

VISTA IMAGING RADIOLOGY VIEWER



DEPARTMENT OF VETERANS AFFAIRS
VALU IT
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- The focus of this document is the VistA Imaging Display Radiology Viewer. Other Display changes will be discussed in a future document.
- For information related to VistA Imaging Display, click on the link to download related training documentation:
<http://vaww.vistau.med.va.gov/VistaU/VistAImaging/WhatsNew/WhatsNew.htm>

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- [Comparing Studies](#)

Group Abstracts: [34]I...

[SLC]102606-244 CT HEAD W/O CONT CT 10/26/2006

Patient: **IMAGPATIENT1185,1185** 5 of 24 Images match Filter: " All CT Scans "

10/23/43 000-00-11

Abstracts: ...

5 of 24 Images match Filter: " All CT Scans "

Image List: IMAGPATIENT1185,1185

File Options Tools Help

Wound Assessment | Audiogram | Advance Directive | Tele-Derm | Clinical All | #blood component
 #DRS | #Eye CARE 19 | #diabetic screening | #Mammography | #Derm 10 | #Wound Assessment
 #All 6 mth | #All 2 yr | #All | #Adv Directives | #Clin 2 yr | #Admin All | #Clin All | #Rad All
 #ultrasound | #Bone density | #JVN Diabetic Screening | #1010EZ | #Cardiac Cath | #EYE
 biopsy | All CT Scans | rest | testing | Ultrasound | Cardiology | Cardiac Cath Consent | CONSENT

5 of 24 Images match Filter: " All CT Scans "

Item	Note Title	Type	Specialty	Ev
1		IMAGE	RADIOLOGY	CC
2		IMAGE	RADIOLOGY	CC
3		IMAGE	RADIOLOGY	CC
4		IMAGE	RADIOLOGY	CC

5 ID# 10284 [SLC]102606-244 CT HEAD W/O CONT CT 10/26/2006 13:55

When a Radiology exam is selected from the Abstract or Image List window, it will open in a Group Abstracts window if there is more than one image associated with the exam. To open the study in the Radiology Viewer, click on an image from the Group Abstracts window.

Vista CPRS in use by: Imagprovideronnetwosix,Onetwosix (localhost)

File Edit View Tools Help

IMAGPATIENT1185,1185 **3A 2003-3** Primary Care Team Unassigned Flag Remote Data No Postings

000-00-1185 Provider: IMAGPROVIDERONETWOSIX,OI Attending: Imagprovideronnetwosix,Onetwosix

Available Reports Standalone (single) procedure

Imaging (local only) (From: Feb 02 1981 to: Jun 19 2008) Max/cite:1000

Procedure Date/Time	Procedure Name	Report Status	Exam Status	Case #	[+]
10/26/2006 13:55	CT HEAD W/...	Verified - A...	Waiting F...	244	[+]
06/26/2006 14:03	CT HEAD W/...	Verified	Waiting F...	250	[+]
06/06/2006 08:49	CT HEAD W/...	Verified	Waiting F...	249	[+]
05/22/2006 14:40	ECHOGRAM ...	Verified	Waiting F...	239	[+]
03/10/2006 11:50	CHEST SINGL	Verified	Waiting F...	243	[+]

CT HEAD W/O CONT

Exm Date: OCT 26, 2006@13:55 Pat Loc: RADIOLOGY (Req'g Loc)
 Req Phys: IMAGPROVIDERONETWOSIX,ONETWO Img Loc: TD-MAINRAD
 Service: Unknown

