

Intellispace Enterprise PACS Viewer

The following documentation outlines the basic viewer functionality commonly used. It does not cover all features of the viewer and image manipulations. Specific details on each of the viewer functionalities can be found in the Intellispace help files.

The Folder, List, and Filter functionality are outlined in the “ISP-Training - Folders,Filters,Lists” documentation.

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Viewer Elements

Each of these viewer elements will be described in following sections

Orange – Current Lookup/List/Filter in use

Green – View Exams Tab

Blue – Patient Banner

Red – Patient History Timeline

Purple – Exam Margin

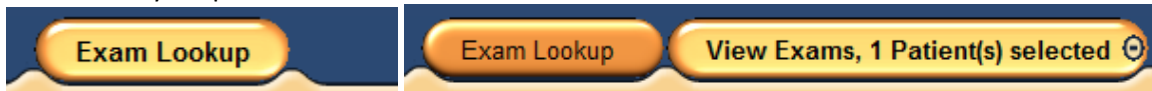
Yellow – Thumbnails

Powder Blue – Clinic Information Window

The screenshot displays the ISP-Viewer interface for patient TEST2, KATE. At the top, there are two buttons: "Exam Lookup" (orange) and "View Exams, 1 Patient(s) selected" (yellow). Below these is a patient banner (blue) with the text: "TEST2, KATE Sex: F, BirthDate: 1/6/1979, MRN: 2037, Last Known Patient Class: U, Visit Loc". A patient history timeline (red) shows exam dates and types: CR ABDO (04/12), CR LEFT (04/12), CR LEFT (16/14), CR LEFT (10/28), and CR PELV (10/27). The main area contains two exam thumbnails (yellow) for Series #1 and Series #3, both with w/l: 4096/2047. The thumbnails show a "ROL" label and a circular icon. A purple margin is visible on the left side of the thumbnails.

Current Lookup/List/Filter in use

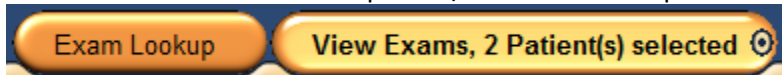
The 'Current Lookup/List/Filter' tab at the top of the view port is part of the "Control Strip". It displays the lookup or list or filter that is currently in use. It is yellow when viewing a list and changes to orange when a study is open in the viewer.



With an exam open in the viewer, you may return to the lookup/list/filter by clicking on the tab, which will leave the exam open in the viewer. Once back to the current lookup/list/filter, you can switch to a different lookup/list/filter and open another patient's exam in the viewer.

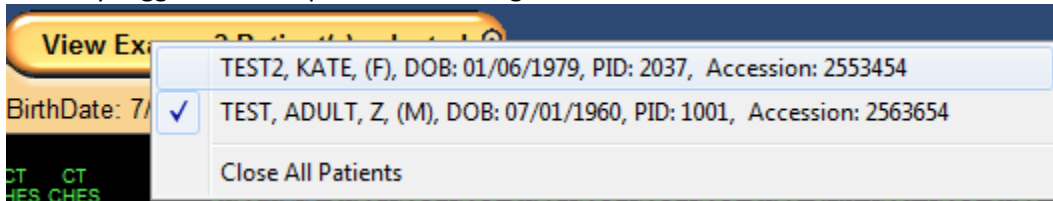
View Exams Tab

This tab shows the number of patient/exams that are open in the viewer.



Close the current open patient with the 'Bulls eye' dot at the right side.

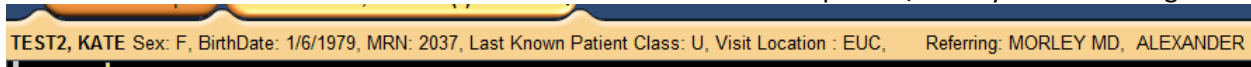
You may toggle between patients with a right-click on the tab and left click to select the patient.



"Close All Patients" is available at the bottom of the pop-up list.

Patient Banner

The Patient Banner is below the Tabs and contains details about the patient/exam you are viewing.



Patient History Timeline

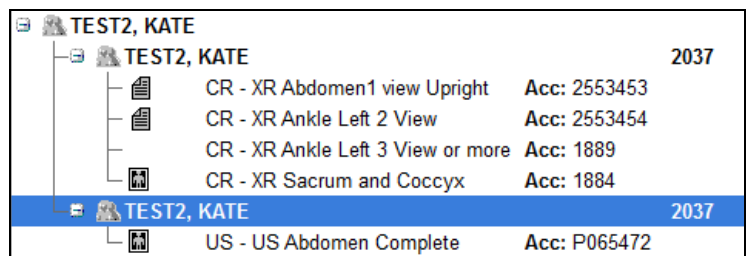
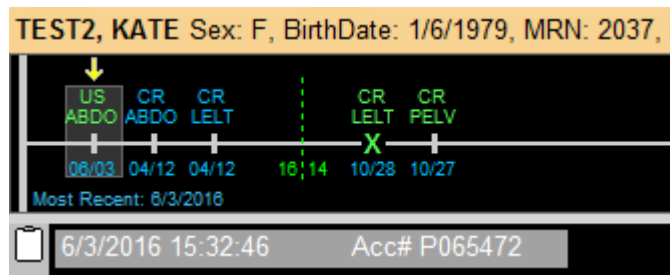
The timeline is located between the patient banner and the thumbnails.

Commonly referred to as "The Timeline"

Exams with images will be a white hash mark.
Exams with results will be blue.

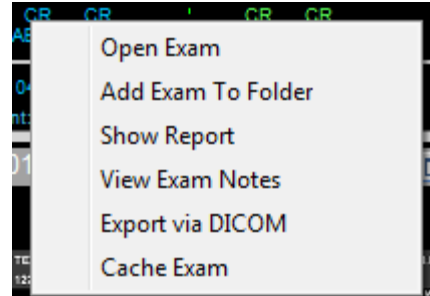
A single left click on a timeline entry will open the study.

