

eRAD PACS Web Viewer

Version 7.2

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Web Viewer

The web viewer available from eRAD PACS v7.2 medley-39 and later includes a number of enhancements and new features.

Getting Started with the Web Viewer

The web viewer displays images in the web browser. Basic tools are available to manipulate the images including scrolling, window/level, magnification, cross sectional references and linear measurements.

Requirements

The web viewer requires some additional browser features.

These include:

- HTML5
- WebGL
- websockets and other web protocols

Compliant browsers include:

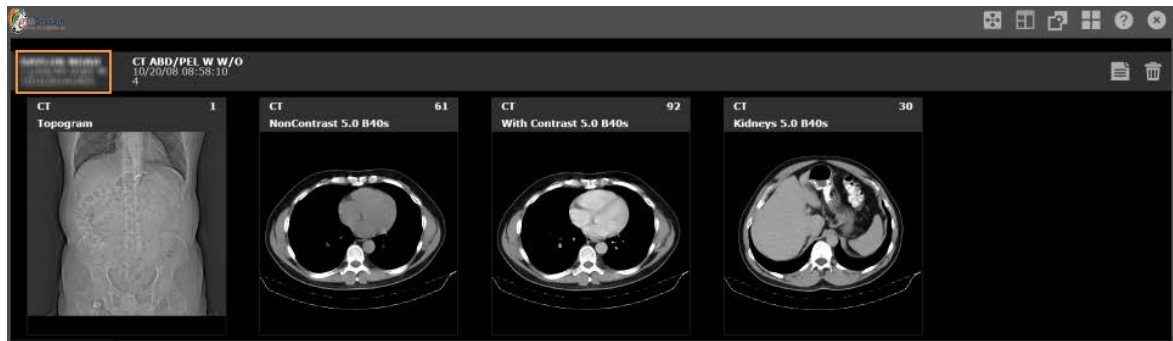
- Mozilla Firefox v12
- Google Chrome v20
- Apple Safari v6 in MAC OS X 10.6
- Opera Presto v2.11

Some items to consider:

- Some browsers might have WebGL or websockets disabled by default and must be enabled before using the web viewer
- When some Internet Explorer versions (e.g., Microsoft Internet Explorer 9, 10) do not support the required technology, the web viewer will attempt to detect the missing component and display a notification
- WebGL requires hardware compliance as well. The workstation's display controller must support WebGL in order for the images to appear in the web viewer.

Web Viewer Overview

Study series are displayed in the web viewer in frames with the first image of the series displayed as a thumbnail.



Study information is found in the upper left corner:

- Patient Name
- Patient DOB, Age, Sex
- Accession Number
- Type of exam
- Date and time of study
- Number of series available

To view the other studies available:

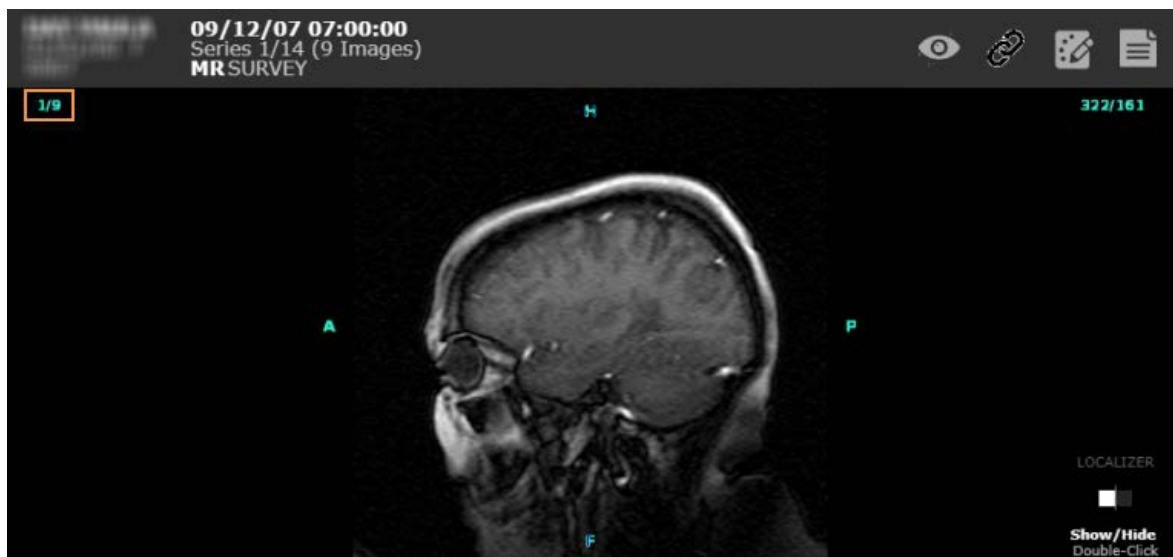
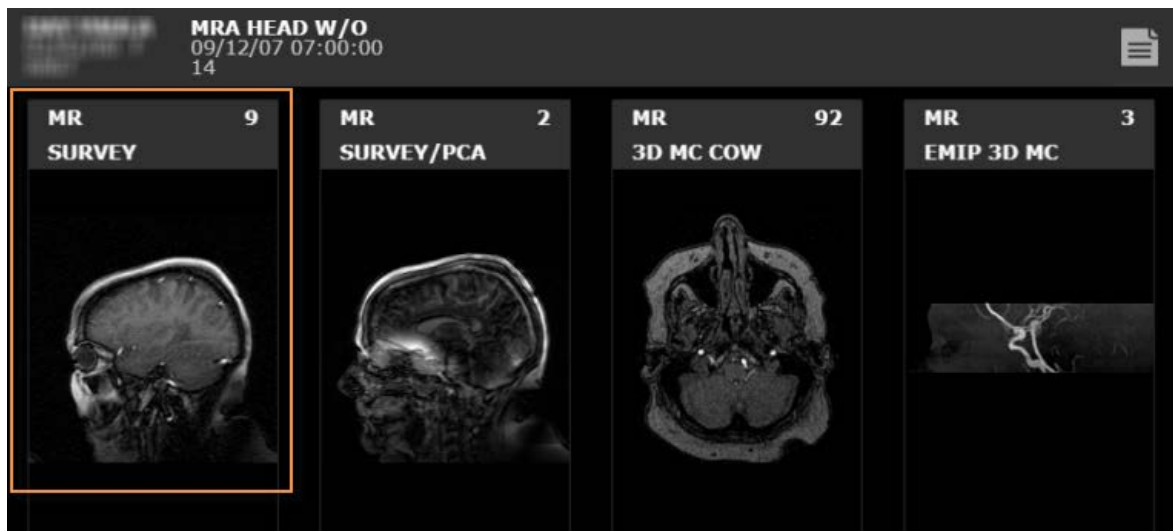
- Drag mouse wheel forward and backward
- Hold left mouse button and drag up and down

