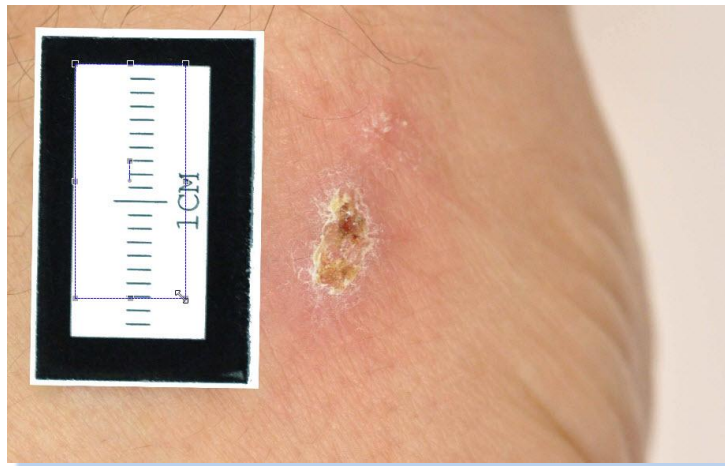

Figure 88 - Align Upper Left Corner

Now, you can press down on the Shift-Key to edit the individual points in the ruler. Each point can be individually set in place, making all four points to correspond to the edges of the ruler marker. When the mouse is over one of the settable points of the ruler, the cursor will be an up-down/left-right arrow pointer.
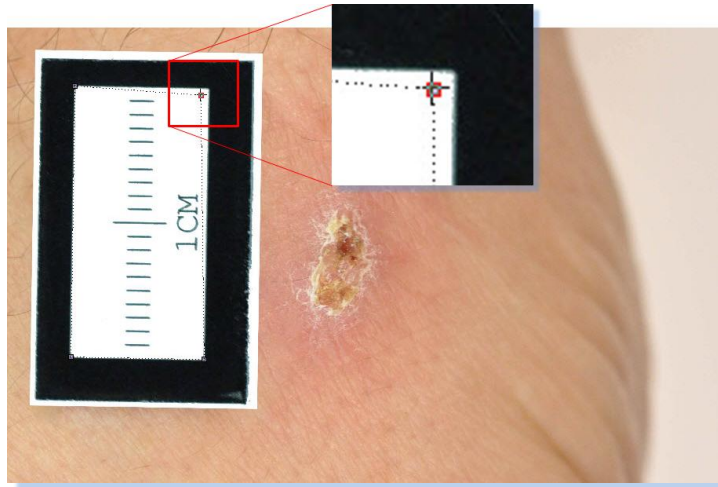
Figure 89 - Ruler Marker Point Cursor

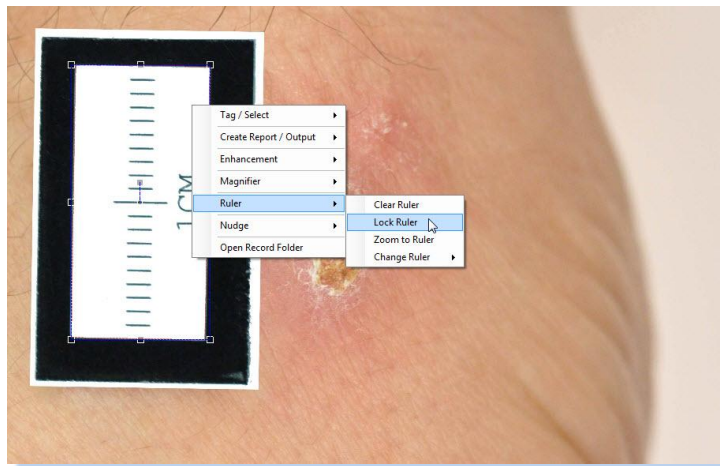Once the ruler points have been placed, click on the Lock Rule entry of the mouse right button menu.

Figure 90 - Lock Ruler Context Menu

Once the ruler is locked, the ruler is shown with the detected area and ruler type indicated.
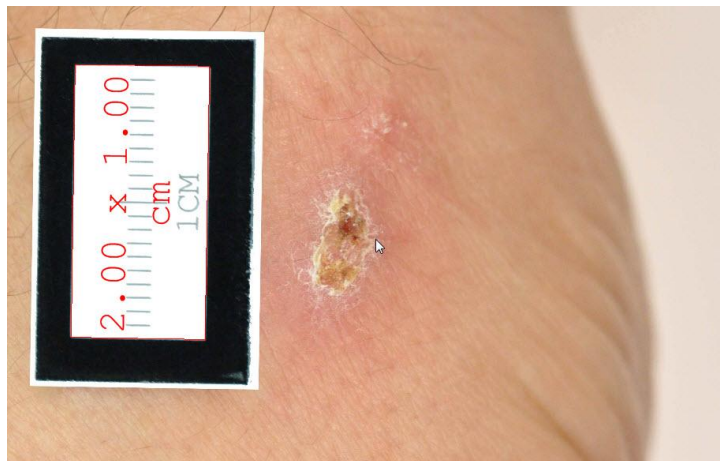
Manually Setting the Ruler Marker