The timeline will contain all the exams for all organization records that are linked together(See Linking Patients).

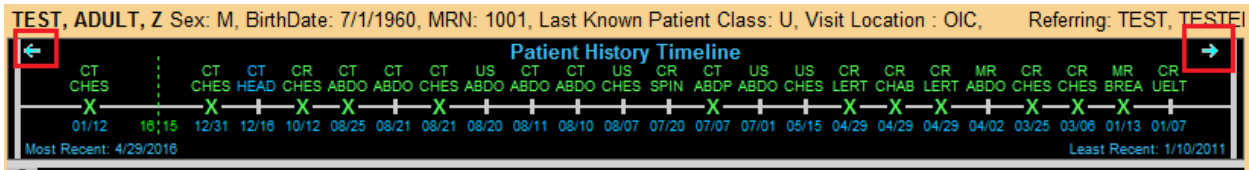


A right-click on a timeline entry gives you 'handling options'

“Show Report” and “Add Exam To Folder” are commonly used.



When a patient has an extensive timeline that exceeds the display, you can toggle older/newer with the arrows at each end.



You can also place your cursor on the timeline, hold down your mouse wheel as a button, and move your mouse laterally to ‘slide the timeline’.

Exam Margin

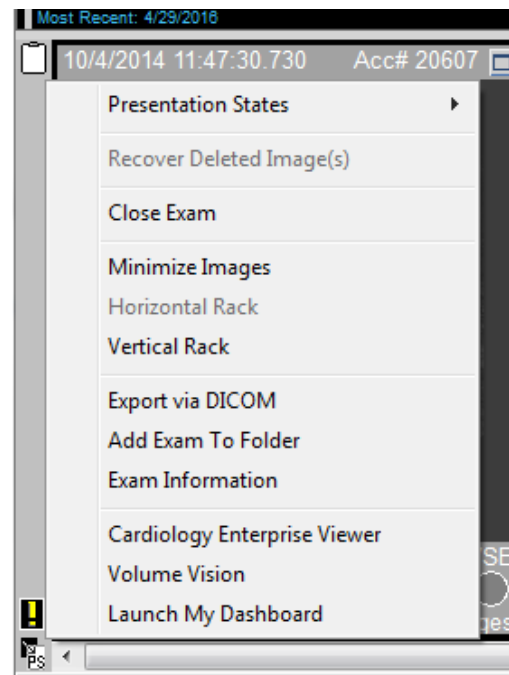
The Exam Margin contains exam handling options.

Presentation States is commonly used by technologists to “Save Presentation State” which will save the thumbnail order, annotations/measurements, and WW/WL for future viewing by the radiologist.

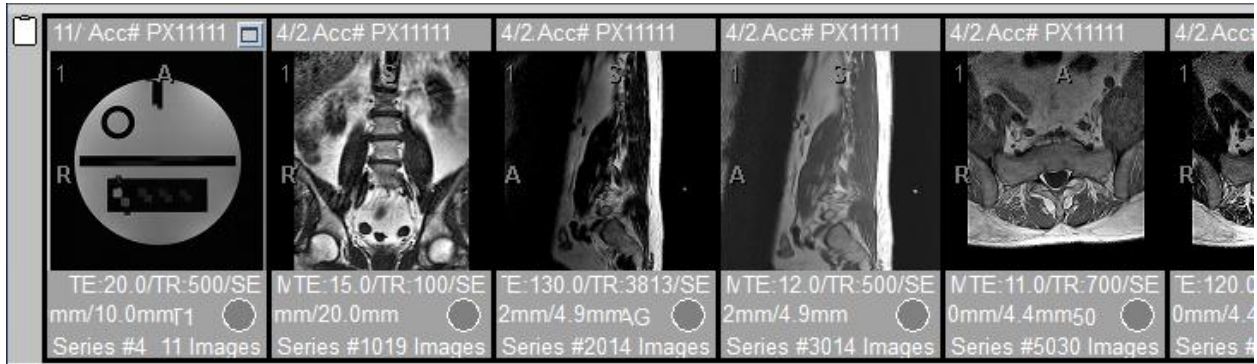
“Exam Information” contains all the details of the exam, including the Study UID, the scanner/sending AE title, which are helpful for troubleshooting.

The bottom of the Exam Margin will contain a ‘PS’ if there is a Presentation State present.

A yellow exclamation will be present if there is data that cannot be displayed.



Thumbnails



Thumbnails are small representations of the images and series of the exam.

The top border contains the Exam Date/Time and the accession number.

The bottom border contains the series description, series number, number of images, and other image/series details specific to the modality.

The default order of Thumbnails/Series is by the series time.

Thumbnails can be dragged and dropped to set the sequence for a Presentation State.

The default Thumbnail size is controlled in user preferences/general preferences.

Thumbnails can be resized in each viewing session with a left click-hold and drag up/down on the lower margin of the thumbnail rack.

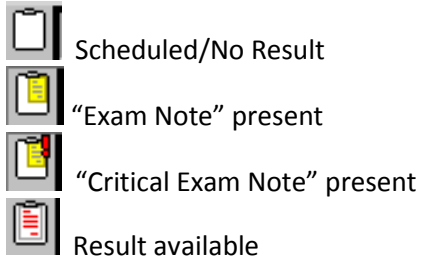
Small Thumbnails are easier to manage when sequencing the series for Presentation States.

Note: The data in the borders compress together when the thumbnails are small.

The same Image manipulation performed on full screen can be performed on Thumbnails as well.

