



# SPOT Imaging PathSuite Pro™ Integrated Imaging System

## Integration and User's Manual

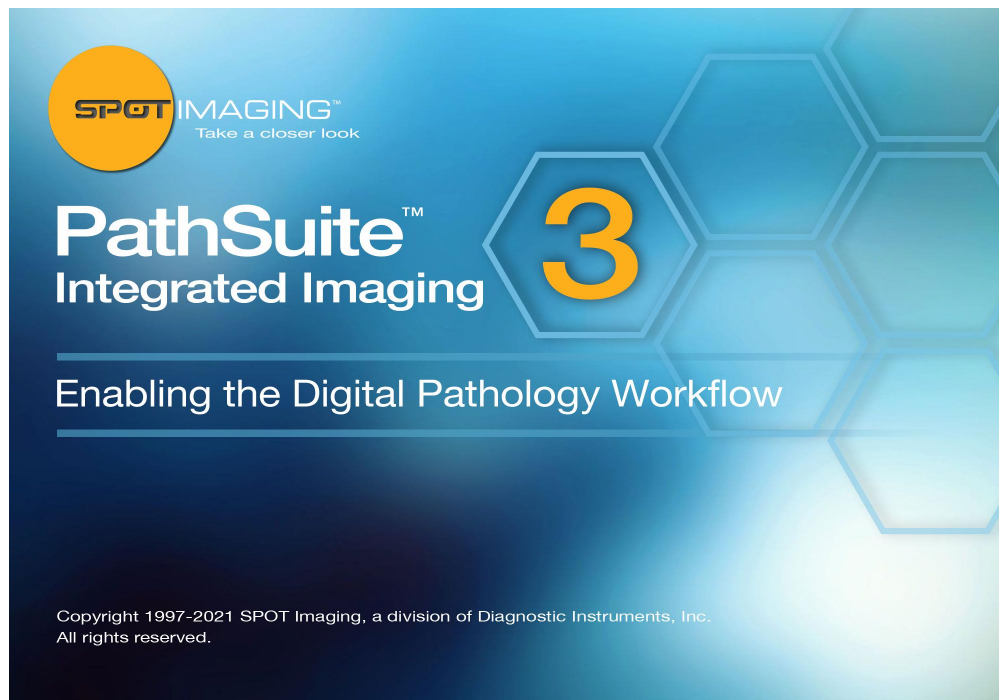
Software Version 3.0.8.22025

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In the annotation section above we explored the calibration tools so that custom rulers and measurements can be visually noted on an image as well as how to calibrate individual images which is especially useful for images loaded into the PathSuite 3.0 software. Users can, instead, calibrate the system itself so that ruler annotations will be always available without the need to include a ruler or other measurement tools within every image. While this makes measurement annotations quick and simple, it is vital when placing measurements on microscopy images.

43

## Calibration of the SPOT Grossing System

43

This method of Calibration requires that the user place a ruler or similar measuring tool in the field of view of the PathSuite system and take on-screen measurements of the ruler at each zoom level of the system camera.

43

To begin, click on the Capture Tab and find the Calibrate button. You may need to toggle the More Options list in order to find it.

43

The system will automatically zoom out and allow the user to place a line by clicking the start and end points of the line. Once this line is drawn the length of the line must be entered in the available dialogue box. This process can take several minutes as most cameras have many zoom levels to set.

44

Zoomed out.

44

Half-way zoomed.

45

Fully zoomed in.

45

## Calibration of the SPOT Microscopy System

45

Calculated (Automatic) Calibration - This method of Calibration requires that the pathsuite system is using a SPOT Camera and that the user has saved the microscope's base magnification, the magnification of the camera coupler/adaptor, and the magnification of each objective on the microscope to the Microscope section of the Hardware Tab in the PathSuite 3.0 software settings. The measurement tools will automatically function once this information is saved.

45

Manual Calibration - This method of Calibration requires the use of a stage micrometer and is nearly identical to the Grossing Calibration described above except that each magnification will instead be each microscope objective on your PathSuite system and each measurement

will be taken in micrometers.

46

Once an objective calibration has been saved a green checkmark will appear over the objective selector.

46

10x Objective

47

20x Objective

47

40x Objective

48

100x Objective

48

Calibration of TWAIN System

49

Sensor Pixel Size Method

49

This is covered in section 4.07, above.

49

Manual Calibration

49

Manual calibration of a third party camera is identical to those described above for Microscopy or Grossing, depending on application.

49

~

49

4.11 - Annotations and Editing Tab

50

Objects Panel

50

Actions Panel

60

Select All Objects on the Layer - Selects all objects on the current layer.

60

Delete Selected Objects - Deletes the selected object(s).

60

Attributes Panel

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Layers Panel

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# Revision History

<b>Manual Revision</b>	<b>Software Version</b>	<b>Date</b>	<b>Notes</b>
A	3.0.8.22025	Sept. 24, 2024	Production Release for PathSuite Pro.

## 1.00 - Introduction

In this section we will cover general information about the PathSuite system, the manufacturer, and this manual. The following topics will be covered: Purpose and Scope of this manual, Location of Manufacturer, Contact Information, All Rights Reserved, Trademarks, Restrictions and Liabilities, Abbreviations and Symbols, Warnings, Hazards, Precautions, Warranty, End User License, and Accessories for this system.

### 1.01 - Purpose and Scope of Manual

This manual has been written to provide:

- An overview of the operating principles of the PathSuite Systems
- Discussion of Requirements for:
  - Specification of system components and modules
  - Specification of required customer infrastructure support
  - Installation and configuration of system components
- Brief explanation of each feature with small tutorial on its use
- Common troubleshooting procedures for service technicians

### 1.02 - Location of Manufacturer

Diagnostic Instruments, Inc. dba SPOT Imaging  
6540 Burroughs Ave.  
Sterling Heights, MI, USA 48314

### 1.03 - Contact Information

Diagnostic Instruments, Inc. dba SPOT Imaging  
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Telephone: +1-586-731-6000  
Fax: +1-586-731-6469  
Email: [info@spotimaging.com](mailto:info@spotimaging.com)

#### **Technical Help Inquires:**

***Please note that technical assistance from our specialists will only be available in one of three ways:***

- Part of the original support period duration listed on the purchase invoice.
- Via a pre-purchased service contract (note duration of contract and its coverage).
- Ad hoc purchase of service on a time and materials basis at the time of need via approved credit source.

#### **Tech Help Contact Information:**

***Please have your service contract number or credit card available before initiating your technical assistance call as it will be required to receive assistance.***

Telephone: +1 (586) 731 6000 option: 2 (Technical Help Desk)  
Email: [info@spotimaging.com](mailto:info@spotimaging.com)

**General Inquiries:**

All general inquiries may be directed to any of the contact methods listed above.

## 1.04 - All Rights Reserved

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Part Number: 3523, Rev. A

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## 1.05 - Legal Information

All relevant legal information can be found on our website at this link.

[Terms and Conditions](#)

## 2.00 - Installation and Integration

Follow the instructions in the PathSuite Pro QuickStart Guide to install this software. If installation fails, then either restart the computer or check system security settings.

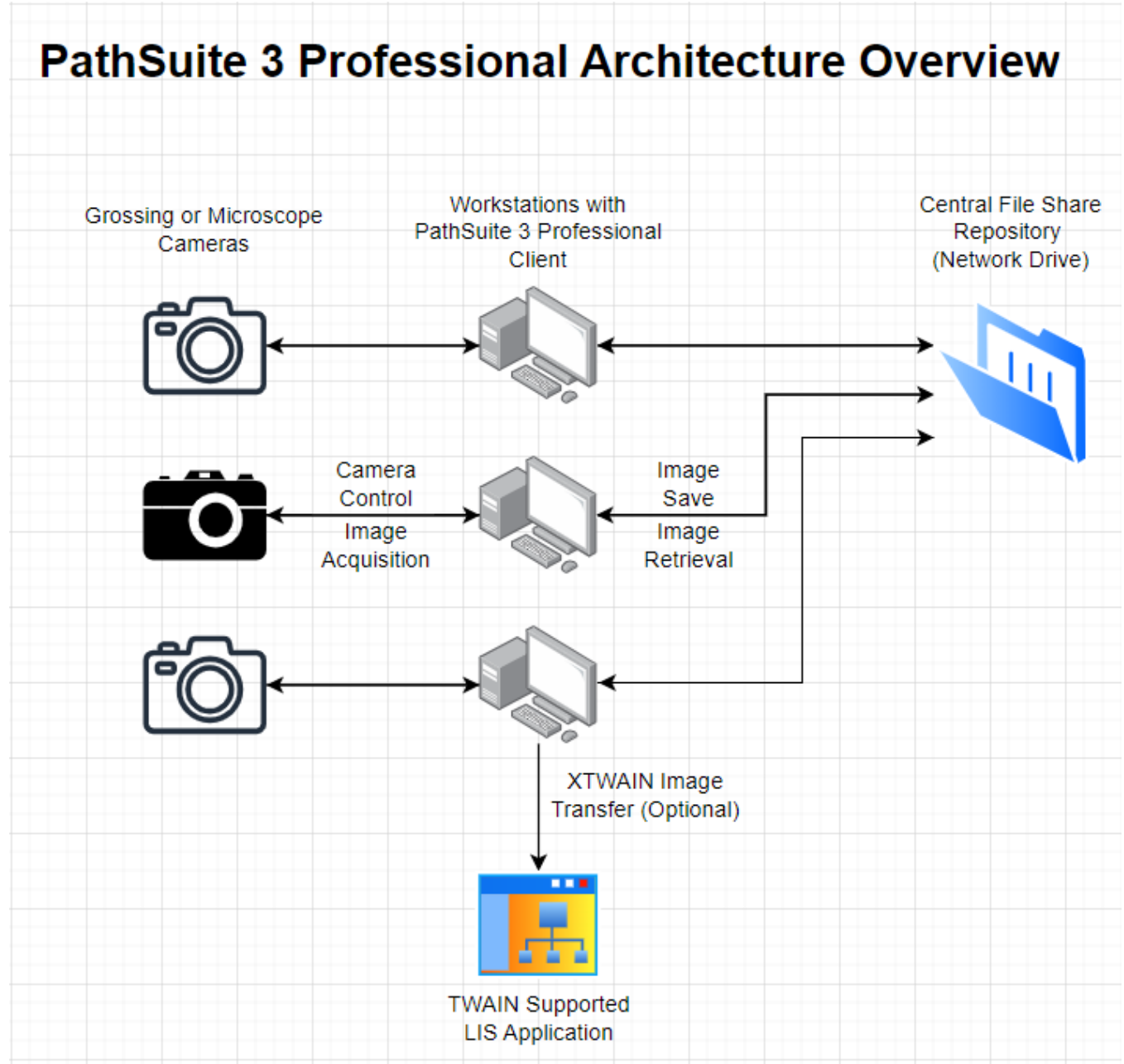
### 2.01 - Specifications and Requirements

PathSuite Pro requires Windows 10 and 16gb of RAM.



## 2.02 - I.T. Network Architecture

The Network Architecture for PathSuite Pro is fairly simple. The below diagram is provided for basic support.



## 2.03 - Integrations

The only integration used by PathSuite Pro is TWAIN image data transfer. TWAIN for 3rd party cameras is covered in [section 4.07](#) and LIS TWAIN Transfer is covered in [section 4.09](#).

~

## 3.00 - Settings and I.T. Management

This chapter will discuss licensing and User Settings.

### 3.01 - Licensing

Licensing procedure is covered in the Quick Start guide.

A copy of the Quickstart Guide can be found here: [Quick Start Guide](#)

### 3.02 - Users and Groups

Users and Group settings allows the user to manage and control the use of PathSuite 3.0 on a per employee basis as well as creating tiers of software privileges to streamline workflow.

#### Creating New Users

- Log in to PathSuite Pro on an Administrator or other Superuser account.
- Click the “Users” button in the bottom left corner of the window.



- Click the “New” button in the upper right corner of the new window that appears.



- Enter the user’s information into the appropriate dialogue boxes.

Selected User: (None)

Title:

Name:  First Name  Middle Name  Last Name  Suffix

User Name:

Require Password

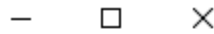
Authentication Method:  Local

Password:  (22 chars maximum length)

Retype Password:

Account Status:

- Remember to click the “Save” button in the upper right when you are finished.



- Check the “Superuser” box when prompted if this profile is allowed to create and edit user profiles.

Superuser

## Managing Groups

Groups are not an option in PathSuite Pro.

## 4.00 - User Workflows

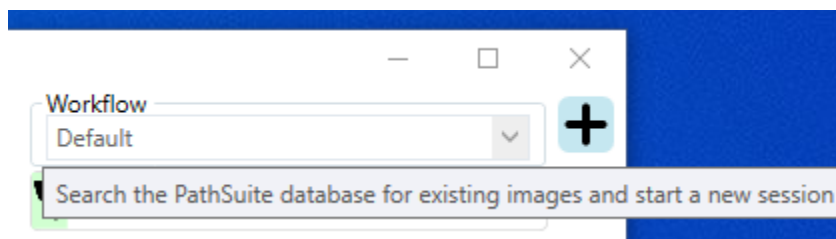
This section will discuss imaging in the PathSuite work environment.

### 4.01 - Open an Imaging Session

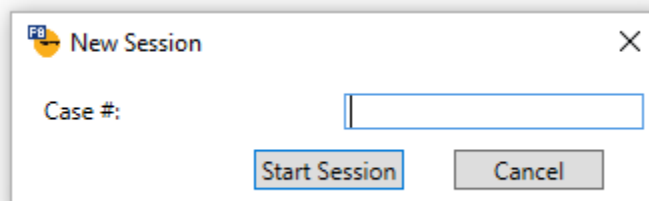
Gotta start somewhere.

#### Manually

With the camera tab selected click on the “+” button in the upper right corner of the screen.



Doing so will open a dialogue box for the user to enter case number information. If the case ID info does not match an existing case then a new case will be created. Press the enter key or click the “Start Session” button to begin.