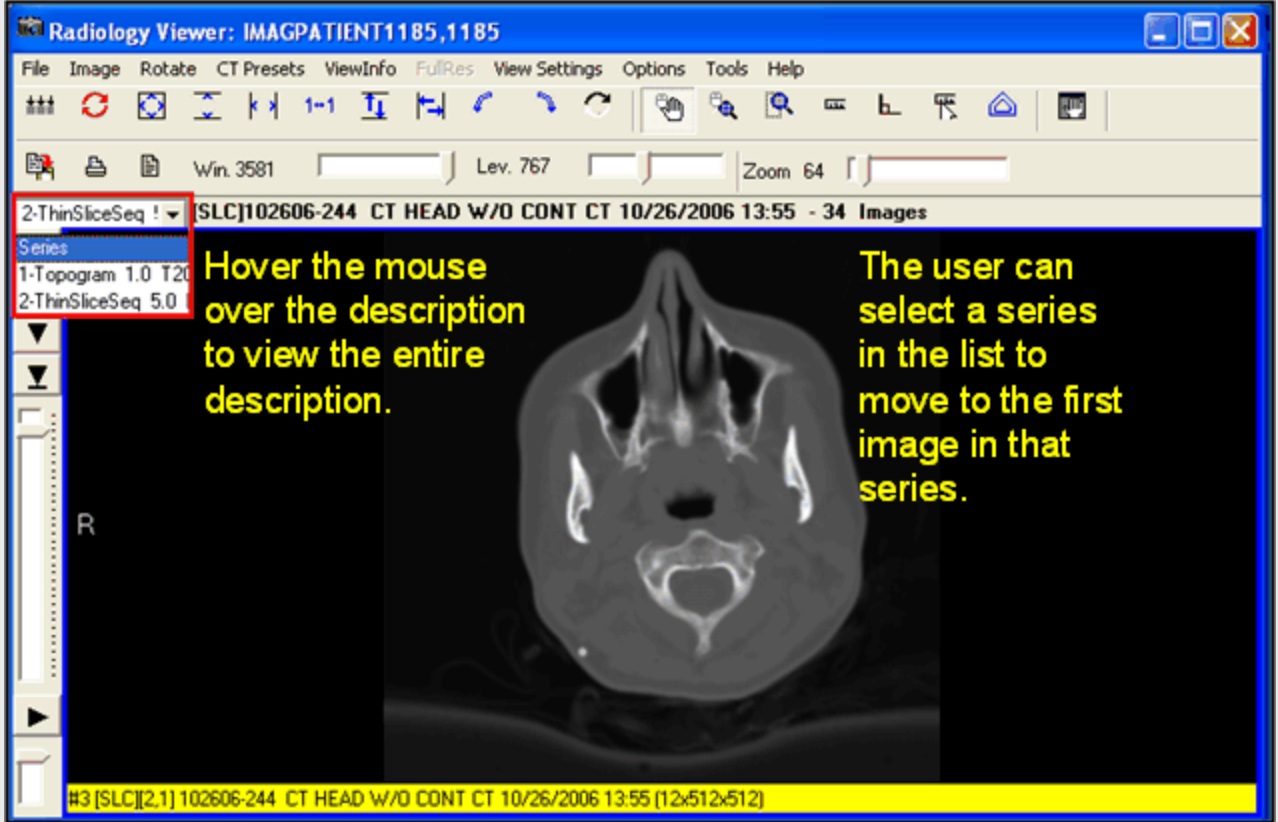
(Case 244 WAITING) CT HEAD W/O CONT (RAD Detailed) CPT:70450

Clinical History:
 rule out hydrocephalus/pt has hx of TBI and has shunt
 placement/today had projectile vomitining

Report Status: Verified Date Reported: OCT 26, 2006
 Date Verified: OCT 26, 2006

Cover Sheet Problems Meds Orders Notes Consults Surgery D/C Summ Labs **Reports**