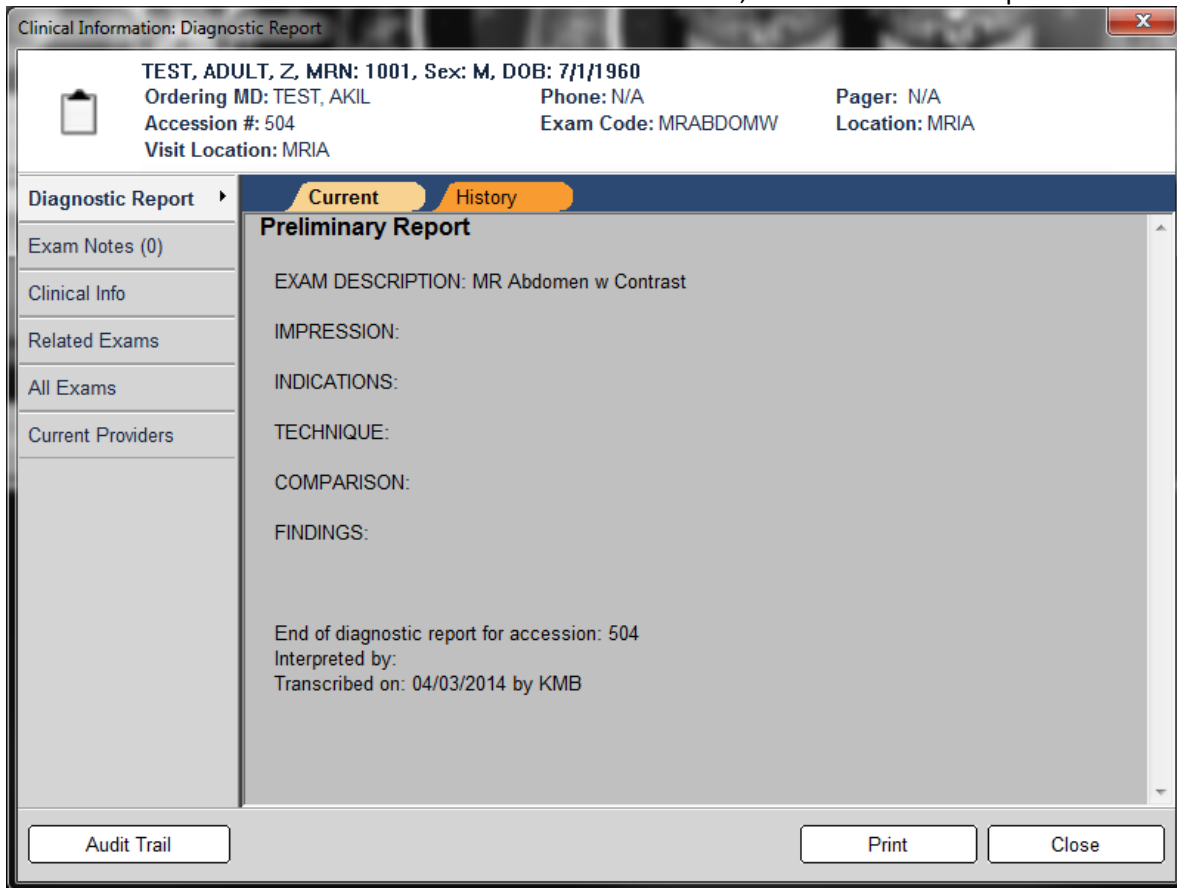
Clinic Information Window

The icon for the Clinic Information Window changes depending on status and whether a result is present.



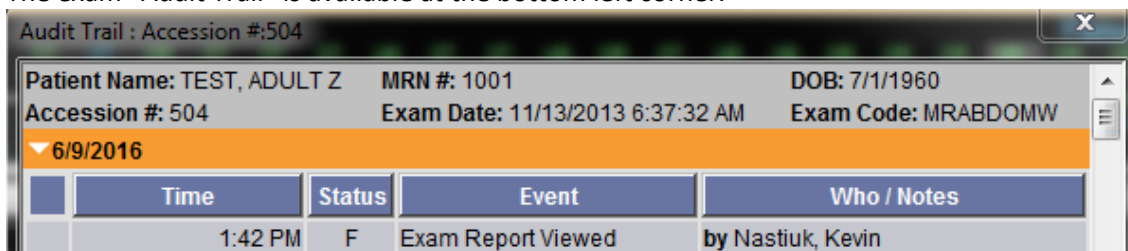
Clicking on the icon will launch the Clinic Information Window.

The Clinic Information Window has exam details and five tabs, six if there is a result present.



1. Diagnostic Report – If a report is present this tab will be displayed at the top.
 - a. The report history can be viewed by clicking the ‘History’ tab
 - b. A report can be printed to a local printer with the ‘Print’ button
2. Exam Notes – These are notes created by technologists, ED physicians, or radiologists
 - a. See “ISP-Create Exam Note” to learn more
3. Clinical Info – This contains ‘Signs and Symptoms’, ‘History’, ‘Comments’ from the RIS
4. Related Exams – A list of exams and reports with the same body part
5. All Exams – A list of all the patient’s exams and reports
6. Current Providers – The Referring, Attending, and Requesting providers.

The exam “Audit Trail” is available at the bottom left corner.



The Audit Trail is a chronological account of most all actions. It can be printed to a local printer.

Image Viewer

The Intellispace Image Viewer is controlled by mouse functions and context menus.

Mouse Control - Image Manipulation

Mouse functions differ depending on the modality and whether a single image or series is being viewed, and some functions are the same regardless.

Intellispace PACS has two mouse Schemes, Standard and Enhanced.

The following describes the Standard mouse functionality. Enhanced options, configurable in User Preferences, can be further explored in Help Files.

Left Double Click on an Image/Series:

Thumbnail will go to pop-up

Pop-up will go to full screen

Full screen will return to pop-up

Hold Left Button:

Move Up/Down – Adjusts Window Level (Brightness)

Move Left/Right – Adjusts Window Width (Contrast)

Mouse Wheel Roll:

Single Image – Zoom In/Out – Cursor is Zoom Target

Series – Scrolls through series

Mouse Wheel Button – Cine Loop Mode:

Depress and hold wheel as a button and move mouse forward/backwards to increase/decrease frames per second (displayed at bottom of window).

Roll wheel forward/backward to change direction of cine loop.

