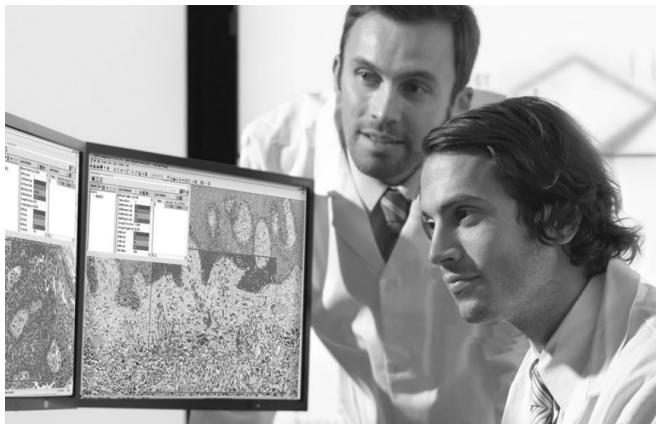


# Aperio ImageScope DX

## User's Guide



# Aperio ImageScope DX User's Guide

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- ▶ This product is protected by registered patents. For a list of patents, contact Leica Biosystems.

## Customer Resources

- ▶ For the latest information on Leica Biosystems Aperio ePathology products and services, please visit [www.LeicaBiosystems.com/Aperio](http://www.LeicaBiosystems.com/Aperio).

## Disclaimers

- ▶ Use normal care in maintaining and using your MDDS. Interrupting network connections or turning off the MDDS while it is processing data (such as when it is analyzing eSlides or generating an audit report) can result in data loss.
- ▶ Caution: Federal (U.S.) law restricts this device to sale by or on the order of an appropriately licensed healthcare practitioner.
- ▶ This manual is not a substitute for the detailed operator training provided by Leica Biosystems Imaging or for other advanced instruction. Leica Biosystems Imaging Field Representatives should be contacted immediately for assistance in the event of any instrument malfunction. Installation of hardware should only be performed by a certified Leica Biosystems Imaging Service Engineer.

## Optional Components

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# 1

## Introduction

This guide contains information on the Aperio ImageScope DX viewing software, which is part of the Aperio AT2 DX System. Aperio ImageScope DX enables you to view eSlides created by the Aperio AT2 DX scanner for the purpose of performing a primary diagnosis.

Your Aperio AT2 DX Viewing Stations come with Aperio ImageScope DX installed.

### Intended Use

The Aperio AT2 DX System is an automated digital slide creation and viewing system. The Aperio AT2 DX System is intended for in vitro diagnostic use as an aid to the pathologist to review and interpret digital images of surgical pathology slides prepared from formalin-fixed paraffin embedded (FFPE) tissue. The Aperio AT2 DX System is not intended for use with frozen section, cytology, or non-FFPE hematopathology specimens.

The Aperio AT2 DX System is composed of the Aperio AT2 DX scanner, the Aperio ImageScope DX review application and display. The Aperio AT2 DX System is for creation and viewing of digital images of scanned glass slides that would otherwise be appropriate for manual visualization by conventional light microscopy. It is the responsibility of a qualified pathologist to employ appropriate procedures and safeguards to assure the validity of the interpretation of images obtained using the Aperio AT2 DX System.

### Image Viewing Restrictions for Primary Diagnosis

The images produced by the Aperio AT2 DX are for diagnostic use within the Aperio AT2 DX System only. Images opened outside the system with non-cleared Aperio viewers will display an error alerting the user that these images cannot be used for primary diagnosis.

Non-cleared Aperio viewers include:

- ▶ Aperio ImageScope (all non-DX versions)
- ▶ Aperio WebViewer
- ▶ Aperio WebScope
- ▶ Aperio ePathViewer

### Supported Image Types

For primary diagnosis procedures, Aperio ImageScope DX supports only SVS files created by the Aperio AT2 DX scanner.

Aperio ImageScope DX enables you to open TIFF files for non-diagnostic purposes only. The pan and zoom features are not available when viewing a TIFF file.

## Aperio AT2 DX Viewing Stations and Monitors

Your Aperio AT2 DX System comes with a local Aperio AT2 DX Viewing Station that is connected to the Aperio AT2 DX scanner, and one or more Aperio AT2 DX Viewing Stations used to read eSlides created by the Aperio AT2 DX. Only the Aperio ImageScope DX viewing software and the Aperio AT2 DX Viewing Stations and medical-grade, calibrated monitors that you receive as part of the Aperio AT2 DX System are supported for primary diagnosis.

As part of monthly maintenance, we recommend that you do a visual quality check of your monitors once a month. See “Appendix A: Perform a Monitor Quality Check” on page 38 for complete instructions.

## Aperio AT2 DX System Information

This *Aperio ImageScope DX User’s Guide* contains details on viewing Slides created by the Aperio AT2 DX using the Aperio ImageScope DX viewing software. For further information, see:

- ▶ *Aperio AT2 DX System Overview* for information on the entire Aperio AT2 DX System.
- ▶ *Aperio AT2 DX User’s Guide* for information on using the Aperio AT2 DX scanner.



# 2

# Aperio ImageScope DX Overview and Quick Reference

This chapter includes an overview of the interface, along with quick reference information for the navigation and annotation tools.

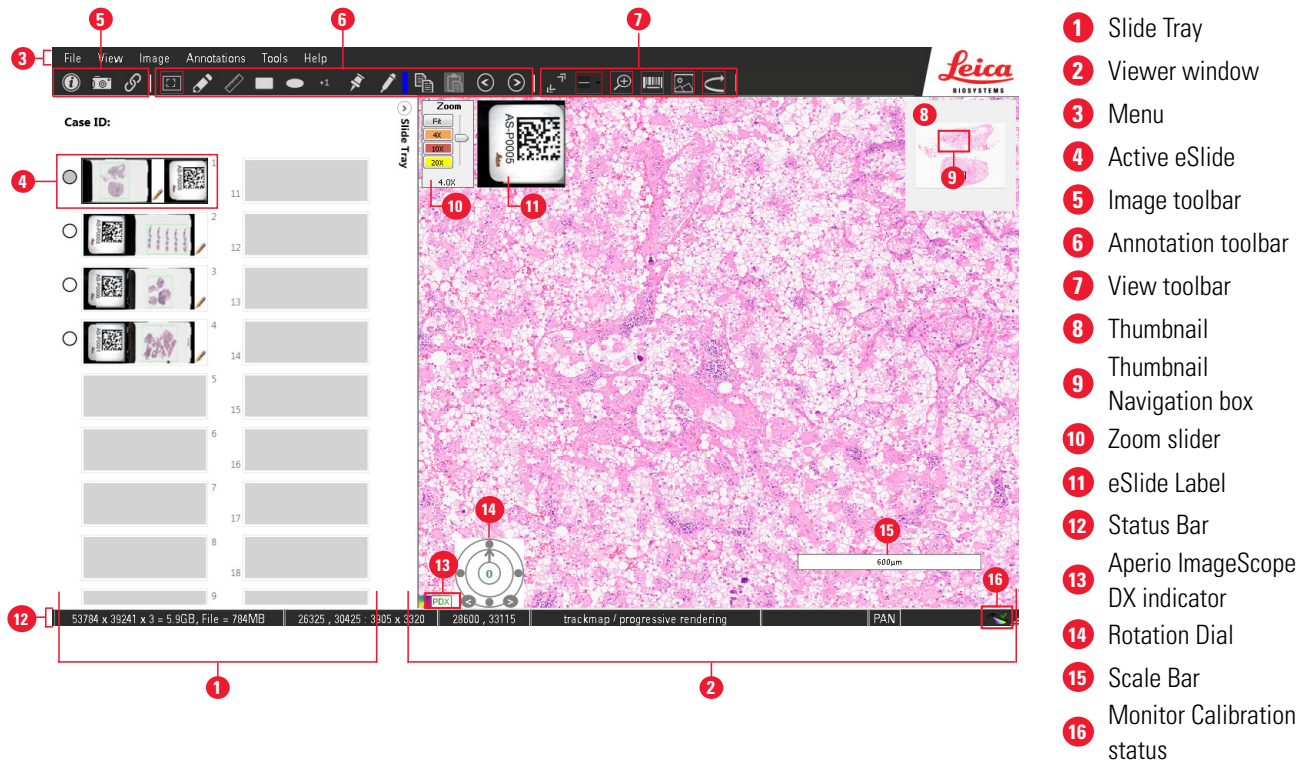
For instructions on how to view and annotate eSlides, see "Chapter 3: Basic eSlide Viewing" on page 19 and "Chapter 4: View and Annotate eSlides" on page 23.

## Open a Case in Aperio ImageScope DX

You open a case in Aperio ImageScope DX from your organization's medical device data system (MDDS). For information and instructions on using your MDDS, contact your site administrator.










## Aperio ImageScope DX Window Overview













This example shows the Aperio ImageScope DX window with the main tools identified.











## Aperio ImageScope DX Quick Reference

This section provides a description of the areas and tools shown in the example on the previous page. The numbers in the left column below correspond to the numbers in the example on page 9.

