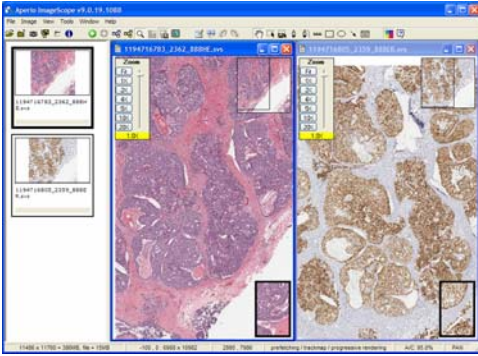


ImageScope Quick Reference Guide

Here are some quick tips for using the ImageScope digital slide viewer. For details, see the *ImageScope User's Guide*. Although ImageScope™'s basic function is to allow you to view digital slides created by the ScanScope microscope slide scanner from glass tissue slides, it offers much more:



- View digital slides from any workstation on the network, eliminating the delay of physically transporting glass slides from one department to another.
 - Share and discuss digital slides in real time in multiple remote locations by using digital slide conferencing.
 - View multiple digital slides concurrently.
 - Apply image adjustments in real time for contrast, brightness, and gamma.
 - Analyze entire digital slides or selected regions using provided, purchased, or custom algorithms*.
- Track and record viewing of a digital slide for educational or quality assurances purposes.
 - Interface directly to a ScanScope scanner through a network connection to view slides “live” and in different focal planes[†].
 - Annotate digital slides
 - Interface to Apero's ImageServer™ and Spectrum™.
 - Instantly pan and zoom to any region of the slide.
 - Extract a region or selected regions of a digital slide to a file in a choice of formats.

Installing ImageScope

Requirements: ImageScope runs on Windows 2000 or Windows XP. You must have at least 30MB of disk free. See the ImageScope User's Guide for more information on recommended system configuration.

If you do not already have ImageScope installed on your workstation, you can obtain the installer file from the Apero web site for free:

1. Open your Internet browser and type <http://www.aperio.com> into the address box of your browser.
2. On the Apero web site, look for the ImageScope download icon on the first page of the web site, or click **Support** at the top of the page and then select **Downloads**; a link on the Download page downloads the Apero ImageScope installer file to your workstation.
3. Open My Computer or Windows Explorer and navigate to the location in which you saved the ImageScope installer file. Double-click the installer file to begin installation. Follow the installer instructions and click **Next** when appropriate.



(ImageScope is automatically installed on any workstation on which you run the Apero client installer. This installer is included with your system when you purchase a ScanScope scanner.)

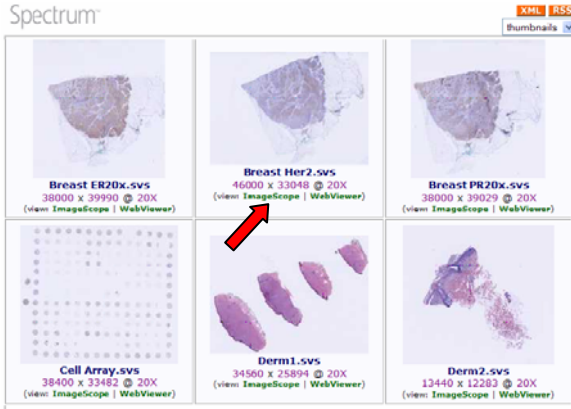
Starting ImageScope

1. Start ImageScope by clicking **Start**, pointing to **All Programs > ScanScope**, and then selecting **ImageScope**.

Opening a Digital Slide

There are three different ways to open a digital slide to view it:

1 To open a *local* digital slide (that is, a slide that is on your workstation or on your local network where you can access it via Microsoft file sharing), go to the ImageScope File menu and select **Open Image**. Navigate to the image file and select it.