Located in the series thumbnail is the modality, type of exam and the number of images in the series.




Viewing a Series


To view an individual series select the thumbnail image to display the series in a frame.



Toggle Full Screen




To enlarge an image or series to full screen, select the *Toggle fullscreen*  icon. Pressing Escape or the icon again will display the image in normal mode. While in full screen mode, most functions eRAD PACS makes available on the mouse (e.g., window/level, panning and zoom) can be applied.

Toggle Status Bar

To display messages regarding the status of an image, select the *Toggle Status Bar*  icon located on the bottom right of the screen.





Icons located in the status bar perform various functions:

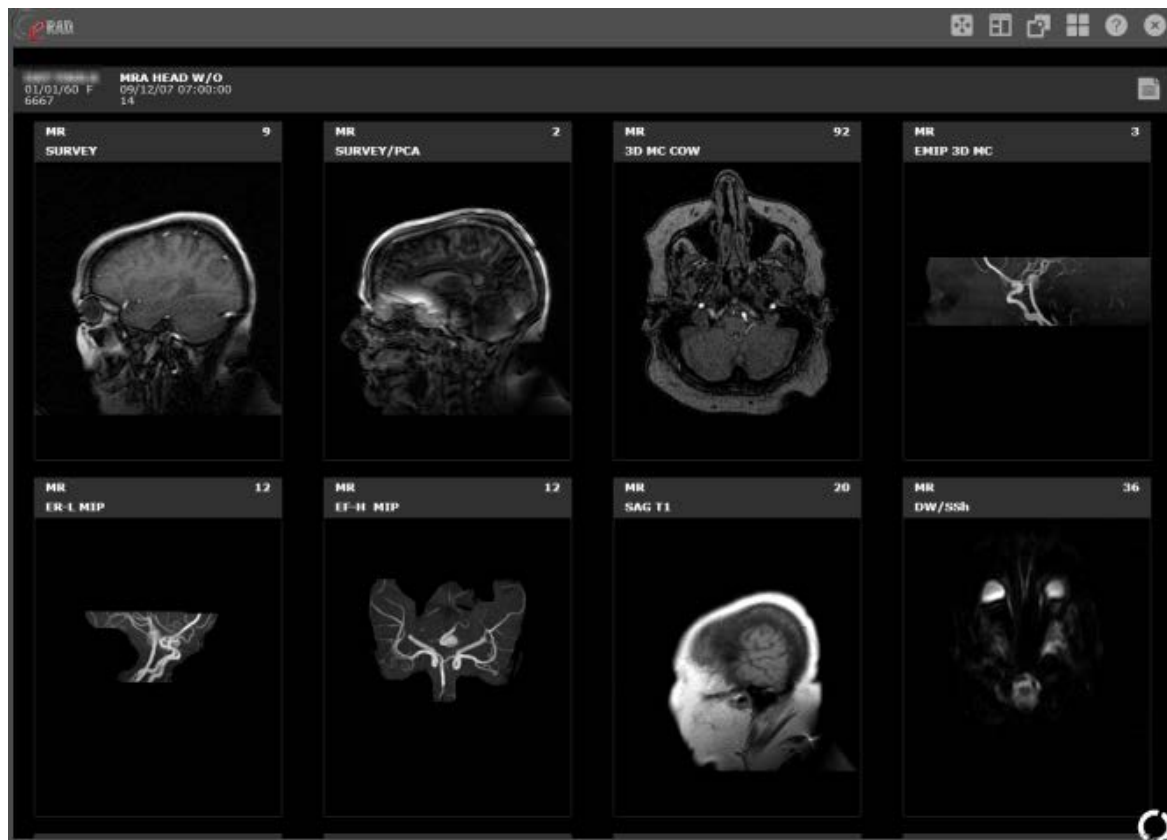
-  - Delete message
-  - Next message
-  - Previous message

Opening Studies into the Web Viewer

Launch a single study in the web viewer as follows:


1. From the Worklist, click the Quick View button, , for the study.
2. Click the Open Web Viewer button, .

The picture below shows one study open in the viewing area.