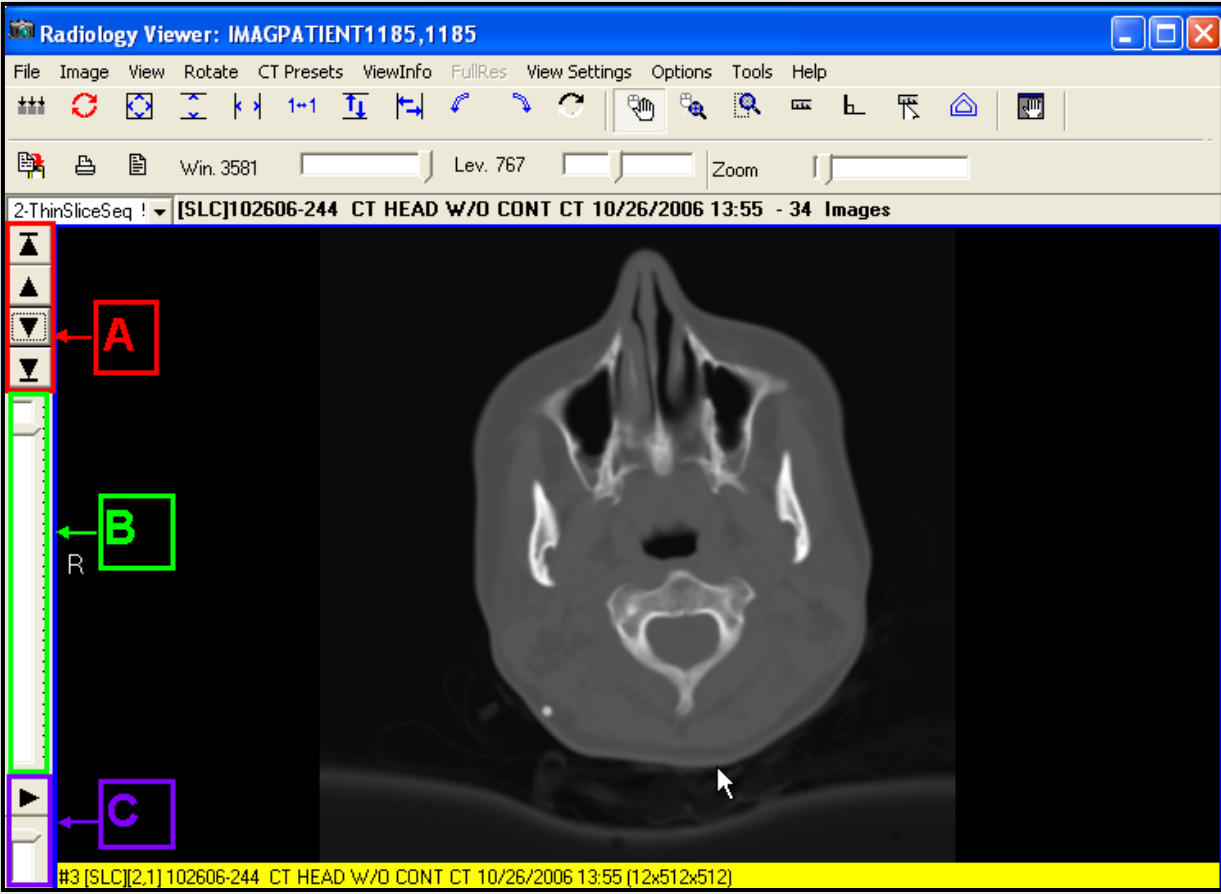
Radiology Image Studies can also be selected from the Imaging (local only) selection under the Reports tab in CPRS. The Vista Imaging Display Client must be open to view the study.



Hover the mouse over the description to view the entire description.

The user can select a series in the list to move to the first image in that series.

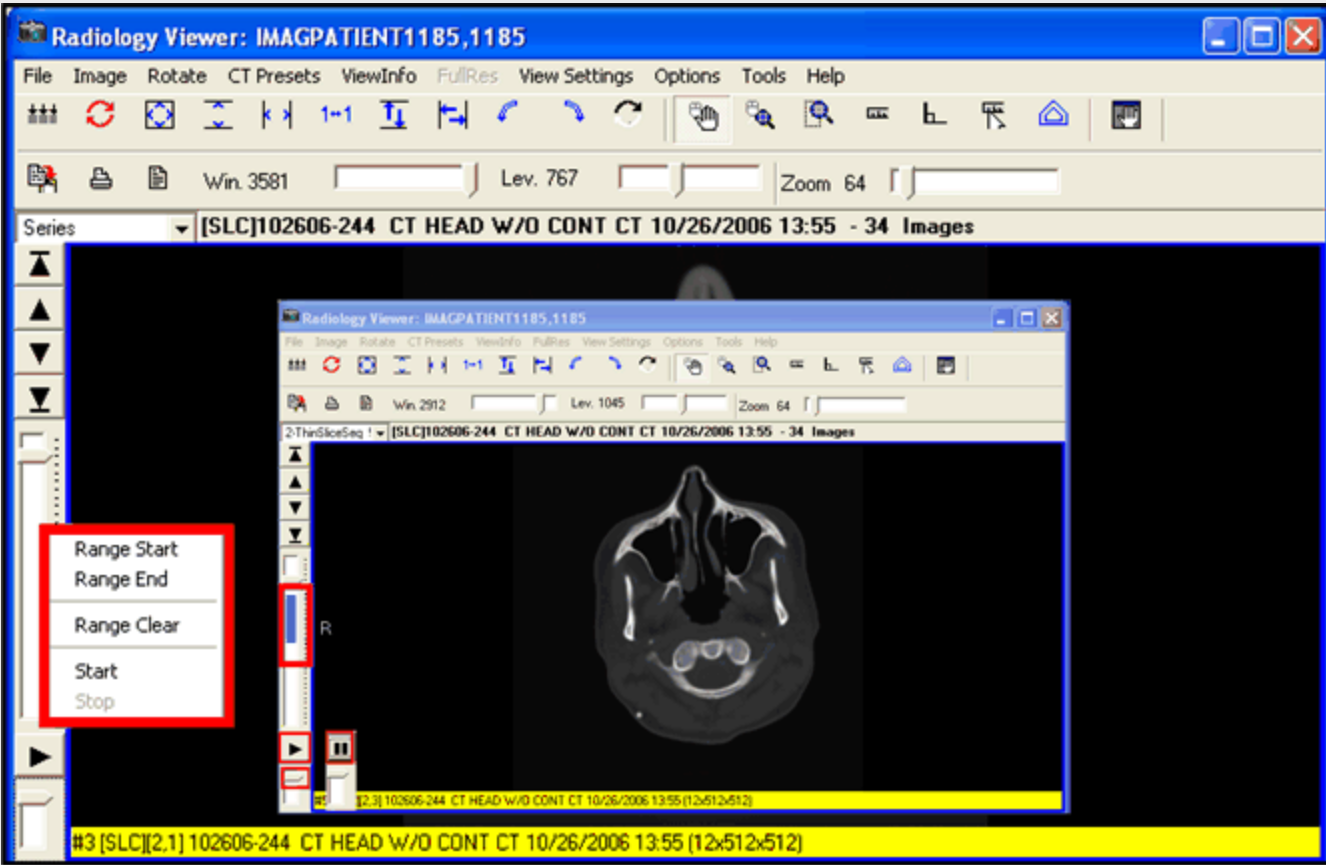
The Select Series drop-down list can be used to navigate to the first image in any series of a multiseries study. The box will display the series title (if available) and the number of images in the series. The series drop-down list will **not** appear if the series information is available in the study.