You have the option of manually setting the ruler marker. In a Photo Image that contains a ruler marker, press the right mouse button to pop up the menu. Select Ruler, the Place Ruler.
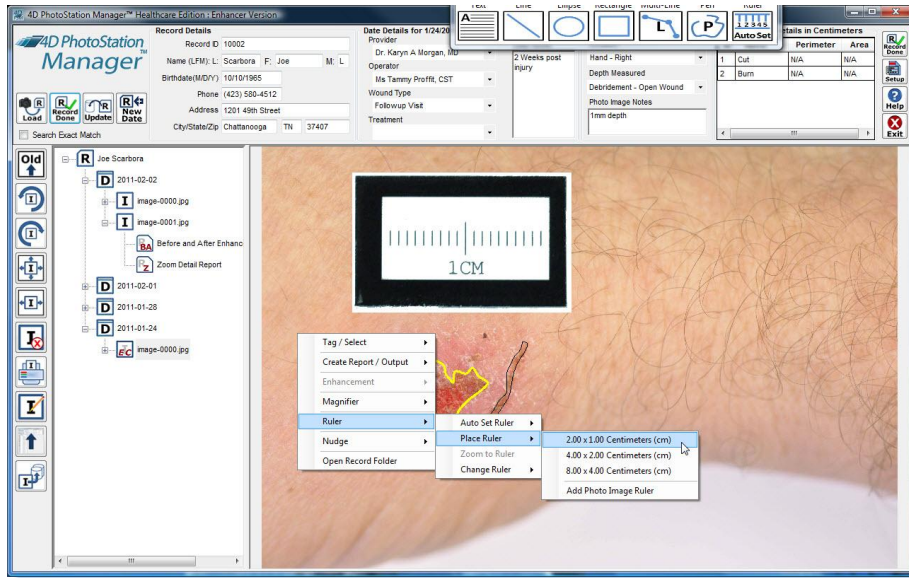

Figure 92 - Manually Placing A Ruler Marker

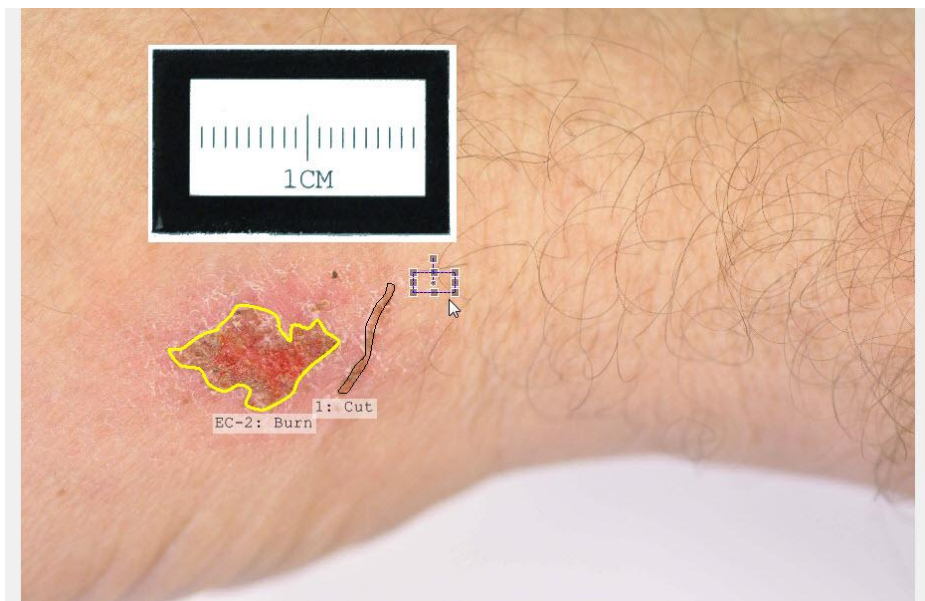A default, resizable ruler outline will be placed on the Photo Image.