#### Using a Barcode Scanner

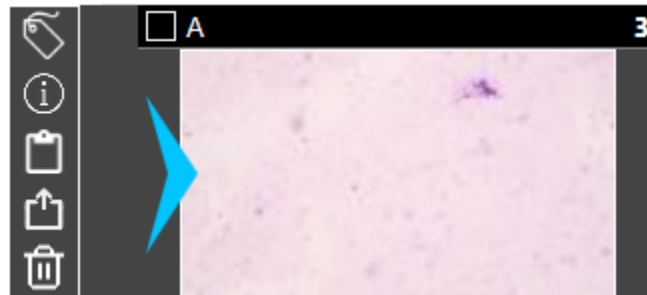
Another way to open a session is to simply scan the barcode on a container, cassette or slide. This requires the application to be configured to parse the user’s barcodes.

In either situation, when an existing case is opened the captured images will populate on the filmstrip to the right. If the film strip displays “No images” then the case has no associated images in the database.

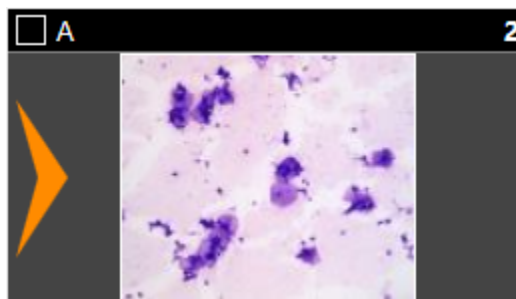
## 4.02 - The Filmstrip

All of the images from the selected case will display vertically to the right, resembling a filmstrip. When you import an image or capture one new, it will appear here. There are three ways of interacting with objects that appear in the filmstrip: mousing over, selecting and checking.

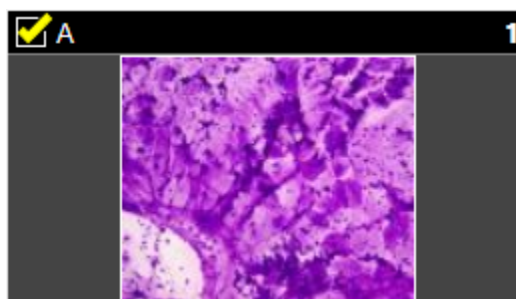
Mousing over occurs when the mouse cursor is over an image on the filmstrip but nothing has been clicked. Image options will appear and the image will be marked with a blue arrow.



Clicking on an image will select it, opening it in the main viewing window and marking it with an orange arrow on the filmstrip.



Check an image by clicking inside the small box in the upper left corner of its filmstrip entry. Many images may be checked even if they are not selected.



### Image Options

When you mouse over an image on the filmstrip a short list of buttons will appear to the left.



From top to bottom, they are as follows:



#### **Metadata**

Review or edit metadata for this image. Metadata is covered in more detail below.



#### **Image Info**

Displays information, such as resolution and date of capture, for the image.



#### **Copy to Clipboard**

Copy this image to the system clipboard, to be pasted elsewhere.



#### **Export**

Export a copy of this image to a specific file location.



#### **Delete**

Delete the image.

### 4.03 - Metadata Configuration

This section will discuss how to set up and configure metadata fields and covers topics such as, default values, metadata field types, barcode parsing, and image titles.

## Security Note

Metadata Types and Folder Structures can only be edited by super users or users that have been assigned to a user group with the appropriate permissions.

*These settings should not be changed after initial set up, except by specifically authorized personnel.*



## Metadata Types

Metadata Types

In the Metadata Types tab a list of available Metadata classifications can be found and the interface to create and edit them.

Metadata Types and Folder Structure

Metadata Types Folder Structure

⚠ Do NOT change these settings after initial setup unless you know what you are doing! ⚠

Case #  
Specimen #  
Block #  
Slide #  
Image #

Clicking on one of the available options in the column to the left will open it for editing.

Name:

Description:

Next is a drop down menu to determine how this Metadata Type will organize information. Each selection is described below.

Text

- Text
- Numeric
- Boolean
- Incrementing

**Text Metadata Type** - This Metadata Type deals with text information such as case numbers or specimen identifiers.

Data Type:	<input type="text" value="Text"/>
Maximum Text Length:	<input type="text"/>
Text Format String:	<input type="text"/> ⓘ
Number of Text Lines:	<input type="text" value="1"/>

*Maximum Text Length* - Allows the user to define a maximum text length for this Metadata Type. This value is measured in individual characters and valid numbers are 1 to 255.



*Text Formatting String* - Allows the user to define a specific format for the information in this Metadata Type. Nonconforming data entered will be flagged in red to notify users of a mistake in entry. The information button to the right of this entry will show formatting options and commands when clicked. This information screen is shown below.

Example format definition: AA[A]99-00009

Each character in the sequence defines an element of the format:

```
***** Format String Rules *****
"": encloses literal text. For a literal ", a double "" is used.
*: Any printable character can be entered
x: Any printable character can be entered, and it will be converted to lower-case if alpha
X: Any printable character can be entered, and it will be converted to upper-case if alpha
@: Any alpha character can be entered
a: Any alpha character can be entered, and it will be converted to lower-case
A: Any alpha character can be entered, and it will be converted to upper-case
0: Padding zero. Will be replaced by '0' if no numeric char is entered. Must be followed by '9'
9: The characters 0-9 can be entered
&: Any alpha character and the characters 0-9 can be entered
c: Any alpha character and the characters 0-9 can be entered, and it will be converted to lower-case if alpha
C: Any alpha character and the characters 0-9 can be entered, and it will be converted to upper-case if alpha
[]: Characters enclosed in '[' ']' are optional
Any character not listed above is taken as a literal
*****
```

Example case number entry:

<u>The User Types</u>	<u>The Case Number Entry Builds as the User Types</u>
u	U
w	UW
m	UWM
1	UWM1
2	UWM12
8	UWM12-00008
7	UWM12-00087
6	UWM12-00876

Text formatting can be enabled or disabled by clicking on the "A9" in the text box.

OK

*Number of Text Lines* - Allows the user to define the number of returns that may be used when entering this Metadata. One (1) is the minimum value that should be used.

**Numeric Metadata Type** - This Metadata Type is similar to text but deals only with integers and decimals.

Data Type:

Minimum Value:  Maximum Value:

Number of Decimals:

*Minimum Value* - Allows the user to define the lowest value for this Metadata Type.

*Maximum Value* - Allows the user to define the greatest value for this Metadata Type.

*Number of Decimals* - Allows the user to define the number of places past the decimal, tenths, hundredths, thousandths, etc.

**Boolean Metadata Type** - This Metadata Type checks whether a statement is true or false, 1 or 0.

Data Type:

**Incrementing Metadata Type** - This Metadata Type is fields that increment, such as A, B, C, or 1, 2, 3.

Data Type:

Representation:  Alpha  Numeric

Alpha Character Set:  Aa

*Representation* - Allows users to specify whether the alphabet or numbers will be used for this type.

*Alpha Character Set* - Allows the user to omit potentially confusing characters from the alphabet used when “Alpha” is selected. Clicking the “Aa” will toggle capital or lowercase letters.

**Value Key** - This field is available for every Metadata Type.

Primarily used for barcode parsing rules.

PathSuite 3

X

The key for retrieving the metadata value from a barcode or other source. Note: Not all keys may be relevant for all types of lookup services.

HL7 Data (Enterprise Mode)	Value Key
Accession Date	LISLookup:observation_start_date
Block Container Epic ID	LISLookup:observation_block_container_id
Block ID	LISLookup:observation_block_id
Case #	LISLookup:observation_placer_order_number
Epic Order Barcode	LISLookup:order_order_control
First Name	LISLookup:patient_name_first
Middle Name	LISLookup:patient_name_middle
Last Name	LISLookup:patient_name_last
Patient Name	LISLookup:patient_fullname
Patient MRN	LISLookup:patient_mrn
Slide Container Epic ID	LISLookup:observation_slide_container_id
Slide ID	LISLookup:observation_slide_id
Slide Stain or Test	LISLookup:observation_usi_value
Specimen Collection Date	LISLookup:observation_start_date
Specimen Epic ID	LISLookup:observation_specimen_epic_ID
Specimen ID	LISLookup:observation_specimen_ID
Specimen Source Description	LISLookup:observation_specimen_source_description
Specimen Source	LISLookup:observation_specimen_source_id

Barcode Metadata	Value Key
Metadata Value	BarcodePart:barcode_parsing_rules

**Barcode Parsing Rules:** One or more strings separated by ':' characters where each string is of the format: *specifier=value*

Specifier	Value
IO (initial offset)	The number of barcode characters to skip before parsing (default is 0)
PD (preceding delimiter)	The delimiter characters preceding the value in the barcode
PC (preceding delimiter count)	The number of instances of the preceding delimiter preceding the value in the barcode (default is 1)
FD (following delimiter)	The delimiter characters following the value in the barcode (default is the same as the preceding delimiter)
VO (value offset)	The number of characters between the end of the delimiter and the beginning of the value (may be negative, default is 0)
VL (value length)	The maximum number of characters in the value (default is the number of characters remaining until the following delimiter or the end of the barcode)

**Example #1:** "BarcodePart:IO=0:VL=10" will extract the first 10 characters "SU24-12345" from the barcode string "SU24-12345;A;1;2"

**Example #2:** "BarcodePart:IO=0:PD=;:PC=1:VL=1" will extract "A" from "SU24-12345;A;1;2" as it extracts 1 character after the first semicolon

**Example #3:** "BarcodePart:IO=4:PD=;:PC=2:FD=;:VO=1:VL=3" will extract "234" from the barcode string "X24-007,A,123456,0"

Image Info Data	Value Key
Owner	ImageInfo:owner
Create Date	ImageInfo:created
Import Date	ImageInfo:imported
Computer	ImageInfo:computer
Objective Magnification	ImageInfo:objectivemag
Microscope Body Magnification	ImageInfo:microscopebodymag
Camera Adapter Magnification	ImageInfo:cameraadaptermag
Lens Magnification	ImageInfo:lensmag
Digital Zoom	ImageInfo:digitalzoom
Imaging System	ImageInfo:imgsys

OK

## Metadata Folder Structures

Only one folder structure exists for editing in PathSuite Pro.

*These settings should not be changed after initial set up, except by specifically authorized personnel.*

The screenshot shows the 'Metadata Types and Folder Structure' configuration window for 'PathSuite Professional'. The window has two tabs: 'Metadata Types' and 'Folder Structure', with 'Folder Structure' selected. A warning message states: 'Do NOT change these settings after initial setup unless you know what you are doing!'. The main configuration area includes:

- Name:** PathSuite Professional
- Description:** The Folder Structure for PathSuite Professional
- Folders:** A tree view showing a hierarchy: Case Folder (expanded) -> Case # -> Specimen Folder -> Specimen # -> Image # -> Block Folder -> Block # -> Slide Folder -> Slide #.
- Image Title:** A list of metadata tags: Case #, Specimen #, Image #, Block #, Slide #.
- Buttons:** 'Add Folder', 'Add Metadata Tag', and 'Remove'.
- Form Fields:** 'Name: Case Folder' and an empty 'Description:' field.
- Metadata:** 'Created: 1/10/2021 7:00 PM' and 'By: Super User'.

Navigation buttons 'Save' and 'Close' are visible on the right side of the window.

## 4.04 - Hardware Tab for a Microscope Camera Control

This section will discuss what to expect from the Hardware Controls when using a SPOT microscopy camera. Begin by clicking on the Hardware Controls Tab.



## Hardware Control Tools

### Capture Image

Clicking on this button will capture a still image using the system camera. Whatever is shown in the viewing window will appear in the full-resolution captured image.

Capture



### Image Brightness

This slider will digitally increase or decrease the exposure for the image to be captured. The house shaped button will reset to the home setting in the “More” menu. Changes in brightness are displayed in the viewing window.

Brightness



### Gain

Toggles between the “Normal” and “High Speed” gain settings found in the “More” menu discussed below.

Gain



Normal

Gain



High Speed

### Color Balance

When clicked this tool will correct the color of the image, compensating for the temperature of the light.

Color



### Focus Gage

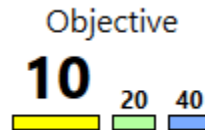
Toggles on and off the “Focus Gauge”. When active the focus gauge will show a vertical blue meter, which will fill as the software detects the image coming into focus. Although it is very accurate, the focus gauge may not always represent perfect focus for every element within an image.

## Focus



### Objective Selector

The Objective Selector tells the software which objective is being used, which will affect all annotations that place a measuring device over the image. This is saved as part of the metadata for the image.



### More Menu

Click on the More Menu to expand it.



### Home Brightness

This sets the home brightness discussed in the Brightness section above.

Home Brightness:

### Gain Settings

These gain settings control capture acquisition times and the live image display.

Normal Speed:		High Speed:	
Gain:	<input type="text" value="1"/>	Gain:	<input type="text" value="64"/>
Acceleration:	<input type="text" value="0"/>	Acceleration:	<input type="text" value="1"/>

#### *Gain*

As the gain is increased, exposure times are shortened.

#### *Acceleration*

Increases the framerate of the live image.

### Image Flip Controls

When either or both boxes are checked, the image will be mirror-image flipped in the indicated direction.

- Flip Image Horizontally
- Flip Image Vertically

### Remain in Live Mode

This setting reduces the number of clicks between consecutive captures and helps rapidity in long imaging sessions. This should only be done if confident in the image settings.

### Apply Flatfield

Applying a flatfield filter will balance the lighting throughout the image, eliminating dark corners or other uneven lighting issues. To apply a flatfield, press the button and follow the steps that display.



### Disable GPU Processing

Toggles allowance of the software to use the system's video processor.

### Image Magnifier Tool

The Image Magnifier tool, found in the lower left, will change the cursor into a circle of preset magnification while it is over the viewing window.



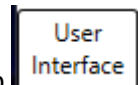
### Magnifier Settings

The settings for the Magnifier Tool can be found in the "User Interface" tab of the settings menu, in the upper left. Click on the gear icon in the lower left, and then click on the "User Interface" tab.



Settings

User Interface Tab



The size is measured in pixels and the magnification is measured in arbitrary units for user reference.