Feature	Description									
1	Slide Tray The Slide Tray contains all of the scanned eSlides associated with the case. You use the Slide Tray to open eSlides in the Viewer window. See <i>"The Slide Tray" on page 13.</i>									
2	Viewer window The Viewer window displays the open eSlides. You view, navigate, and annotate eSlides in the Viewer window.									
3	Menu The menu provides access to commands, tool visibility, and options.									
4	Active eSlide The active eSlide is the eSlide open in the Viewer window. If multiple eSlides are open in the Viewer window, the active eSlide is the one that is currently selected.									
5	Image toolbar The Image toolbar contains tools for viewing eSlide information, taking a snapshot, and synchronizing the navigation when viewing multiple eSlides. To show the Image toolbar, go to the <b>View</b> menu, select <b>Toolbars</b> , and select <b>Image</b> .  The following tools are available: <table border="0" data-bbox="370 911 1427 1150"> <tr> <td data-bbox="370 911 440 978"></td> <td data-bbox="483 926 610 957">Information</td> <td data-bbox="672 911 1427 978">Displays detailed data about the scanned eSlide image. See <i>"View Detailed Data for an eSlide" on page 16.</i></td> </tr> <tr> <td data-bbox="370 999 440 1052"></td> <td data-bbox="483 1010 586 1041">Snapshot</td> <td data-bbox="672 999 1427 1052">Takes a screen shot of the current view, and allows you to save it as a TIFF file. See <i>"Save a Snapshot of the eSlide" on page 29.</i></td> </tr> <tr> <td data-bbox="370 1073 440 1142"></td> <td data-bbox="483 1094 613 1125">Synchronize</td> <td data-bbox="672 1073 1427 1142">Synchronize navigation of all open eSlides. See <i>"Synchronize Navigation of Multiple eSlides" on page 31.</i></td> </tr> </table>		Information	Displays detailed data about the scanned eSlide image. See <i>"View Detailed Data for an eSlide" on page 16.</i>		Snapshot	Takes a screen shot of the current view, and allows you to save it as a TIFF file. See <i>"Save a Snapshot of the eSlide" on page 29.</i>		Synchronize	Synchronize navigation of all open eSlides. See <i>"Synchronize Navigation of Multiple eSlides" on page 31.</i>
	Information	Displays detailed data about the scanned eSlide image. See <i>"View Detailed Data for an eSlide" on page 16.</i>								
	Snapshot	Takes a screen shot of the current view, and allows you to save it as a TIFF file. See <i>"Save a Snapshot of the eSlide" on page 29.</i>								
	Synchronize	Synchronize navigation of all open eSlides. See <i>"Synchronize Navigation of Multiple eSlides" on page 31.</i>								

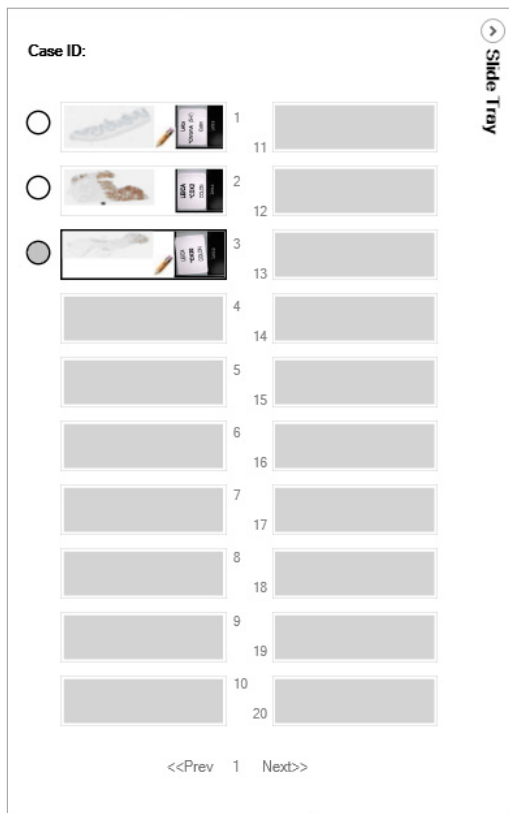
Feature	Description
<p><b>6</b> Annotation toolbar</p>	<p>The Annotation toolbar contains tools you use to pan, zoom, and annotate the eSlide. To show the Annotation toolbar, go to the <b>View</b> menu, select <b>Toolbars</b>, and select <b>Annotation</b>. The following tools are available:</p> <ul style="list-style-type: none"> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Pan and Zoom</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Pan through the eSlide or double-click to zoom in and out.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Pen</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Draw a freehand annotation.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Ruler Measurement</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Create a measurement annotation of an area of interest.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Rectangle</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Draw a rectangle or hold down the <b>Shift</b> key to draw a square.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Ellipse</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Draw an oval or hold down the <b>Shift</b> key to draw a circle.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Counter</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Mark the eSlide with numeric counters.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Observation Pin</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Mark areas of interest on the eSlide.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Annotation Color Picker</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Change the color of annotations.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Copy annotation</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Copy the selected annotation.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Paste annotation</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Paste the copied annotation into the eSlide.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Previous annotation</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Go to the previous annotation.</span> </li> <li>  <span style="display: inline-block; vertical-align: middle; margin-left: 10px;">Next annotation</span> <span style="display: inline-block; vertical-align: middle; margin-left: 20px;">Go to the next annotation.</span> </li> </ul> <p>See "<i>Annotate eSlides</i>" on page 23 for more information on using annotations.</p>

Feature	Description
<p><b>7</b> View toolbar</p>	<p>The View toolbar is where you can expand the view to full screen and show or hide navigation and zoom tools. To show the View toolbar, go to the <b>View</b> menu, select <b>Toolbars</b>, and select <b>View</b>. The following tools are available:</p> <p> Go to full-screen view.</p> <p> Click to show or hide the Scalebar, Axes, or Axes and Grid.</p> <p> Show or hide the Zoom Slider.</p> <p> Show or hide the eSlide Label Image.</p> <p> Show or hide the Thumbnail.</p> <p> Show or hide the Rotation Dial.</p>
<p><b>8</b> Thumbnail</p>	<p>Shows a representative view of the entire eSlide. Use the Thumbnail to navigate around the eSlide. See <i>"Thumbnail"</i> in the table under <i>"View Different Areas of the eSlide"</i> on page 15.</p>
<p><b>9</b> Thumbnail Navigation box</p>	<p>Represents the area currently shown in the Viewer window. Drag the box around the Thumbnail to view the corresponding area of the eSlide. See <i>"Thumbnail Navigation box"</i> in the table under <i>"View Different Areas of the eSlide"</i> on page 15.</p>
<p><b>10</b> Zoom slider</p>	<p>Enables you to select a specific zoom level or manually zoom in and out of the eSlide. See <i>"Change the Viewing Zoom Level"</i> on page 16.</p>
<p><b>11</b> eSlide Label</p>	<p>The image of the label on the glass slide. The eSlide Label appears if a photo of the glass slide label is associated with the eSlide.</p>
<p><b>12</b> Status Bar</p>	<p>Contains details about the current display.</p>
<p><b>13</b> Aperio ImageScope DX indicator</p>	<p>This symbol indicates that you are working in the Aperio ImageScope DX viewer.</p>
<p><b>14</b> Rotation Dial</p>	<p>Rotates the eSlide from 0 to 360°. See <i>"Rotate the eSlide"</i> on page 27.</p>
<p><b>15</b> Scale Bar</p>	<p>Represents the scale of the eSlide in microns or millimeters, depending on the current zoom level.</p>

Feature	Description
<b>16</b> Monitor status	 A green check mark means that the monitor connected to your viewing station is the correct medical-grade calibrated monitor for the Aperio AT2 DX System, and that the monitor and viewing station are configured correctly.  A red X appears if the color profile settings on your viewing station monitor is incorrect, or if someone attempts to calibrate the monitor with a third-party software. Your eSlides will not display unless the monitor and viewing station are configured correctly. A red X also appears if you attempt to use Aperio ImageScope DX with a monitor other than the monitor approved for the Aperio AT2 DX System.

## The Slide Tray

The Slide Tray contains all of the eSlides associated with the open case.



## Work with eSlides in the Slide Tray

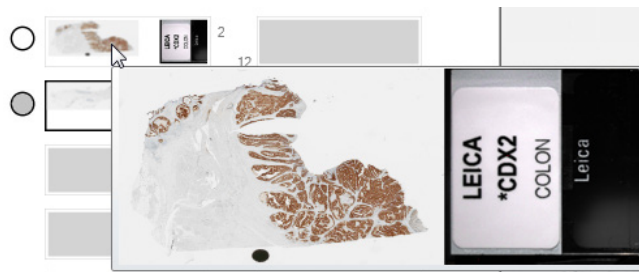
The following describes the tasks you can perform in the Slide Tray.

To do this:	Follow these steps:
View an eSlide.	Click an eSlide to open it in the Viewer window.

<b>To do this:</b>	<b>Follow these steps:</b>
--------------------	----------------------------

Enlarge the eSlide view.

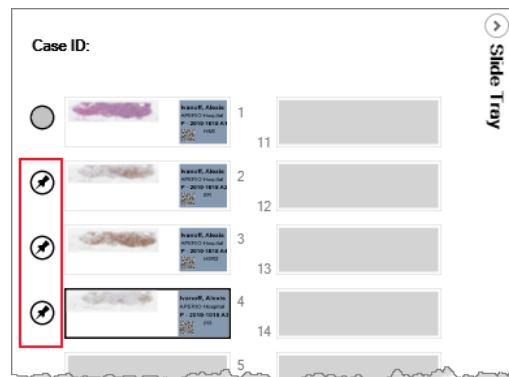
Point to an eSlide in the tray.



If you do not want eSlides to enlarge when you point to them, clear the **Display Hover Popups for Images** check box in the Viewer options. See *"Viewer Options"* on page 36.