Figure 93 - Manully Placed Ruler Marker

Similar to the procedure outlined in the section on Ruler Marker Auto Set Correction, move the marker to the general location of the ruler marker in the Photo Image. Note that you can position the points on the ruler with more precision my selecting Zoom To Ruler in the Context Menu.
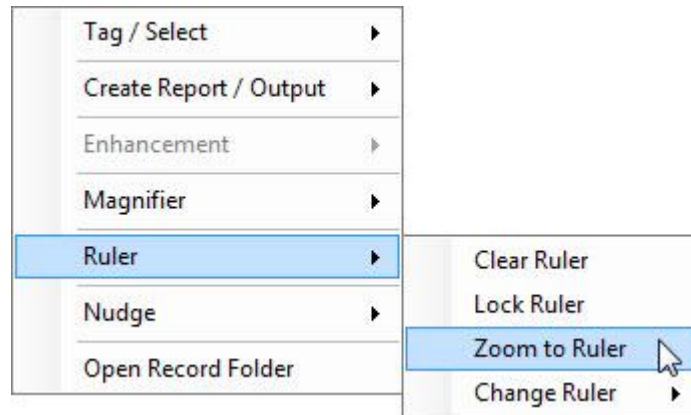

Figure 94 - Locking The Ruler Marker

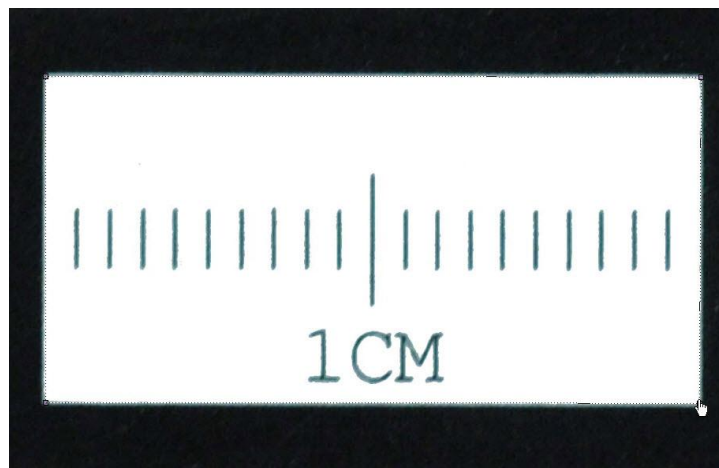As detailed previously, press the Shift-Key to edit individual points.

Figure 95 - Zoom To Edit Ruler Marker

Lock the ruler once positioned correctly. Select the Lock Ruler entry of the Context Menu.

Setting The Ruler Marker Size

There are three possible markers. First, you must indicate which one you are going to recognize. The default is set to "2X1CM", for the 2 centimeter by 1 centimeter ruler marker. But, there are other choices. To change this setting, right-click anywhere inside the Photo Image Display Panel or the History List Panel to bring up the Context Menu. Click on its Edit Enhancements entry. In the sub-menu, click on Change Ruler. Then select the marker type you are using. The following shows the Change Rule menu.
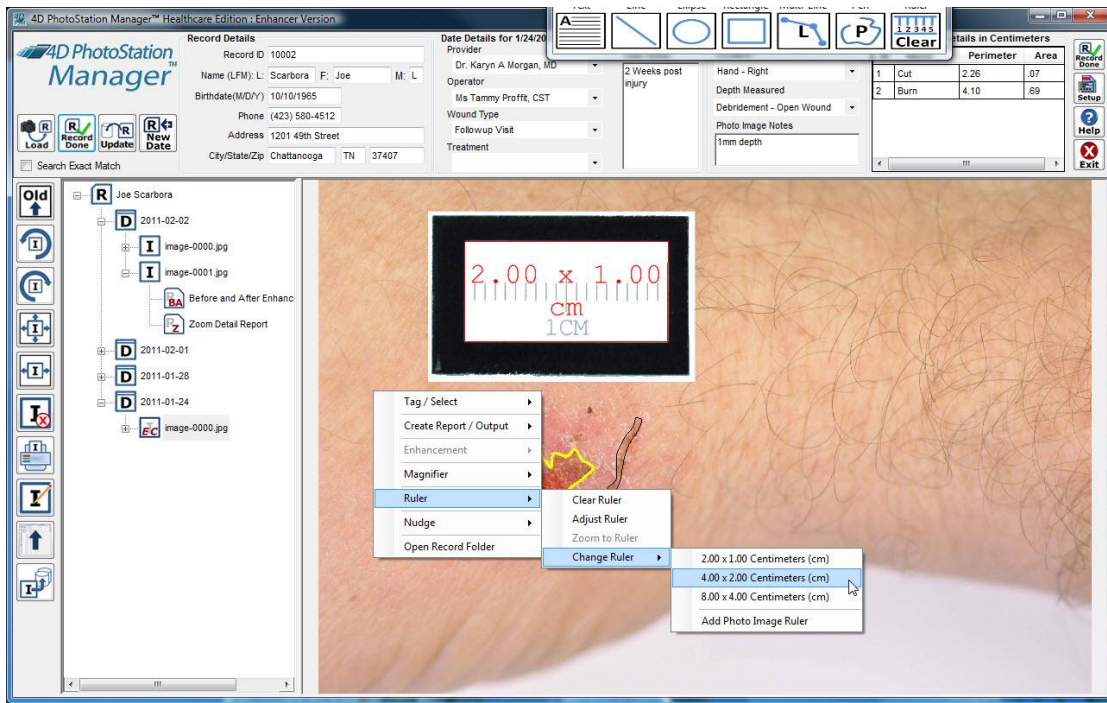
Figure 96 - Change Ruler Marker Size