A: The buttons at the top of the vertical toolbar allow the user to move between the images in the study (First, Previous, Next, Last).

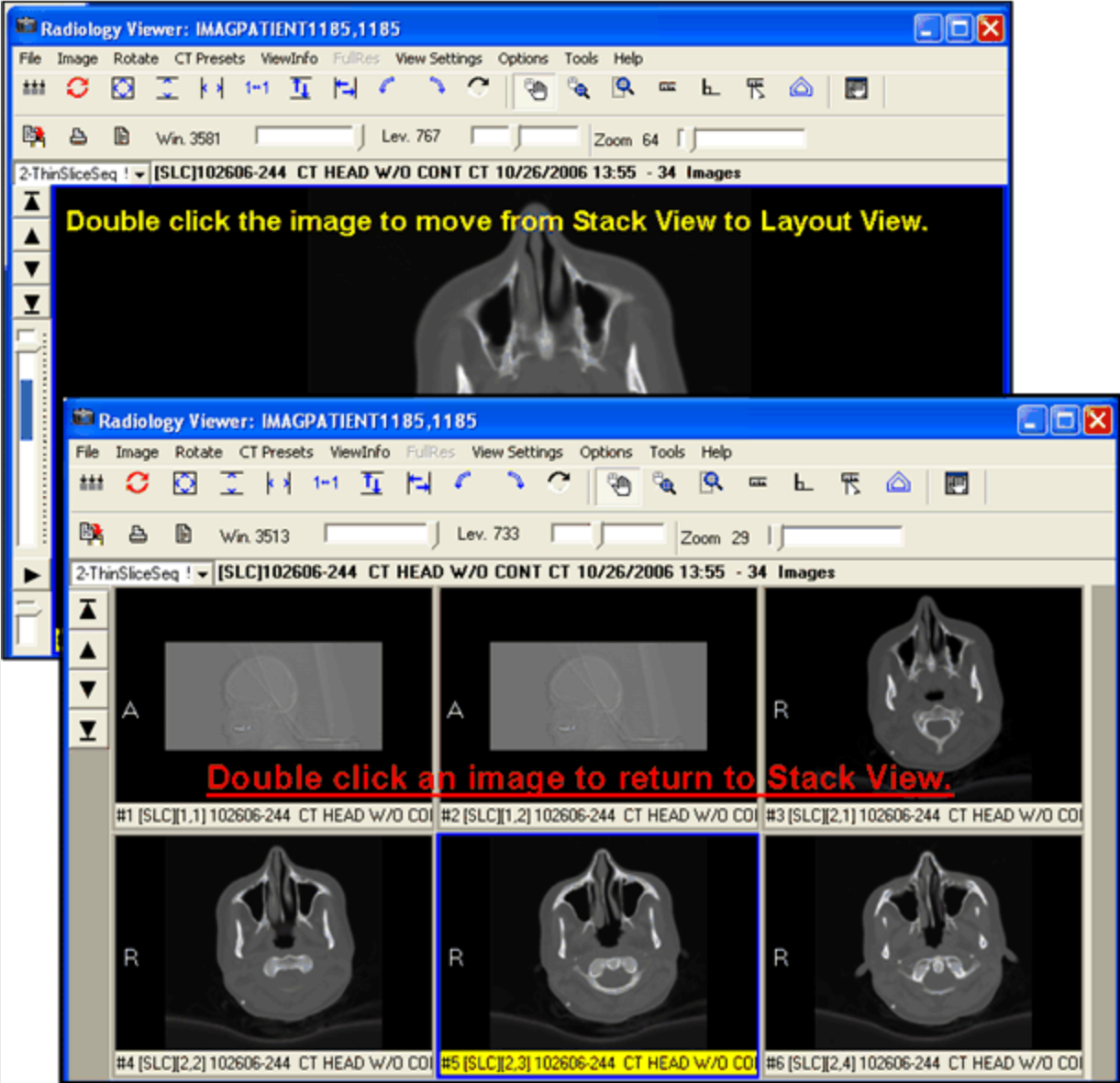
B: The slider bar shows the position of the image in the current study. The user can drag the slider to move to the next image or previous image. The user can also use the mouse scroll wheel to move through the images in the study. As the wheel moves between images, so does the slider bar.