2 To open a *remote* digital slide (that is a digital slide that is on a Spectrum server), go to the ImageScope File menu and select **Access Remote Server**. On the Access Remote Server window, type in the name of the server on which Spectrum is installed and type **82** for the Port. Click **Connect**. When asked for your user name and password, enter your Spectrum user name and password.

Now you see a table of digital slides on the Spectrum site. Click **View: ImageScope** beneath the image you want to view.

3 To view a digital slide from within Spectrum:

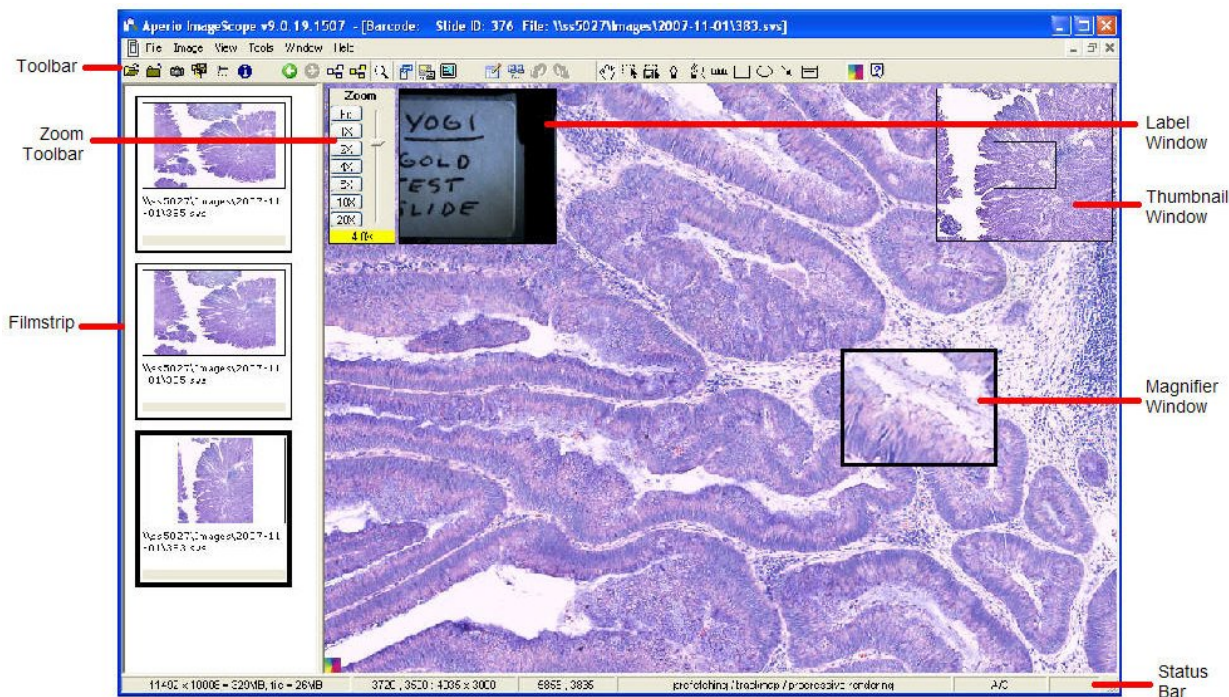
1. Enter the address of your Spectrum site in your Internet browser.
2. Log into Spectrum with your Spectrum user name and password.
3. Use the Spectrum List commands to see the digital slides on your site.
4. Select the digital slide you want to view by selecting the check box next to it and clicking **View Images** at the top of the table.