Once you change the size of the ruler, the following message will be displayed. The following is for a change to the 2x1CM ruler. The appropriate size is displayed depending on the ruler selected.
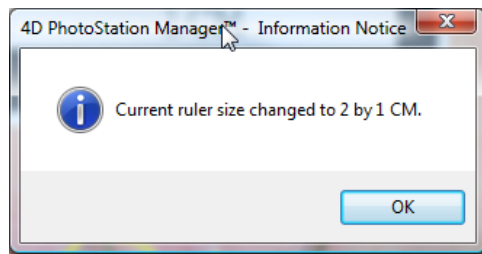

Figure 97 - Change Ruler Marker Confirmation

The size of the currently set ruler marker is always indicated in the Photo Image. In the following Photo Image, a ruler size of 4x2 CM is detected and set.
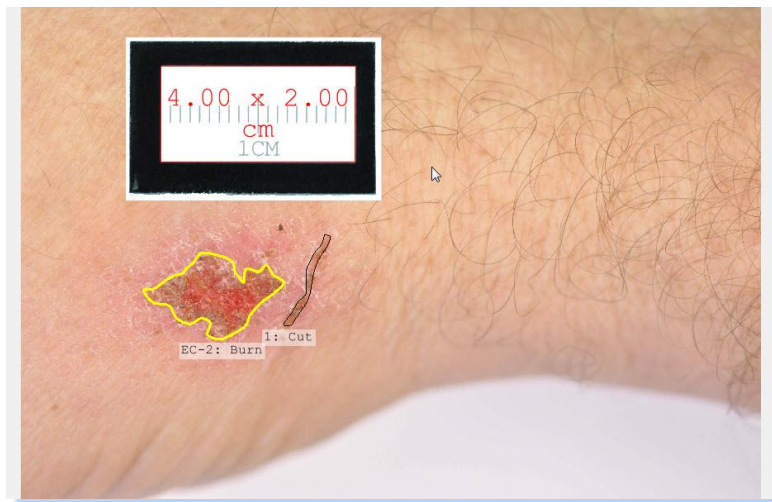
Figure 98 - New Ruler Marker Size Display

In this case, the actual ruler in the Photo Image is a 2x1CM ruler. To correct this, select the Change Ruler menu entry and select correct size ruler marker. The size of the detected ruler will be updated.

Measuring Features

Now that the marker has been recognized, you can accurately measure all features in the Photo Image that lie in the same plane as the marker. You take these measurements by drawing Enhancements on the Photo Image.

The Enhancement Details on the top (documentation) panel of the PhotoStation Manager window, toward the right, will show every Enhancement on the selected Photo Image. The title of the Enhancement Details displays the currently selected Measurement Display Units. You can set the Measurement Display Units in the Measurements tab of the Setup Dialog.

Enhancement Details in Centimeters (cm)

ID	Name	Perimeter	Area	Depth	Volume	Circularity	Major Axis	Minor Axis	Type
1	Cut	4.52	.29	.10	0.03	0.18	2.11	.17	Multi-Segment Line
2	Burn	8.20	2.78	.10	0.28	0.52	2.91	1.81	Multi-Segment Line

Figure 99 - Enhancement Details Panel

The displayed columns in the Enhancement Details Panel are described below, and can be selected as viewable or not using the Measurements tab of the Setup Dialog. Each row of the Enhancement Details panel corresponds to a graphic or text item drawn on the Photo Image.

You can view what each column's units and scale by placing the mouse over the header row, and viewing the Tooltip Help, as shown here. The Perimeter is displayed in linear centimeters.

Figure 100 - Enhancement Details Size Indicator Popup

The Enhancement Details Panel columns are resizable. The PhotoStation Manager will remember the column widths you set. To change the column width, select the column heading right edge line for the column you wish to resize. Depending on the size of your screen, you may choose to make columns narrower or wider to better view details without needed to scroll the panel left or right.