Magnifier:

Size:

350

Magnification:

75

## Fullscreen

This button will use all of the screen real estate to display the view from the camera. Or, to put it differently, this button will cause the viewing window to enter fullscreen mode.





## 4.05 - Hardware Tab for G20 and SG20 Gross Camera Control

The hardware tab of a system using a grossing camera, such as those found in the PathStation, PathStand or PathMobile, will display slightly different options and tools than a system using a microscope camera.



### Hardware Control Tools

#### Capture Image

Clicking on this button will capture a still image using the system camera. Whatever is shown in the viewing window will appear in the full-resolution captured image.

Capture



#### Image Brightness

These buttons will digitally increase or decrease the exposure for the image to be captured. The number to the right shows the degree (+/-) the default setting. Changes in brightness are displayed in the viewing window.

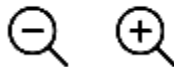
Brightness



#### Zoom Controls

These buttons can be used to adjust the zoom on the image.

Zoom



At the bottom of the Hardware Controls tab is a slider bar for zoom.

## Image Display

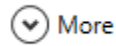
Fit to Window

Zoom:



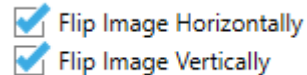
### More Menu

Click on the More Menu to expand it.



### Image Flip Controls

When either or both boxes are checked, the image will be mirror-image flipped in the indicated direction.



### Auto White Balance and Color Temperature

White balance is a digital correction for the temperature of the light. When “Auto White Balance” is clicked then this correction will be performed automatically by the software. When it is not checked, a dropdown menu will appear to allow selection of a custom temperature correction.

Auto White Balance

Color Temperature:

4600 ▾

### Image Magnifier Tool

The Image Magnifier tool, found in the lower left, will change the cursor into a circle of preset magnification while it is over the viewing window.



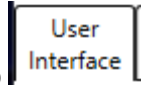
### Magnifier Settings

The settings for the Magnifier Tool can be found in the “User Interface” tab of the settings menu, in the upper left. Click on the gear icon in the lower left, and then click on the “User Interface” tab.



Settings

User Interface Tab



The size is measured in pixels and the magnification is measured in an arbitrary reference unit.

Magnifier:

Size:

350

Magnification:

75

### Fullscreen

This button will use all of the screen real estate to display the view from the camera. Or, to put it differently, this button will cause the viewing window to enter fullscreen mode.



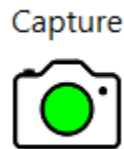
## 4.06 - Hardware Tab for G2 and G8 Gross Camera Control

The hardware tab of a system using a grossing camera, such as those found in the PathStation, PathStand or PathMobile, will display slightly different options and tools than a system using a microscope camera.

### Hardware Control Tools

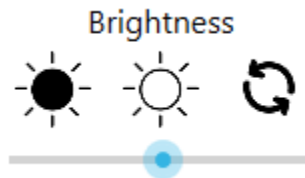
#### Capture Image

Clicking on this button will capture a still image using the system camera. Whatever is shown in the viewing window will appear in the full-resolution captured image.



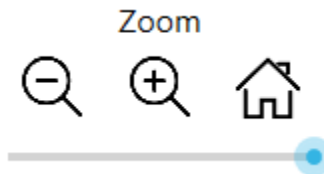
#### Image Brightness

This slider will digitally increase or decrease the exposure for the image to be captured. The button showing two arrows chasing each other will reset to the default setting. Changes in brightness are displayed in the viewing window.



#### Zoom Controls

These buttons can be used to adjust the zoom on the image. There is also a slider control for rapid zooming. The house button will reset to the "Home Zoom Position" setting.



#### Focus Gauge

Toggles on and off the “Focus Gauge”. When active the focus gauge will show a vertical blue meter, which will fill as the software detects the image coming into focus. Although it is very accurate, the focus gauge may not always represent perfect focus for certain elements within an image.

Focus



### Focus Controls

The G2 and G8 SPOT grossing cameras offer an auto-focus option which should be used in most situations. There are no settings for auto focus.

Focus



### Manual Focus

In manual mode, several controls appear. The “Current” shows a reference number that will change as the focus settings are manipulated. The “Fine” controls will change the “Current” by 1 and the “Coarse” will change it by 100. There is also a slider bar for rapid focus.

Focus



Current: 1550

Fine:



Coarse:



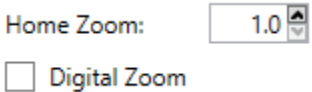
### More Menu

Click on the More Menu to expand it.



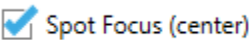
### Zoom Settings

The “Home Zoom” option sets the home position for the “Home Zoom” described button above. The “Digital Zoom” option will allow the camera to zoom past its optic capability using digital enhancement.



**Spot Focus**

Under normal circumstances, this camera system will use a multi-point matrix of the field of view to calculate an average focus setting to get the whole viewing window as close to perfect focus as possible. This setting commands the camera to focus only on objects in the center of the image. This is particularly valuable for smaller samples or particularly dimensional, or raised objects.



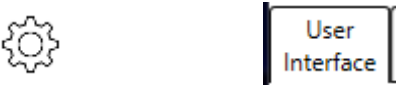
**Image Magnifier Tool**

The Image Magnifier tool, found in the lower left, will change the cursor into a circle of preset magnification while it is over the viewing window.

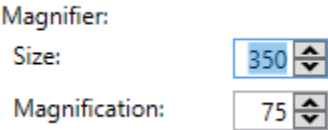


**Magnifier Settings**

The settings for the Magnifier Tool can be found in the “User Interface” tab of the settings menu, in the upper left. Click on the gear icon in the lower left, and then click on the “User Interface” tab.



The size is measured in pixels and the magnification is measured in times of magnification?



**Fullscreen**

This button will use all of the screen real estate to display the view from the camera. Or, to put it differently, this button will cause the viewing window to enter fullscreen mode.



## 4.07 - TWAIN Camera Controls for 3rd Party Cameras

When using a 3rd party camera, select the TWAIN tab to capture images.



### Hardware Control Tools

#### Twain Transfer (Capture Image)

Command the connected imaging device to capture an image and transfer it to the PathSuite Software. If a case is not yet open, a prompt will appear asking for a case ID.



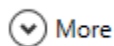
#### Objective Selector

The Objective Selector only appears if the “Microscope Camera” option is toggled on in the “More” menu discussed below. This setting tells the software which objective is being used and will affect measurement annotations if the “Sensor Pixel Size” is entered. Objective magnification may also be noted in the metadata.



#### More Menu


Click on the More menu to expand it.



#### Twain Data Source

The imaging device being used to capture must be selected here.

TWAIN Data Source:

OLYMPUS DP2-TWAIN 

### Microscope Camera

This lets the software know if the imaging device is being mounted to a microscope or not. The “Objective Selector” (covered above on this page) will show for microscope cameras.

Microscope Camera

### Camera

Allows the user to name this imaging device.

Camera:

### Sensor Pixel Size

When this is entered and the objective selector is used, the measurement annotations will be calculated automatically without the need of a stage micrometer.

Sensor Pixel Size ( $\mu\text{m}$ ):

### Auto-Close TWAIN


When toggled on, this option will close the TWAIN connection after a single capture. This should only be used under specific security settings.

Close TWAIN After One Image

### Transfer Mechanism

This selection must correspond to the data transfer method employed by the selected imaging device. The info button to the right informs this option.

TWAIN Transfer Mechanism:

Native   
 Memory

## 4.08 - Import Tab

Select the Import tab (see below) to bring individual images or whole image archives into PathSuite Pro.

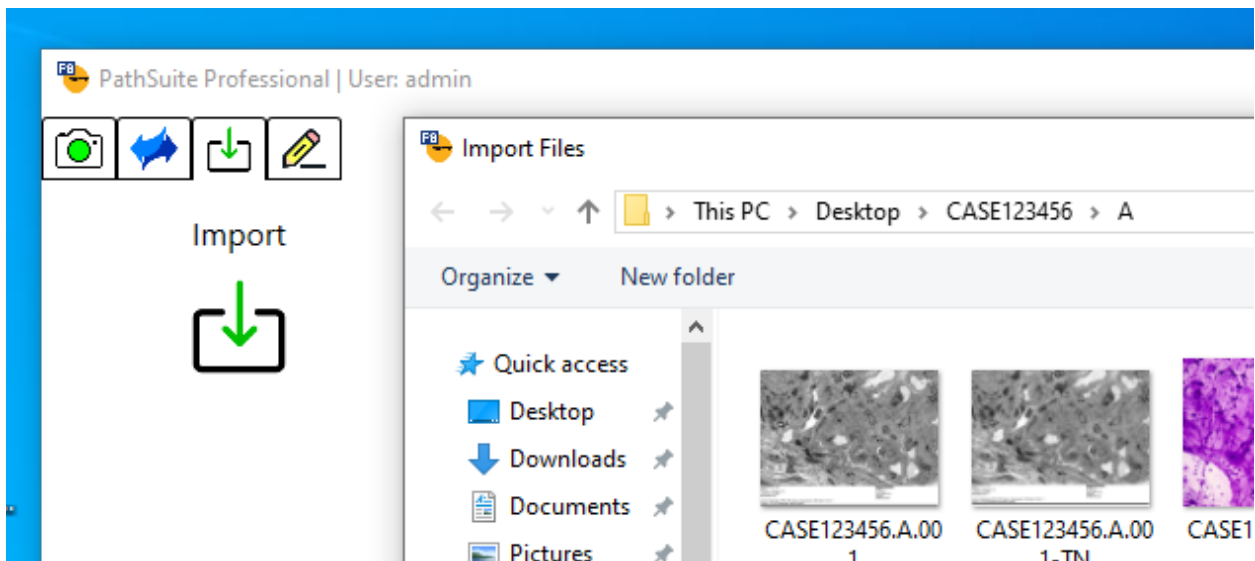


## Import an Image

This section will discuss importing individual images.

### The Import Button

The import button at the top of this tab is the primary process to importing images. When clicked this will open a file browser so that the image may be found. If no case is open, a prompt will appear requesting case ID information. This tool will import multiple images, every image selected.



After entering the case ID information, the image will display along with the image’s metadata fields for editing. The image is saved with the available metadata automatically. The “Delete” button discards the image.

### The Drop Panel

The other option for importing single images is the drop panel, located under the import button, marked “Drop Image Files Here.” Users may drag image files to this panel to open them in PathSuite Pro. If no case is open, a prompt will appear requesting case ID information.

## Drop Image Files Here

After entering the case ID information, the image will display along with the image's metadata fields for editing. The image is saved with the available metadata automatically. The "Delete" button discards the image.

### Import an Image Archive

Users who are migrating to PathSuite Pro from PathSuite 2 may import their image archive from the older program if they so choose. Importing a PathSuite 2 Image Archive is a slightly more complicated process that can take a very long time (2 days), thankfully it is automated once it is properly set up, and usually only needs to be done once per system.

Users that have migrated a PathSuite 2 Archive prior to the release of this document may have been provided an alternate instruction. That is provided in the following link for your convenience.

[PathSuite Pro Migration Instruction](#)

### Locate the Archive


Begin by opening PathSuite 2 and clicking the "Settings" button, marked with a gears icon, in the bottom right corner. Once in the settings menu, select the "Administrator" tab and locate the file path in the center of the menu, labeled "Location of the program's master catalog." Copy or otherwise record this file path and close PathSuite 2.

**PathSuite Setup**

General | Case & Specimen | Image Copies | Annotations & Measurements | **Administrator** | Collaboration

Administrator Use Only

**Configure Camera** Camera configuration takes effect only after you restart the program.

 Calibrate the system by determining the scale at each zoom level, so the program can compute measurement values.

---

Location of the program's master catalog:

...

Date

Catalog type: J

---

**Test Foot Switches** **Set password**



---

Close TWAIN session after a transfer?  
(Takes effect after restarting program.) Auto - whatever the client application decides ?





Follow original DirectDraw rule **Unlock UI**

OK Cancel

Four large gray rectangular areas, likely representing image capture zones or calibration points.

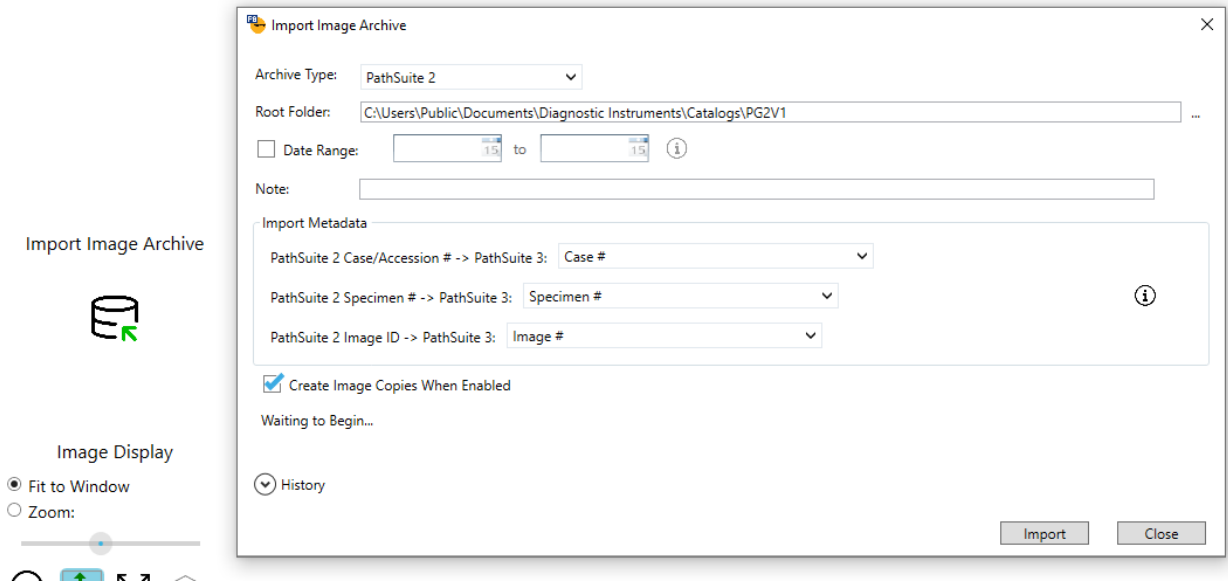
**Foot Pedal Assignments**

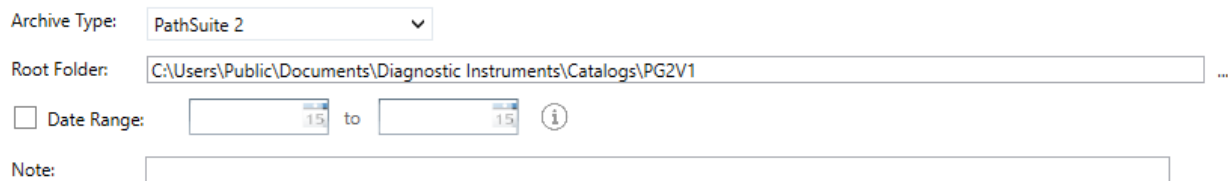
Left Middle Right

## Set up the Archive Transfer

Open PathSuite Pro, and select the “Import” tab and click the “Import Image Archive” button, located two thirds of the way down the tab.