The screenshot shows the Spectrum Administrator web interface. At the top, there are navigation tabs: Welcome, Spectrum Administrator, Cases, Specimens, Digital Slides, Analysis, Administrative, Help, Font Size, and Log off. Below the tabs, there is a 'Digital Slides' section with a 'View Images' button highlighted by a red arrow. Below this is a table of digital slides with columns: Thumbnail, Slides, Barcode, Stain, Block, Status, Image ID, Captured Date, File Location, Description, ScanServer, Back, and Slot. The third row in the table has a check box selected, highlighted by a red box.

| Thumbnail | Slides | Barcode | Stain | Block | Status | Image ID | Captured Date | File Location | Description | ScanServer | Back | Slot |
|-------------------------------------|--------|----------------------|-------|-------|-------------------|----------|---------------|--------------------------------------|-------------------|------------|------|------|
| <input type="checkbox"/> | 20 | Sample Data AP04-888 | PR | 1A | 50% 1-2+ Positive | 76 | | C:\images\1173989001_2366_888PR.svs | Sample Data Image | | | |
| <input type="checkbox"/> | 22 | Sample Data AP04-888 | H&E | 1A | 5% 3+ | 75 | | C:\images\1173989050_2365_888H&E.svs | Sample Data Image | | | |
| <input checked="" type="checkbox"/> | 20 | Sample Data AP04-888 | H&E | 1A | See Microscopic | 74 | | C:\images\1173989050_2362_888H&E.svs | Sample Data Image | | | |
| <input type="checkbox"/> | 25 | Sample Data AP04-888 | ER | 1A | 100% 3+ Positive | 73 | | C:\images\1173989050_2359_888ER.svs | Sample Data Image | | | |


After you open a digital slide, it appears in the ImageScope main window.

The ImageScope Main Window




- **Toolbar** – Many of the ImageScope commands and features are available on the toolbar. See later in this guide for a quick reference list.
- **Zoom Toolbar** – You can magnify or shrink the current view.
- **Filmstrip** – The filmstrip shows what slides are open. Click an image in the filmstrip to view it in the main window. You can view multiple slides at the same time by going to the Windows menu and selecting **Tile Horizontal** or **Tile Vertical**. To show or hide the filmstrip, go to the View menu and select **Filmstrip**.
- **Label Window** – If a photo of the slide label has been associated with the digital slide, you can see it in the Label window. To show or hide the label, go to the View menu and select **Label**.
- **Thumbnail Window** – Often you see only a portion of the digital slide in the main window. The thumbnail shows the entire image. A black rectangle shows the portion of the image that is currently displayed in the main window. To resize the thumbnail, drag its lower left corner. To show or hide the thumbnail, go to the View menu and select **Thumbnail**.
- **Magnifier Window** – Move this window to the area you are interested in to see a magnified view or just move your cursor to the area of interest. The magnifier's default magnification is twice the resolution of the image in the main window. You can change its magnification; see the "ImageScope Options" chapter in the *ImageScope User's Guide*. To resize the magnifier, drag its lower left corner. To show or hide the magnifier, go to the View menu and click **Magnifier**.

Moving the Viewing Area

The easiest method for moving the viewing area is to *pan* the image: click and hold the left mouse button down while you drag the cursor across the digital slide. Your cursor turns into a closed fist, . Panning moves the slide in the direction you are dragging; if you want to set ImageScope to pan in reverse or change panning speed, see the “ImageScope Options” chapter in the *ImageScope User’s Guide*.

Other methods of moving the viewing area include:

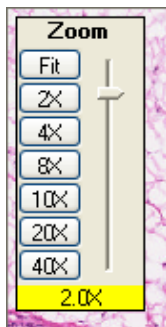
- **Autopanning** – Move the cursor to the center of the main viewing area. If your mouse has a scroll wheel, click it to start autopanning or right-click and select **Autopan** from the context menu. Move the mouse in any direction to automatically pan in that direction very quickly. To stop autopanning, click any mouse button.
- **Scrolling** – As you move your cursor toward the edge of the ImageScope main window, the cursor changes to an arrow: ; click and hold the mouse button down to scroll in that direction. To stop scrolling, release the mouse button.
- **Thumbnail** – Click in the thumbnail to move the main image to that part of the slide or drag the rectangle in the thumbnail window to move to another area of the digital slide.
- **Page Panning** – Use the keyboard arrow keys to move an entire screen page at a time (for example, Shift + Right-arrow to move a page to the right).