Open multiple eSlides.

Click the circle next to the eSlide you want to open. A pushpin in the circle indicates the eSlide is open and "pinned" in the Viewer window.



To close the pinned eSlide, click the circle again. You can open up to four eSlides at one time. See *"Open Multiple eSlides"* on page 30.

Flip an eSlide horizontally to mark it as read or unread.



By default, eSlides are flipped in the tray after you read them. To manually flip the eSlide, right-click an eSlide and select **Flip Slide**.

Flag an eSlide.

To flag an eSlide for follow-up, right-click an eSlide and select **Flag**. A small red flag appears in the Slide Tray:



To remove the flag, right-click the eSlide in the Slide Tray and select **Flag**.

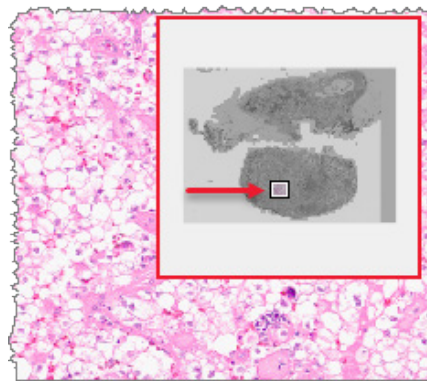
To do this:	Follow these steps:
View eSlides that have annotations.	In the Slide Tray, look for eSlides with a pencil symbol. The pencil appears on eSlides that have annotations. 
View a different Slide Tray for the open case.	If there is more than one Slide Tray for the case, click the <b>&lt;&lt;Prev</b> and <b>Next&gt;&gt;</b> links at the bottom of the Slide Tray.
Hide the Slide Tray to expand the Viewer window.	Click the Slide Tray arrow in the upper-right of the Slide Tray:  <p style="text-align: center;">To view the Slide Tray, click the arrow again.</p>

## View Different Areas of the eSlide

The following describes different ways to move around the eSlide.

### Use the Thumbnail



The Thumbnail shows the entire eSlide. The small navigation box represents the area that currently appears in the Viewer window.



To move around the eSlide using the Thumbnail, do one of the following:

- Drag the navigation box around the Thumbnail to view the corresponding areas of the eSlide.
- Click inside the main Thumbnail to move to the corresponding area on the eSlide.

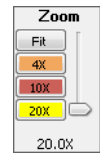
You can also track your navigation in the Thumbnail. See *"Track Pan and Zoom Navigation With the Track Map"* on page 29.

<b>Manually pan around the eSlide</b>	Click the <b>Pan and Zoom</b> tool  , and drag your mouse pointer to move around the eSlide. You can set an option to reverse the panning direction (pathologist mode). See <i>"Navigation Options"</i> on page 36.
<b>Scrolling</b>	Point to the edge of the Viewer window. When the pointer changes to an arrow  , hold the mouse button to scroll in the direction of the arrow. Release the mouse button to stop scrolling.

## Change the Viewing Zoom Level

You can use any of the following methods to change the zoom level of the eSlide.

<b>Use your mouse to zoom in and out</b>	Do one of the following: <ul style="list-style-type: none"> <li>Click anywhere on the eSlide, and then rotate the mouse wheel button up to zoom out farther, and down to zoom in closer.</li> <li>Double-click anywhere on the eSlide to go to the maximum zoom level (highest resolution). Double-click again to return to the previous zoom level.</li> </ul>
<b>Use the Zoom Slider</b>	Click the <b>Zoom</b> buttons ( <b>Fit</b> , <b>4x</b> , <b>10x</b> , and so on) to select a specific zoom level, or drag the slider to manually adjust the zoom. Click <b>Fit</b> to display the entire eSlide in the Viewer window.  The maximum zoom available (20x or 40x) depends on the magnification at which the slide was scanned. The highest number on the Zoom Slider is the scan magnification. In this example, the slide was scanned at 20x.



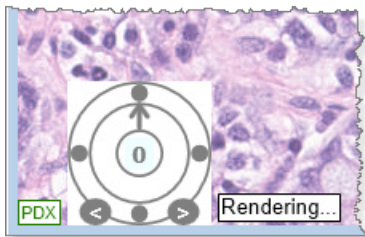
## View Detailed Data for an eSlide

Click the Information  tool to display detailed data for the active eSlide.

The **Information** tab contains eSlide metadata. Click the **Thumbnail**, **Label**, and **Macro** tabs for different views of the eSlide.

## Image Rendering










When you pan, rotate, or otherwise change the view of the eSlide, the "Rendering" message may appear. This means ImageScope DX is still adjusting the eSlide image, and you should wait until the message disappears before reviewing the eSlide for diagnostic purposes.







## Keyboard Shortcuts

This section contains a quick reference list of keyboard shortcuts you can use with ImageScope DX.

Key Sequence	Menu Command	Tool	Action
Arrow keys	None	None	Nudge image left, right, up, and down. <b>Note:</b> <b>Pan</b> and <b>Zoom</b>  must be active to move the image with the Arrow keys.
Ctrl + Plus key	None	None	Zoom in.
Ctrl + Minus key	None	None	Zoom out.
Ctrl	None	None	Press while drawing an annotation to draw the annotation in a predefined size.
Ctrl + C	Annotations > Copy	None	<ul style="list-style-type: none"> <li>Take a screen shot of the current view: Press <b>Ctrl + C</b>, then paste the image into Paint or another application.</li> <li>Copy and paste an annotation into the same eSlide: Selected an annotation, press <b>Ctrl + C</b>, click inside the eSlide and press <b>Ctrl + V</b> to paste the annotation.</li> </ul>
Ctrl + F4	File > Close Case	None	Closes the image currently open in ImageScope.
Alt + F4	File > Exit		Closes ImageScope DX.
Ctrl + M	Image > Manual Synchronization		Activates Manual Synchronization.
Ctrl + P	Tools > Navigation, Annotations, Viewer, Tracking, or Monitor Quality Check	None	Opens the Options window to set navigation, annotation, viewer, and tracking options. The Monitor Quality Check option enables you to perform a visual monitor check.
Ctrl + Shift	None	None	Press while using the arrow keys to move the selected annotation.
Ctrl + T	View > Thumbnail	None	Shows or hides the Thumbnail window.
F1	Help > ImageScope Help	None	Opens ImageScope DX help.
F2	Annotations > Pen		Activates the Pen drawing tool.
F4	Annotations > Ruler Measurement		Activates the Ruler Measurement drawing tool.
F5	Annotations > Rectangle		Activates the Rectangle drawing tool.
F6	Annotations > Ellipse		Activates the Ellipse drawing tool.
F9	Annotations > Counter Tool		Activates the Counter annotation tool.
F10	Annotations > Observation Pin		Activates the Observation pin annotation tool.
F11	View > Full Screen	None	Expands ImageScope DX to a full-screen view.

Key Sequence	Menu Command	Tool	Action
Shift	None	None	Press while drawing annotations: ellipse becomes a circle; rectangle becomes a square.
Shift + Arrow key	None	None	Moves image left, right, up, and down one screen width at a time. <b>Note: Pan and Zoom</b>  must be active to move the image with the Arrow keys.
Shift + Ctrl	None	None	Press while drawing an annotation to create a region of the same aspect ratio as the predefined fixed annotation size.

## Close Aperio ImageScope DX

To close Aperio ImageScope DX, go to the **File** menu, and select **Exit**. You can also click  in the upper-right corner of the Aperio ImageScope DX window.

# 3

## Basic eSlide Viewing

This chapter provides instructions on using Aperio ImageScope DX to read eSlides.

### Before You Begin

Before you can review eSlides using Aperio ImageScope DX:

- ▶ Use the Aperio AT2 DX scanner to scan the glass slides for the case you want to review. See the *Aperio AT2 DX User's Guide* for instructions.
- ▶ Ensure the eSlides scanned on the Aperio AT2 DX are available in your MDDS.

### Open Case eSlides in Aperio ImageScope DX

You can open one case at a time in Aperio ImageScope DX. When you open a case from your MDDS, Aperio ImageScope DX automatically closes any previously opened case before it opens your next case.

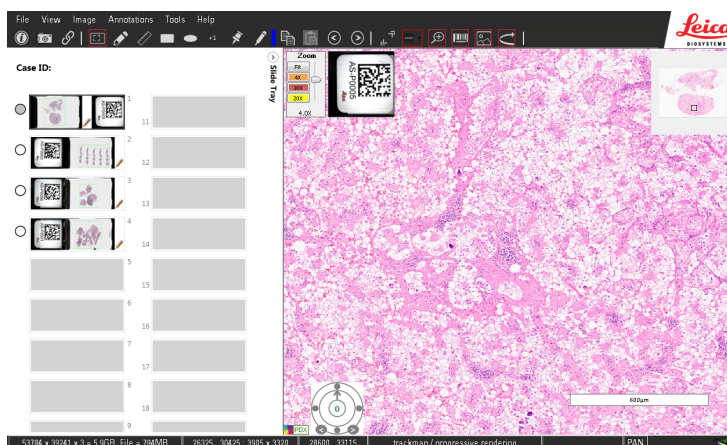


*It takes less time to open the eSlides for your case if Aperio ImageScope DX is already open. To achieve optimum image loading performance when opening cases in ImageScope DX, we recommend that you leave Aperio ImageScope DX open during your viewing session.*

To open all of the eSlides associated with a case:

1. Following the instructions for your institution's MDDS to open the case.

When Aperio ImageScope DX opens, all of the eSlides for the case appear in the Slide Tray. The first eSlide in the tray opens in the Viewer window.