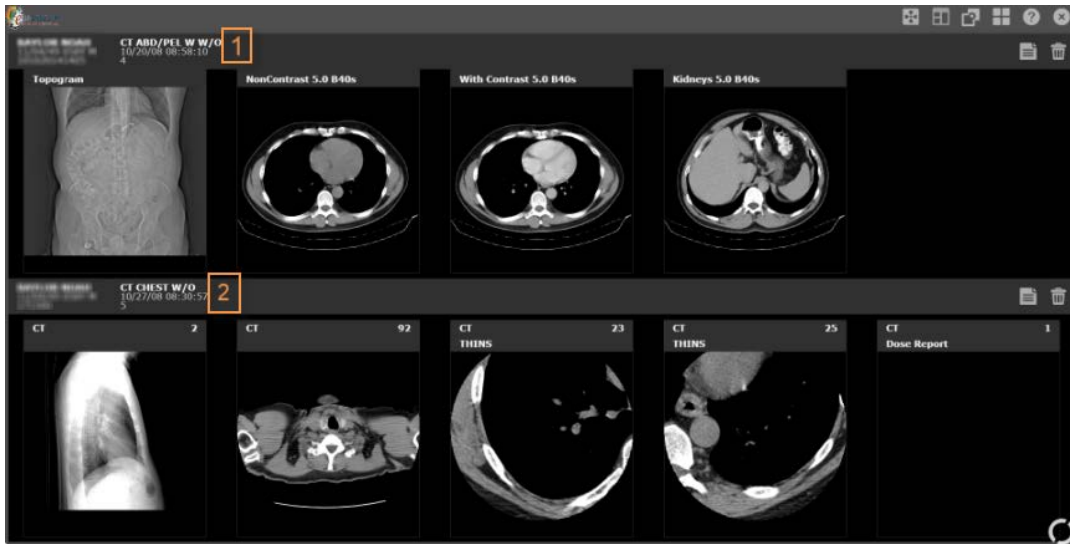


Opening Multiple Studies into the Web Viewer

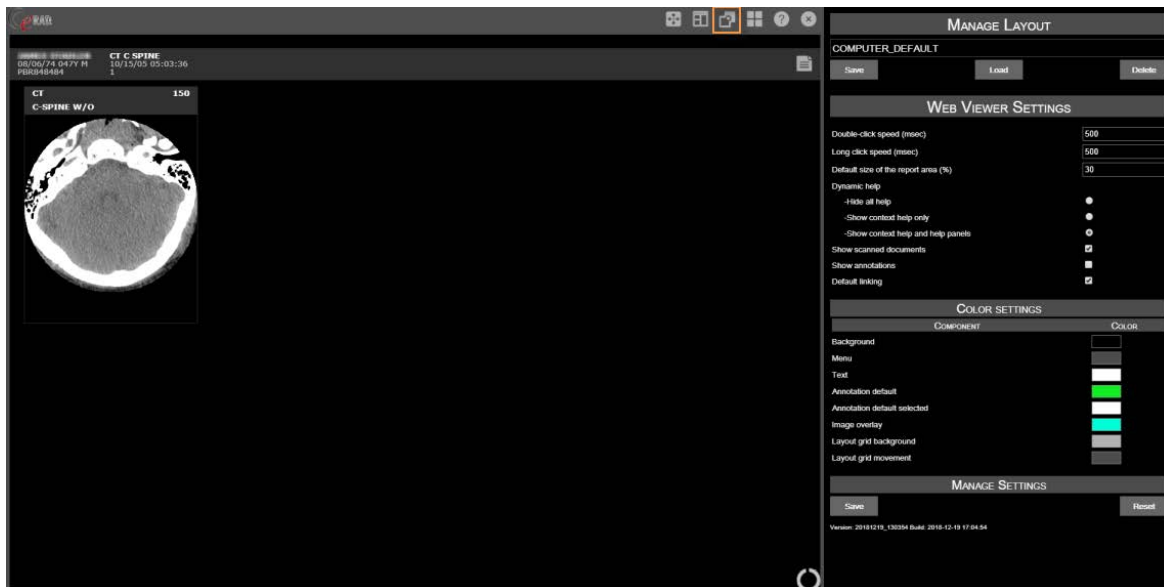
Launch multiple studies in the web viewer as follows:

1. From the Worklist, check the selection box (on the left of the row) for each study to be loaded.
2. From the Batch operation toolbar at the top of the Worklist, click the Open Selected Studies in Web Viewer button, .