C: The user can view images in the stack by viewing the study in a loop (auto-scroll). Click the Start button to start the auto-scroll. Once pressed, the Start button will turn into a Stop button. Click the Stop button to stop the automatic scrolling of images through auto-scroll. Drag the Speed Control bar up or down to control the speed of the auto-scroll.

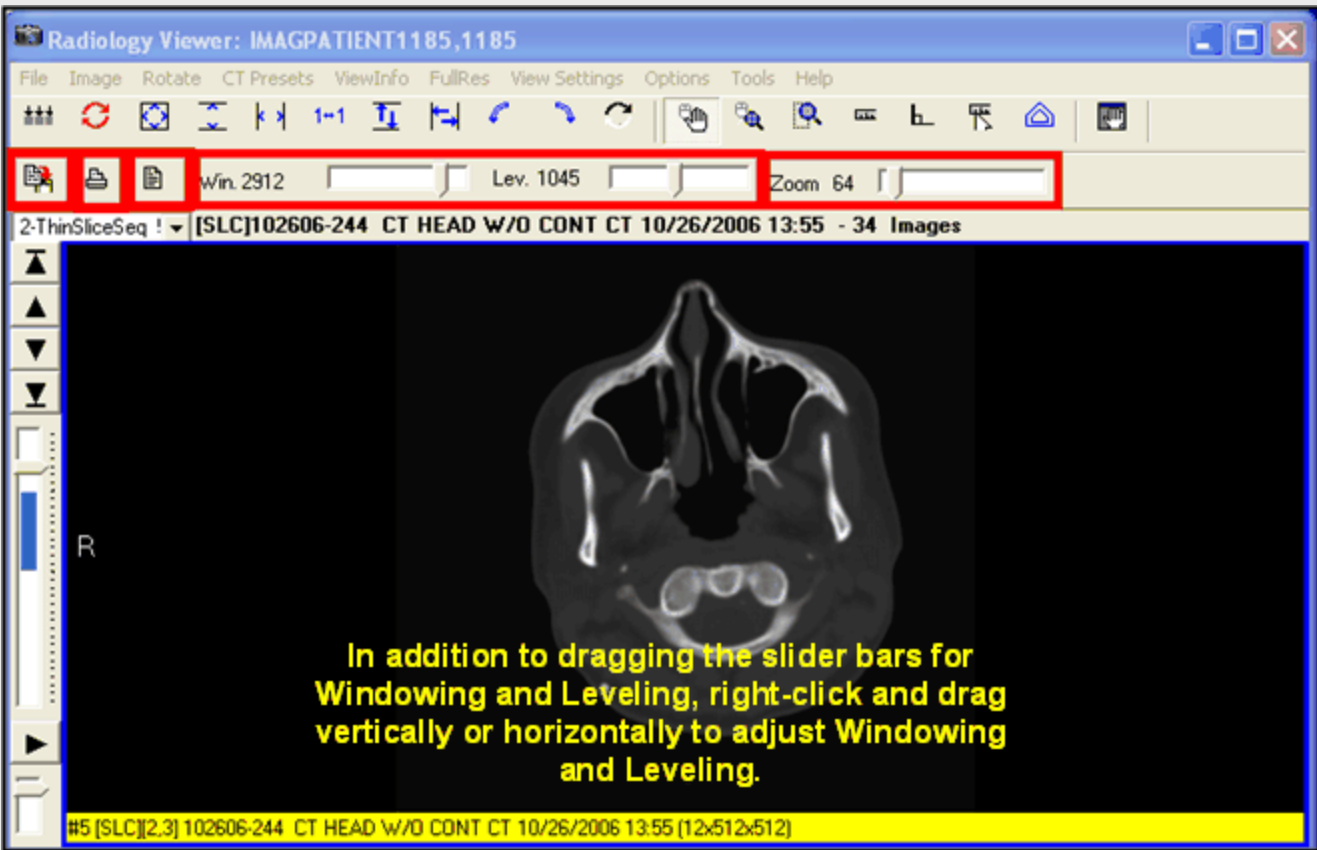





The user can define a range for auto-scrolling by dragging the slider bar to a specific area. Right-click the scroll slider bar and select a start range. Drag the scroll bar to the end of the desired range, right click and select End Range. Click the Start button and adjust the speed, or right-click on the slider bar, click on Start, and then adjust the speed by dragging the speed control bar. To stop the auto-scroll, click the Stop button.
























Double-clicking an image in the Stack View switches to the most recently selected Layout View. Double clicking an image in the Layout View changes the image to the Stack View, at full size. Mouse scroll wheel is active for Layout View, as well as Stack View.



