

IMAGESCOPE INSTALLATION AND QUICK START GUIDE

This document provides a quick start explanation of how to use Aperio's Release 8 ImageScope software to view digital slides.



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Disclaimer

While Aperio is pursuing regulatory clearance to address the clinical market, Aperio's ScanScope systems have not yet been cleared or approved by the FDA.



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This document provides a quick start explanation of how to use Aperio's Release 8 ImageScope software to view digital slides.

RUNNING IMAGESCOPE

- First you must install ImageScope on your computer (make sure you have Administrator privileges). After clicking the **Get Aperio ImageScope** button on the Aperio web site and saving the ImageScope.exe installer program to your hard disk, navigate to where you saved the file and double click on the installer program (ImageScope.exe).
 - Select Next/Finish options on any displayed screens as required to install ImageScope.
- Now you are ready to use ImageScope.
 - To open digital slide files on the web (for example, files found in Aperio's Digital Slide Gallery), click the **Open with ImageScope** link on the web page. ImageScope will automatically launch and open the file.
 - Or, launch ImageScope manually from the **Start>Programs>ScanScope** menu, and then open a digital slide image by selecting **Open Image** from ImageScope's File menu.
- Once a digital slide is selected for viewing, ImageScope opens/supports various windows and dialog boxes, described below.

THE MAIN WINDOW

- This window displays a portion of the selected slide at its full resolution.
- You can easily pan by grabbing the image in the main window (press the left mouse button and hold down—the cursor changes to a fist) and moving it in any direction.
- You can scroll by moving the cursor toward an edge of the window (cursor changes to an arrow) and holding down the left mouse button.
- You can *autopan* by right-clicking the mouse while in the main window and selecting **Autopan** from the pop-up menu or, if available on your mouse, clicking the mouse scroll wheel (cursor changes to ). The image will automatically pan in the direction you move the mouse (once in autopan mode, press either mouse button to leave the mode).
- You can click  on the toolbar to return to a previous view of the digital slide. Clicking  retraces the views. Just like a web browser!

THE THUMBNAIL WINDOW

- This window is accessed by clicking  on the toolbar. It may or may not be already displayed depending on whether it was open when ImageScope was last closed.
- When open, it appears in the upper right corner of the main window and contains a thumbnail view of the entire slide. A black rectangle represents the portion of the image that is currently displayed in the main window.

- You can quickly navigate to any location on the digital slide as displayed in the main window by clicking the desired location in the thumbnail window or by dragging the black rectangle to the desired position.
- The thumbnail window can be resized by dragging its lower left corner.

THE ZOOM TOOLS

- The zoom toolbar appears in the upper left corner of the main window, and shows the zoom level associated with the main window's image.
- The display resolution of the image shown in the main window can be changed by clicking on a zoom level, or by clicking and sliding the slider control. In addition, if your mouse has a scroll wheel, rolling the wheel causes the zoom slider to move up/down to different zoom levels.
- The size of the black rectangle in the thumbnail window changes according to changes in the zoom level. The size increases as you zoom out because a larger region of the slide is displayed in the main window.
- Another way to zoom the image is via the zoom navigation icon  on the toolbar.
 - First click  to select it.
 - Then click in the main window and hold the left mouse button down to stretch the zoom rectangle over an area to be zoomed into.
 - When you let go of the mouse button, the main window will be zoomed to the area you selected. The thumbnail window shows the orientation of the area to the full slide, and the zoom toolbar shows the associated zoom level. This tool can be used successively to drill down into an image. You can use the back button  to return to the original zoom setting.

THE MAGNIFIER WINDOW

- This window is accessed via the  icon on the toolbar. It may or may not already be present depending on whether it was open when ImageScope was last closed.
- The image displayed in the magnifier window is shown at twice the magnification of the image displayed in the main window. The contents of the magnifier window correspond to the region under the mouse cursor in the main window.
- The magnifier window can be grabbed (press the left mouse button and hold it—the cursor changes to a fist) and moved to any location in the main window in order to examine it more closely.
- The magnifier window can be resized by dragging its lower right corner.

THE ANNOTATIONS WINDOW

- This window is accessed by selecting **Annotations Window** on the View menu. It may or may not already be present depending on whether it was open the last time ImageScope was closed. It lists any annotations associated with the image. These annotations can optionally be saved/reloaded via an xml file associated with the image.
- Annotations consist of user-defined regions, rulers, and pointers drawn on the image, and are created using the various annotation tools available on the right portion of the toolbar: the pen, rectangle, ellipse, ruler, and pointer tools.

- In general, all of these tools work the same way. Select the desired tool on the toolbar, place the mouse cursor on the desired starting location in the main window, and then click and hold the left mouse button while you move the mouse as required to create the annotation (let go when you get to the desired ending location).
- Annotations automatically scale according to the zoom level used to display the image.
- Annotations are stored in layers. An image can have multiple annotation layers, and a given annotation layer can contain multiple annotations. All the annotations of a given layer are drawn/displayed in the same color, and the color differs from one layer to another.
- The annotations defined for a given layer are displayed on the main window depending on the state of the eye button  in the Annotations window. (Clicking the eye button toggles whether the selected layer is displayed.)
- The Annotations window can be used to create new annotation layers (“+” button), to delete annotation layers (“X” button), to assign descriptions to annotations, to add text to the annotation display, and to assign/modify the colors used for the annotations.

