

Loop in the series with mouse scroll wheel - When this option is checked, if you scroll beyond the last image of a stack the first image will loop back and you will start again in a continuous loop. If this box is not checked, you will not be able to scroll beyond the last image of a stack.

Zoom with horizontal scroll wheel – Certain computer mice allow you to scroll horizontally. Clicking this box enables zooming in and out.

No 'Propagate settings in series' for - modalities (CR, DX, DR, RF, XA , MG, US) Clicking this selection disables propagation of settings for and of the selected modalities.

Apply Next/Previous Series button to all opened viewers - Clicking this enables you to move to the next and previous series in all viewers.

Use VOI LUT if available – Clicking this box enables the loading and applying of the VOI LUT sequence stored in the DICOM file [if available (VOI LUT Sequence, 0x0028, 0x3010)]. The VOI LUT sequence is a non-linear intensity curve applied to the image, enabling improved rendering of soft tissues.

Spline Rendering for polygons and pencils ROIs – Clicking this box enables spline smoothing in polygons and pencil ROIs.

New ROIs are unnamed - When clicked ROIs will not be automatically named.

Scroll through images and series - when this box is clicked you may scroll beyond the last image of a series to automatically load the next series. When this option is enabled, the “Loop in series...” option described above will be automatically disabled.

Keep CLUT Bars when exporting Screen Captures – By clicking this option any displayed CLUT Bars will be captured with the screen image.

Compute Skewness and Kurtosis for ROI – Skewness is a measure of (lack of) symmetry. Kurtosis is the average of the standardized data raised to the fourth power. Computing these will give you better information about the image view within the region of interest. Clicking this will enable this computation.

Use FrameofReferenceUID for cross reference lines – When checked, Horos will see if the FrameofReferenceUID (0x0020, 0x0052) of the displayed series are the same prior to presenting cross-references lines.

Zoom centered around mouse position – Click this button to center zoom in and out around the mouse click location rather than the window center.

Convert RSTRUCT ROIs to Brush ROIs - this option, when selected converts RSTRUCT ROIs to Brush ROIs enabling display of these ROIs

Don't switch series if already displayed – When checked, you will not switch between series if displayed.

Open PDF with Preview application - Horos will accept and store PDF files and open them in the 2D Viewer. However, if this box is checked, PDF files will display instead in Preview.app.

No interpolation for zoom - Checking this box enables interpolation when you zoom. When enabled, the pixels of the images will be clearly visible.

High Quality Zoom (Lanczos 5) - Clicking this option enables high quality interpolation based on the convolution algorithm.

Show Magnifying Lens with 'shift' key - When this is clicked, pressing the shift key while viewing an image in the 2D viewer will display the Loupe tool.

Mark ROI image as Key image – When this box is checked, any image containing an ROI will automatically be labeled as a Key Image.

Only display images of the same patient – Checking this box means that only images of the same patient will be displayed. Images of other patients will be closed.

Full 32-bit OpenGL pipeline – Selection of this option uses 32-bit floating point pixels instead of 8-bit pixels in the 2D Viewer, Orthogonal 2D MPR and 3D MPR windows. This option is faster and enhances image quality while using less memory.

Select window when using scroll wheel – When clicked, scrolling with a mouse on a window will always make it the front-windows.

Switch to 1 × 1 Tiling in Fullscreen mode – When clicked, during full screen mode, the selected image will display on the entire screen.

Display Overflow Lines – When clicked, this enables the display of lines that overflow a screen display of an image.

Display the Center of Circle ROIs – Checking this option displays an annotation for the center of a circle ROI

ROI color rotation – Checking this box rotates the colors selected each time a new ROI is added.

Photos Album - Designate the name of the photo album used by Horos when exporting images.

3D

Setting these preference options enables the customization of 3D viewer settings.