In the window that appears, select PathSuite 2 from the “Archive Type” dropdown if it is not already selected. The file path collected from PathSuite 2 must be entered into the field labeled “Root Folder.” The option to transfer a range of dates, only the dates of the folders will be checked. A footnote may be recorded for this transfer in the box labeled “Note.”



The section below can be used to automatically enter metadata derived from the PathSuite 2 image data during the transfer. This feature is supported by the “Info” button to the right.

Import Metadata

PathSuite 2 Case/Accession # -> PathSuite 3:

PathSuite 2 Specimen # -> PathSuite 3:

PathSuite 2 Image ID -> PathSuite 3:



Create Image Copies When Enabled

Below that is a check box that will create image copies for each image in the transfer (if image copy directories are configured). Clicking the arrow marked “History” will open a log of previous transfers.



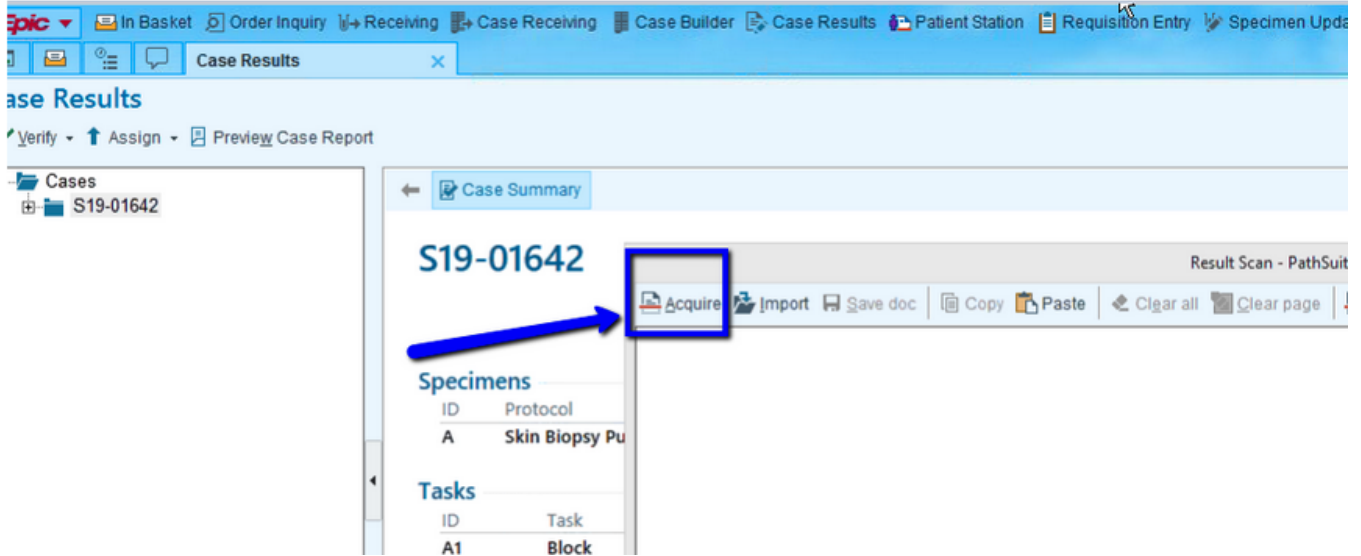
### Executing the Transfer

When the “Import” button is clicked, a message will appear to suggest that night sessions be employed for the, often lengthy, archive transfer. The transfer can be interrupted at any time and restarted when convenient by returning to the “Import Image Archive” window. When the transfer is finished, the images can be accessed by opening a new session.

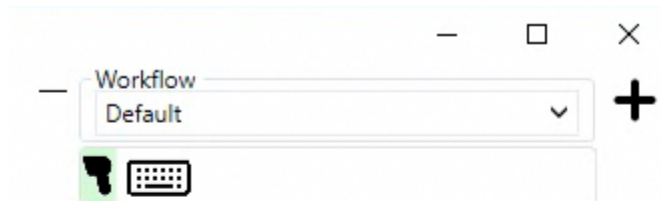
## 4.09 - TWAIN Export

In this section we will discuss the TWAIN transfer function which allows the LIS/LIM to use the PathSuite Software to capture images and annotate images.

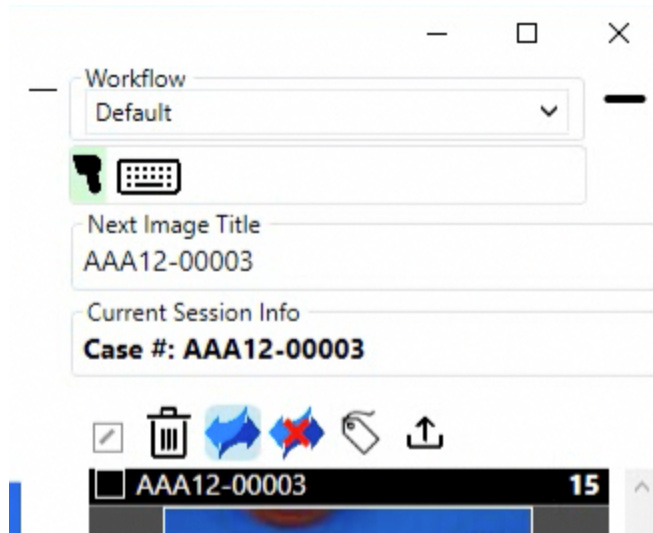
Before beginning, PathSuite Pro must be set as the “TWAIN Data Source” in the LIS/LIM.



When an image is acquired from the LIS/LIM, the TWAIN transfer tools will activate in PathSuite.



Now an image may be captured or imported as normal. Metadata can be edited or added as normal. Likewise, annotations can be made as normal. When finished, check the checkbox of the image from the filmstrip and the “TWAIN Transfer” button will become available.



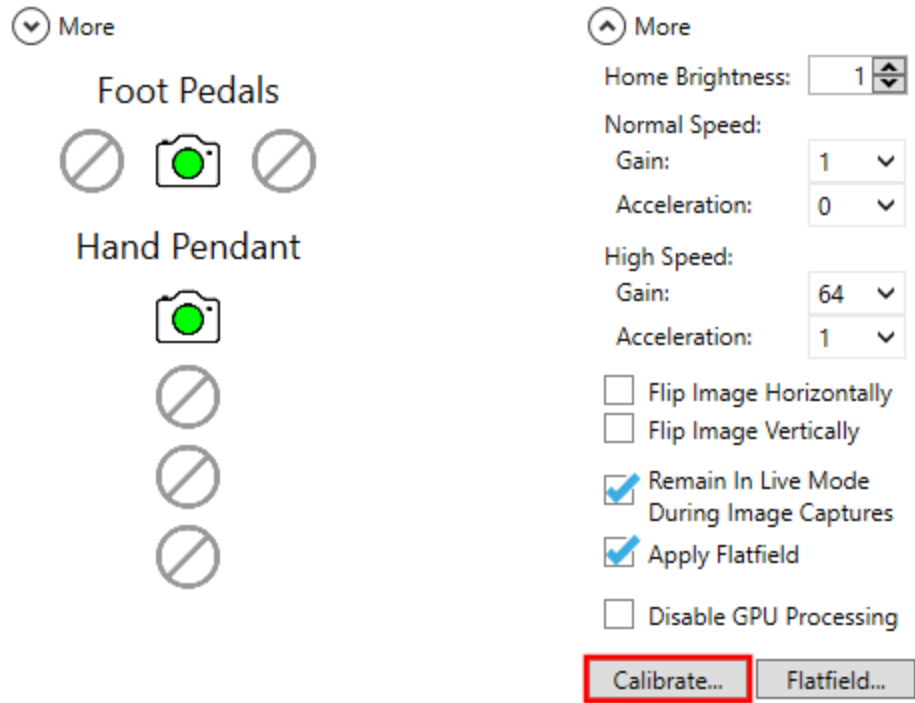
## 4.10 - Calibration

In the annotation section above we explored the calibration tools so that custom rulers and measurements can be visually noted on an image as well as how to calibrate individual images which is especially useful for images loaded into the PathSuite 3.0 software. Users can, instead, calibrate the system itself so that ruler annotations will be always available without the need to include a ruler or other measurement tools within every image. While this makes measurement annotations quick and simple, it is vital when placing measurements on microscopy images.

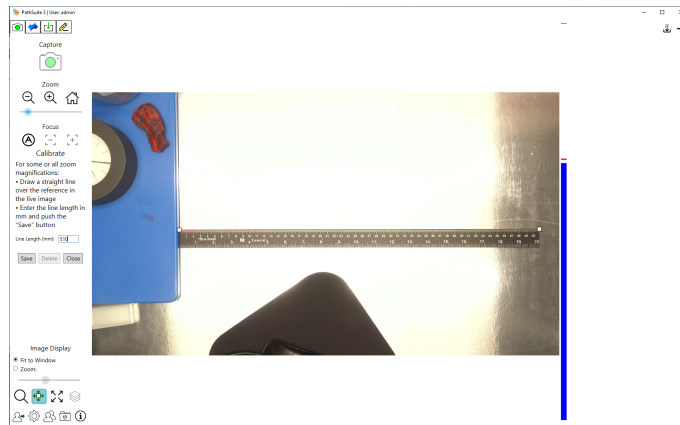
### Calibration of the SPOT Grossing System

This method of Calibration requires that the user place a ruler or similar measuring tool in the field of view of the PathSuite system and take on-screen measurements of the ruler at each zoom level of the system camera.

To begin, click on the Capture Tab and find the Calibrate button. You may need to toggle the More Options list in order to find it.

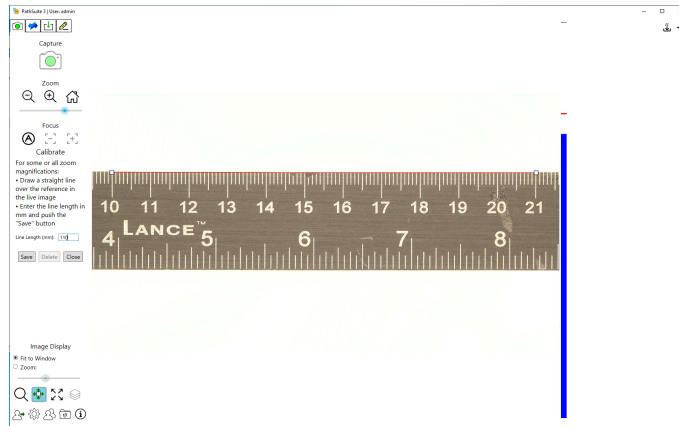


The system will automatically zoom out and allow the user to place a line by clicking the start and end points of the line. Once this line is drawn the length of the line must be entered in the available dialogue box. This process can take several minutes as most cameras have many zoom levels to set.

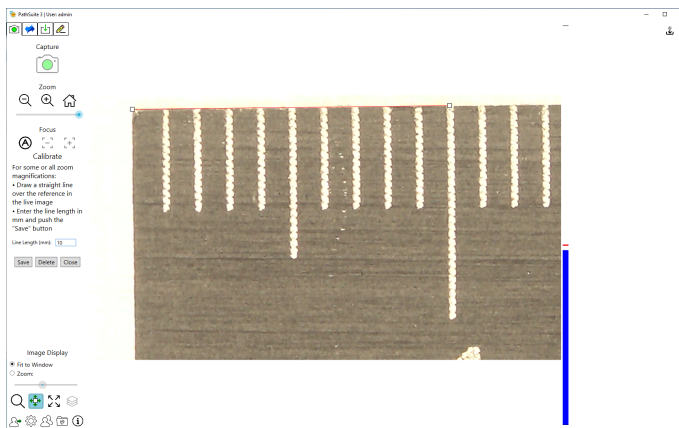


Zoomed out.





Half-way zoomed.