Below is an example of multiple open studies:



Web Viewer Settings Panel




To change the web viewer settings, select the *Toggle Settings Panel*  icon.

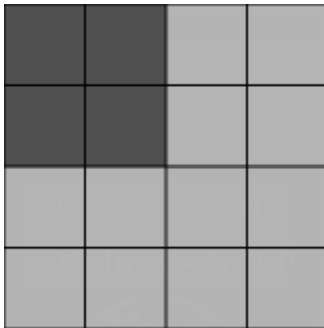
Setting	Default	Description
Double-click speed	500 msec	Multiple clicks within the defined time period are recorded as a doubleclick action.
Long click speed	500 msec	
Default size of the report area	30%	The percentage of the screen allocated to the report when displayed
Dynamic help		Hide all help
		Show context help only
		Show context help and help panels (default)
Show scanned document	Enabled	Include objects tagged as scanned documents in the web viewer

Show annotations	Disabled	Include annotations
Default linking	Enabled	Include linked studies

Creating and Managing Layouts


Users are able to create and manage layouts from the Settings Panel. Frame layouts can also be created and saved under a new customized name.

To change a grid layout select the *Change Window Layout*  icon. Dragging the mouse from the top left corner down will allow the user to draw or define a generic layout for the series frames.



To create a custom layout:

1. Select the *Toggle Settings Panel* icon
2. Click in the layout text area in the *Manage Layout* area
3. Enter a name for the new layout
4. Select *Save*

The new layout will now appear when the *Toggle Layout*  icon is selected.

To change settings in a created layout:

1. Select the *Toggle Settings Panel* icon
2. Select the layout from the dropdown in the *Manage Layout* area
3. Make all necessary changes

4. Select the *Save* tab

To load a layout in the viewer:


1. Select the *Toggle Settings Panel* icon
2. Select the layout from the dropdown in the *Manage Layout* area
3. Select the *Load* tab

Color Settings

Color settings are also able to be changed from the Settings Panel.



To change a color setting:

1. Select the color to change
2. Click anywhere on the color grid to select a color
3. Click the *Save*  icon

Component	Default Color
Background	R:0 G:0 B:0
Menus	R:76 G:76 B:76
Text	R:255 G:255 B:255
Annotation Default	R:0 G:255 B:216
Annotation default selected	R:255 G:255 B:255
Image overlay	R:0 G:255 B:216

Layout grid background	R:178 G:178 B:178
Layout grid movement	R:76 G:76 B:76

Manage Settings

Select the *Save* to apply all changes or *Reset* to start over.

Managing Images

Managing Images on the Web Viewer

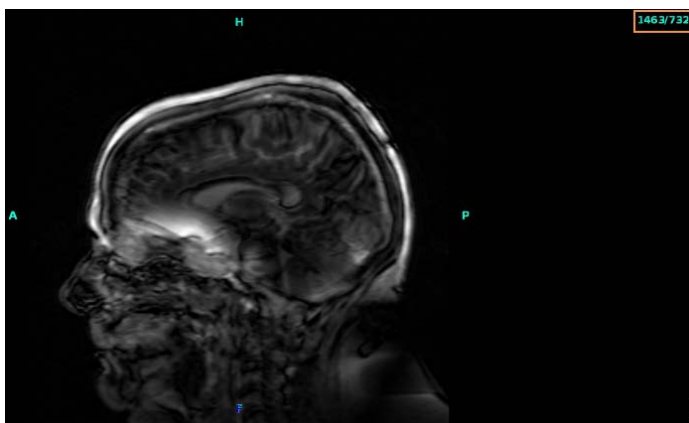
Managing Images on the Web Viewer

There are many tools available on the web viewer main page that can be used to manage images. Hovering the cursor over certain areas of the page will reveal hidden tools as well as clicking on the mouse button controls. Different methods of managing images are also available on touch-enabled devices.

- Window/Level
- Flipping or Rotating the Image
- Image Zooming and Panning
- Grayscale Invert
- Scrolling Through a Series
- Image Localizer
- Orientation Markers
- Linking Images
- Report Panel
- Returning to Series Viewing Area

Window/Level


The numbers located at the top right of an image are the Window and Level of an image. To change the window/level right click on the image and move the mouse forwards or backwards.




For touch-enabled device, drag your finger left/right or forward/backward to change window/level. Double click on the image to return it to its original window/level.

Flipping or Rotating the Image


To rotate the image:

1. Hover over the top or bottom left corner of the image
2. Click and drag over the hidden control  to rotate the image

To flip an image up and down:

1. Hover over the top or bottom right corner of the image
2. Double click the hidden control  to flip the image

To flip an image left to right:

1. Hover over the left or right side of the screen
2. Double click the hidden control  to flip the image

For touch-enabled devices:

- Use finger to rotate image
- Double tap on same area described above to flip image

Image Zooming and Panning

To zoom on an image:

1. Hold down both mouse buttons
2. Drag up or down to enlarge or shrink image

To move an image in the viewing area:

1. Apply a zoom on the image
2. Left click to hold and drag the image

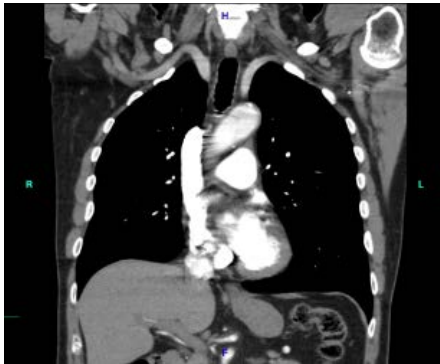
On touch-enabled devices:

- Pinch fingers together or apart to zoom in/out
 - After applying a zoom, use two fingers to pan image
-

Grayscale Invert

To convert an image to Grayscale, double right click on the image.