	Copy to the Clipboard	<input type="text" value="Win. 3214"/>	Adjust the Window value
	Print Image	<input type="text" value="Lev. 584"/>	Adjust the Level value
	Image Report	<input type="text" value="Zoom 64"/>	Adjust the Zoom value



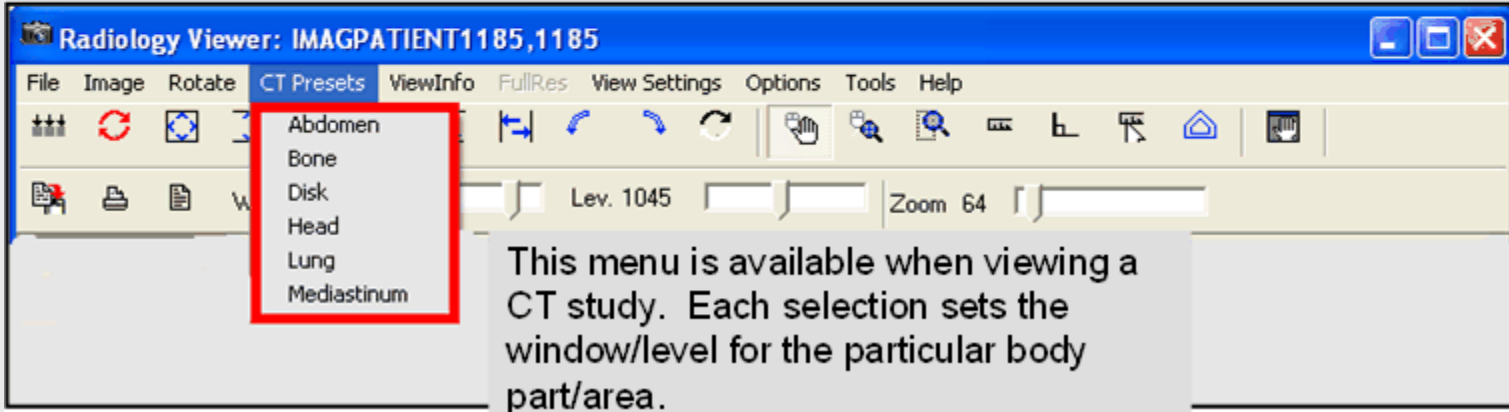
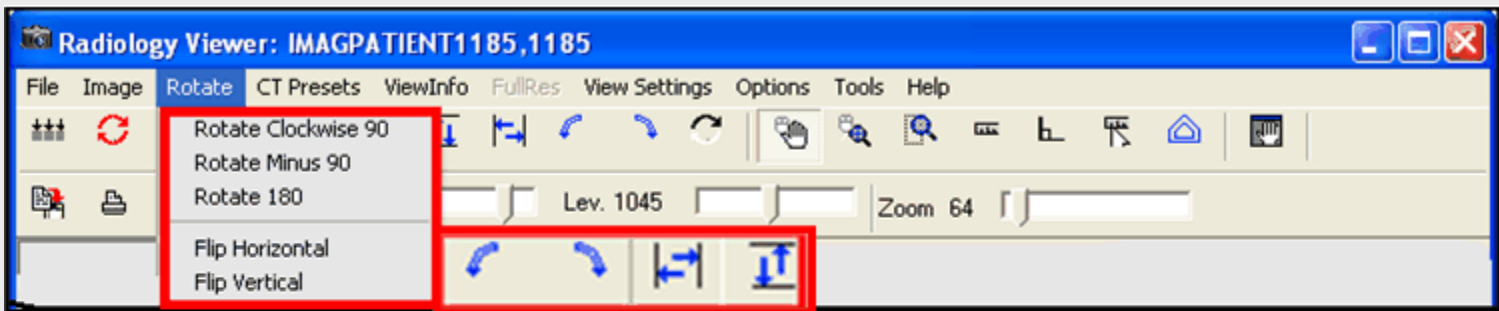
- | | | | |
|-------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------|------------------------------|
|  | Apply Actions to All Images |  | Invert Image |
|  | Reset Image to Original Settings |  | Pan Image with Mouse |
|  | Fit Image in Window |  | Mouse Magnifier |
|  | Fit the Image Height |  | Zoom in on Selected Area |
|  | Fit the Image Width |  | Use Ruler |
|  | Actual Size |  | Use Angle Tool |
|  | Flip Vertical |  | Use Ruler/Angle Tool Pointer |
|  | Flip Horizontal |  | Auto Window/Level |
|  | Rotate Left (counter-clockwise) |  | Open a Pan Window |
|  | Rotate Right (clockwise) | | |