2. With the case opens in Aperio ImageScope DX, you can do the following:
  - ▶ Perform Quality Control on the eSlides scanned for the case. See “*eSlide Quality Control*” on page 20.
  - ▶ View the eSlide and change the zoom level (pan and zoom). See “*Basic eSlide Viewing*” on page 20.
  - ▶ View one or more eSlides using advanced viewing techniques. See “*Chapter 4: View and Annotate eSlides*” on page 23.
  - ▶ Draw annotations on the eSlide to indicate areas of interest. See “*Annotate eSlides*” on page 23.

## Close a Case in Aperio ImageScope DX

To close the eSlides for a case without closing Aperio ImageScope DX, go to the **File** menu, and select **Close Case**.

Note that Aperio ImageScope DX closes a previously opened case when you open a new case.

## eSlide Quality Control

The scanning technician should perform quality control on the glass slides and eSlides during the scanning process. The pathologist must also perform quality control on the eSlides.

To assess the quality of the slide preparation, follow the instructions for the specific staining protocol.

To perform quality control on the eSlides, follow these steps:

1. Open the eSlides in Aperio ImageScope DX.
2. Look at the entire image, including the perimeter of the eSlide, to confirm that the entire tissue sample was scanned.
3. Adjust the magnification using the Zoom tool. Click the thumbnail in the ImageScope window and pan the image.
4. All eSlides should be in focus and free of visible image stripes.
5. Rescan any eSlides that failed to scan or failed the image quality review.

If an eSlide has poor quality in any of the above areas, you may need to request a new slide or a re-scan of the slide.

For more details about preparing glass slides for scanning, see the *Aperio AT2 DX User's Guide*.

## Basic eSlide Viewing

Use the Aperio ImageScope DX navigation tools to move around the eSlide and to view areas of the eSlide at different zoom levels. You do not need to focus the eSlide. Optimum focus is determined when the slide is scanned.

The steps below describe one method of reviewing eSlides:

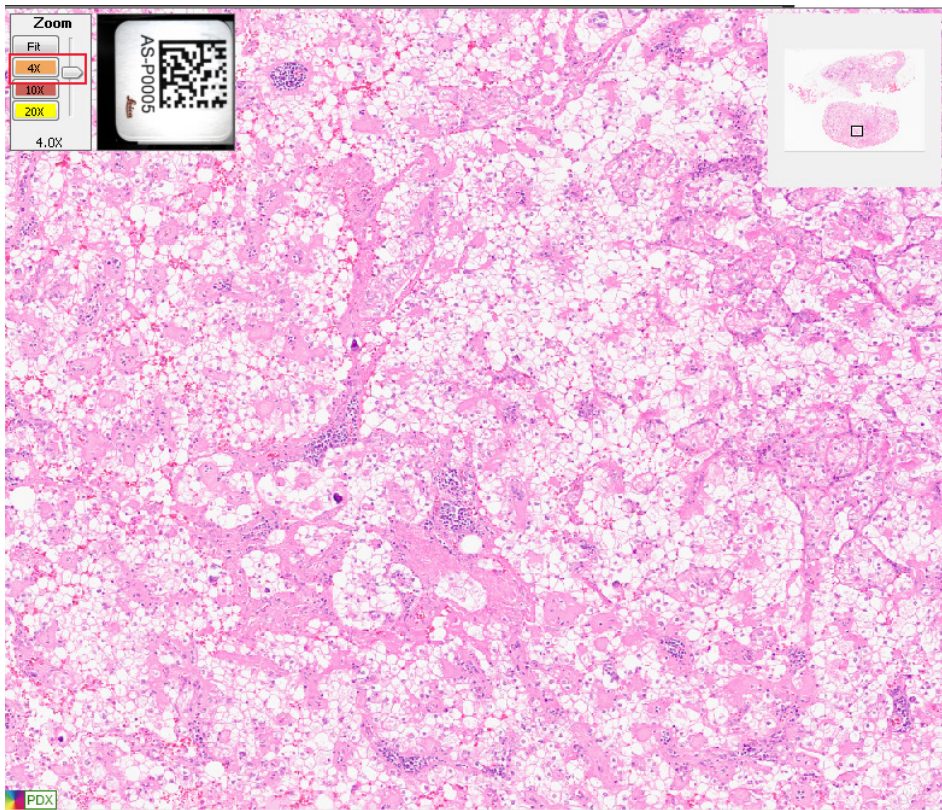
1. Adjust the zoom to **4x** and pan through the eSlide to look for areas of interest.
2. When you find an area of interest, adjust the zoom to **20x** or **40x** to assess the area.
3. Return to a lower zoom level and continue panning through the eSlide to look for more areas of interest.


The next section provides detailed steps for this viewing method.

## View an eSlide

To view an eSlide using the method described previously, follow these steps:

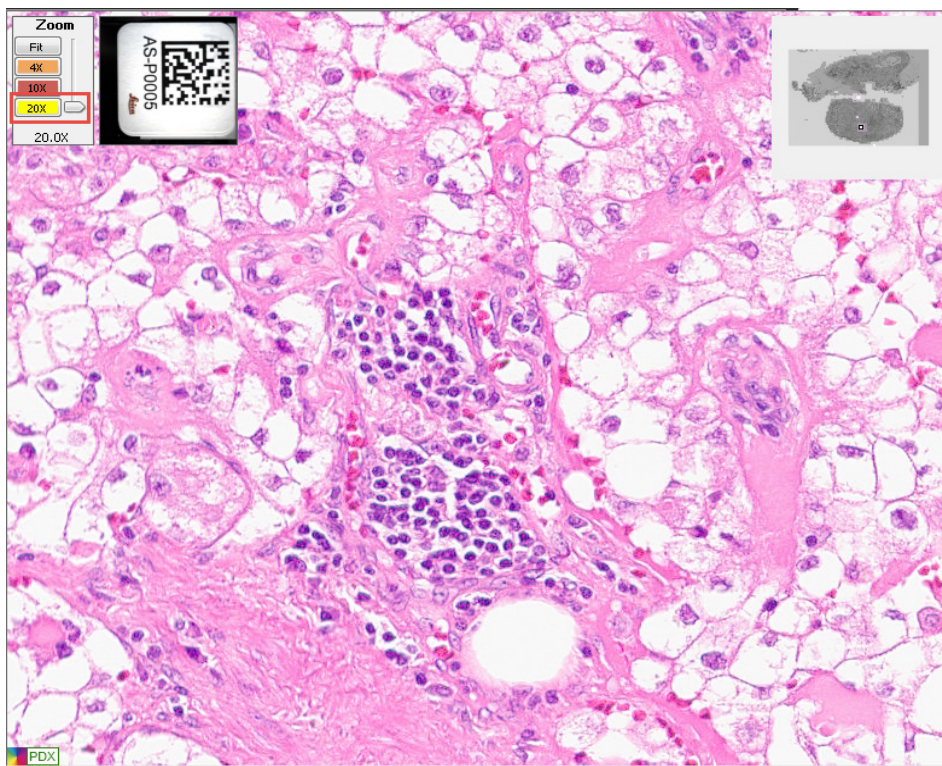
1. With the eSlide open in Aperio ImageScope DX, set the zoom to 4X by clicking **4x** on the Zoom Slider.



2. Click the **Pan and Zoom** tool .
3. Drag the mouse pointer in any direction to pan around the eSlide.



4. When you find an area of interest to review, click **20x** or **40x** to zoom in closer. (The maximum zoom available depends on the magnification of the original scanned image. The greatest number on the Zoom Slider is the scan magnification. In this example, the slide was scanned at 20x.)



5. Click **4X** to zoom out again and continue panning.

See "Chapter 4: View and Annotate eSlides" on page 23 for information on advanced viewing techniques and adding annotations.

# 4

## View and Annotate eSlides


This chapter provides information on viewing and annotating eSlides using Aperio ImageScope DX.

### Annotate eSlides

Use annotations to mark an area of interest on an eSlide or to measure an object.



You use the Annotation toolbar to select the annotation tool you want to use. To show the Annotation toolbar, go to the **View** menu, select **Toolbars**, and select **Annotation**.


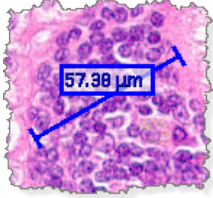

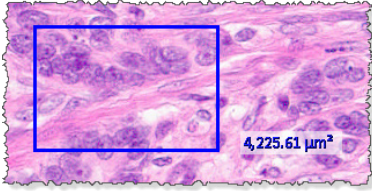

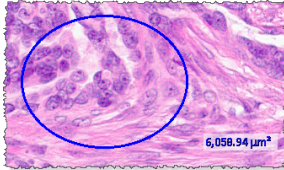

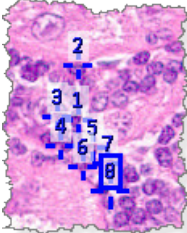

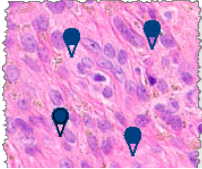


*When you use an annotation tool, it stays active until you click another tool to use. After drawing an annotation, you need to click the **Pan** tool  to move to other areas of the eSlide or to select an annotation.*

### Draw Annotations

The following table describes the types of annotations you can draw on an eSlide.