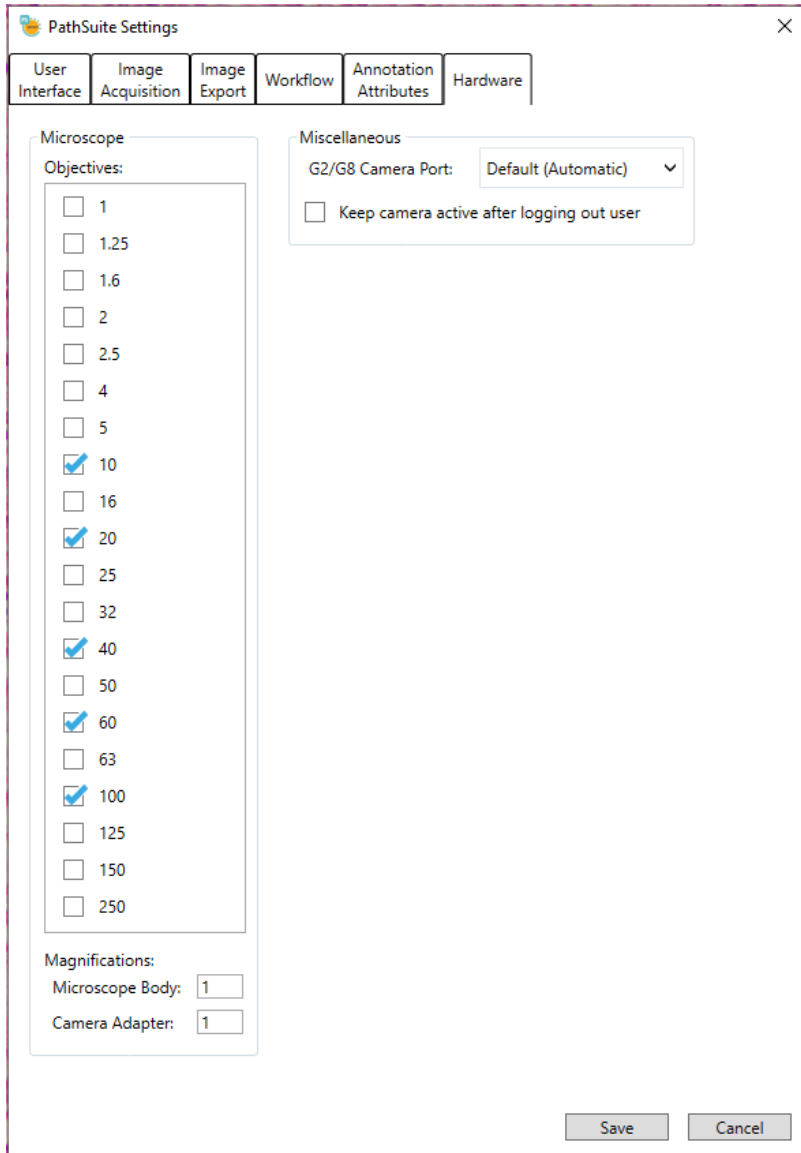


Fully zoomed in.

## Calibration of the SPOT Microscopy System



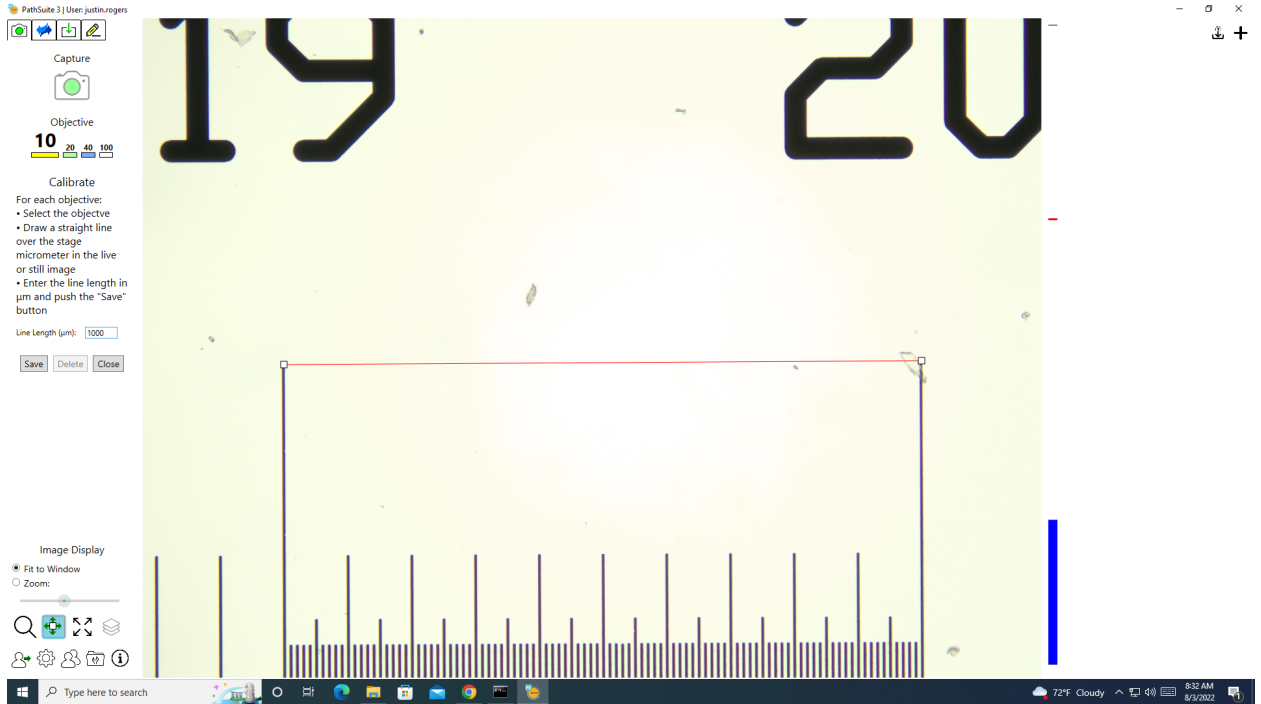
**Calculated (Automatic) Calibration** - This method of Calibration requires that the pathsuite system is using a SPOT Camera and that the user has saved the microscope's base magnification, the magnification of the camera coupler/adaptor, and the magnification of each objective on the microscope to the Microscope section of the Hardware Tab in the PathSuite 3.0 software settings. The measurement tools will automatically function once this information is saved.



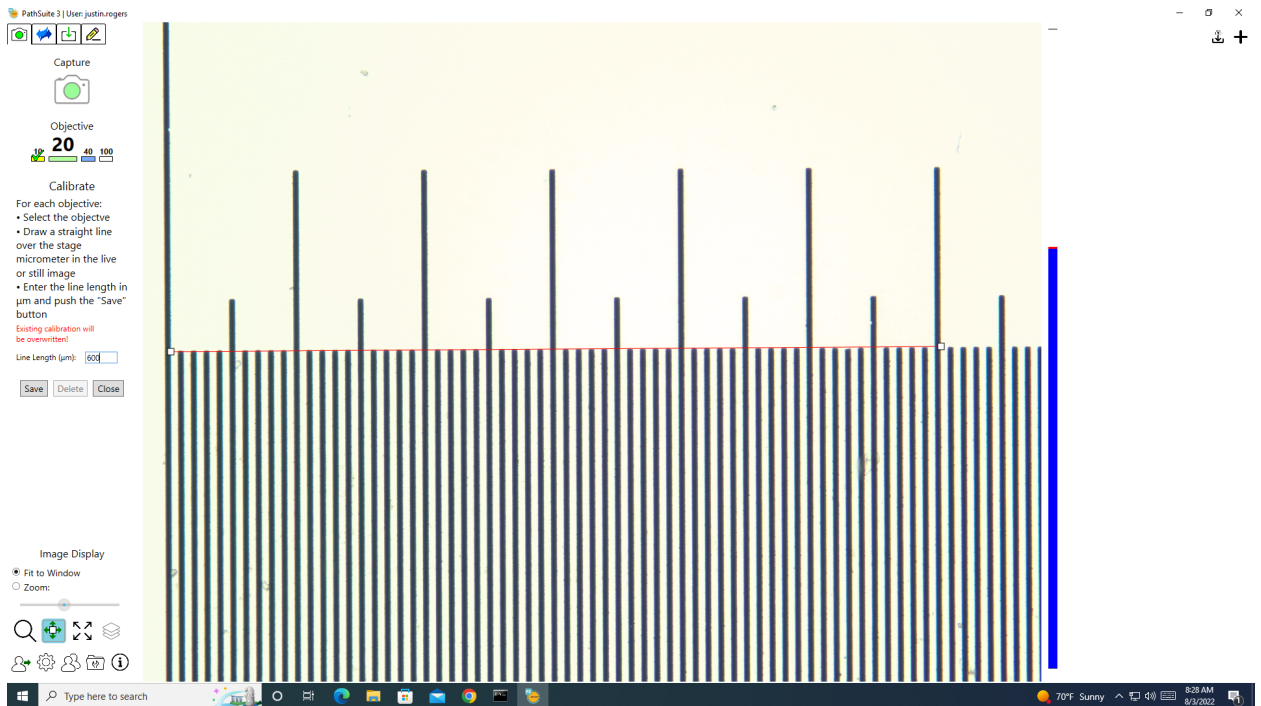
**Manual Calibration** - This method of Calibration requires the use of a stage micrometer and is nearly identical to the Grossing Calibration described above except that each magnification will instead be each microscope objective on your PathSuite system and each measurement will be taken in micrometers.



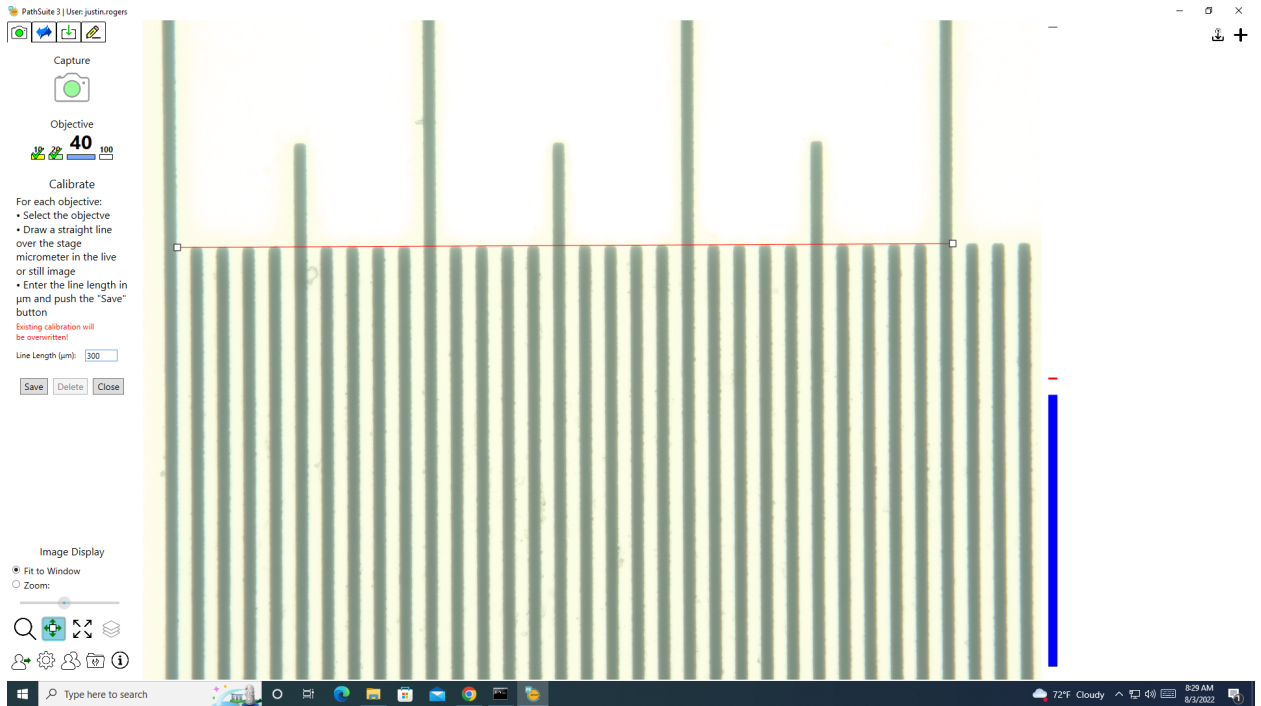
Once an objective calibration has been saved a green checkmark will appear over the objective selector.



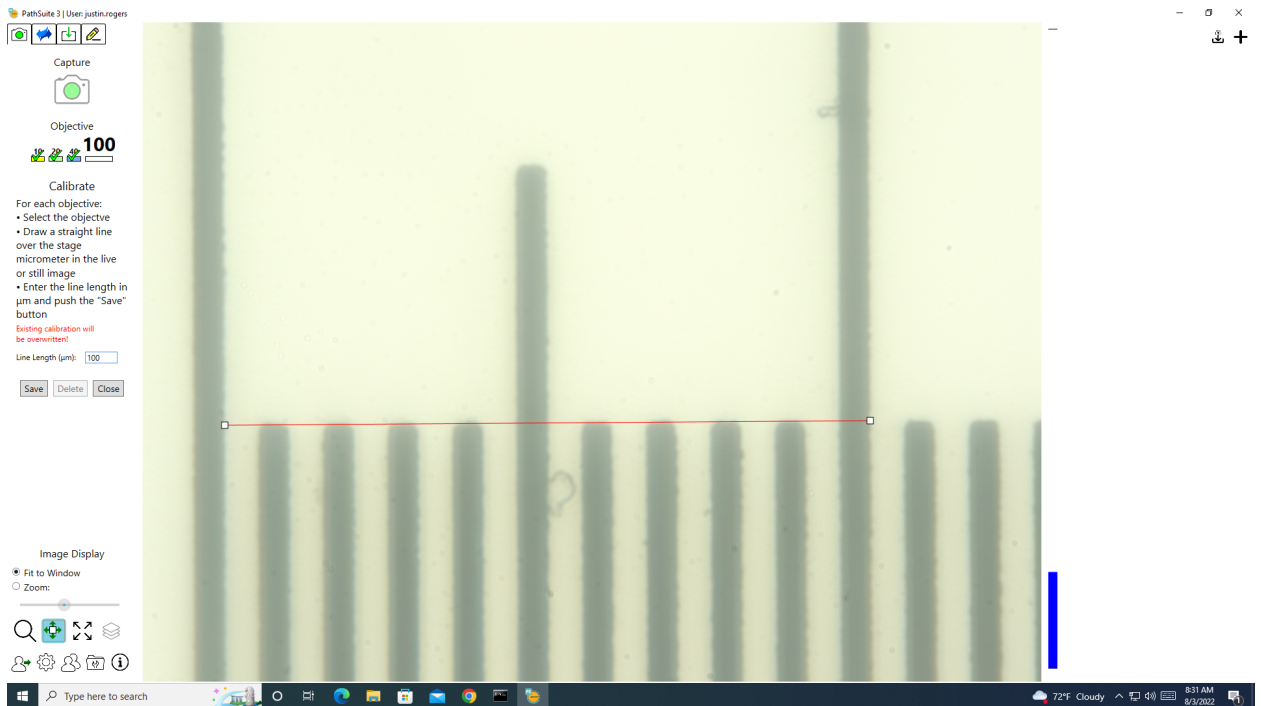
10x Objective



20x Objective



40x Objective



100x Objective

## Calibration of TWAIN System

### Sensor Pixel Size Method

This is covered in [section 4.07](#), above.