Figure 101 - Resizing Enhancement Details Panel Columns

The Measurements Tab of the Setup Dialog is used to customize the appearance of the Enhancement Details Panel.
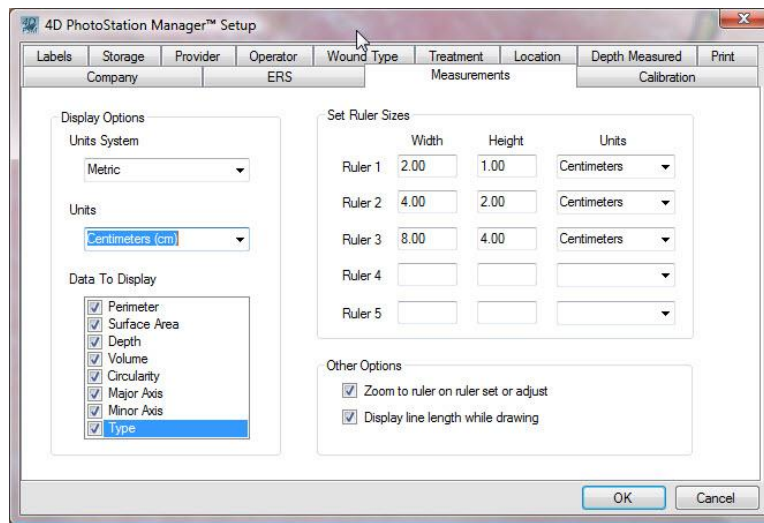

Figure 102 - Customizing Enhancement Details Display In Setup Dialog

Customize which columns are displayed by checking or unchecking the Data To Display entries.
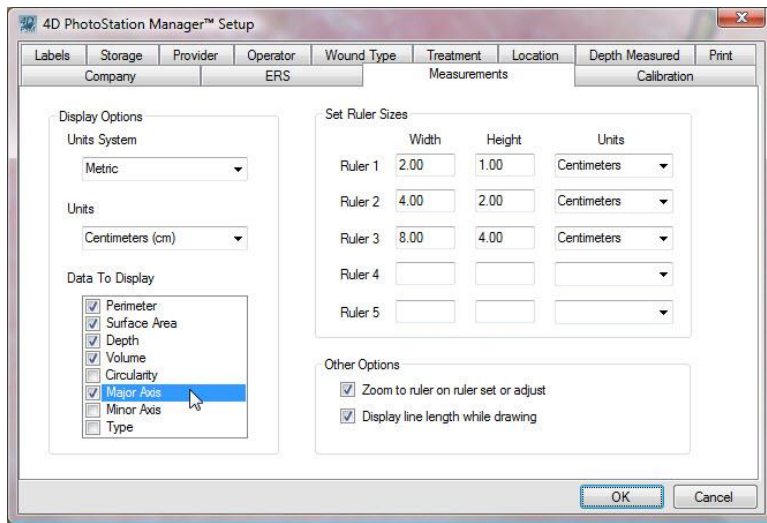
Figure 103 - Selecting Enhancement Details Columns To Display

Customize the Display Units System and Units to change the resulting calculated values to display in the Enhancement Details Panel and Reports.
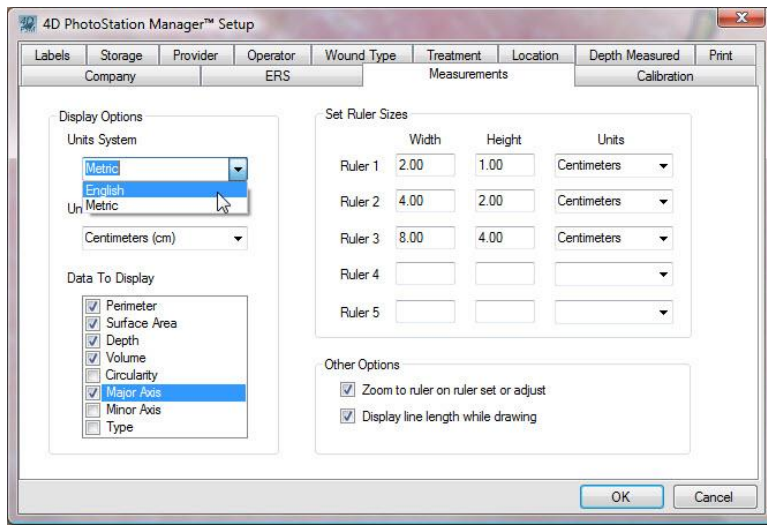

Figure 104 - Selected Enhancement Details System and Units

After changing Units System, Units, and turning off selected columns, the Enhancement Details Panel is used as follows.

Figure 105 - Updated Enhancement Details Panel

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The columns of the Enhancement Detail panel are as follows.