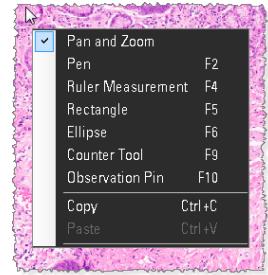
To do this	Follow these steps	Example
Draw a free-form shape	<ol style="list-style-type: none"><li>1. Click the <b>Pen</b> tool .</li><li>2. Drag your mouse pointer to draw the annotation in any shape.</li></ol> <p>To edit an annotation drawn with the Pen tool, see <i>"Edit Free-Form Annotations Drawn with the Pen Tool"</i> on page 26.</p>	

To do this	Follow these steps	Example
Measure an object	<ol style="list-style-type: none"> <li>1. Click the <b>Ruler Measurement</b> tool .</li> <li>2. Point to the object you want to measure, and drag the ruler across the object.  The measurement appears on the eSlide. The unit of measure adjusts to the current zoom level. For example, a line that appears in microns at 20x may appear in millimeters at lower zoom level.</li> </ol>	
Draw a rectangle or square	<ol style="list-style-type: none"> <li>1. Click <b>Rectangle</b> tool .</li> <li>2. Drag your mouse pointer to draw a rectangle. To draw a square, press and hold the <b>Shift</b> key as you draw.</li> </ol>	
Draw an ellipse or circle	<ol style="list-style-type: none"> <li>1. Click the <b>Ellipse</b> tool .</li> <li>2. Drag your mouse pointer to draw an ellipse. To draw a circle, press and hold the <b>Shift</b> key as you draw.</li> </ol>	
Add a counter	<ol style="list-style-type: none"> <li>1. Click the <b>Counter</b> tool .</li> <li>2. Click to mark the eSlide with numbered annotations. Counters are numbered automatically in the order they are placed.</li> </ol>	
Add an observation pin	<ol style="list-style-type: none"> <li>1. Click the <b>Observation Pin</b> tool .</li> <li>2. Click to mark areas of interest on the eSlide.</li> </ol>	






You can access many of the annotation tools by right-clicking the eSlide, and selecting from the menu.



## Delete an Annotation

To delete an annotation:

1. Click the **Pan and Zoom** tool .
2. Select the annotation you want to delete, and press the **Delete** key.
3. Click **Yes** at the prompt.

## View eSlides With Annotations


A pencil appears in the Slide Tray when there are annotations on the corresponding eSlide.



## Change the Color of Annotations

You can change the color of new annotations. Annotations drawn previously remain in their original color.




To change the color of annotations:

1. Click the **Annotation Color Picker** tool .
2. When the Color window opens, click the color you want to use and click **OK**.  
You can also click **Define Custom Colors** to define and save a custom color.

## Copy and Paste Annotations

The Copy Annotation and Paste Annotation tools are active when an eSlide contains annotations. You can copy an annotation and paste it into the same eSlide.

To copy and paste an annotation within the same eSlide:

1. Click the **Pan and Zoom** tool .
2. Select the annotation you want to copy, and click the **Copy** tool .
3. Click the **Paste** tool . The duplicate annotation moves with your mouse pointer.
4. Click to place the annotation in the eSlide.

## Move From One Annotation to the Next

The Previous Annotation and Next Annotation tools are active if there are multiple annotations on the eSlide.

To move through the annotations, click the **Previous**  and **Next**  tools. The active annotation appears centered in the Viewer window.

## Draw Annotations With a Fixed Size or Fixed Aspect Ratio

You can set a fixed size for annotations in the Aperio ImageScope DX options. The instructions below describe how to draw annotations using the fixed size.

### Draw an Annotation with a Fixed-Size

Press the **Ctrl** key while drawing the annotation.

This feature works with rectangle and ruler measurement annotations only. You set the fixed size in the Aperio ImageScope DX Options.

For information on setting the fixed size for annotations, see "Annotation Options" on page 36.

### Draw an Annotation with a Fixed Aspect Ratio

You can draw an annotation that uses the same aspect ratio (width and height proportion) as the fixed annotation size defined in the Aperio ImageScope DX options. To do this, press the **Shift + Ctrl** keys while you draw the annotation.

## Edit Free-Form Annotations Drawn with the Pen Tool

You can edit the shape of free-form annotations drawn with the Pen tool. You can edit an existing annotation or finish an incomplete annotation.




*Tips for redrawing annotations:*

- *Drag the pointer in a slow and smooth manner.*
- *Refine your edits as needed by dragging the pointer back and forth over the same area.*

---

## Complete or Edit a Free-Form Annotation

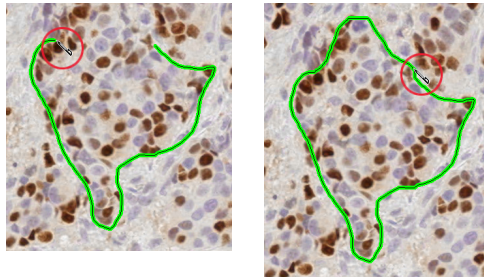
1. Select the annotation, and then click the **Pen** tool .
2. Point the **Pen** tool where you want to start the edit.
3. Hold the left mouse button and slowly drag the line to connect two ends or to change the shape of the annotation.
4. When you are finished editing the annotation, release the mouse button.

The following examples show two ways to edit annotations.

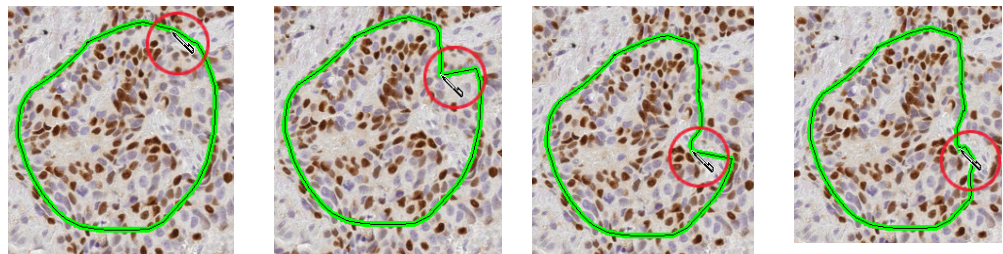
To do this:

Draw like this:

Complete an annotation:



Edit an annotation:

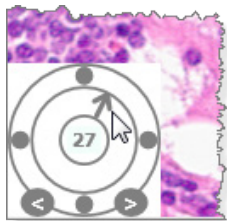


## Change eSlide Views

This section describes how to perform some common navigation tasks.

### Rotate the eSlide

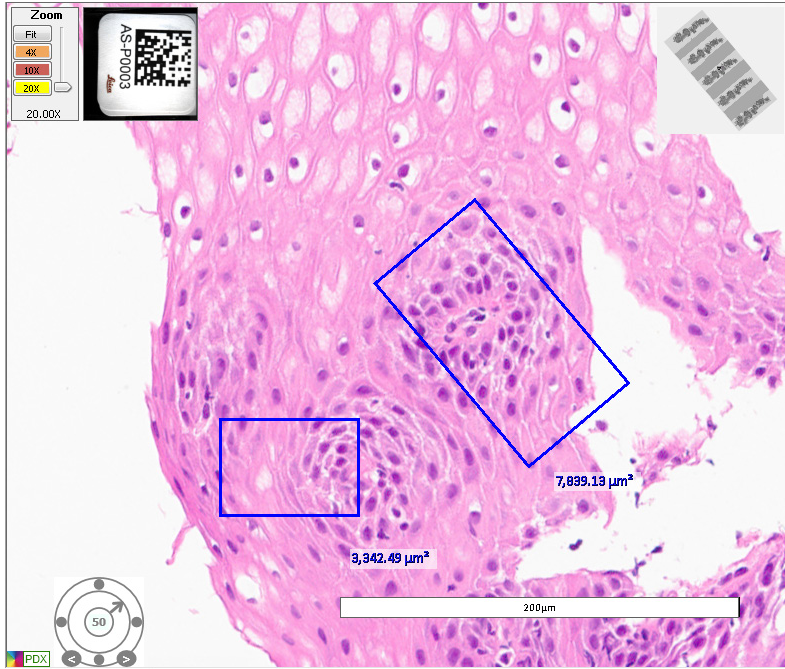
To rotate the eSlide from 0° to 360°, drag the arrow around the Rotation Dial. The number in the center indicates the current rotation.



To rotate the eSlide in 1 degree increments, click the left and right arrows at the bottom of the dial.

### Annotate a Rotated eSlide

When you rotate the eSlide, any existing annotations are rotated with the eSlide. If you draw new annotations on the rotated eSlide, they are drawn relative to your current view. In the example below, the annotation on the right was drawn before the eSlide was rotated. The annotation on the left was drawn after the eSlide was rotated.



### Rotate the eSlide Label

Click the eSlide label to rotate it 90°.



The system saves the eSlide label rotation when you save the eSlide.


## Save a Snapshot of the eSlide

The Snapshot tool enables you to take a picture of the current view of the eSlide, and save it as a TIFF file for use in reports and presentations. The saved image includes annotations.



**WARNING: THE SNAPSHOT IMAGE (TIFF FILE) IS FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.**

To take a snapshot:

1. Open the eSlide to the view and zoom level you want to capture in the snapshot.
2. Go to the Image toolbar, and click the **Snapshot**  tool.
3. In the Save Snapshot window, specify the file location and name, and then click **Save** to save the image.



