Print. . .

Use this selection to for images you wish to print.

DICOM Print. . .

When you make this selection a submenu shown below will appear enabling you to set the standard DICOM printing functions. You can print on any DICOM printer that has been setup in your Preferences.

THE NETWORK MENU

This Network menu pulldown displays the following sub-menu containing the functions required for DICOM communications.

Figure 3.18

Export to DICOM Network Node

Use this selection to send images to a PACS, workstation or other DICOM devise. It will send selected studies or images to any DICOM device previously defined with a Preferences selection. using the DICOM communication protocol.

Query / Retrieve. . .

To find and/or retrieve an image from a DICOM devise previously setup in the Preferences selection, use this option. It will use the DICOM Query & Retrieve communication protocol. When selected, a dialog box will appear enabling you to set the query criteria. You can query one or more DICOM devices at the same time. The order of DICOM nodes will set which images are retrieved where.

Query / Retrieve Selected Patient. . .

To find a study associated with a specific patient (currently displayed or selected in the Horos viewer) use this option.

Auto Query / Retrieve Window

Use this option to find and retrieve any study matching the query criteria entered. You can query multiple notes simultaneously with the order of the nodes determining which images are returned.

A window will appear enabling you to enter the query criteria.

Auto Query / Retrieve Refresh

This option will refresh all 'Auto Query / Retrieve' instances. If any new studies matching the criteria are found they will be retrieved.

Retrieve Selected PACS On-Demand Studies

This options enables you retrieve specific results that you have defined from a connected PACS. This will enable you to see the entire list of studies stored on the PACS. If the same image is found locally it will display the local image. Specific setting include: comparative studies, smart albums and global patient names search.

Refresh PACS On-Demand results

This function will refresh the PACS On-Demand results enabling finding new results.

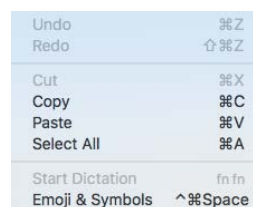### *Abort Incoming DICOM Processes (Store-SCU)*

Use this selection to abort a transfer request from a PACS. This will issue and A-Abort message to the DICOM notes stopping all transfers.

Network Logs

This selection displays a list of the recent DICOM sends and receives, assuming the option was previously set in Preferences.

THE EDIT MENU

The Edit menu is shown below.

Figure 3.19

The functions for this menu are reasonably straightforward and are described below.

Undo

The undo selection allows you to reverse the prior action, if possible. Not every function can be reversed.

Redo

This selection is the reverse of Undo. It re-does the action that was reversed using Undo.

Cut

This option allows you to cut (and copy or delete) text strings, graphic annotations and ROIs.

Copy

This option allows you to copy (and leave in place) text strings, graphic annotations and ROIs that can later be pasted.

Paste

This option allows you to paste previously copied or cut text strings, graphic annotations and ROIs.

Select All

This option enables to select all available text, graphic annotations and ROIs.

Start Dictation

This option enables you to start dictation if you are using this to enter information into Horos.

Emoji & Symbols

This option enables you to enter special symbols or Emojis from a pull down list of icons.

THE FORMAT MENU

The format menu has several important functions. These are described below.

Figure 3.20

Customize Toolbar. . .

Use this option to change or add new functions to the toolbar. Details of the toolbar are described in Chapter 4. You can set the functions you commonly use in the order in which you would like them to appear.

Fullscreen

This option changes the current window to display over the entire screen of the device in use. This will hide the toolbar, the window borders, and sidebars to give you the very largest space available to view images.

Font

This option enables you to select the font you prefer for your entries. It will enable you to select the fonts available on your computer including italic and bold and other special character aspects, as well as the type-fonts themselves and their color.

THE 2D VIEWER MENU

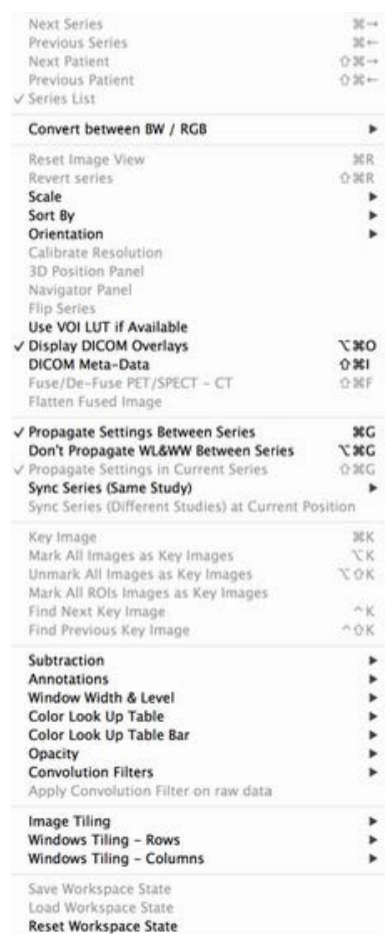This section includes a description of the functions applicable to the 2D Viewer. The 2D pull-down menu is shown below.