Normal:



Grayscale:



Grayscale is currently unavailable on touch-enabled devices.

Scrolling Through a Series

There are two ways to scroll through a series:

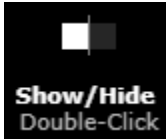
- Using a three-button mouse with a wheel spin the wheel forward or backward to scroll through the images
- Hover the left or right side of the screen to reveal a hidden scroll icon



- Click and drag the left mouse button over the icon to scroll through a series
-

Image Localizer

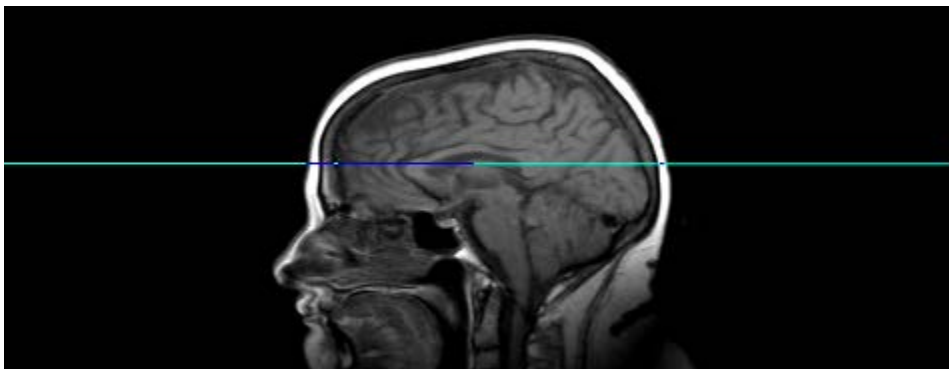
To display the image localizer, hover over the left or right side of the screen and to reveal image controls.



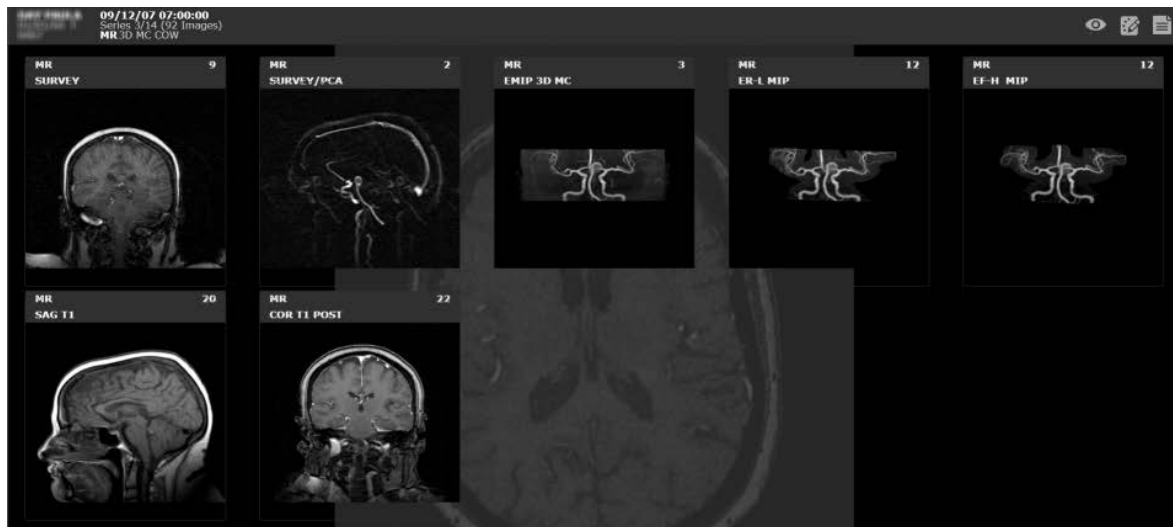
The **Show/Hide Double-Click** instructs the user to double click to reveal the image localizer:



The *Select* control **Select Click** instructs the user to click once on the localizer image to select different localizer image:



An overlay will appear with the different image planes:



Select on the desired image to change the localizer image on the main viewing page.