*You can open the saved TIFF file in Aperio ImageScope DX; however, note that the pan and zoom features are not available when viewing TIFF files.*

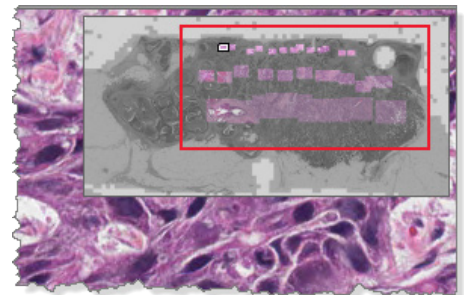
## Track Pan and Zoom Navigation With the Track Map

The track map appears in the Thumbnail, and shows the areas of the eSlide you have viewed.

The opacity of the track map and the size of the tracks indicate the zoom level used.

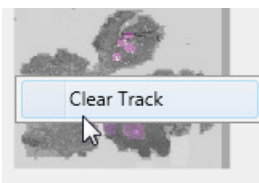
The example shows three lines of tracks, each made at a different zoom level (20x, 10x, and 4x, from top to bottom).

You can turn on Tracking by default. You can also determine how the track map evaluates the eSlide. See *"Track Pan and Zoom Navigation With the Track Map"* on page 29 and *"Tracking Options"* on page 37.



## Clear the Track Map


To clear the track map, right click in the thumbnail and select **Clear Map**.

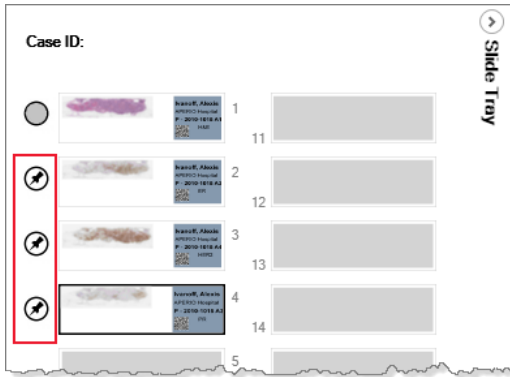


## Open Multiple eSlides

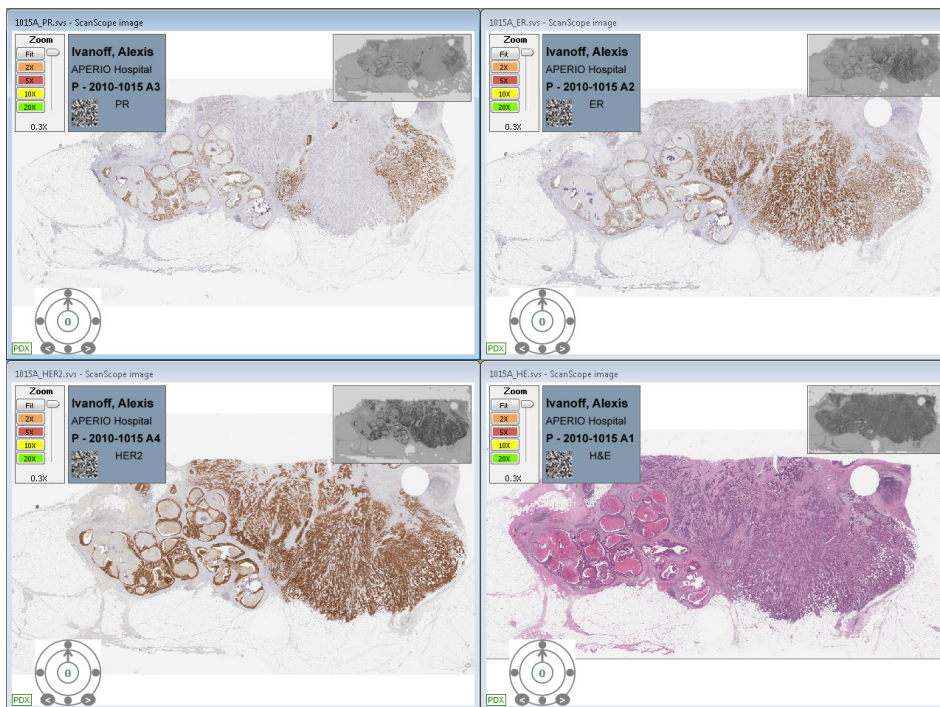
You can open up to four eSlides at a time.

Follow these steps to open and view multiple eSlides in the Aperio ImageScope DX Viewer window:

1. Click the circle next to each eSlide you want to open. Selected images appear in the Slide Tray with push pin  in the circle, as shown below.



The selected eSlides open in the Viewer window, along with the eSlide that was already open.



2. To close an eSlide, go to the Slide Tray and click the circle  again.





## Synchronize Navigation of Multiple eSlides

The Synchronize tool enables you to pan and zoom all open eSlides simultaneously. As you pan and zoom in one eSlide, the other eSlides follow the same navigation behavior.



*The Aperio ImageScope DX Navigation options determine the default synchronization behavior. You can define whether the system synchronizes eSlide navigation only when you pan, only when you zoom, or when you pan and zoom. See "Navigation Options" on page 36.*

To view multiple eSlides using synchronized navigation:

1. Open the eSlides you want to view. You can open up to four images at one time.
2. Click the **Pan and Zoom** tool .
3. Go to the Image toolbar and click the **Manual Synchronization** tool .
4. Pan and zoom through the active eSlide.

## Viewing a Z-Stack eSlide

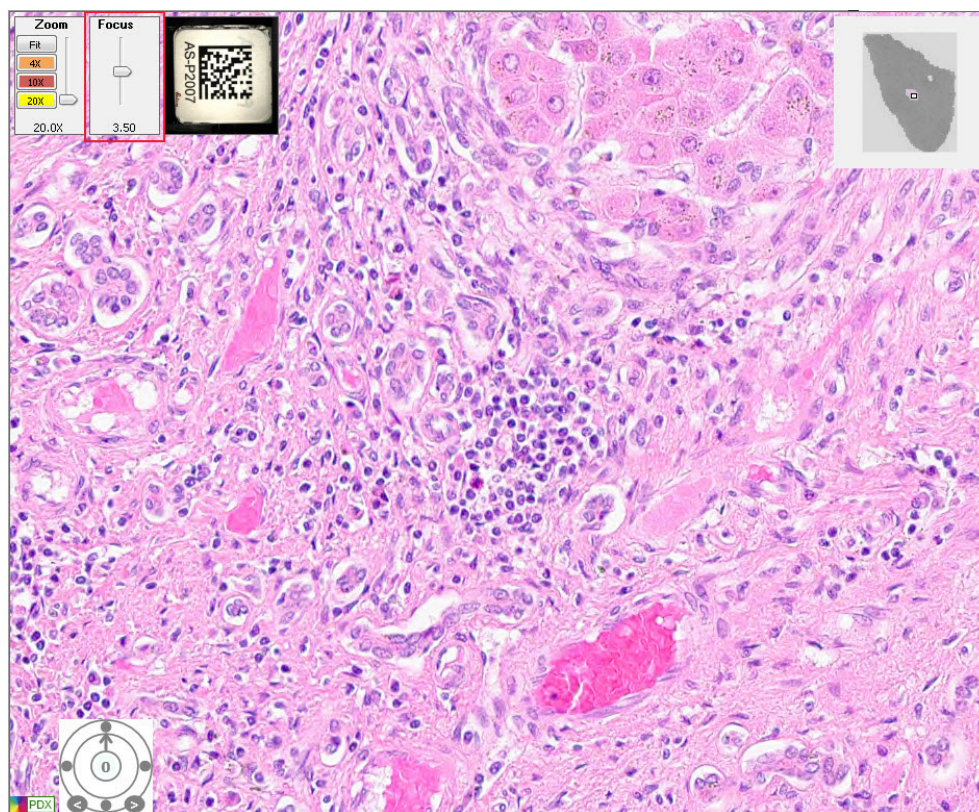
The Aperio AT2 DX scanner can create multiple digital images of slide tissue scanned at different focal depths. This process creates a 3D image that you can visually navigate through, as a microscope user navigates through different tissue focal depths using the microscope objective fine and coarse adjustments. This ability to create a 3-D image is called "z-stack scanning."

Aperio ImageScope DX enables you to view and annotate specific layers of the z-stack image.

### Viewing and Navigating a Z-Stack Image

Aperio ImageScope DX automatically opens a z-stack image to the *best focused layer*, as determined by your scanner when the slide is scanned. The number of layers and the layer separation (depth, in microns ( $\mu\text{m}$ ), between the layers) is set during scanning. For more information on scanning z-stack images, see the *Aperio AT2 DX User's Guide*.

The **Focus** slider, shown below, only appears on z-stack eSlides. You use this tool to view different z-stack layers.




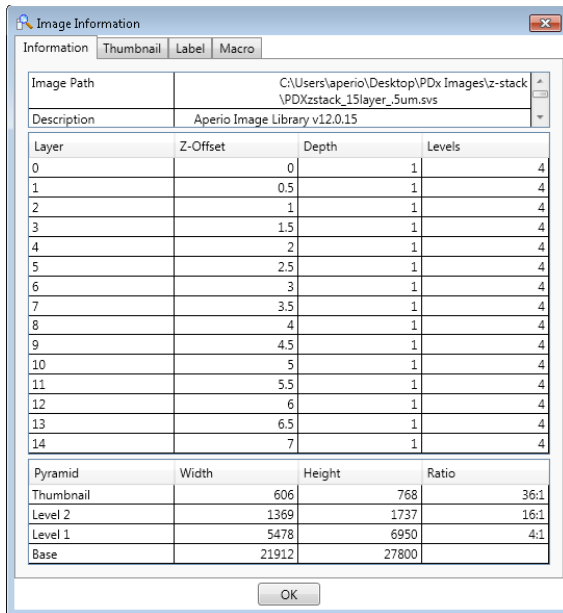
### Viewing Different Z-Stack Layers

- ▶ Drag the Focus slider up and down to view different layers of the z-stack image. The number at the bottom of the slider represents the current focus point.