Changing Viewing Magnification

Double-clicking on the image in the main window immediately zooms that image to the maximum magnification. Double-click again to return to the most recently used magnification that was not the maximum magnification.

Other methods of changing viewing magnification include:

■ Zoom Toolbar




Click **Fit** to set the magnification to 0x and fit the entire digital slide within the main viewing area.

Click any other magnification setting to zoom in using that magnification.

Click the slider and drag it up or down to change the magnification in small increments.

If your mouse has a scroll wheel, click the image in the main window and roll the scroll wheel to move the slider.

- **Keyboard Shortcuts** – Type *Control* + to zoom in; *Control* – to zoom out.
- **Zoom Navigation** – To zoom into a particular area of the digital slide, click  on the ImageScope toolbar. Click in the main image window at the upper-left corner of the area you want to zoom into and, holding the mouse button down, draw a rectangle around the area you want to zoom into. Let go of the mouse button and the main window will be zoomed to that area.

Annotating

Use the following icons on the toolbar to draw annotations on your image. Note that annotations are saved in different layers, with different colors, so each group of people can have its own annotations.






































| | | | |
|---|--|---|---------------------|
|  | Ellipsis (or circle if you hold down the Shift key while drawing) |  | Arrow |
|  | Rectangle (or square if you hold down the Shift key while drawing) |  | Measurement |
|  | Free-form shape |  | Select report image |
|  | Free-form shape to exclude from analysis* (negative pen) | | |

Image Analysis

To analyze an image*, open the image in ImageScope. Go to the ImageScope View menu and select **Analysis**. On the algorithms window, select the algorithm you want to use and set the parameters for your use. Select whether you will analyze the entire image or just the area defined by annotations, and click **Analyze**. (For server-side batch analysis in Spectrum or for information on analyzing digital slides directly in Spectrum, see the *Spectrum/Spectrum Plus Operator's Guide*.)

Toolbar Quick Reference

| Icon | Action | Keyboard Shortcut |
|--|---|-------------------|
|  | Go to the Open Image window where you can browse for a local digital slide to open. | Control O |
|  | Close the digital slide that is currently being viewed in ImageScope. | Control F4 |
|  | Create a snapshot image of the digital slide currently being viewed. | |
|  | Save an ImageScope view, the entire set of digital slides that is currently open in ImageScope. | |
|  | Go to the Image Adjustment window where you can make color and other adjustments to the digital slide currently being viewed. | Control A |
|  | Go to the Image Information window which displays information about the digital slide currently being viewed. | |
|  | Go to previous view of the digital slide. | |
|  | Go to the next view of the digital slide (only enabled if you first used the back arrow icon to go to a previous view). | |
|  | Manually synchronize navigation for all digital slides currently being viewed. (Used when multiple digital slides are open in the ImageScope window.) | |
|  | Smart synchronization for multiple digital slides being viewed. Corresponding regions in the digital slide images are synchronized. | |

| Icon | Action | Keyboard Shortcut |
|--|---|-------------------|
|  | Show or hide the magnifier window. | |
|  | Show or hide the digital slide label window. | |
|  | Show or hide the thumbnail window. | Control T |
|  | Display on the full monitor screen. (Or turn off if already in full-screen mode.) | F11 |
|  | Open the Annotations window where you can create multiple annotation layers and organize and add descriptions to annotations. | Control N |
|  | Open the Annotation Link Manager window where you can link annotations or digital slides to create a viewing sequence. | F8 |
|  | Go to the previous link (if a previous link exists). | Shift F7 |
|  | Go to the next link (if a next link exists). | Shift F8 |
|  | Pan the digital slide. | |
|  | Enable/disable Integrated Color Management. Only available if the image contains an embedded ICC profile. | Control C |
|  | Zoom the selected area of the digital slide. | |
|  | Extract a region of a digital slide. | |
|  | Draw a free-form annotation. | |
|  | Draw a free-form annotation to be excluded from analysis*. (This creates a <i>negative</i> annotation.) | |
|  | Measure an object on a digital slide. | |
|  | Draw a rectangular region (or a square if you hold down the Shift key while you draw). | |
|  | Draw an elliptical annotation (or a circle if you hold down the Shift key while you draw). | |
|  | Draw an arrow pointing to an area of interest. | |
|  | Select an image for a report. This feature is only used if you have Spectrum Plus Reporting option installed and the report template you are using uses images. | |
|  | See help information for ImageScope. | F1 |