Figure 3.21

Next Series

Selecting this option will move the user to the next series which will then display as active.

Previous Series

Same as above (Next Series) only in reverse. It will move to the prior series and then display it as active.

Next Patient

This option enables you to move to the next patient and display it as active.

Previous Patient

Same as above (Next Patient) but in reverse. It will move to the prior patient and display it as active.

Series List

This option toggles between hiding and displaying the thumbnail series list on the left side of the 2D viewer window.

Convert Between BW / RGB

This option enables you to specifically assign the colors Red, Green or Blue to a black and white image.

Reset Image View

Using this option resets the image being viewed to its default settings.

Revert series

Similar to the reset, this option enables you to revert back to the originally loaded file settings. Any changes made to pixel values or 3D sculpting will be lost and can't be undone.

Scale

This selection enables a sub-menu with three selections shown that can help you change the zoom-in or out of the displayed image.

No Rescale Size (100%)
Actual Size
Scale To Fit

Figure 3.22

> ***No rescale size (100%)*** – this sets the zoom level to 100%. Image pixels map one to one with screen pixels.
>
> ***Actual size*** - Horos displays the image at the actual real size. This function requires a monitor that supports this function specifically.
>
> ***Scale to fit*** – The image will be displayed to fit within the current window.

Sort By

Selecting this function from the pull-down menu will display this submenu from which you can select a field for resorting the displayed series

Instance Number - Ascending
Instance Number - Descending

Slice Location - Ascending
Slice Location - Descending

Figure 3.23

The default behavior for sorting is by Instance Number which can be modified within the Database Preferences section.

Orientation

This menu selection displays the following sub menu. From it you can select a flip or rotation of the image.

Flip Image Horizontal
Flip Image Vertical

Rotation 0 Degrees
Rotation 90 Degrees
Rotation 180 Degrees

Figure 3.24

Flip Image Horizontal

This enables you to horizontally flip the active image pivoting on the Y axis. All of the left, right, head and foot orientations will also be adjusted similarly.

Flip Image Vertical

This enables you to vertically rotate the active image pivoting on the X axis. Again the left, right, head and foot orientations will also be adjusted similarly.

Rotation 0 degrees

This selection will return the image to its original view.

Rotation 90 degrees

This selection will rotate the image by 90 degrees in a clockwise direction.

Rotation 180 degrees

This selection is similar to Flip Image Vertical by rotating the image by 180 degrees in a clockwise direction.

Calibrate resolution

This selection enables you to modify the image calibration parameters including pixel size, slice spacing, slice interval, orientation angles and center of origin. You can assign also calibration parameters for images that don't include this information in their DICOM header.

A warning will arise prior to allowing you to make any changes since changing any of these values will impact the measurements computed on this data.

Figure 3.25

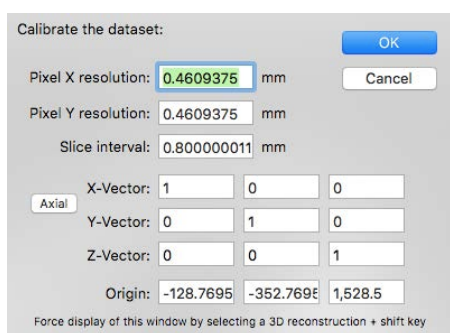Once you press "I agree" you will see the window below appear:

Figure 3.26

On this screen you will be able to manually adjust the dataset.

3D Position Panel

Making this selection will display the following screen enabling you to manually adjust image registration among two modalities (for example PET and CT).
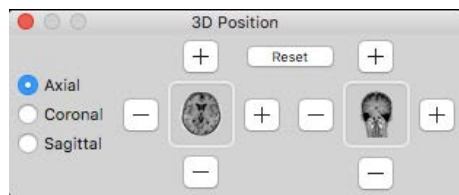
Figure 3.27

Navigator Panel

This selection will display a window below the current window listed all the images in the series.