### Manual Calibration

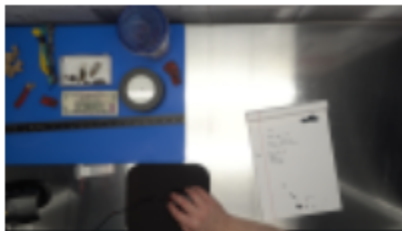
Manual calibration of a third party camera is identical to those described above for Microscopy or Grossing, depending on application.

~

## 4.11 - Annotations and Editing Tab



Annotations are notes or other visual cues that are laid over an image to add information or aid interpretation when viewed by others or during presentation.



Folder:  ▼

Patient MRN:  A9 🔒

Patient Name:

1 image(s) requiring approval

The fourth tab in the upper right hand corner in the Annotations and Editing tab. The tools found within will only populate when a captured image has been selected from the film roll of captured images on the right side of the screen. You may also load an existing image to annotate.

### Objects Panel



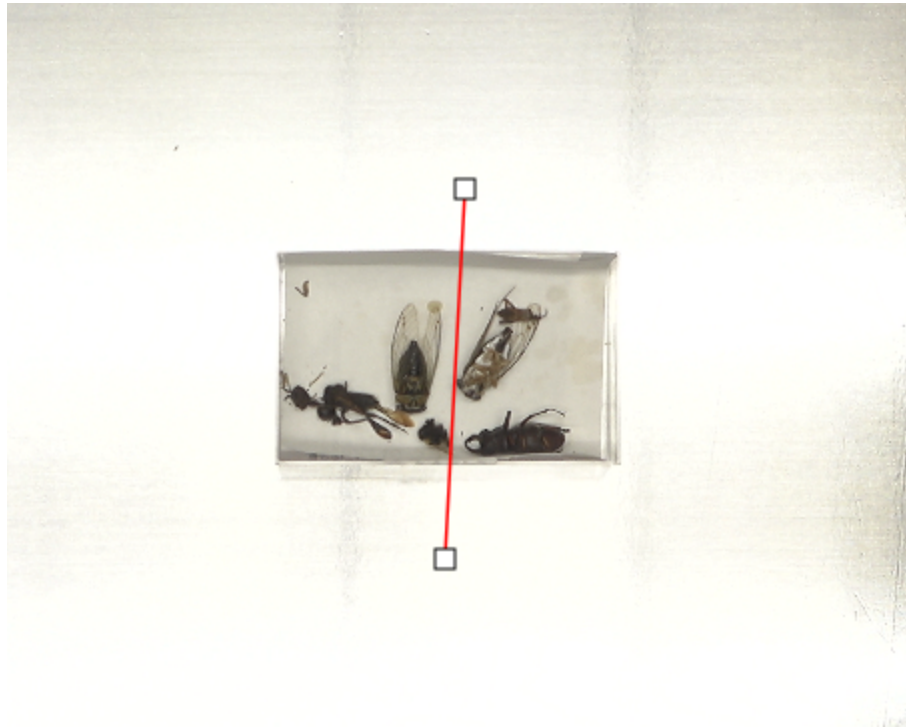
**Select Tool** - Allows the user to manipulate annotations in various ways. Clicking an annotation object will highlight it for manipulation or editing. A brief description of how the select tool interacts with other objects can be found below the entry for each tool's description.



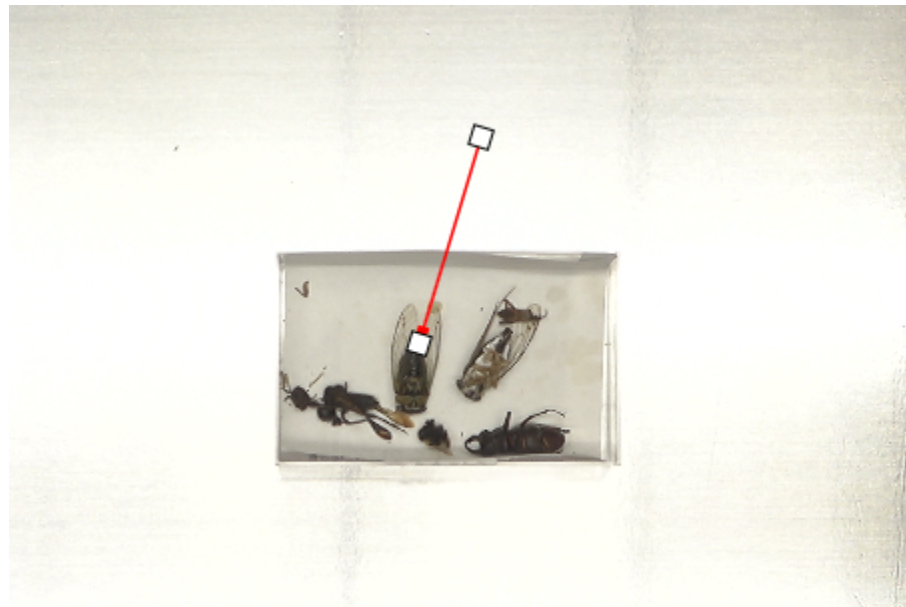
**Straight Line Tool** - Generates a straight line on the image. Click once to set the first point and then click on a second location to set the second point.

The select tool can be used to move the line itself or to grab and drag either point of the line.





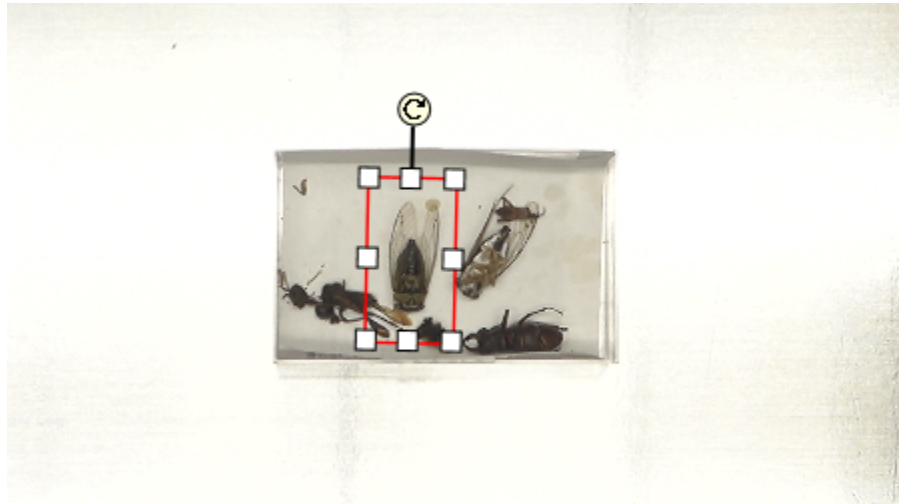
**Arrow Tool** - Creates an arrow on the image. This tool functions identically to the straight line tool. The second point will display the arrow head.



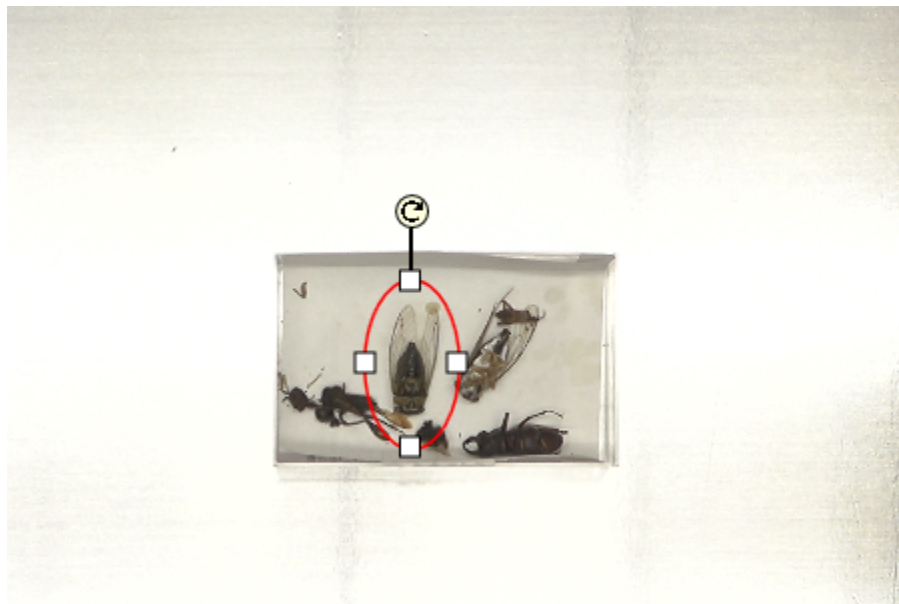


**Rectangle Tool** - Creates a rectangle on the image. The first click will place a corner point on the first side of the rectangle. Once the first point is placed, drag to the desired dimensions. Clicking a second time will set the corner point on the opposite side from the first.

The select tool can be used to move the rectangle itself, drag individual points on the rectangle and rotate the rectangle using the bar that extends from the center point of the first rectangle side.



**Ellipse Tool** - Creates an ellipse on the image. This tool functions identically to the rectangle tool.

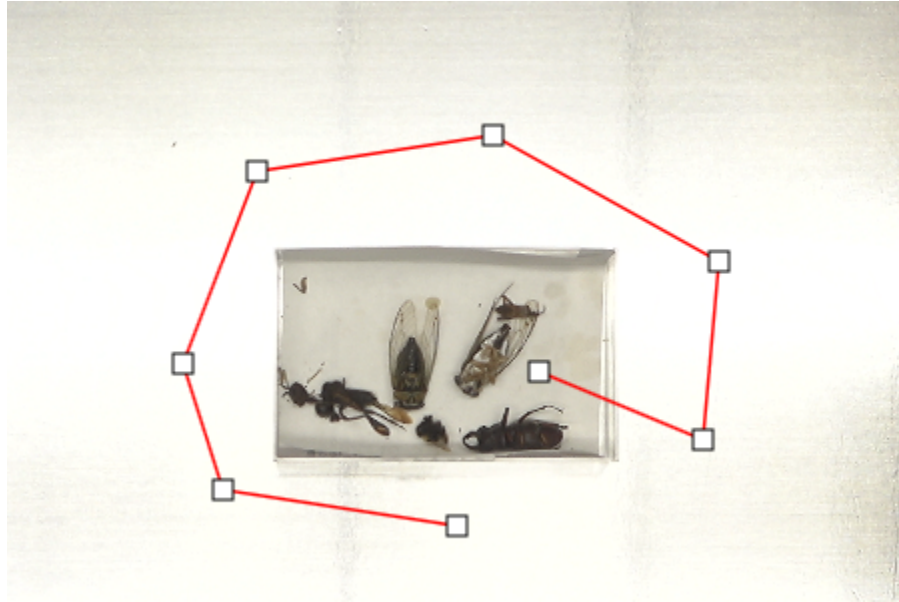




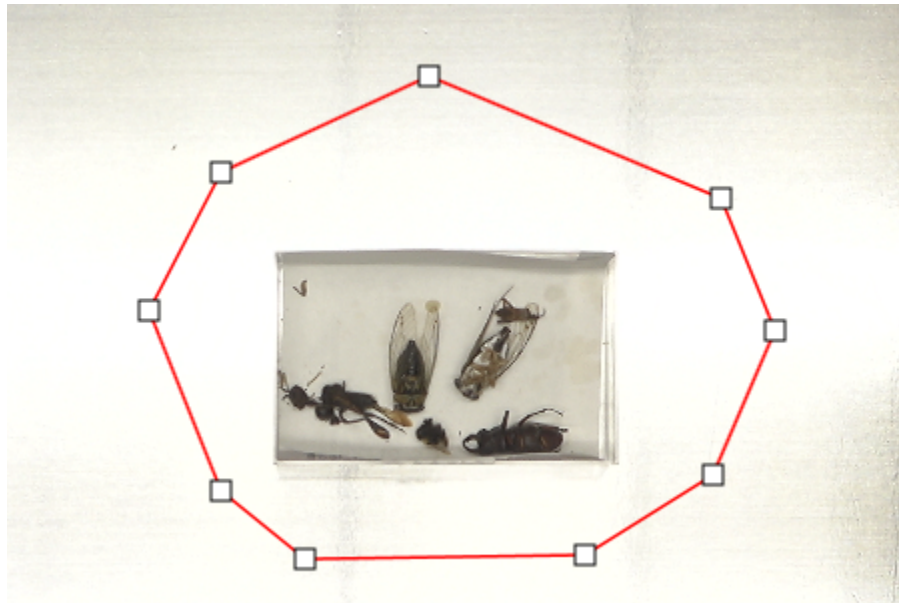


**Polyline Tool** - Creates a chain of straight lines connected point by point. The first click will determine the location of the first point, while each consecutive click will end the previous line and begin the next line in the chain. Double-clicking will place the last point in the chain.

The select tool will move the whole object or may be used to drag individual points in the chain.



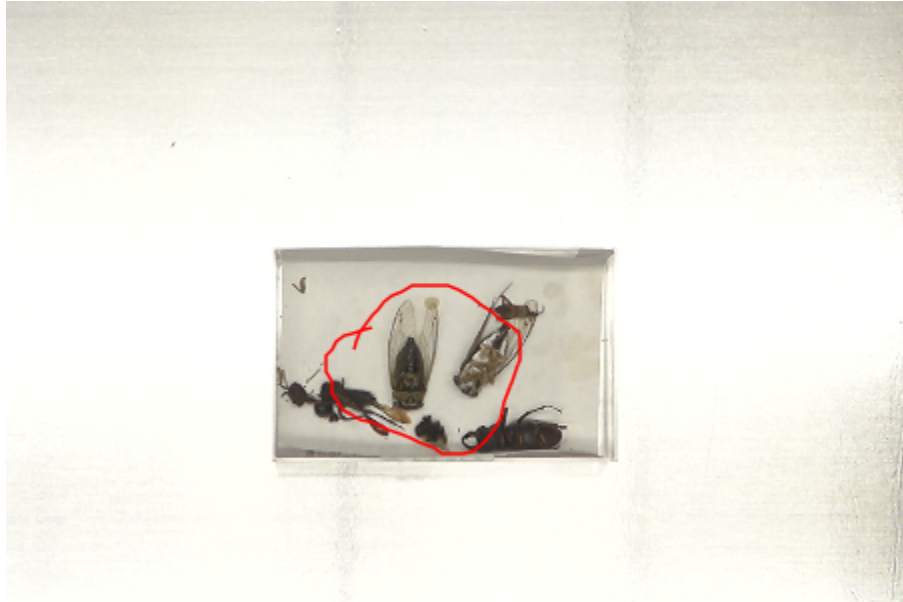
**Polygon Tool** - Creates a polygon on the image. This tool functions identically to the polyline tool except that placing the final point will automatically close the shape by drawing a line between the first and last points.