LINKING ANNOTATIONS

- The Link Manager provides a way to link annotations and digital slides to create a viewing sequence. One example of using this feature is to create a visual “guided tour” of interesting slides and annotations to present to a colleague.
- To access the Link Manager, select **Annotations Link Manager** from the View menu.

THE ALGORITHMS WINDOW

- This window is accessed by selecting **Algorithms Window** on the View menu. It may or may not be present depending on whether it was open the last time ImageScope was closed. It is used to perform algorithmic analysis on the digital image. This processing can be performed on the entire slide or on selected region(s) of the slide.
- Use the Algorithms window’s **Select Algorithm** button to select the desired algorithm. After selecting an algorithm, the system sets the default input parameters associated with the algorithm. You can change those parameters as desired.
- In the Algorithms window you select the portion of the digital slide on which to run the algorithm. You can select the region currently displayed in the main window (Current Screen option), the entire image, or the region(s) defined on the selected annotation layer.
- The results of an analysis are displayed in two ways: 1) visually, by “marking-up” the selected portion of the image displayed in the main window, and 2) quantitatively, by automatically creating a new annotation layer that contains the results. Markup image generation is optional and selected by a check box in the window.

- You can experiment with analysis processing:
 - Open the Algorithms window and select Aperio's Positive Pixel Count algorithm (via the **Select Algorithm** button). This algorithm demonstrates the analysis capabilities of the Aperio system.
 - Next open the Annotations window and use the pen tool  to draw one or more regions on the current annotation layer.
 - Then select **Selected Annotation Layer** in the Algorithms Window, check **Generate Markup Image**, and click **Run** to run the algorithm on the regions defined in the annotation layer.

When the analysis is complete, the selected regions of the main window are enhanced to show the analysis results, and a new annotation layer (as seen in the Annotations window) is created to store the quantitative results.

- You can examine the results by selecting the last layer in the Annotations window. Click  to toggle the markup results on/off in the main window. Additionally, these results can be exported by using the "export grid to text file" button , for example for use with an Excel spreadsheet.
- Note: there are two pen tools on the toolbar, the  tool is for drawing ordinary annotations, while the  tool is for drawing *negative* annotations. Negative annotations are used to define regions where analysis processing should be *skipped*. For example, if this tool is used to draw a small circle inside of a larger circle drawn with the regular Pen tool, then analysis is only performed on the area between the two circles (a doughnut shaped region).

THE DIGITAL SLIDE CONFERENCING WINDOW

- This window is accessed by selecting **Digital Slide Conferencing Window** on the View menu. It may or may not already be present depending on whether it was open the last time ImageScope was closed.
- Use this window to set up a conference between two or more computers. All of the participants in a conference see the same digital slide images at the same time (including annotations).

DIGITAL SLIDE INFORMATION

- You can display digital slide information by clicking  on the toolbar, which causes the Image Information window to open. This window contains general information about the slide, an image of the slide's label, and the slide's thumbnail image.

THE IMAGE ADJUSTMENTS WINDOW

- You can control the displayed image colors by using the various options in the image adjustment dialog box—accessed by clicking  on the toolbar. This window contains options to control the brightness/contrast and the color balance, and provides a mechanism to store/load specific color adjustments.

VIEWING MULTIPLE DIGITAL SLIDES

- You can open any number of images in ImageScope and view them side-by-side. You can use the tiling options in the Window menu to arrange the windows when you have multiple images open.
- Click  on the toolbar to synchronize the display location and magnification level of the opened images. If you select this tool and then pan or zoom in one image, any other open images will also be panned to the corresponding location and zoomed to the same resolution.

REMOTE REVISIT

Aperio's unique Remote Revisit option provides through-focus inspections with Z-stack capture. Useful for "thick specimen" applications, Remote Revisit enables interactive remote viewing—whether for frozen sections or secondary consultations—without a robotic microscope.

Remote Revisit mode enables regions of interest from a digital slide to be selected for Z-stack capture. (A Z-stack is a series of images taken at different focal depths.) Remote Revisit offers a real-time through-focus (depth) view of a specimen. To access Remote Revisit, select **Remote Revisit Window** on the View menu. (Note that Remote Revisit requires a license from Aperio and some preliminary setup—see the *ImageScope Release 8 User's Guide* for details.)

VIEWING REMOTE SLIDES

- Aperio has a client/server viewing architecture that enables images stored on a remote server to be accessed across a network or the Internet.
- If you have Internet access, you can open a slide located on Aperio's ImageServer.
- Select **Access Remote Server** from the File menu.
- Select **images2.scanscope.com** for the Server and **82** for Port, and click **Connect**.
- Double-click on the Aperio folder to display a list of available images.
- Select an image, click the **Open** button, and view the image as described above.



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