ID	The ID is a unique number that identifies an Enhancement drawn on the Photo Image. The IDs will number from 1 up to the total number of Enhancements. If an Enhancement is deleted, the IDs are renumbered.
Name	You can name each Enhancement drawn on the Photo Image by entering in a name into this field. By default, each Enhancement has no name. The Name column will display "Enter Name", allowing you to place your mouse cursor into the field to type a name. Once you type the name, type the "Enter" or "Return" key, or click on the Photo Image panel area to update the Enhancement name in the Photo Image panel.
Perimeter	The perimeter column contains the measured Enhancement feature **Length In *Units***, where *Units* varies according to the Display Units set in the Measurements Tab of the Setup Dialog.
Area	The Area column contains the measured Enhancement feature **Surface Area In *Units***, where *Units* varies according to the Display Units set in the Measurements Tab of the Setup Dialog. For regular shaped Enhancement objects
Depth	You enter the **Depth in *Units*** of the feature being measured by moving your mouse to the Depth field and typing the depth. *Units* varies according to the Display Units set in the Measurements Tab of the Setup Dialog.
Volume	The Volume column contains the estimated calculated Enhancement feature **Volume in *Units***, where *Units* varies according to the Display Units set in the Measurements Tab of the Setup Dialog.
Circularity	The Circularity column contains a calculated estimate of how "round" the selected Enhancement shape is. There are no Units related to Circularity. Circularity is calculated by the well-known calculation of: $$4 * \Pi * Area / Perimeter^2$$
Major Axis	The Major Axis column contains the measured Enhancement feature **Length In *Units* of the longest width of the feature**. The Major Axis does not directly correspond to a "Head to Toe" measurement. . *Units* varies according to the Display Units set in the Measurements Tab of the Setup Dialog.
Minor Axis	The Minor Axis column contains the measured Enhancement feature **Length In *Units* of the longest with of the feature 90 degrees off of the Major Axis**. *Units* varies according to the Display Units set in the Measurements Tab of the Setup Dialog.
Type	Type corresponds to the PhotoStation Manager's name for each type Enhancement that can be drawn on a Photo Image. This field is for information purposes and is not editable.

Figure 106 - Enhancement Details Measurements

Remember, the accuracy of the following measurements depends on how close the marker is to lying on the same plane as the feature being measured and how closely you match the 4 corner points of the ruler to the ruler market in the Photo Image.

The measurement is preserved in the Photo Image Details – Enhancement table at top right, and will be shown whenever the image is being viewed – even if you turn off the Enhancements by pressing the Enhance button, thus showing only the image itself with no annotations.

Measuring Widths or Lengths

To measure a width, use the Line Enhancement. Click on the Line icon in the Photo Image Enhancement Tools palette. Then, by dragging, draw the line on the image from the start to the end of the width you wish to measure. As usual, the Enhancement will be identified by a number.

In the Enhancement documentation at top, you should see by number the line you just drew. The Perimeter column is the length of the line in millimeters.

Measuring Surface Areas

To measure areas, use the Ellipse, Rectangle, Pen, or Multi-Line Enhancement (as appropriate) to draw as accurate a line around the feature as you can.

In the Enhancement documentation at top, you will see a column for Area, which indicates the surface area surrounded by what you just drew, in square millimeters.
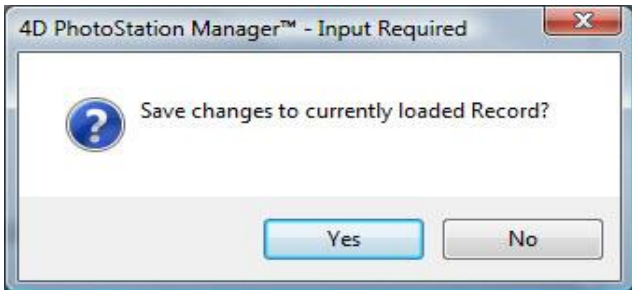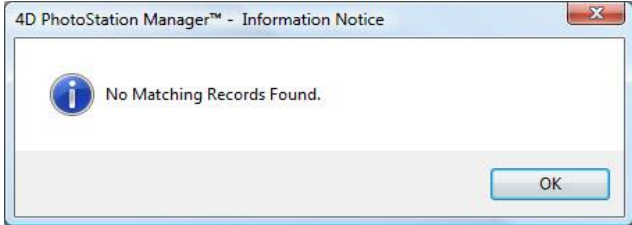
Other Measurements