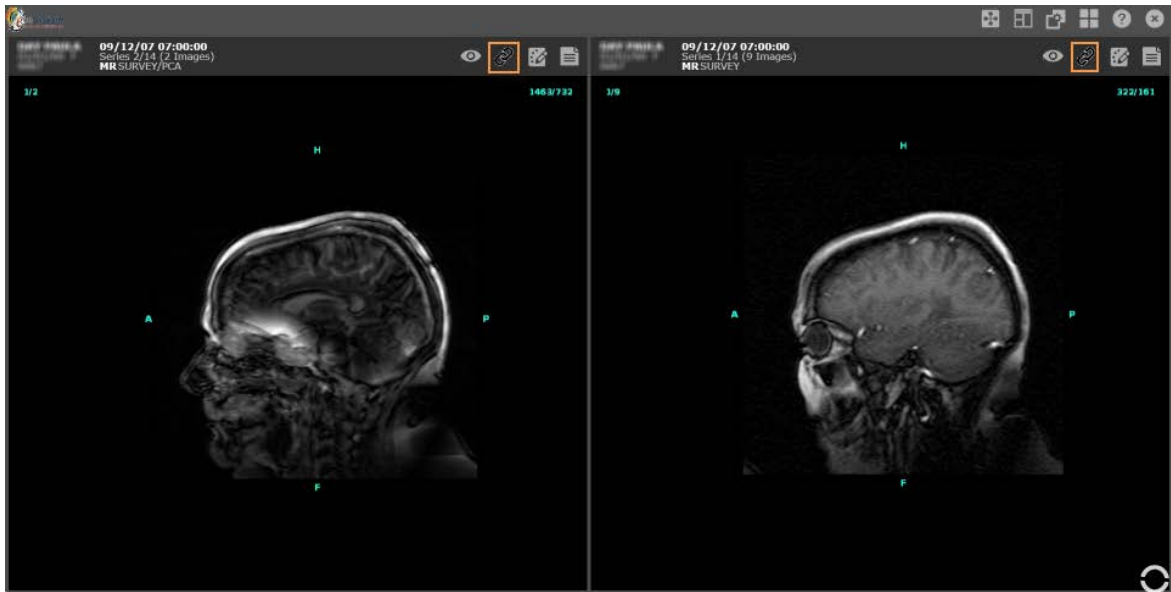
Orientation Markers


Orientation markers indicate the position of the imaged body and will appear in the center of each side of the image. Letters are used to indicate the orientation of the image.

- A - Anterior (or front)
- F - Foot
- H - Head
- L - Left
- R - Right
- P - Posterior
- ? - Unknown*

*When the image object does not provide enough information for eRAD PACS to accurately determine this information, no orientation is provided and a ? will appear in place of the orientation marker.

Linking Images




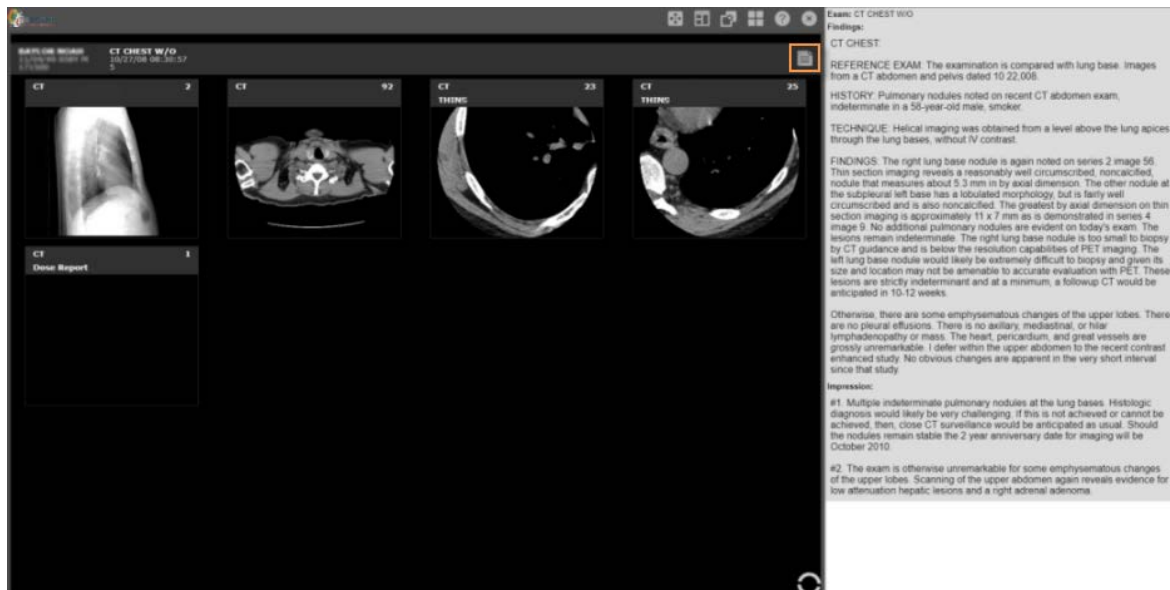
When 2 or more images are open in the viewer main page, the *Toggle Series Linking*  icon appears. Select the icon on all the series to perform certain functions for all images. The icon will appear highlighted for all linked series.

Functions that can be linked include:

- Rotating an image
- Flipping an image
- Panning on the image
- Moving the image on the screen


Report Panel

To display the report, select the *Toggle Report Panel*  icon.