Right Click:

Brings up Context Menu – Previous section

The Context Menu

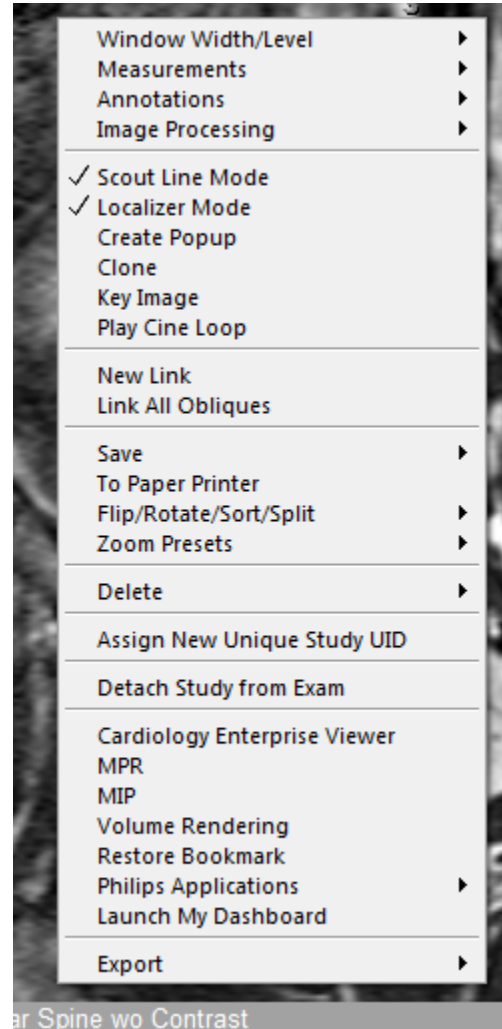
Images can be manipulated and managed in the same manner whether the image is displayed full-screen or a pop-up or as a thumbnail. The Right-Click 'Context' menu is the same in each type of view. Items can be modality specific

Items with arrows have 'sub-menus' selection items.

Items with 'check marks' are enabled.

Items are sectioned by action types.

The functionality of each item is listed below.



Window Width/Level

Default WW/WL – Default is either from the modality or a histogram

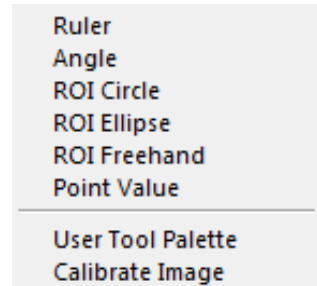
Modality Default – If provided by the modality

Histogram – 'mid-range' of darkest and lightest

Default WW/WL
Modality Default
Histogram Calculation

Measurements

Ruler – Measures in millimeters on modalities with spatial values
Angle – Three clicks; end-point, apex, and end-point
ROI Circle – Circle that can only be sized
ROI Ellipse – Circle that can be modified in shape
ROI Freehand – User can plot specific margins
Point Value – Cursor ROI – displays at the bottom of the image window
User Tool Pallet – Turns on the Tool Palette, a configurable tool window
Calibrate Image – Use to measure an object with a known size to base measurements



Annotations

Markings – Just the shape – No text
Line, Arrow, Circle, Ellipse, and Freehand

Text – Type an annotation then place and move it.

Spine Labeling – Invokes the “Spine Label Panel” for numbering vertebral bodies.



Preset Annotations

These are a list of commonly used annotations preconfigured at the system level.

Deleting Annotations

When an annotation is present on an image, an additional item to ‘Delete all annotations’ is present in the context menu.

Delete All Measurements and Annotations

Annotations or markings can be selected and deleted.

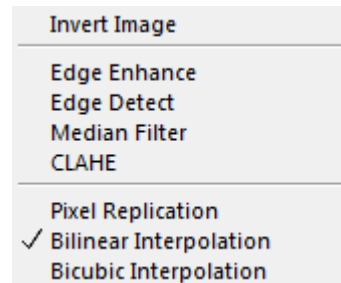
Important Note: A ‘Presentation State’ must be saved to preserve measurements and annotations. If you do not save a ‘Presentation State’ your measurements will be lost. Intellispace does not ask you as you are closing the study. Exception: When a radiologist marks a study read, Intellispace automatically saves the ‘Mark Read Presentation State’.

Image Processing

Image Processing options differ per modality

‘Invert Image’ is commonly used by technologists to invert a white image to black.

Radiologists use ‘CLAHE’ to enhance lung markings. However, it is only available on CR, DR, DX modalities.



Scout Line Mode – Scout lines will display on that window when scrolling through another series.

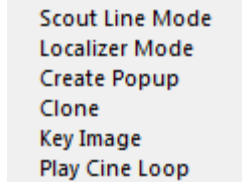
Localizer Mode – ‘Cross-Hairs’ for cursor location display on other series

Create Popup – Creates a ‘Pop-Up’ window of the image/series.

Clone – Creates a duplicate image/series in order to process differently.

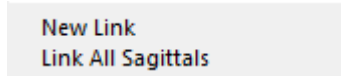
Key Image – Marks the image/series as a ‘Key Image’

Play Cine Loop – Scrolls the series – ‘C’ on keyboard too



New Link – Allows manual linking of two series so they scroll together, second right click needed to ‘Join Link’

Link All [Obliques/Axials/Coronals] – Automatically links all like series.