Flip Series

This selection reverses the order in which the images appear in the series.
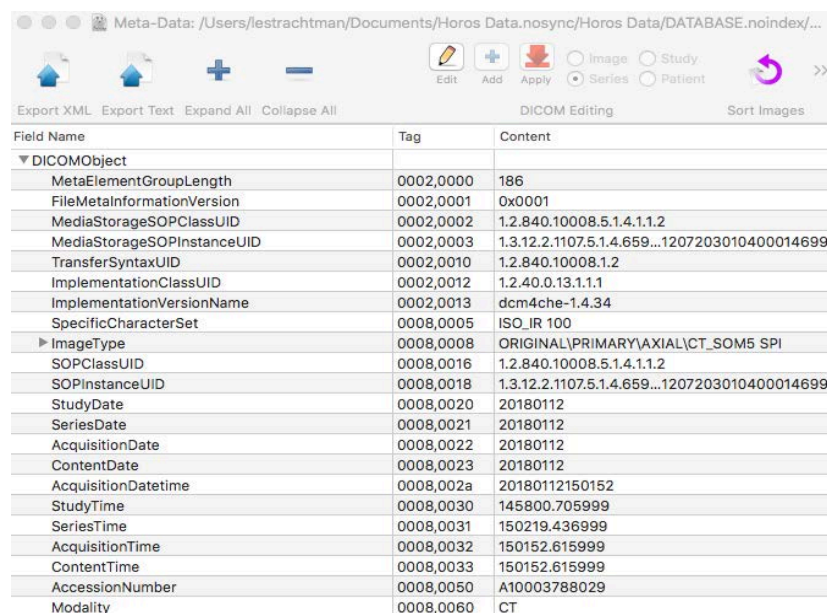
Use VOI LUT

If this option is available, it will load and apply the VOI LUT sequence that is stored in the DICOM file. The VOI LUT sequence is a non-linear intensity cure that can be applied to the image for better rendering of soft tissue.

Display DICOM Overlays

When this is selected the graphic overlays will be display on the image. Some third-party vendors use this to display graphic overlays, annotations and ROI indications on the image itself. DICOM overlays are stored as bitmaps. This can also be manipulated by the "annotation" button on the tool bar.

DICOM Meta-Data

Making this selection will display a detailed window describing the DICOM Object, its tag and a description of its content, similar to the image below.

Field Name	Tag	Content
▼DICOMObject		
MetaElementGroupLength	0002,0000	186
FileMetaInformationVersion	0002,0001	0x0001
MediaStorageSOPClassUID	0002,0002	1.2.840.10008.5.1.4.1.1.2
MediaStorageSOPInstanceUID	0002,0003	1.3.12.2.1107.5.1.4.659...1207203010400014699
TransferSyntaxUID	0002,0010	1.2.840.10008.1.2
ImplementationClassUID	0002,0012	1.2.40.0.13.1.1.1
ImplementationVersionName	0002,0013	dcm4che-1.4.34
SpecificCharacterSet	0008,0005	ISO_IR 100
▶ImageType	0008,0008	ORIGINAL\PRIMARY\AXIAL\CT_SOM5 SPI
SOPClassUID	0008,0016	1.2.840.10008.5.1.4.1.1.2
SOPInstanceUID	0008,0018	1.3.12.2.1107.5.1.4.659...1207203010400014699
StudyDate	0008,0020	20180112
SeriesDate	0008,0021	20180112
AcquisitionDate	0008,0022	20180112
ContentDate	0008,0023	20180112
AcquisitionDatetime	0008,002a	20180112150152
StudyTime	0008,0030	145800.705999
SeriesTime	0008,0031	150219.436999
AcquisitionTime	0008,0032	150152.615999
ContentTime	0008,0033	150152.615999
AccessionNumber	0008,0050	A10003788029
Modality	0008,0060	CT

Figure 3.28

Convert from/to SUV

SUV is the standardized uptake value or the dose uptake ratio. It is widely used as a simple PET quantifier. In Horos SUV only adjusts to the patient's body weight (not surface area or adjusted to lean body mass). This option enables the computation to or from SUV.

Fuse/De-Fuse PET/SPECT-CT

This selection is only available when displaying a window including a fusion of two modalities. You can turn on or off the fusion of the modalities.

Flatten Fused Image

This selection enables you to merge two series that are currently fused using a color overlay. To accomplish this you would first superimpose the two images and adjust the registration. Then use this option to merge the two series from the same modality, superimpose them, adjust the registration and then use this option to merge the two series together.

Propagate settings between series

This option will enable you to use the same settings for pan, zoom, window leveling and origin for the entire series. You can use this option to turn this off or on.