Returning to Series Viewing Area


To return to the main series viewing page or worklist:

- Select the *Back/Close*  icon (select again from Series viewing area to return to worklist)

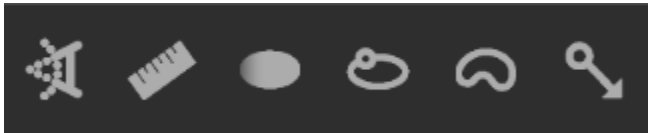
- Hover the upper right or left corner to reveal a hidden icon







Adding Annotations

The annotation tools are used to add graphics and measurements to images. To add annotations to an image select the *Create annotations*  icon.

A box will appear with all available annotations:



-  - Measure Angle
-  - Measure Distance
-  - Hounsfield Value
-  - Region of Interest
-  - Free region
-  - Pointer

Toggle Annotation

To display or hide annotations, select the *Toggle Annotation*  icon


Modifying or Deleting an Annotation

To delete an annotation:

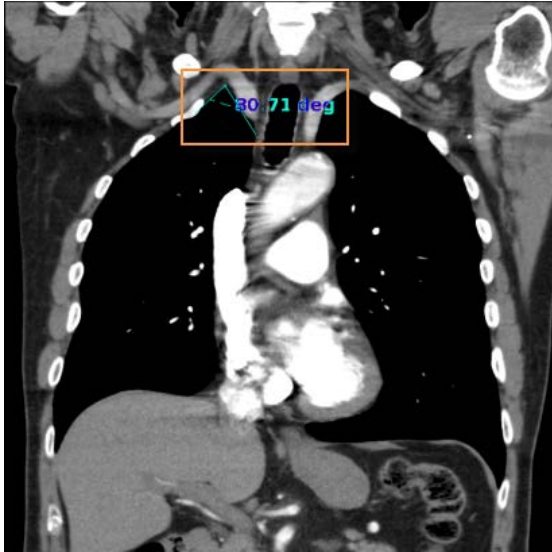
1. Double-click on annotation
2. Select the *Delete*  icon

To modify an annotation:


1. Double-click on annotation

2. Select the grab points  to adjust annotation (moving around on image or changing size)
-

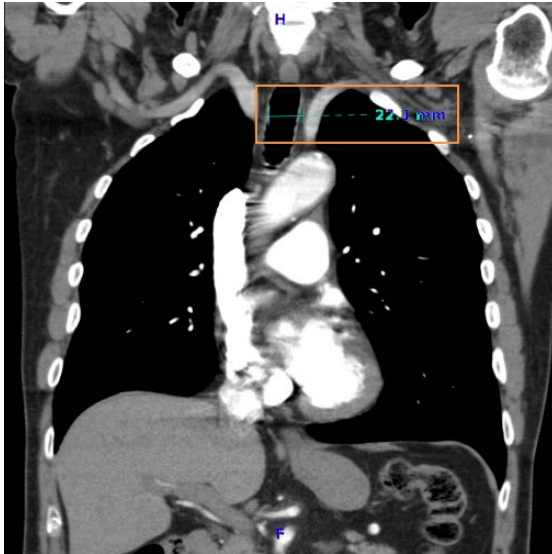
Measure Angle




To obtain an angle measurement:

1. Select the *Measure angle*  icon
 2. Click and drag mouse to create first ray
 3. Position the mouse cursor at the starting point of the second ray, press and drag to create line
-

Measure Distance

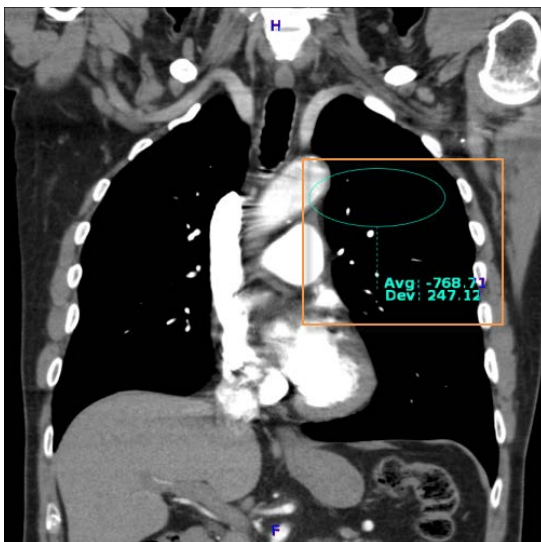


To obtain a distance measurement:


1. Select the *Measure distance*  icon
2. Click and drag mouse to expand the measurement ruler or region
3. Release the mouse button to get the measurement value

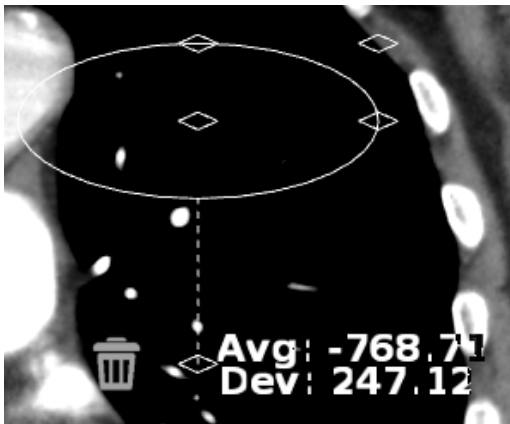
Hounsfield Value

The Hounsfield annotation tool creates a region of interest and calculates its average pixel value and the standard deviation on the distribution.