- ▶ Click  to view image information, including information for each z-stack layer.

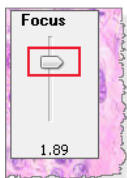


## Drawing and Viewing Annotations on a Z-Stack eSlide

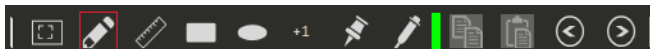
Annotations are stored on the z-stack layer on which you draw them. Annotations are visible from all z-stack layers.

To draw annotations on a z-stack eSlide:

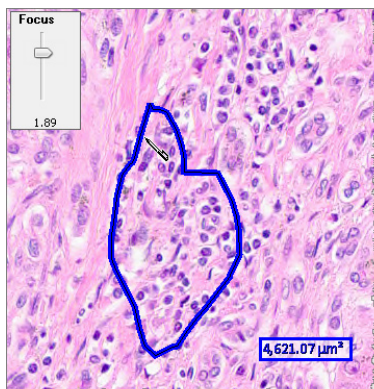
1. Drag the **Focus** slider to the desired z-stack layer.



2. From the Annotation toolbar, select the annotation tool you want to use.



3. Draw your annotation.



### Viewing Annotations On Different Z-Stack Layers

To navigate through annotations on a z-stack eSlide, use the **Next** and **Previous** buttons .

As you navigate to each annotation, the system adjusts the eSlide view to the corresponding z-stack layer.



*You must use the **Next** and **Previous** buttons if you want to view the annotations on their z-stack layer. If you select the annotations manually by clicking them, the z-stack layer view is not adjusted.*

---

# 5

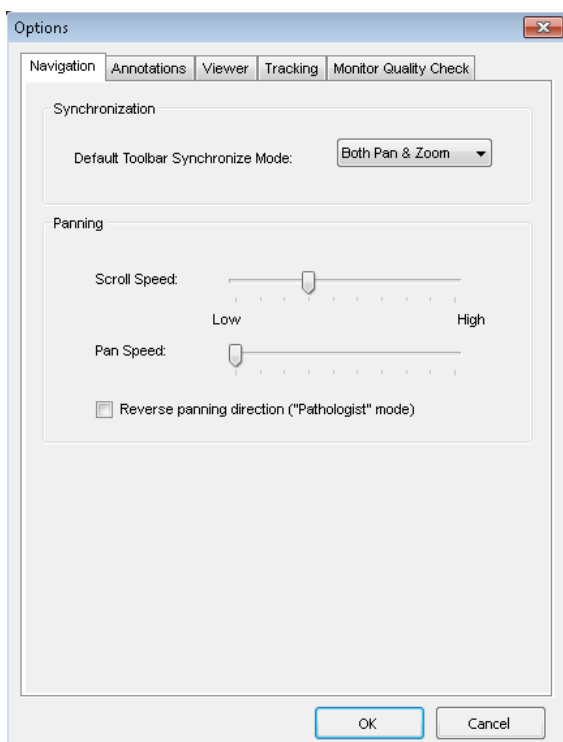
## Aperio ImageScope DX Options

This chapter describes the default options you can set for Aperio ImageScope DX. It also contains instructions for performing a visual quality check on your monitor.

### View the Aperio ImageScope DX Options

To view or set Aperio ImageScope DX options, go to the **Tools** menu and select the option you want to view: **Navigation**, **Annotations**, **Viewer**, **Tracking**, or **Monitor Quality Check**.

The following example shows the **Navigation** options.



See the following sections for a description of the available options.

## Navigation Options

Click the **Navigation** tab to view or edit the following options:

---

**Synchronization** This setting determines the default behavior for synchronized navigation. The Synchronize tool enables you to apply the same pan and zoom behavior to multiple eSlides at the same time.

Select one of the following options:

- Pan and zoom
- Pan only
- Zoom only

For details on using synchronized navigation, see *“Synchronize Navigation of Multiple eSlides” on page 31.*

---

**Panning** Drag the slider to adjust scroll and pan speeds:

- **Scroll Speed** specifies the how fast the image moves when you are using the scrolling feature. See *“Scrolling”* in the table on page 16.
- **Pan Speed** specifies how fast the image moves when you manually drag the image.

Select the **Reverse panning direction (pathologist mode)** check box to pan in reverse. With reverse panning, when you drag the mouse pointer to the left the image moves to the right.

---

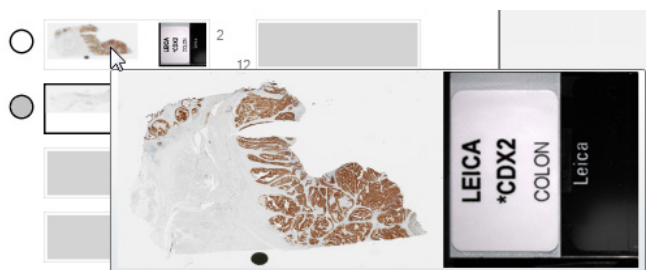
## Annotation Options

Click the **Annotations** tab to view or edit the **Fixed Size Regions** options. Type in the **Width, Height, and Length** using pixels or microns.

These settings enable you to draw annotations that match the size you set. To draw a fixed-size annotation, press and hold the **Ctrl** key while drawing a rectangle or square. See *“Draw Annotations With a Fixed Size or Fixed Aspect Ratio” on page 26.*

## Viewer Options

Click the **Viewer** tab to view or edit the **Display Hover Popups for Images** option. This option is enabled by default. If this option is enabled, you can point to an eSlide in the Slide Tray to view an enlarged version of the eSlide.



## Tracking Options

The Tracking settings work with the Track Map in the Thumbnail. For more information on using the tracking feature, see *“Track Pan and Zoom Navigation With the Track Map” on page 29*.

Click the **Tracking** tab to view or edit the **Track Map Settings**:

<b>Automatically display track map</b>	Displays tracks in the Thumbnail as you pan around the eSlide. It also displays any previous tracks made in this eSlide.
<b>Minimum Resolution</b>	Specifies the minimum resolution of a view that is mapped. This defines the lowest resolution at which a region of the image is viewed.
<b>Minimum Magnification</b>	Specifies the minimum magnification of a view that is mapped. This defines the lowest magnification at which a region of the image is viewed.

## Monitor Quality Check

The **Monitor Quality Check** tab enables you to open a test pattern image to check the display quality of your monitor. You should check this test image once a month. See *“Appendix A: Perform a Monitor Quality Check” on page 38* for complete instructions.

Leica Biosystems Technical Services also uses this image for troubleshooting and maintenance purposes.

# A

## Perform a Monitor Quality Check

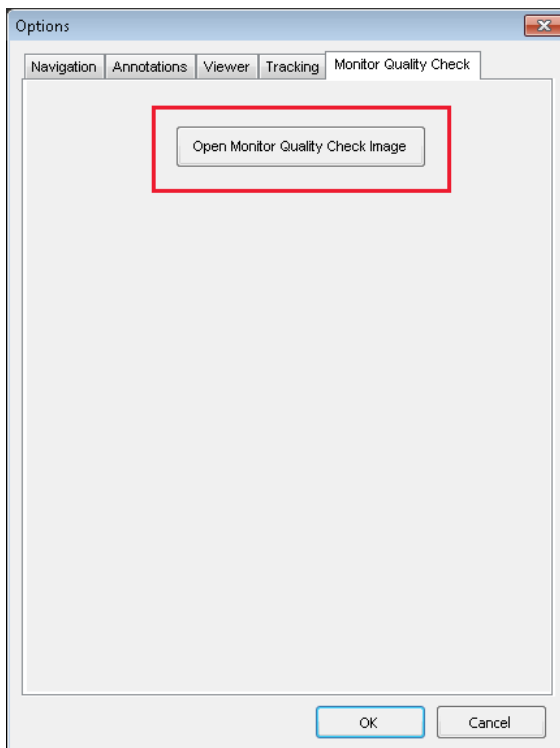
This appendix describes how to perform a visual quality check on your Aperio AT2 DX Viewing Station monitor.

We recommend performing a visual quality check on your monitor once a month.

You check the monitor quality by evaluating a special test image. Familiarizing yourself with the test image when you first use the system may help you more readily identify any changes in the image in the future.

Follow these steps to evaluate the test image:

1. On your Aperio AT2 DX Viewing Station, open Aperio ImageScope DX.
2. Go to the **Tools** menu, and select **Monitor Quality Check**. The Monitor Quality Check tab opens.