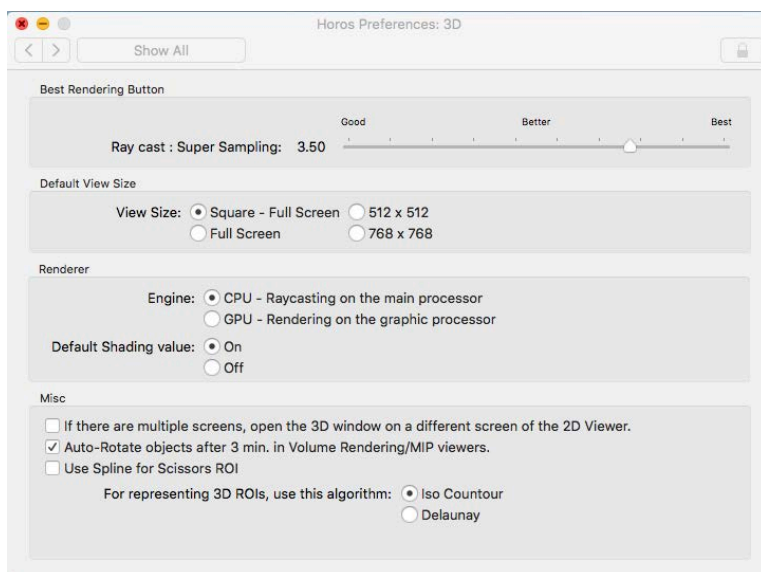


Figure 2.8

Best Rendering Button

Select the quality of the 3D volume rendering by moving the slider along this bar. The higher the value the better quality the image will be. Better quality images take longer to display.

Default View Size

Select between a square window or the full screen for the default view size. Higher resolution can be selected as well. Higher resolution and larger windows will take longer to display.

Renderer

Should you wish to change image rendering from the GPU to the CPU or vice versa, to enhance your computer's processing, you can click on one of the radio buttons. Similarly you can select the default shading value on or off.

Misc

Multiple screens – *If this is selected, Horos will open the 3D viewer on a separate screen from the main program.*

Auto-Rotate after 3 minutes - *In order to avoid screen burn-in from the continuous display of an image, you can select this option to automatically begin to rotate this object after 3 minutes.*

Use Spline for Scissors ROI - checking this box will smooth the spline for a 3D Scissors path.

3D ROIs algorithm - this option enables you to set the triangulation algorithm for 3D ROIs rendering. Available algorithms are: ISO Countour or Delauney.

PET

This preference screen relates to setting for PET or NM images. PET values can be automatically converted to SUV value or PET-CT studies can be set to automatically fuse with PET over CT.