To obtain a Hounsfield Value measurement:

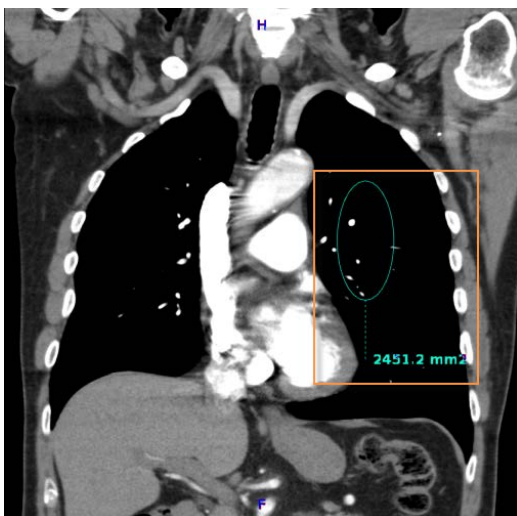
1. Select the Hounsfield Value  icon
2. Click on the region of interest
3. Drag on the mouse to encircle the area
4. Release the mouse button




The default region of interest drawn on the image is a true circle. When resizing the ROI, maintain a true circle by using the corner grab points

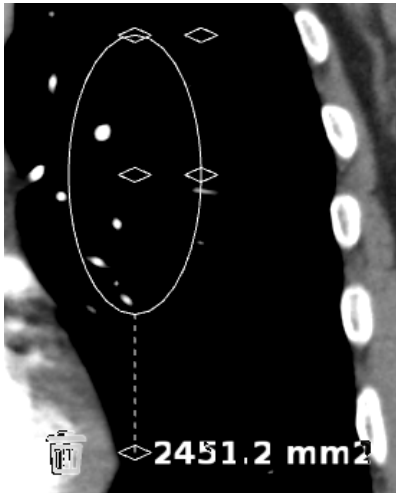
The center grab point  will move ROI around the image and others will elongate or narrow.


Region of Interest

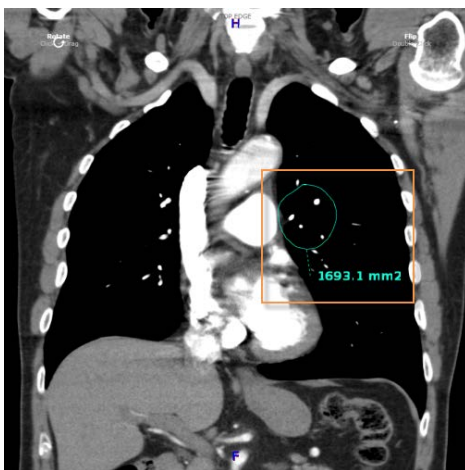


To obtain a region of interest measurement:


1. Select the Region of Interest  icon
2. Click on the region of interest
3. Drag on the mouse to encircle the area
4. Release the mouse button

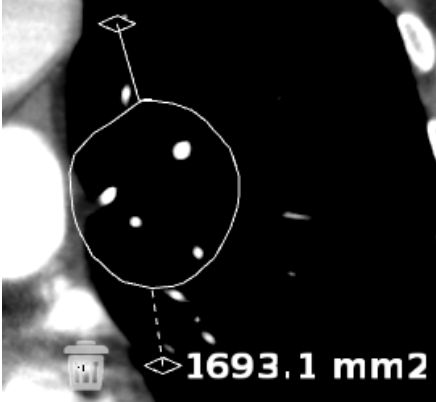



Center grab point  will move ROI around the image and others will elongate or narrow.

Free Region

To obtain a free region measurement:


1. Select the Free Region  icon
2. Click on the region of interest
3. Drag on the mouse to encircle the area
4. Release the mouse button

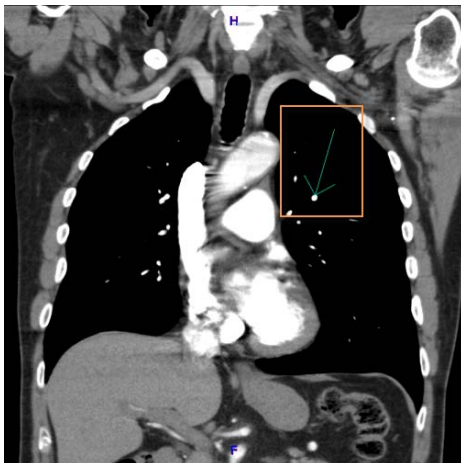



To move the whole free region, select the upper grab point . To extend areas of a free region, click on the desired area to reveal 3 grab points. Selecting one of these grab points will extend the free region to include a specific area.

Pointer

To insert a pointer arrow:

1. Select the Pointer  arrow icon
2. Drag the mouse to adjust size of pointer



Double click on the arrow to delete or adjust direction. Rotate the arrow by clicking on the grab point  and dragging around itself.