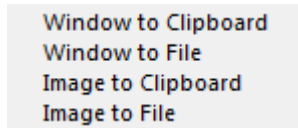
Save:

‘Window to...’ – Will save the window “as it is” with the border and overlays if present

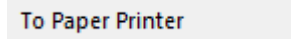
‘Image to...’ – Will save just the image without the border or overlays

‘...to Clipboard’ is ‘Copy’ and allows the image to be pasted

‘...to File’ will bring up a ‘Save’ dialog that allows saving the picture as a .jpg file



To Paper Printer – Prints to a local printer



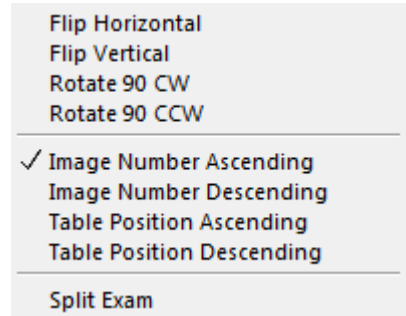
Flip/Rotate/Sort/Split

Flip and Rotate – Allows manipulating the orientation of the image/series

Note: A Presentation State must be saved to retain the orientation

Sort By

Default is Image Number Ascending

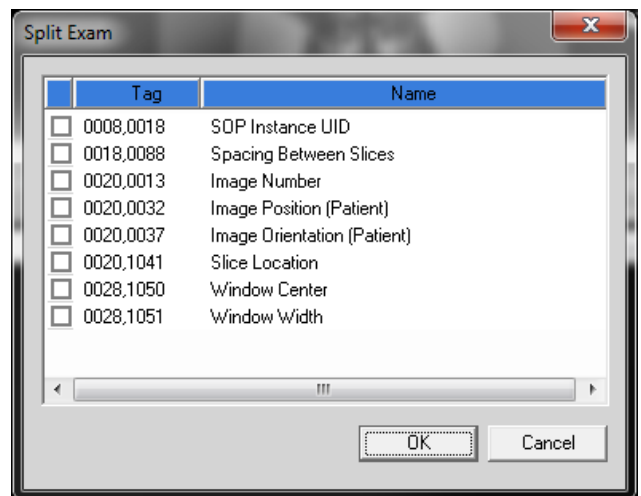


Split Exam

Allows the series to be split by some DICOM attributes

This can make a series become individual images

The DICOM attributes are modality specific



Zoom Presets

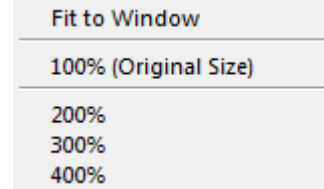
Fit to Window – Default for thumbnails

100% (Original Size) – The resolution/size of the actual image – ‘Pop-Up’ is “Original Size”

200%, 300%, 400%

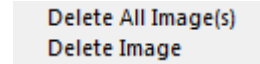
Zoom is mouse roller wheel or arrow keys on single image

Zoom is Alt+Left mouse button and up/down mouse movement on series



Delete

This option should not be used – This only ‘hides/suppresses’ the image from view, which can be recovered. It does not delete the image. Motion or poor image on the correct patient, this could be used.



Assign New Unique Study UID

This will assign a new SUID to the selected image(s)/Series to be detached from the original study.

This is the proper method to ‘Delete’ an image/series.

See “ISP-AssignNewSUIDDetach.pdf” for details on this subject.

Detach Study from Exam

This option detaches the ‘Study’/SUID from the accession. It could be detached in part or in whole depending on the study contents.

Cardiology Enterprise Viewer – Launches the Philips Cardiology Viewer

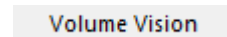
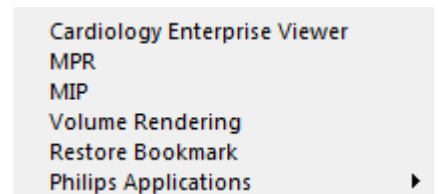
MPR – Launches the Philips Intellispace Clinical Applications

MIP – Launches the Philips Intellispace Clinical Applications

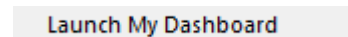
Volume Rendering – Launches the Philips Intellispace Clinical Applications

Restore Bookmark – Returns to a previous session in Philips Intellispace Clinical Applications

Philips Applications – Volume Vision – Launches the Philips Intellispace Clinical Applications



Launch My Dashboard – This is present when Workflow Layer Tools/Dashboard is closed. This will open the Dashboard.



Export

Export via DICOM – Send the entire study to a DICOM destination with iExport

Export image via DICOM - Send selected image/series to a DICOM destination with iExport

Anonymous Export via DICOM – Send the entire study anonymized to a DICOM destination with iExport

See “ISP-iExport.pdf” for more information about exporting studies.



Preferences

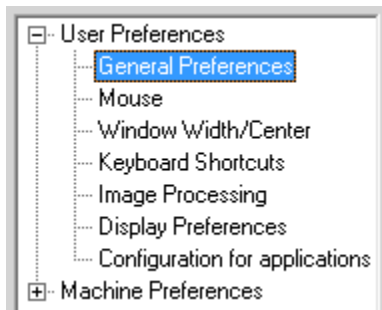
Preferences are accessed by clicking on the 'P' in the circle in the upper right corner of Intellispace PACS.

User and Machine Preferences are generally available, with System Preferences only available to system administrators.



User Preferences

These settings are server-side and follow users. They can be modified per user preference. Some roles and workflow require certain preferences to be enabled. These will be suggested in the descriptions below.



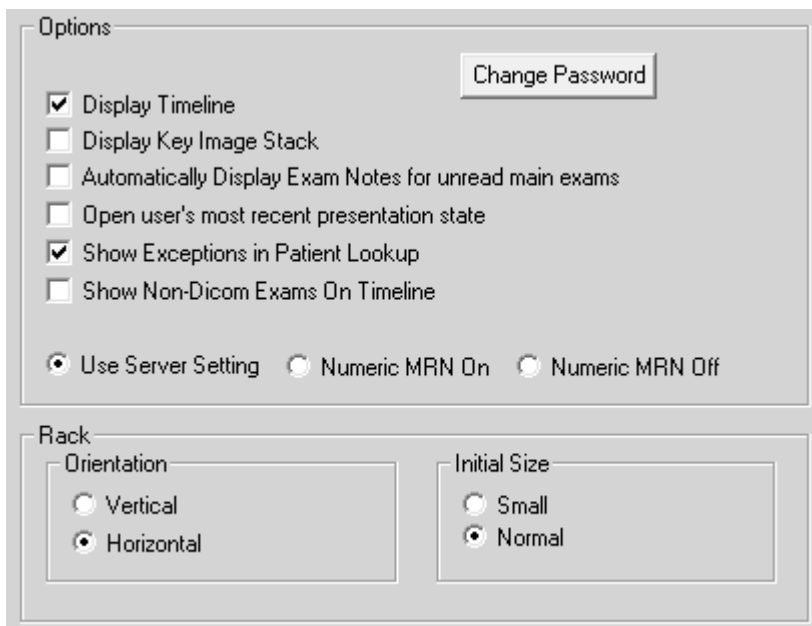
The Preferences Window has a 'navigation tree' with the preference separated into topics.