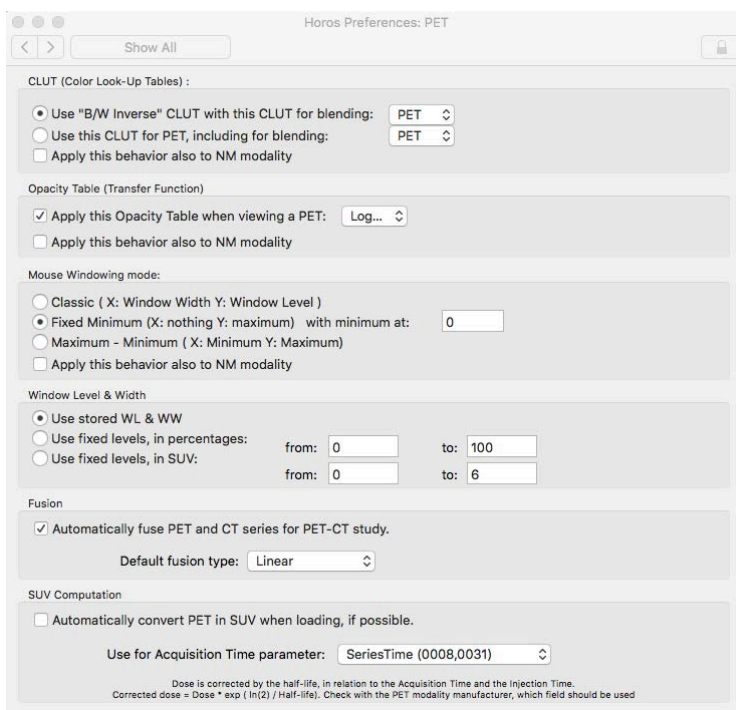


Figure 2.9

CLUT

By making these selections, these Color Look Up Table selections can be applied to PET series displayed in the 2D viewer when fused on another series. The same CLUT can be selected for both PET and CT. These settings can also be applied to NM by clicking the third box.

Opacity Table

Select the Opacity Table to use for PET series and select NM to also apply this same table for NM.

Mouse Windowing Mode

Chose the mouse behavior from amongst these options:

Classic - *Change the WL by moving the mouse vertically. Change the width of the window by moving the mouse horizontally.*

Fixed Minimum – *this fixes the window size. Moving the mouse vertically changes this value.*

Maximum – Minimum - *With this option, vertical mouse movement changes the maximum value while horizontal mouse movement changes the minimum value of the window.*

Choose this last setting to apply these mouse setting to NM as well.

Window Level & Width

Use this preference selection to set the window level and width for both PET and NM.

Use stored WL/HOROS – This is the default selection; values come from the DICOM tag itself.

Alternatively, you can use one of the next two selections to set the fixed levels in percentages or numbers.

The options are: Use fixed levels in percentages – where the values are entered in percentages or Use fixed levels in SUV – where the values are set as integers.

Fusion

Fusing will occur automatically if this button is clicked. Then a fusion type may be set to one of the choices shown below.

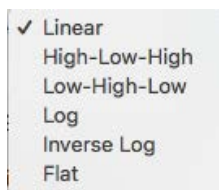


Figure 2.10

Linear - *represents a linear transfer. Low intensity pixels will have a low opacity (transparency); High intensity pixels will have a high opacity.*

High-Low-High - *This transfer function produces high opacity for pixels with both low and high intensity and low opacity for intermediate values.*

Low-High-Low - This is the opposite of the prior function. Low opacity for pixels with low and high intensity; high opacity for intermediate values.

Log - This will use a logarithmic curve.

Inverse Log - This will use an inverse logarithmic curve.

Flat - All pixels will have the same medium opacity: 50%.

SUV Computation

Selecting this button will automatically convert PET in SUV if it is possible.

Normally this next selection of the fusion type will not be changed. Please check with your modality manufacturer before changing this value.

Annotations

The Horos Preferences: Annotations screen is where you can control the textual annotations that display on the 2D viewer. The screen is organized as shown below, with the top section a graphical rendition of where and what will display. You can select, delete and edit the text overlays that are displayed on the 2D Viewer.

Each corner holds a set of descriptions that come from the DICOM descriptive tags. Each of the edges includes the “orientation.”

Each corner set can contain up to six lines of annotation descriptions that will each display on a line.

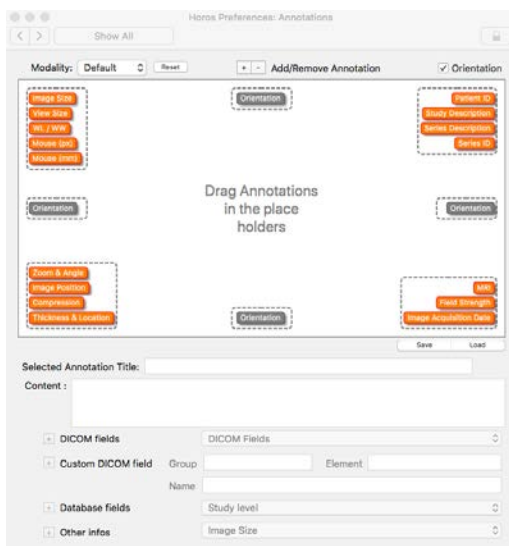


Figure 2.11

These annotations can be selected from amongst:

- *Any standard DICOM field*
- *Any custom DICOM field, defined by its group and element numbers*
- *Any of the database fields: study level, series level, image level, or Album*
- *Any of the following:*

<i>Image Size</i>	<i>View Size</i>	<i>Window Level / Window Width</i>
<i>Image Position</i>	<i>Zoom</i>	<i>Rotation Angle</i>
<i>Mouse Position [px]</i>	<i>Mouse Position [mm]</i>	<i>Thickness / Location / Position</i>
<i>Patient's Actual Age</i>	<i>Plugin</i>	<i>Patient's Age At Acquisition</i>

The orientation annotations on each edge can display the orientation of the image that is defined independently for each type of modality.

To **change a tag**, select the tag from one of the four corner boxes. It will then appear in the: Selected Annotation Title box. You may edit the Title of the tag by typing in that box. This title will correspond to the Content: shown below the title in that named box. The content of the Content box is changed by pressing the “+” next to any of the fields below.

To **move a tag** from one location to another, simply drag and drop it. To delete a tag, highlight it and press the “-” button at the top center of the screen.

To **add a new tag**, highlight the “+” box near the top center of the screen and a new annotation will appear, waiting to be dragged and dropped into one of the corner boxes.

To **reset annotations**, press the “Reset” button near the top left of the screen and all tags will go back to their default items.

DICOM Print

Horos Preferences: DICOM Print can be used to add and enable DICOM printers for use with Horos. In general, a DICOM printer is defined as standard DICOM nodes. To address a printer, you will its **IP address**, **AE Title** and **port number**. Each DICOM printer can have separate default parameters for its layout and film type. The default setup values can be changed on a job by job basis.

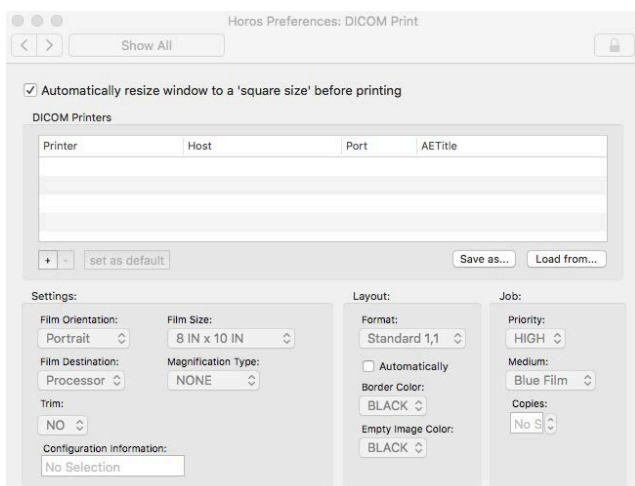


Figure 2.12

Once created, the entire list of DICOM printers can be exported as an XML file and then imported into another Horos workstation.

To **add a printer** press the “+” button below the box, then set the parameters accordingly. To **remove a printer**, press the “-“ button while the particular printer you wish to remove is highlighted.

SHARING

Listener

This Horos Preferences: Listener setup screen is where you setup how your Horos workstation will connect with other network nodes. You can also modify other options such as DICOM TLS, file compression handling and Bonjour on this screen.

Basic Settings

Horos is set up as a listener by default. However, this setting can be changed. You may chose to remove the listener setting when you want to use Horos as a third-party C–STORE SCP client.

The following settings can be modified:

AE Title - *The AE Title is a unique name (string of characters) used on a DICOM network to identify a DICOM entity. As per the existing DICOM standard, this string can be composed of up to 16 characters excluding the backslash “\”. Often this will default to the Horos computer’s name set during the computer setup process.*

Port Number - The TCP/IP port number is set in this box. That parameter will be used by the listener to receive DICOM communications. Valid entries are between 1 – 131072. Usually, it is advisable to select a value above 1024.