**Freehand Line Tool** - Creates a line generated by the user's free expression on the image. The first click places the starting point of the line. The line will exactly follow the path of the cursor. Clicking again will set the end point of the line.

The select tool can be used to move the entire object.



**Region Tool** - Creates a freehand shape on the image. This tool functions identically to the freehand line tool except that when the end point is set a straight line is drawn between it and the starting point.





**Text Tool** - Write on the image. Opens a text box to format phrases, sentences or paragraphs. Double-clicking the text box lays the text over the image.

The select tool can be used to adjust the dimensions of the rectangular field of text.



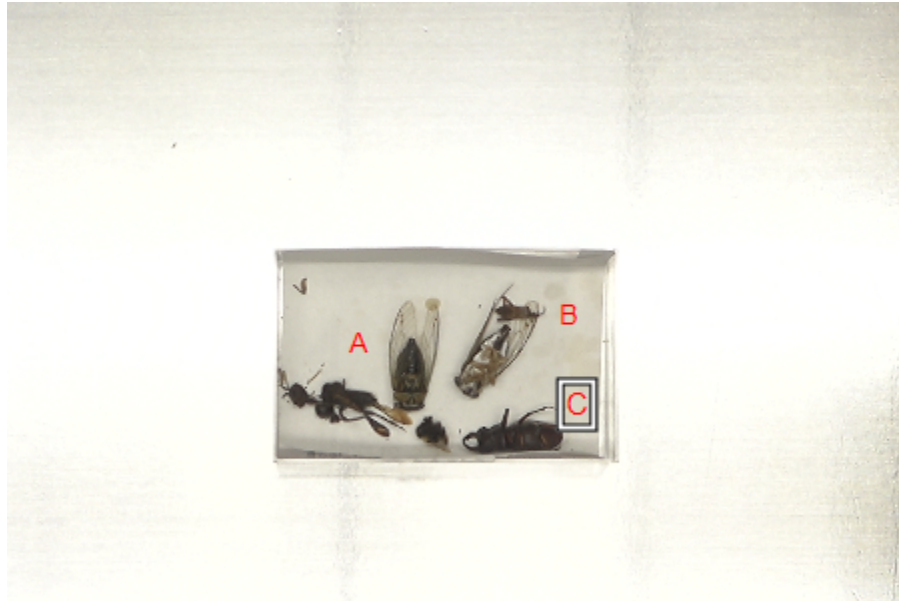
**Auto-Number Tool** - Places incremental numbers on the image. Clicking places the next number in a sequence, the first click defaults to 1 but this can be changed by typing the desired starting number into the text box to the immediate right of the tool icon.

The select tool can be used to drag individual numbers to different locations.

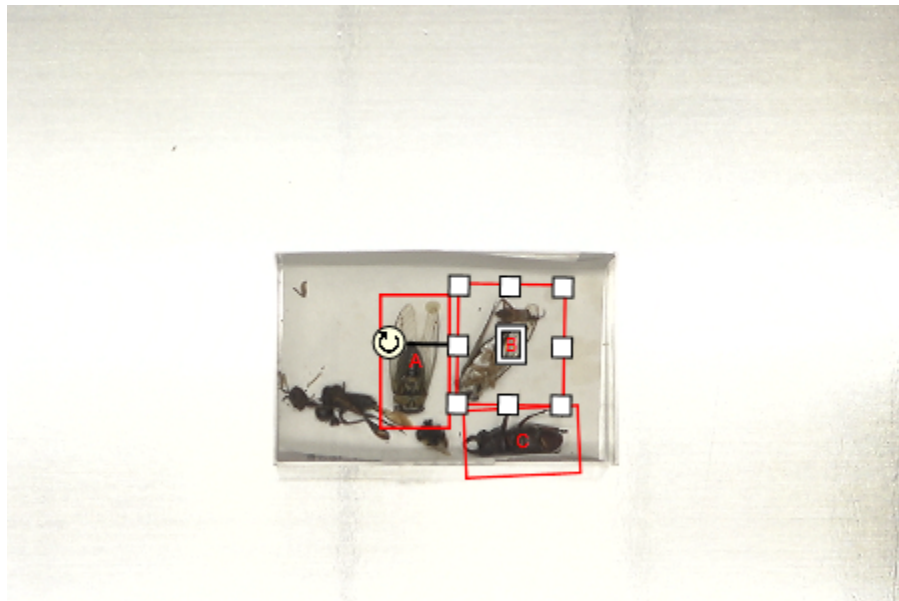




**Auto-Increment Alpha Tool** - This tool functions identically to the Auto-Number tool except that it will place a letter instead of a number.



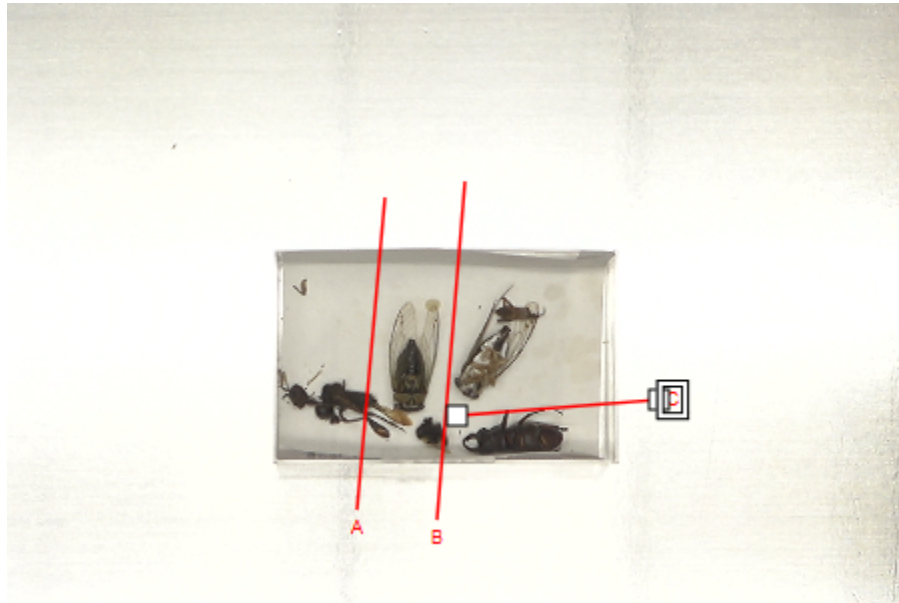
**Block Tool** - This tool creates a labeled rectangle. This tool functions as if using the rectangle tool except that it is labeled with a letter or number, as if using either of the auto-incremental labeling tools described above.







**Section Tool** - This tool creates a labeled line. This tool functions as if using the line tool except that it is labeled with a letter or number, as if using either of the auto-incremental labeling tools described above.



**Text Stamp** - Places a predefined text box onto the image. There is a drop down menu to select the appropriate message on the fly.



**Image Stamp** - Places a predefined image, such as a company logo, onto the image. There is a drop down menu to select the appropriate image on the fly.



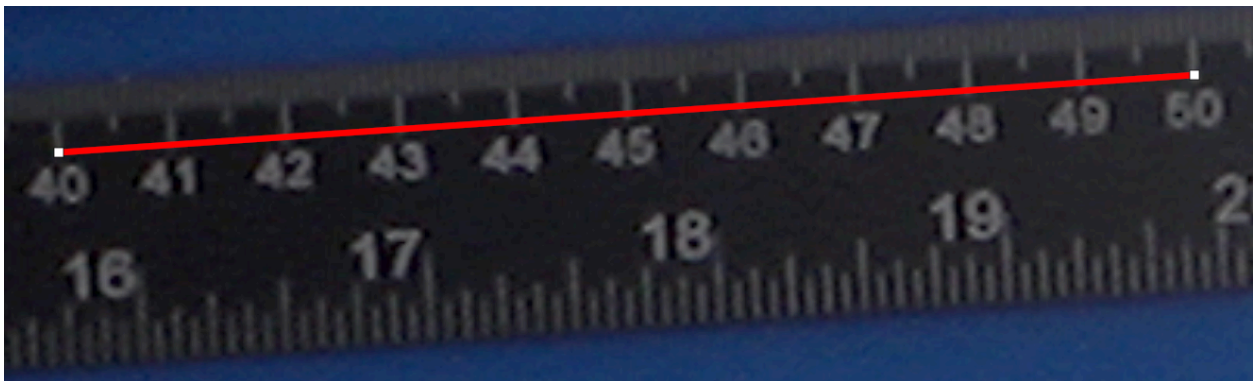
**Calibrate Image** - If neither the camera nor the image are calibrated, then the measurement annotation tools will be grayed out and unavailable for use. This procedure allows the user to make a measurement on a single image to set accurate rulers and measuring annotations, which is especially useful for imported 3rd party images. The image must include some means of measurement such as a ruler or tape measure someplace in the field of view. This can be done on images taken with the PathSuite system or images taken elsewhere and loaded into PathSuite Pro. If the camera has been calibrated according to the above section on camera calibration, an image calibration will override the camera's calibration for that image only, and is saved with the image. This option will also be necessary when using the PathMobile system.

## Calibrate

Draw a straight line over the reference in the image, enter the line length, and push the "Save" button

Line Length:

When you first click the Calibrate Image button a dialog will appear (shown above), asking you to draw a measure line and enter its length. For maximum accuracy measure as long a line as possible and zoom in as much as possible when drawing it (shown below).



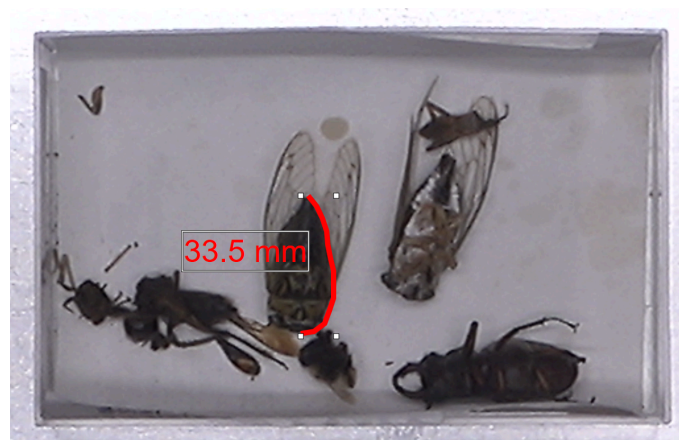
Click "Save" once you are satisfied with your measurement to bring up the calibration tools.



*Straight Line Length* - Place a straight line ruler on the image showing its length in millimeters. If neither the camera nor the image are calibrated, then this tool will be unavailable for use.




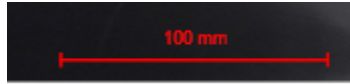
**Freehand Line Length** - Place a freehand line ruler on the image showing its length in millimeters. If neither the camera nor the image are calibrated, then this tool will be unavailable for use.



**Area** - Enclose a freehand region on the image showing its total area in square millimeters. The region will be closed with a straight line when the end point is placed. If neither the camera nor the image are calibrated, then this tool will be unavailable for use.



 **Scale Bar** - Clicking this button will place a measure in the lower right hand corner of the image showing the scale of the image in millimeters. If neither the camera nor the image are calibrated, then this tool will be unavailable for use.



### Actions Panel

 **Select All Objects on the Layer** - Selects all objects on the current layer.

 **Delete Selected Objects** - Deletes the selected object(s).


### Attributes Panel


**Increase / Decrease Font Size and Line Thickness** - These tools increase or decrease the size of the currently selected object(s). In the case of text this adjusts the point size of the font and in the case of lines or line structures (such as a rectangle) the thickness of the line work is adjusted.



**Set Foreground and Line Color** - Change the color of the selected object(s) to one of the 7 preselected colors, or use the ellipsis to designate a custom color.




 **Reverse Arrow Direction** - Moves the arrow head of a selected arrow line to the opposite end.


 **Set Text Background to White** - Changes the background color of the selected text to white.

**Profile** - Allows the user to switch between Annotation Settings profiles on the fly using a drop down menu.





 **Edit** - This button opens the Annotations Settings.


 **Apply Profile to Selected Object** - Apply different profile settings to the currently selected object(s).


## Layers Panel

**Show** - Shows which layer is currently being edited.


Show:

1-Justin Rogers ▼

 **New** - Create a new layer.

 **Delete** - Delete the current layer.

 **Rename** - Rename the current layer.

 **Annotation Lock?** - Locks the current layer preventing further editing.

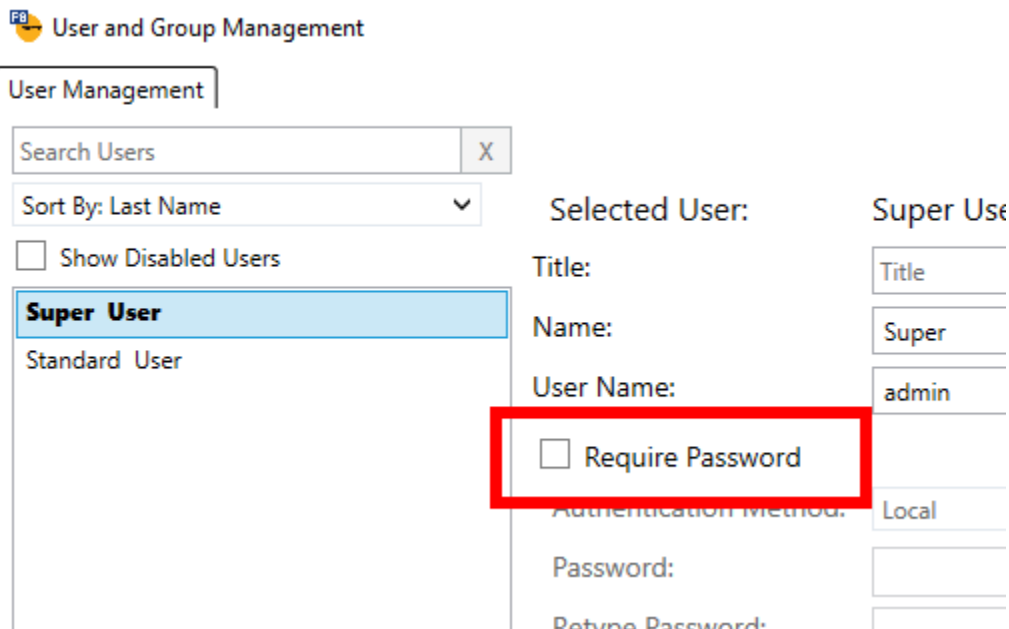
## 5.00 - Troubleshooting and FAQ's

Here are some neat tricks that might make life easier when using the PathSuite Software.