When you use the Ellipse, Rectangle, Pen, or Multi-Line to draw around a feature, then the column labeled Perimeter shows the total length of the line you drew.
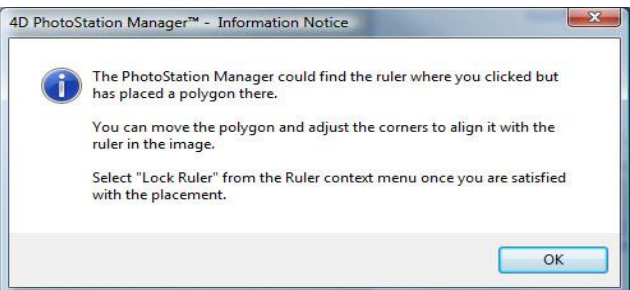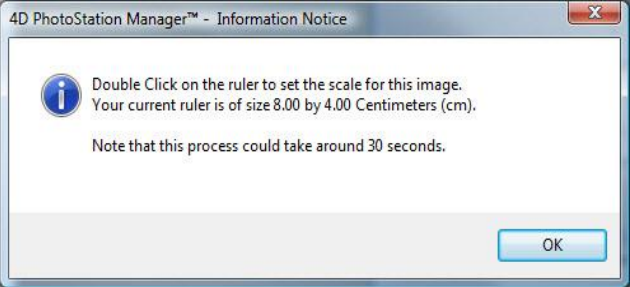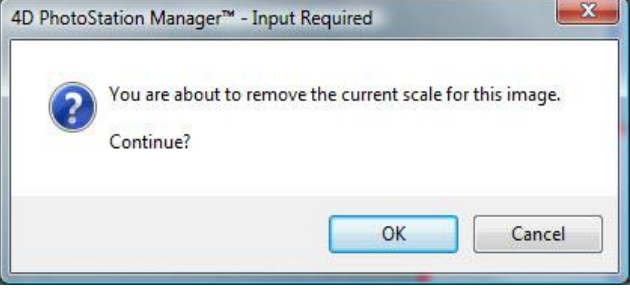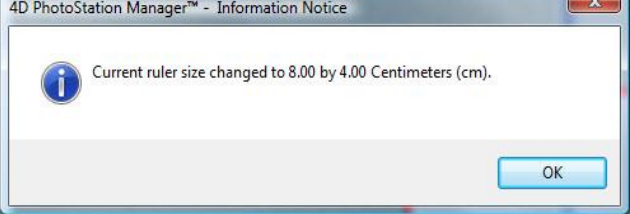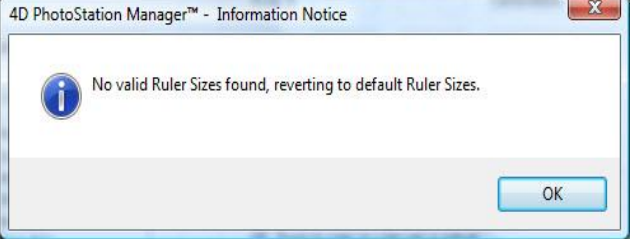
When using the Ellipse, the column labeled Circularity indicates how close to a perfect circle you just drew. 1.0 is perfectly round; smaller numbers indicate an oval-shape. The smaller the number, the farther from round it is. 0 represents completely flat.

PhotoStation Manager Messages

Record Management

4D PhotoStation Manager™ - Input Required Save changes to currently loaded Record? Yes No	The currently loaded Record has changes that have not been saved.
4D PhotoStation Manager™ - Information Notice If you want to view another Record first press the "Record Done" button then enter in a different Record ID or name. If you wish to change the ID for this Record please use PhotoStation Manager Record Collection Cleanup Tools to change the ID. OK	You cannot directly change the Record ID from the Record Details Panel. Use the Record Collection Cleanup Tools to make any changes.
4D PhotoStation Manager™ - Information Notice Existing matching Records found. Duplicate ID: 10004, Last: Wrinkle, First: Mary Cannot add new Record with non-unique ID. OK	An existing Record ID matches what you entered, but the Names are different.
4D PhotoStation Manager™ - Information Notice No Matching Records Found. OK	The Record ID you searched for was not found.

Ruler Messages

4D PhotoStation Manager™ - Information Notice The PhotoStation Manager could find the ruler where you clicked but has placed a polygon there. You can move the polygon and adjust the corners to align it with the ruler in the image. Select "Lock Ruler" from the Ruler context menu once you are satisfied with the placement. OK	The Ruler Auto Set failed to detect the Ruler. Manually place and size the ruler placed by the PhotoStation Manager.
4D PhotoStation Manager™ - Information Notice Double Click on the ruler to set the scale for this image. Your current ruler is of size 8.00 by 4.00 Centimeters (cm). Note that this process could take around 30 seconds. OK	You recently changed the size of the Ruler or you are setting the ruler for the first time.
4D PhotoStation Manager™ - Input Required You are about to remove the current scale for this image. Continue? OK Cancel	When you delete a ruler, measurements will not be able to be calculated.
4D PhotoStation Manager™ - Information Notice Current ruler size changed to 8.00 by 4.00 Centimeters (cm). OK	You have successfully changed the scale / ruler size in a Photo Image.
4D PhotoStation Manager™ - Information Notice No valid Ruler Sizes found, reverting to default Ruler Sizes. OK	No valid Ruler Sizes were initialized in the Setup Dialog. They system has reverted to the 3 default sizes.