Address(es) - The address(es) are an exhaustive list of whatever your computer's IP addresses were set and can be found in Mac OS X System Preferences setting under Network.

Host Name - This setting should be set to the host name of the computer which can be found in your Mac OS X System Preferences setting under Sharing.

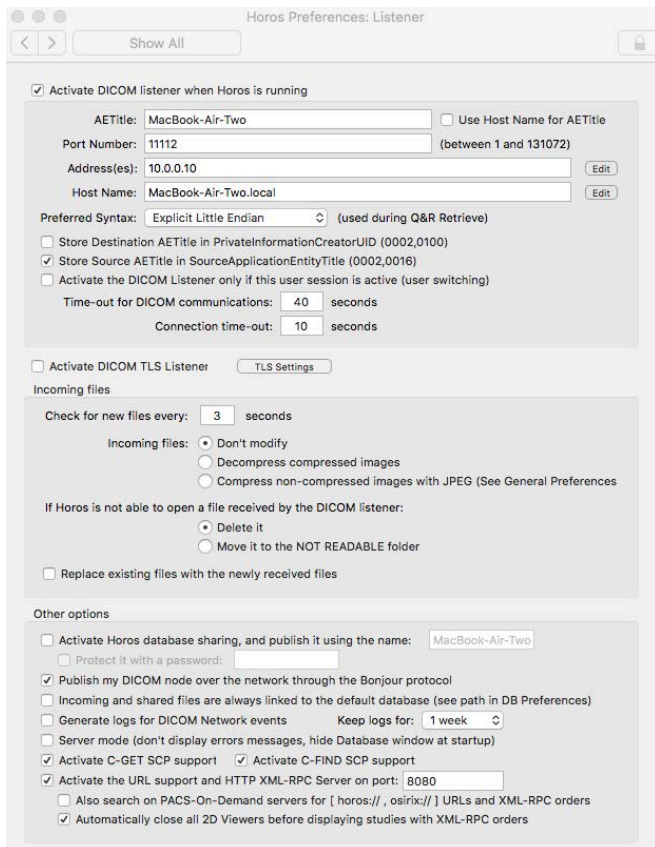


Figure 2.13

Preferred Syntax

A list of the available syntax for incoming DICOM communications is shown on the screen below, with “Explicit Little Endian” as the default selection.

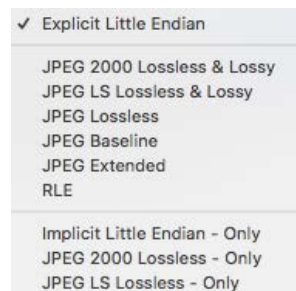


Figure 2.14

The next two boxes below starting with ***Store Destination AETitle in PrivateInformationCreatorUID*** and ***Store Source AETitle in SourceApplicationEntityTitle*** are options for storing the AETitle within the DICOM tag in the specified location. Check one of these boxes if recording of the AETitle in this manner is desired.

If the computer on which you are running Horos is going to be used by multiple users at the same time, please check the ***Activate the DICOM Listener only if this user session is active*** option. Anyone running Horos on this machine can have the same network settings (AE Title/port number) for DICOM communications. The DICOM Listener itself will only be activated by the current user avoiding conflicts between multiple Horos sessions running on this machine.

DICOM Communications and Connection Time-out

If you are using a relatively slow network or perhaps a wireless connection, you may wish to set the time-out for DICOM communications and the connection time-out to be longer than the default. The number is in seconds.

DICOM TLS Listener

The TLS Listener is a second listener option that can be used that enables encrypted communications. It can be enabled independent of the other listener and can optionally share all of its settings. If the “TLS Settings” button is pressed all of the TLS options will appear on a separate screen shown below.