Selecting topics in the navigation tree on the left displays the options in the area to the right.

The options of each section will be outlined below.

General Preferences

Important Note: Do not use the "Change Password" button. RAPC Intellispace PACS is Active Directory (Domain) controlled. Passwords are reset at <https://reset.rapc.com>



Display Timeline – Most users need to have the Timeline displayed – This should be enabled

Display Key Image Stack – Any image with a measurement, annotation, or marked as a key image and will display as an extra series/'Stack'. Physicians and Care providers should have this checked. Imaging staff may not want this enabled as it may be mistaken as an extra series.

Automatically Display Exam Notes for unread main exams – This is a feature radiologists would use to display exam notes without having to open the Exam Notes manually. Physicians and Imaging staff would not want this enabled.

Open user’s most recent presentation state – Specialty physicians and surgeons may want this enabled if they are creating presentations with measurements and annotations. Imaging staff and radiologists would likely want this disabled.

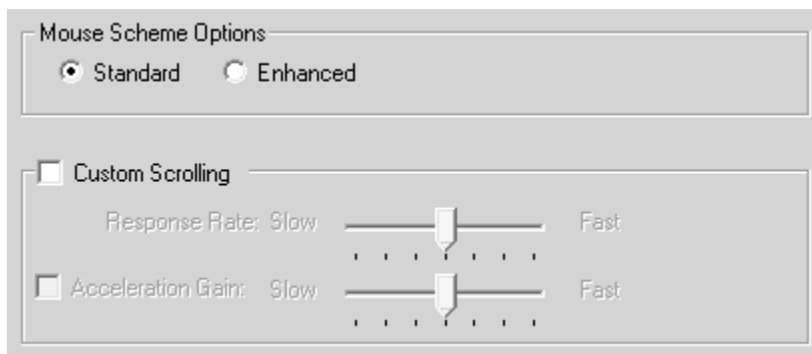
Show Exceptions in Patient Lookup – All users would likely want this enable. It is enabled by default.

Do not change ‘Use Server Setting’, ‘Numeric MRN On’ and ‘Numeric MRN Off’

Rack Orientation – Horizontal is recommended and default – Monitors have more space horizontal to accommodate studies with many thumbnails.

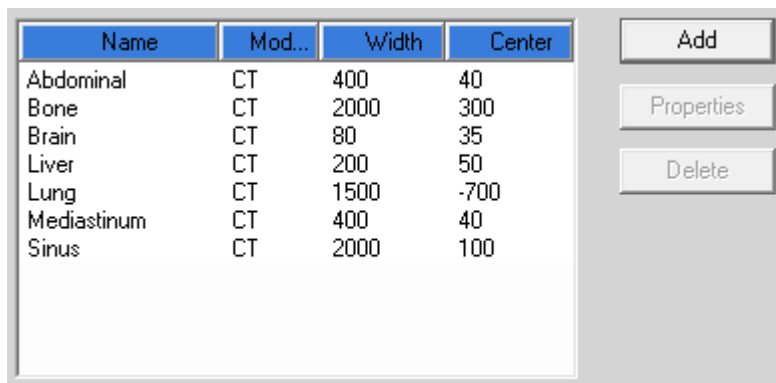
Initial Size – If a user doesn’t need to see details in the thumbnails, small is recommended. If they do need details, Normal is recommended.

Mouse



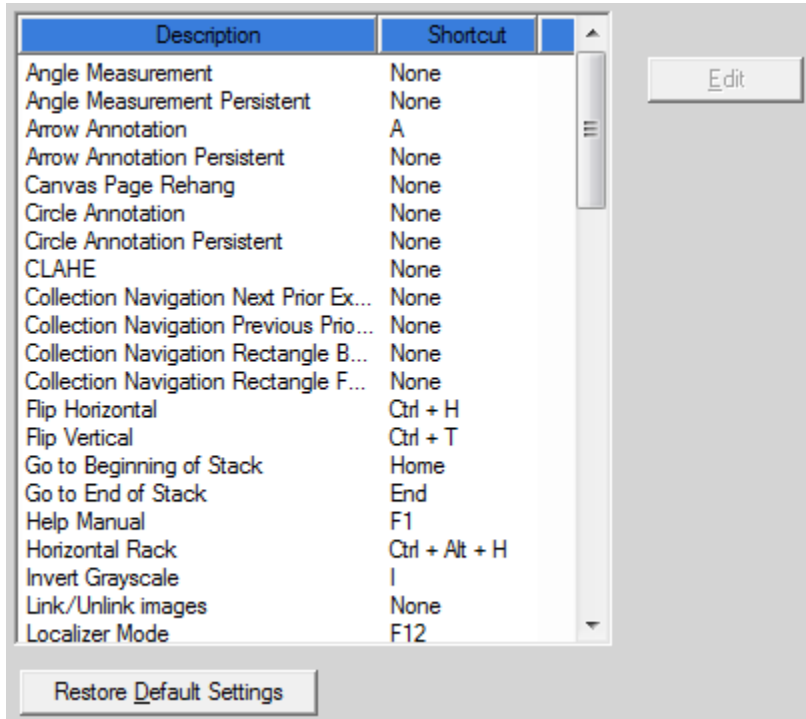
Mouse Scheme – Standard is recommended for all – Radiologists may elect to use Enhanced
Custom Scrolling – This is not recommended for most users. It can skip images in a series/cine loop. But, scrolling through large image sets can be faster.

Window Width/Center



These are WW/WL Presets that correlate to number hot-keys 1-7 – These values are default from system values. Users can modify these values and add other values for other modalities. Radiologists use the numeric hot-keys to change WW/WL values – Most end users will not use this.