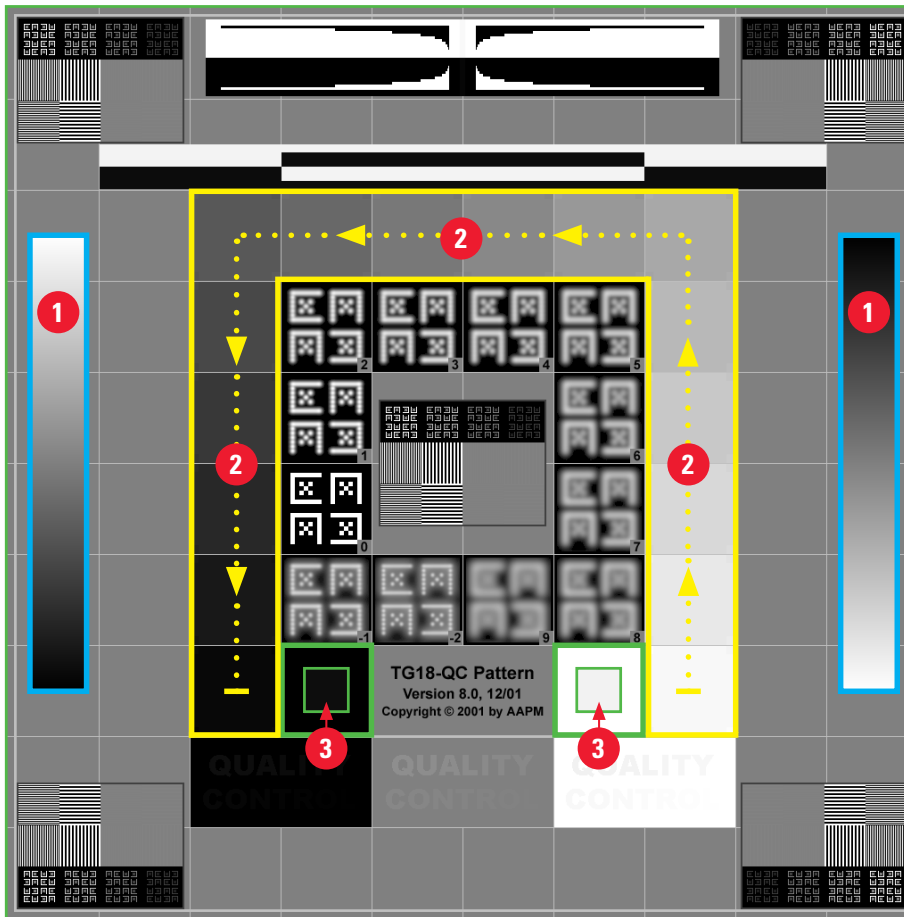
3. Click **Open Monitor Quality Check Image**.

The test pattern image appears in your Aperio ImageScope DX window.



The test image appears on a calibrated monitor with a higher level of clarity than this example.

The colored outlines and numbers are not part of the test image. They are included here to identify the areas to evaluate.



4. Check for the following items on the test image.

Test Graphic Area:	What to Check:
<p><b>1</b> Vertical gradient bars outlined in <b>Blue</b>.</p>	<ul style="list-style-type: none"> <li>▶ Changes in intensity are smooth and uniform over the entire range of bright to dark.</li> <li>▶ There are no noticeable bands of constant intensity (solid white, gray, or black) inside or near the edges of the bars.</li> </ul>
<p><b>2</b> Upside down U-shape outlined in <b>Yellow</b>.</p>	<ul style="list-style-type: none"> <li>▶ Following the direction of the yellow arrows in the example (from white to black), the change in intensity from one square patch to the next increases by the same relative amount.</li> </ul>

Test Graphic Area:	What to Check:
<b>3</b> Squares outlined in <b>Green</b> .	<ul style="list-style-type: none"><li>▶ The small 95% grayscale square patch inside the black square is clearly visible at normal viewing distance (30 - 60 cm).</li><li>▶ The small 5% grayscale square patch inside the white square is clearly visible at normal viewing distance (30 - 60 cm).</li></ul>

---

5. If you notice an issue with any of the test image evaluations, contact Leica Biosystems Technical Services.
6. To close the test pattern image, go to the **File** menu and select **Close Case**.



# B

## 3-D Mouse Quick Reference

The 3Dconnexion SpaceMouse® Pro is a three-dimensional input device that is available as an option for your Aperio AT2 DX System.

This section shows how the buttons on the optional 3Dconnexion SpaceMouse Pro map to Aperio ImageScope DX navigation tools. There is some setup required to use the SpaceMouse Pro device with ImageScope DX. See “Set Up the SpaceMouse Pro” on page 42 for instructions. For general use instructions, see the documentation and tutorials provided with your SpaceMouse Pro mouse.



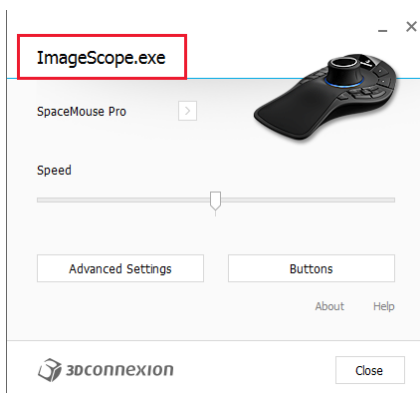
- |  |   |  |
|--|---|--|
| 1 View at 2x (20x image) or 4x (40x image)   | 6 Place an observation pin annotation   | 11 Push down to zoom in<br>Pull up to zoom out<br>Turn to rotate by 1 degree increments<br>Move to pan |
| 2 View at 5x (20x image) or 10x (40x image)  | 7 Lock or unlock rotation (see page 43) | 12 View layers on z-stack images (see page 43)   |
| 3 View at 10x (20x image) or 20x (40x image) | 8 View the next slide in the tray       |  |
| 4 View at 20x (20x image) or 40x (40x image) | 9 View the previous slide in the tray   |  |
| 5 Rotate 90 degrees clockwise                | 10 View at Fit (fit eSlide to screen)   |  |

## Set Up the SpaceMouse Pro

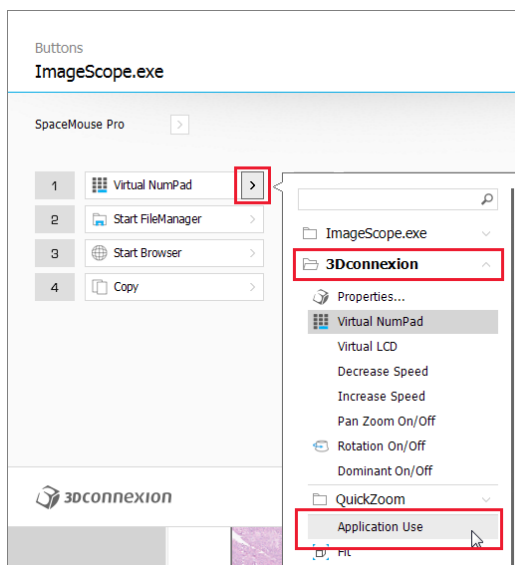
You need to map buttons 1 through 4 on the SpaceMouse Pro device before you can use it with ImageScope DX. The other buttons are already mapped. Note that the 3Dconnexion drivers come installed on your Aperio AT2 DX Viewing Station.

To map buttons 1 through 4:

1. On your Aperio AT2 DX Viewing Station, open Aperio ImageScope DX.
2. Connect the SpaceMouse Pro device to your Aperio AT2 DX Viewing Station.
3. On the SpaceMouse Pro device, press the **Menu** key to open the properties panel.
4. Ensure that “ImageScope.exe” appears in the header of the SpaceMouse Pro properties panel, as shown below. If you don’t see “ImageScope.exe,” make ImageScope DX the active window by clicking in the Aperio ImageScope DX window using your standard mouse.

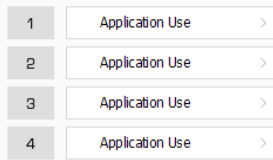


5. In the SpaceMouse Pro properties window, click **Buttons**.
6. To map buttons **1** through **4**:
  - a. Click **>** on the action box for button **1**, select **3Dconnexion**, and select **Application Use**.



- b. Repeat the previous step for buttons **2** through **4**.



When you finish assigning buttons **1** through **4**, “Application Use” appears as the action for each button:



7. To save your mappings, close the SpaceMouse Pro software. Click **Close** in the Buttons window, and then click **Close** in the properties window.
8. The SpaceMouse Pro is now ready to use with Aperio ImageScope DX.

## Rotate the eSlide with the SpaceMouse Pro Device

To rotate the eSlide:

1. Press the **Rotate** button  on your SpaceMouse Pro device to turn on the rotation feature.
2. Turn the Controller Cap to rotate the eSlide.
3. When you are finished rotating the eSlide, press the **Rotate** button  on your SpaceMouse Pro device to turn off the rotation feature.

## Navigate a Z-Stack Image with the SpaceMouse Pro Device

To view different layers of a z-stack image:

1. Press and hold the **ALT** key on the SpaceMouse Pro device or your keyboard.
2. Turn the controller cap to view the different z-layers.

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











viewing 31





# Symbols

▶ The following symbols may appear on your product label or in this user's guide:

	Consult instructions for use
	Manufacturer
	Date of manufacture
	Authorized representative in the European Community
	In vitro medical diagnostic device
	Serial number
	Catalog number
	Relative humidity range
	Biological risks
	Temperature limit
	Electronic and electrical equipment waste disposal
	Caution
	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The flat surface with waves symbol within an equilateral triangle is intended to alert you to the presence of hot surfaces which could cause burn damage.
	The UV lamp within an equilateral triangle is intended to alert you to the presence of UV light within the product's enclosure that may be of sufficient magnitude to constitute a risk to the operator.

[www.LeicaBiosystems.com/Aperio](http://www.LeicaBiosystems.com/Aperio)