Additional Keyboard Shortcuts

| | |
|-----------|---------------------------|
| Arrow key | Nudge image |
| Control - | Zoom out |
| Control + | Zoom in. |
| Control E | Open rotate image toolbar |
| Control G | Open Analysis* window |

| | |
|-----------------|---------------------------|
| Control P | Open Options window |
| Control Shift M | Show/hide cache map |
| Control M | Show/hide track map |
| Shift Arrow Key | Move one screen at a time |

For a complete list of all ImageScope keyboard shortcuts, see the *ImageScope User's Guide*.

For More Information

For more information on the ImageScope features, see the following chapters in the *ImageScope User's Guide*:

- Adjusting image color and brightness/contrast – Chapter 6, “Image Adjustments.”
- Using Aperio Integrated Color Management to view images – Chapter 4, “Viewing a Digital Slide” and Appendix B, “Aperio Integrated Color Management.”
- Rotating images and digital slide labels – Chapter 5, “Rotating Images and Labels.”
- Verifying and setting image resolution – Chapter 7, “Image Resolution.”
- Recording and saving movement through a digital slide – Chapter 11, “Tracking.”
- Creating a viewing sequence by linking annotations and slides – Chapter 10, “Linking Annotations and Digital Slides.”
- Saving snapshots of a digital slide and extracting regions – Chapter 12, “Saving Digital Slides and Regions.”
- Performing image analysis and registering an algorithm* on Spectrum – Chapter 13, “Analyzing Digital Slides.”
- Digital Slide Conferencing – Chapter 14, “Digital Slide Conferencing.”
- Using TelePath Live[†] to connect directly to your ScanScope and capture and view Z-stacks – Chapter 15, “TelePath Live (Remote Revisit).”
- Setting ImageScope options – Chapter 18, “ImageScope Options.”

*Aperio's image analysis algorithms are FDA cleared for specific clinical applications, and are intended for research use for other applications.

[†]This application is not approved or cleared by the FDA for clinical use.

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User Resources

For the latest information on Aperio Technologies products and services, please visit the Aperio Technologies website at: <http://www.aperio.com>.

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This manual is not a substitute for the detailed operator training provided by Aperio Technologies, Inc., or for other advanced instruction. Aperio Technologies 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 Aperio Technologies Service Engineer.

ImageServer is intended for use with the SVS file format (the native format for digital slides created by scanning glass slides with the ScanScope scanner). Educators will use Aperio software to view and modify digital slides in Composite WebSlide (CWS) format.

Aperio products are FDA cleared for specific clinical applications, and are intended for research use for other applications.

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Contact Information

Headquarters: Aperio Technologies, Inc.
1430 Vantage Court,
Vista, CA 92081
United States
Tel: 866-478-4111 (toll free)

European Office: Aperio
3 The Sanctuary
Eden Office Park
Ham Green
Bristol BS20 0DD, UK
Tel: +44 (0) 1275 375123

United States of America

Tel: 866-478-4111 (toll free)
Fax: 760-539-1116
Customer Service Tel: 866-478-4111 (toll free)
Technical Support Tel: 866-478-4111 (toll free)
Email: support@aperio.com

Europe

Tel: +44 (0) 1275 375123
Fax: +44(0) 1275 373501
Customer Service Tel: +44 (0) 1275 375123
Technical Support Tel: +44 (0) 1275 375123
Email: europesupport@aperio.com