Keyboard Shortcuts



Description	Shortcut
Angle Measurement	None
Angle Measurement Persistent	None
Arrow Annotation	A
Arrow Annotation Persistent	None
Canvas Page Rehang	None
Circle Annotation	None
Circle Annotation Persistent	None
CLAHE	None
Collection Navigation Next Prior Ex...	None
Collection Navigation Previous Prio...	None
Collection Navigation Rectangle B...	None
Collection Navigation Rectangle F...	None
Flip Horizontal	Ctrl + H
Flip Vertical	Ctrl + T
Go to Beginning of Stack	Home
Go to End of Stack	End
Help Manual	F1
Horizontal Rack	Ctrl + Alt + H
Invert Grayscale	I
Link/Unlink images	None
Localizer Mode	F12

Keyboard Shortcuts may be configured to invoke commonly used features. Each of the functions on the list can be mapped to a keyboard key and or modified to a keyboard key of user's choice. Radiologist and Specialty Physicians may use this – Most end users will not use this.

Image Processing

This feature allows users to configure some aspects of the Image Processing algorithms. Radiologists and some Specialty Physicians may use this configuration – Most end users will not use this. Please see the Intellispace Help Files for more details on these settings.

Display Preferences

Screen Overlay Font Size
 Large Medium Small
(NOTE: Changes require a re-login to take effect)

Cine Playback Resolution
 Full Resolution 512x512 256x256 128x128
Default Cine Rate:

Scout Line Mode
 Single Bracket All

Localizer Mode
 No Scout Lines Show Scout Lines

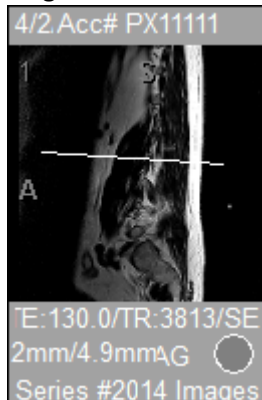
Magnifying Glass
Zoom: % Size: % of Hosting Window

Screen Overlay Font Size – This controls the size of the overlays in the image windows. Large overlays may encroach on the image data. Small overlays may be difficult to read. This setting is truly a user preference.

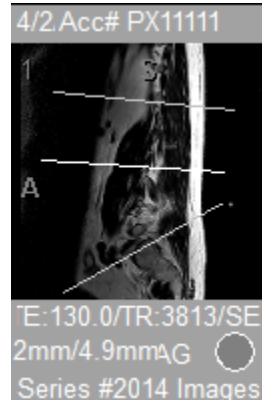
Cine Playback Resolution – This controls the both the resolution of the images in a cine run and the Cine Rate (frames per second) Full Resolution is recommended as other resolutions appear pixilated.

Scout Line Mode

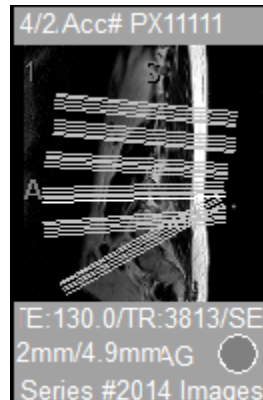
Single



Bracket



All



Localizer Mode

No Scout Lines



Show Scout Lines



Magnifying Glass

Zoom % - Controls the user's default zoom on the Magnifying Glass feature

Size % - Controls the percentage of the window that the Magnifying Glass occupies

Configuration for applications – This is not used

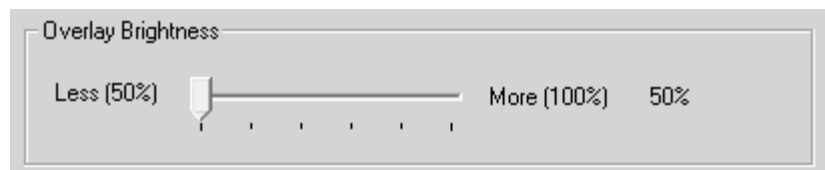
Machine Preferences

Not all users will have access to Machine Preferences. Contact your IT rep or RAPC IT to discuss Machine Preferences.

General Preferences

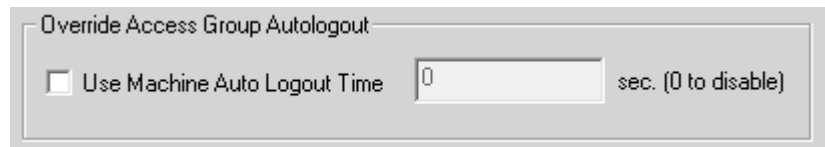
Overlay Brightness

This controls the image overlay text brightness.



Override Access Group Auto-logout

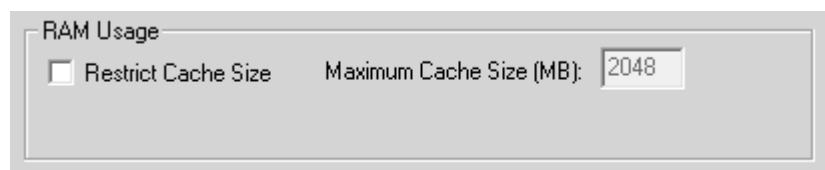
This setting can prevent the Auto-logout from occurring for those with proper access.



This setting is not enabled for anyone but system administrators.