Importer Messages
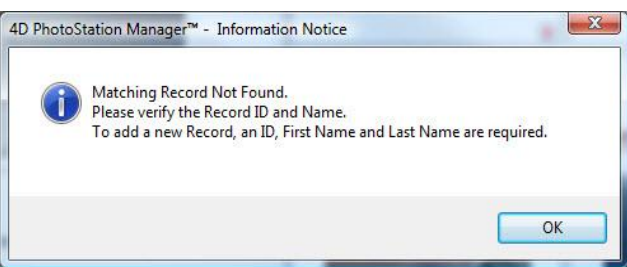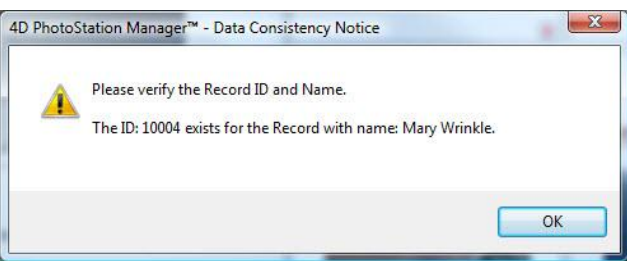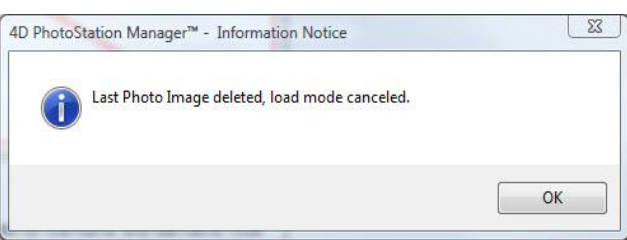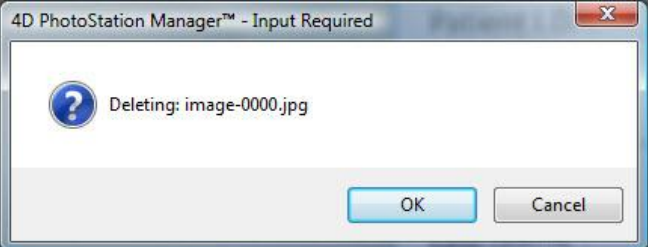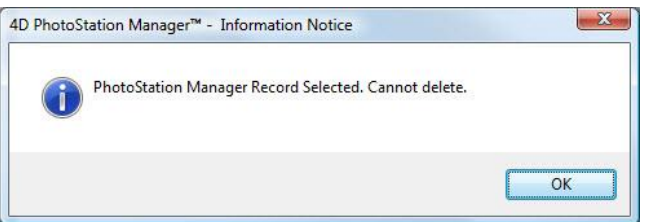
4D PhotoStation Manager™ - Input Required ❓ Remove Photo Image from Import Sequence? OK Cancel	You have selected a thumbnail from the import Sequence to delete.
4D PhotoStation Manager™ - Information Notice ℹ️ Matching Record Not Found. Please verify the Record ID and Name. To add a new Record, an ID, First Name and Last Name are required. OK	The Record ID and / Name entered for the import Sequence did not match an existing record. Reconfirm the details.
4D PhotoStation Manager™ - Data Consistency Notice ⚠️ Please verify the Record ID and Name. The ID: 10004 exists for the Record with name: Mary Wrinkle. OK	The Record ID entered matched an existing Record, but the Names are different. Reconfirm the details of the ID and Name.
4D PhotoStation Manager™ - Information Notice ℹ️ Last Photo Image deleted, load mode canceled. OK	After deleting the last thumbnail from the import Sequence, there is nothing left to do.
4D PhotoStation Manager™ - Information Notice ℹ️ Selected Folder Does Not Contain Photo Images. OK	You selected a directory that contains none of the recognized image file types.

Photo Image Messages

4D PhotoStation Manager™ - Input Required Deleting: image-0000.jpg OK Cancel	Confirm that you want the selected photo image to be deleted.
4D PhotoStation Manager™ - Input Required Deleting: image-0001.jpg Note that all reports associated with this Photo Image will be deleted as well. OK Cancel	The photo image selected for deletion has Reports and/or Output Photo Images associated with it. Confirm that you want to delete the photo image and the associated Reports and/or Outputs.
4D PhotoStation Manager™ - Information Notice Selected date contains 15 Photo Images. Cannot delete selected date entry. OK	The selected Date Entry contains one or more Photo Images. The Data Entry cannot be deleted.
4D PhotoStation Manager™ - Information Notice PhotoStation Manager Record Selected. Cannot delete. OK	You cannot delete a Record from the Photo Station Manager Photo Images Collection.
4D PhotoStation Manager™ - Information Notice Cannot rotate Photo Images that have enhancements or a ruler set. OK	Photo Image Rotate is not supported if there are Enhancements on the image.

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