### 5.01 - Remove Password Prompt upon Opening PathSuite Pro



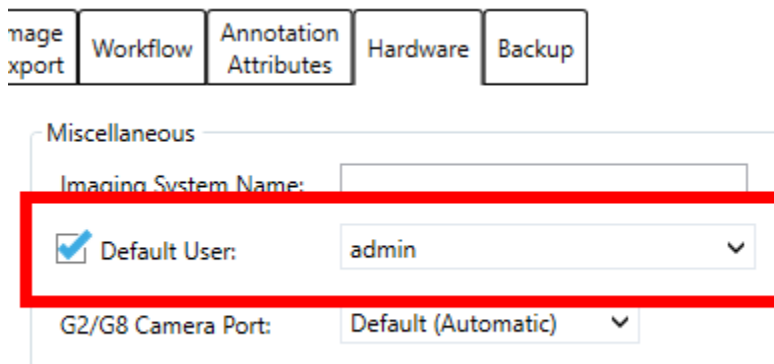
Removing the password prompt in PathSuite Pro is a two step process that must be performed while logged into a super user account. First, open the user settings by clicking the people icon in the lower left, and uncheck the box marked "Require Password" for the main user. Save the settings.



The screenshot shows the "User and Group Management" interface. On the left, under "User Management", there is a search bar, a "Sort By: Last Name" dropdown, and a "Show Disabled Users" checkbox. A list of users is shown, with "Super User" selected and highlighted in blue. Below it, "Standard User" is listed. On the right, the "Selected User:" details for "Super User" are displayed. The "Require Password" checkbox is highlighted with a red box and is currently unchecked. Other fields include Title, Name, User Name (admin), Authentication Method (Local), Password, and Retype Password.



Second, open the system settings by clicking the gear icon in the lower left, and select the "Hardware" tab. In the box marked "Miscellaneous" will be the option to toggle on a "Default User." Toggle this on and in the dropdown to the right select the user account with no password, created above.

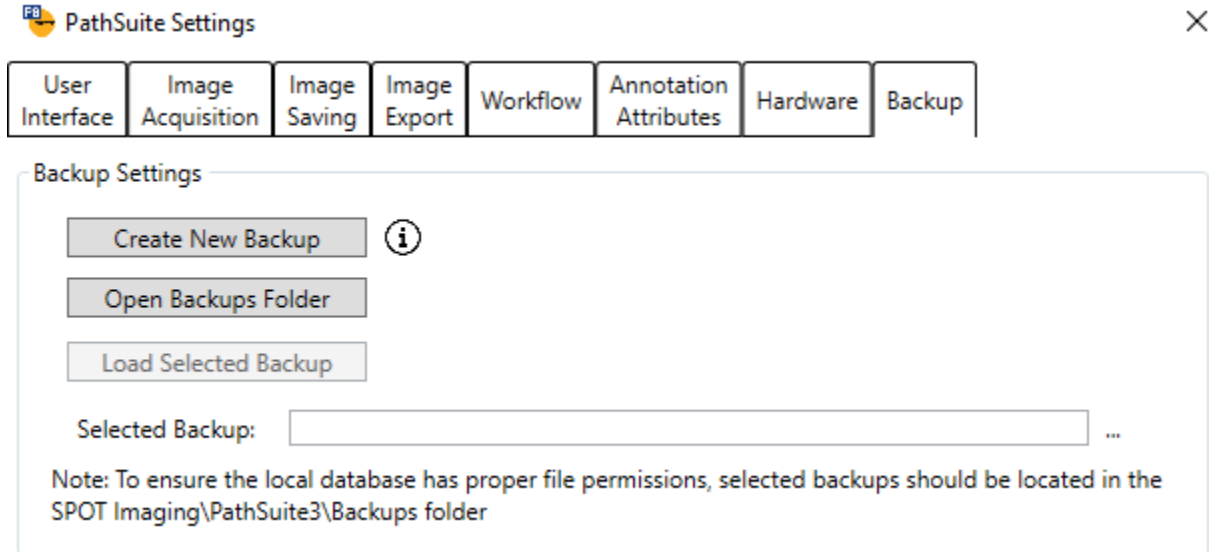


The screenshot shows the "Hardware" tab in the system settings. The "Miscellaneous" section is expanded, and the "Default User" checkbox is checked and highlighted with a red box. The dropdown menu next to it is set to "admin". Other options include "Imaging System Name", "G2/G8 Camera Port" (set to Default (Automatic)), and "Backup".

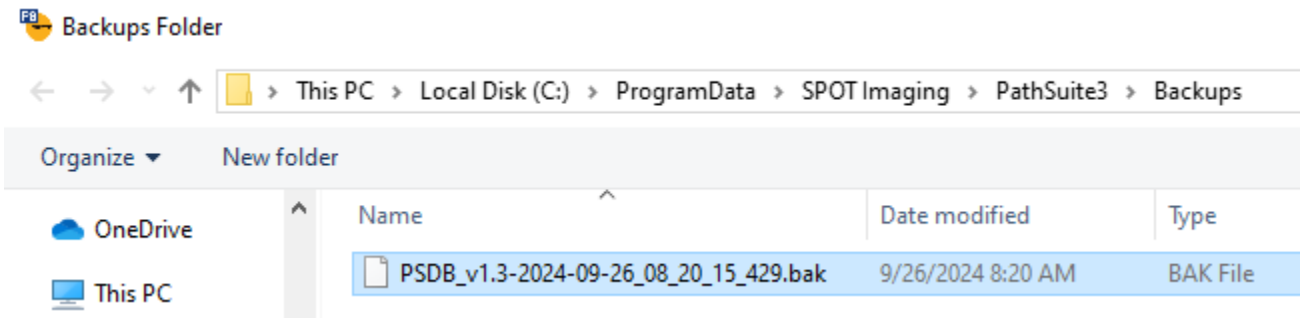
## 5.02 - Loading a Backup Settings File



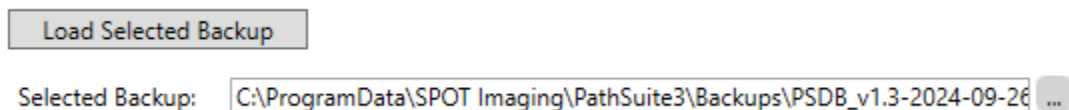
Loading a Backup Settings File is a fairly simple task. First open the software settings by clicking the Gear icon in the lower left, then select the “Backup” tab.



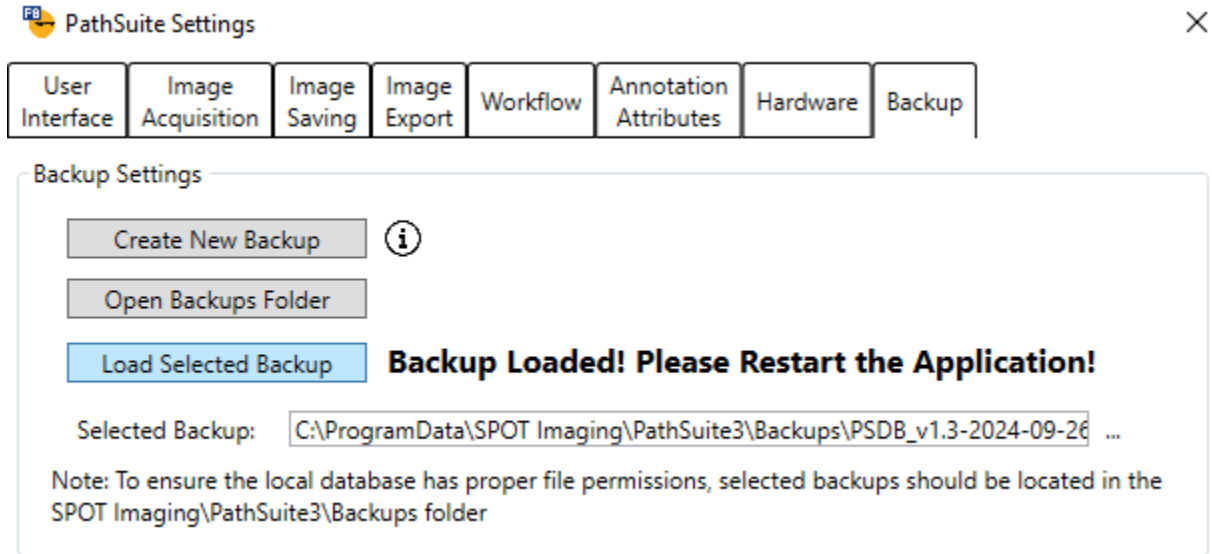
Clicking the ellipsis button will open the file explorer so that the desired backup file can be located.



Then click the “Load Selected Backup” button.



When the backup is loaded, the application will require a restart.



The screenshot shows the 'PathSuite Settings' dialog box with the 'Backup' tab selected. The dialog has a title bar with a close button (X) on the right. Below the title bar is a navigation bar with tabs: 'User Interface', 'Image Acquisition', 'Image Saving', 'Image Export', 'Workflow', 'Annotation Attributes', 'Hardware', and 'Backup'. The 'Backup' tab is active. The main content area is titled 'Backup Settings' and contains three buttons: 'Create New Backup' (with an information icon), 'Open Backups Folder', and 'Load Selected Backup' (highlighted in blue). Below the buttons, the text 'Selected Backup:' is followed by a text box containing the path 'C:\ProgramData\SPOT Imaging\PathSuite3\Backups\PSDB\_v1.3-2024-09-26 ...'. A bold message reads 'Backup Loaded! Please Restart the Application!'. Below this, a note states: 'Note: To ensure the local database has proper file permissions, selected backups should be located in the SPOT Imaging\PathSuite3\Backups folder'.

Remember, if the backup is a pre-set provided by SPOT Imaging, or is being imported from any other source, then the backup file must be placed in the “Backups Folder” to ensure that it can be properly installed.

## 5.03 - Make Specimen Field into a Freeform Text Entry



Only a Super User can change this setting. Open the “Metadata Types” settings by clicking the wrench button at the bottom left.

Metadata Types and Folder Structure

Metadata Types | Folder Structure

Do NOT change these settings after initial setup unless you know what you are doing!

Case #	Name:	Specimen #
Specimen #	Description:	
Block #	Data Type:	Text
Slide #	Maximum Text Length:	
Image #		

Select the “Specimen #” metadata type, and set the “Data Type” to “Text.”

## 5.04 - Setting the Case Prefix



Only a Super User can change this setting. Open the “Metadata Types” settings by clicking the wrench button at the bottom left.

Metadata Types and Folder Structure

Metadata Types | **Folder Structure** | Do NOT change these settings after initial setup unless you know what you are doing!

Case #	Name:	Case #
Specimen #	Description:	
Block #	Data Type:	Text
Slide #	Maximum Text Length:	
Image #	Text Format String:	<input type="text"/>
	Number of Text Lines:	1

Select the “Case #” metadata type. The “Data Type” should be set to “Text” if it is not already. The case prefix is set in the “Text Format String” entry.


A static prefix can be assigned to every case by simply entering it into this box. Below are a few examples.


Text Format String:

In this case the prefix “PRE-” will be added to all case numbers, and will receive up to 4 ‘pillow’ zeros to maintain format. Below is the result of entering “987” into the Case # field.

New Session ×

Case #:  **A9**

 Currently only one static prefix may be assigned at a time, though a dynamic prefix format may be designed using the formatting rules found when the info bubble is clicked. It is shown below for reference.

 PathSuite 3



Example format definition: AA[A]99-00009

Each character in the sequence defines an element of the format:

\*\*\*\*\* Format String Rules \*\*\*\*\*  
"": encloses literal text. For a literal "", a double "" is used.  
\*: Any printable character can be entered  
x: Any printable character can be entered, and it will be converted to lower-case if alpha  
X: Any printable character can be entered, and it will be converted to upper-case if alpha  
@: Any alpha character can be entered  
a: Any alpha character can be entered, and it will be converted to lower-case  
A: Any alpha character can be entered, and it will be converted to upper-case  
0: Padding zero. Will be replaced by '0' if no numeric char is entered. Must be followed by '9'  
9: The characters 0-9 can be entered  
&: Any alpha character and the characters 0-9 can be entered  
c: Any alpha character and the characters 0-9 can be entered, and it will be converted to lower-case if alpha  
C: Any alpha character and the characters 0-9 can be entered, and it will be converted to upper-case if alpha  
[: Characters enclosed in '[' ']' are optional  
Any character not listed above is taken as a literal  
\*\*\*\*\*

Example case number entry:

<u>The User Types</u>	<u>The Case Number Entry Builds as the User Types</u>
u	U
w	UW
m	UWM
1	UWM1
2	UWM12
8	UWM12-00008
7	UWM12-00087
6	UWM12-00876

Text formatting can be enabled or disabled by clicking on the "A9" in the text box.

OK