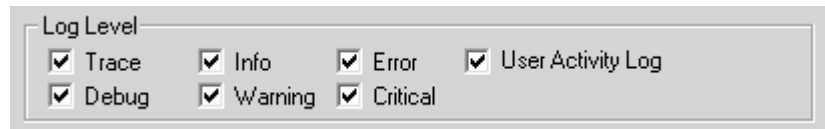
RAM Usage

This setting controls how much memory is utilized by the Exam Cache



Log Level

These check boxes allow changes to the extensiveness of log files used for troubleshooting



Log Level

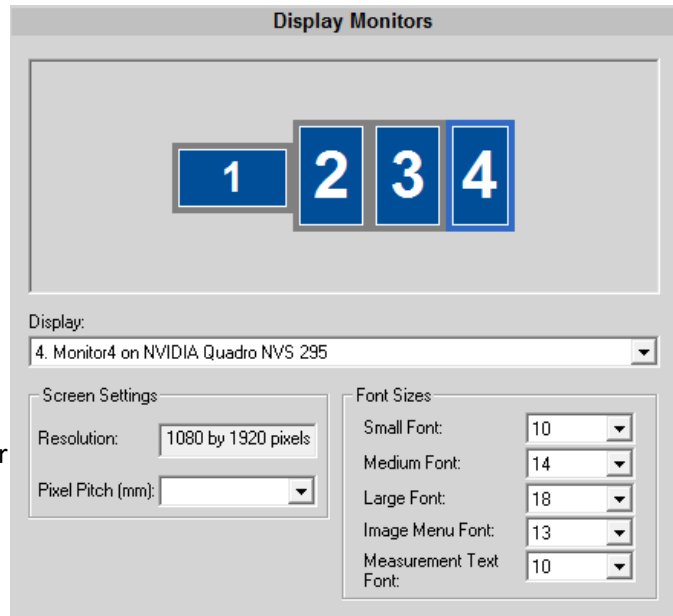
<input checked="" type="checkbox"/> Trace	<input checked="" type="checkbox"/> Info	<input checked="" type="checkbox"/> Error	<input checked="" type="checkbox"/> User Activity Log
<input checked="" type="checkbox"/> Debug	<input checked="" type="checkbox"/> Warning	<input checked="" type="checkbox"/> Critical	

Display Monitors

These settings control the display behavior of each monitor

Each monitor can have different font sizes.

Higher resolution monitors may need larger font size to make the text easier to read.



Display Monitors

1 2 3 4

Display: 4. Monitor4 on NVIDIA Quadro NVS 295

Screen Settings

Resolution: 1080 by 1920 pixels

Pixel Pitch (mm):

Font Sizes

Small Font: 10

Medium Font: 14

Large Font: 18

Image Menu Font: 13

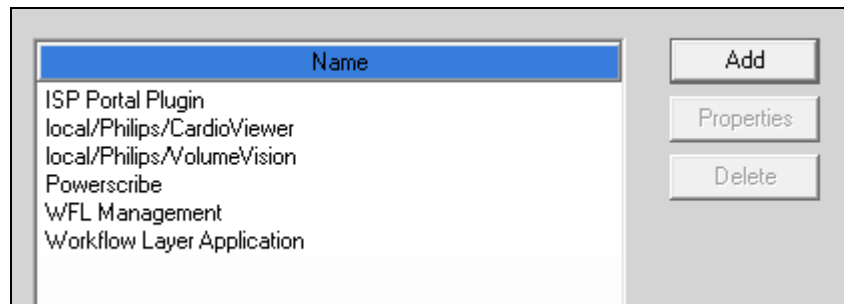
Measurement Text Font: 10

Pixel Pitch can be defined for each monitor for 'True Size' display and zoom.

Plug-Ins

This section is where plug-ins are created and listed

System administrators would install plug-ins



Name	
ISP Portal Plugin	<input type="button" value="Add"/> <input type="button" value="Properties"/> <input type="button" value="Delete"/>
local/Philips/CardioViewer	
local/Philips/VolumeVision	
Powerscribe	
WFL Management	
Workflow Layer Application	

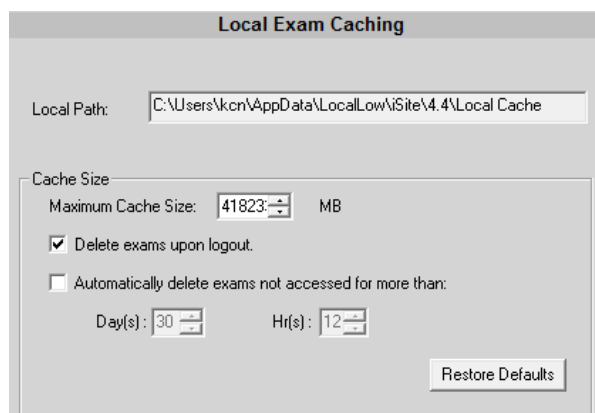
Local Exam Cache

This section controls the behavior of the 'Local Exam Cache'

The location, size, and auto-deletion can be configured here

It is strongly recommended to 'Delete exams upon logout' as a measure to protect PHI

Clicking the 'Restore Defaults' will return the settings to the Philips default.



Local Exam Caching

Local Path: C:\Users\kcn\AppData\Local\Low\iSite\4.4\Local Cache

Cache Size

Maximum Cache Size: 41823 MB

Delete exams upon logout.

Automatically delete exams not accessed for more than:

Day(s): 30 Hr(s): 12

Network Testing

This feature allows users to test the bandwidth and latency from the workstation to the PACS servers. This is often used by system administrators for troubleshooting. Therefore, some details and functionality have been omitted.

“Run Continuously” is password protected as it can be a load on network resources

“Bandwidth Test Size” determines the threshold of logged results and displays in red noting issues

It is not recommended to test against all the servers, it can take long time and may freeze the application. Use the “Unselect All” button then select a few of the servers to test connectivity

Server	Bandwidth	Latency
<input type="checkbox"/> ras03p01.stras00.isyntax.net	0 K/Sec (0)	0 ms (0)
<input checked="" type="checkbox"/> ras02p04.stras00.isyntax.net	1317 K/Sec (1)	120 ms (1)
<input checked="" type="checkbox"/> ras01p02.stras00.isyntax.net	11185 K/Sec (0)	7 ms (0)
<input type="checkbox"/> ras01p01.stras00.isyntax.net	0 K/Sec (0)	0 ms (0)

Values in Red are those that were under the ‘Bandwidth Threshold’ defined.

Remote sites with limited network connectivity may generate values below the default ‘2000 kbytes/sec.’

Servers that are located at remote sites may generate low values as well.