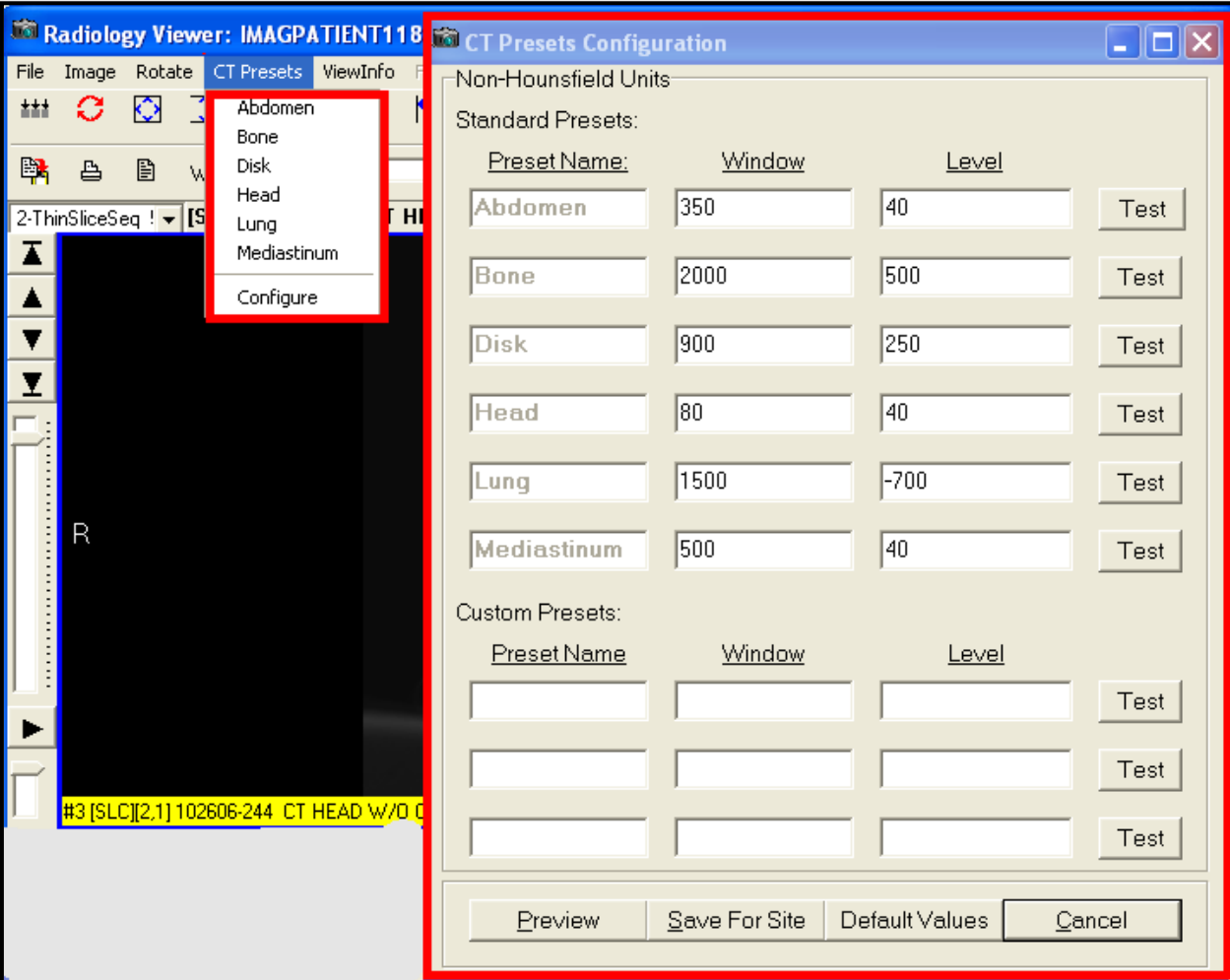
The screenshot shows the 'Radiology Viewer: IMAGPATIENT1185,1185' window. The 'File' menu is open, showing options: Copy, Print, Report, and Exit. The 'Image' menu item in the toolbar is highlighted with a red box, and its corresponding icons (a document with a red checkmark, a printer, and a document) are also highlighted with a red box. A text box to the right of the toolbar contains the following text:

To copy or print an image, an electronic signature code is needed along with an acknowledgment of the agreement and a reason for copying or printing. Signature is needed only once per open imaging session. If an image is used for other than patient care, secondary consent is required (check with the site Privacy Officer).

The screenshot shows the 'Radiology Viewer: IMAGPATIENT1185,1185' window. The 'Image' menu is open, showing options: Invert (Reverse) Ctrl+I, Reset Image Ctrl+R, Reset All, and Cache Selected Study. The 'Cache Selected Study' option is highlighted with a red box, and its corresponding icons (a yellow signal light and a green signal light) are also highlighted with a red box. A text box to the right of the toolbar contains the following text:

Temporarily caching images to the local hard drive is available in the Radiology Viewer. When the option is selected, a yellow signal icon displays for a cache in progress, and a green signal displays when the caching has completed.





CT Presets are available when viewing CTs. If the user holds the MAG RAD Settings security key, s/he can edit the presets by clicking the Configure menu.



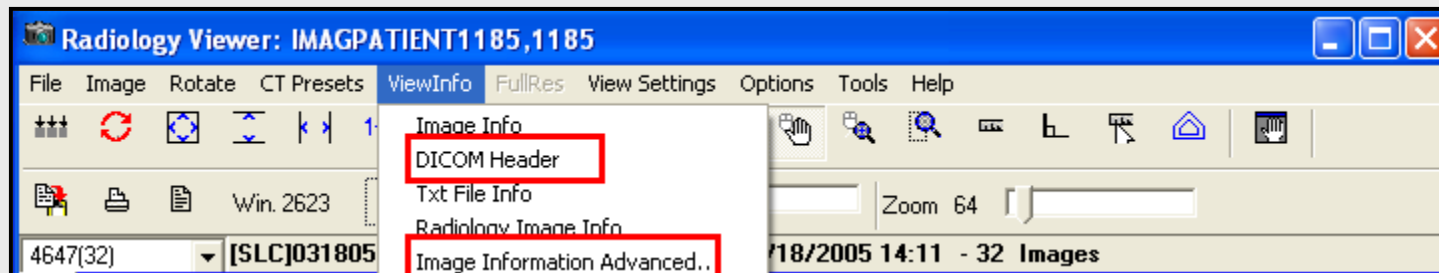
Image Info: Displays information about the image:

- Patient Name
- ID
- Number of pages in the image
- Page dimensions
- Bit depth
- File format information

Txt File Info: Displays the TXT file associated with the image (if available)

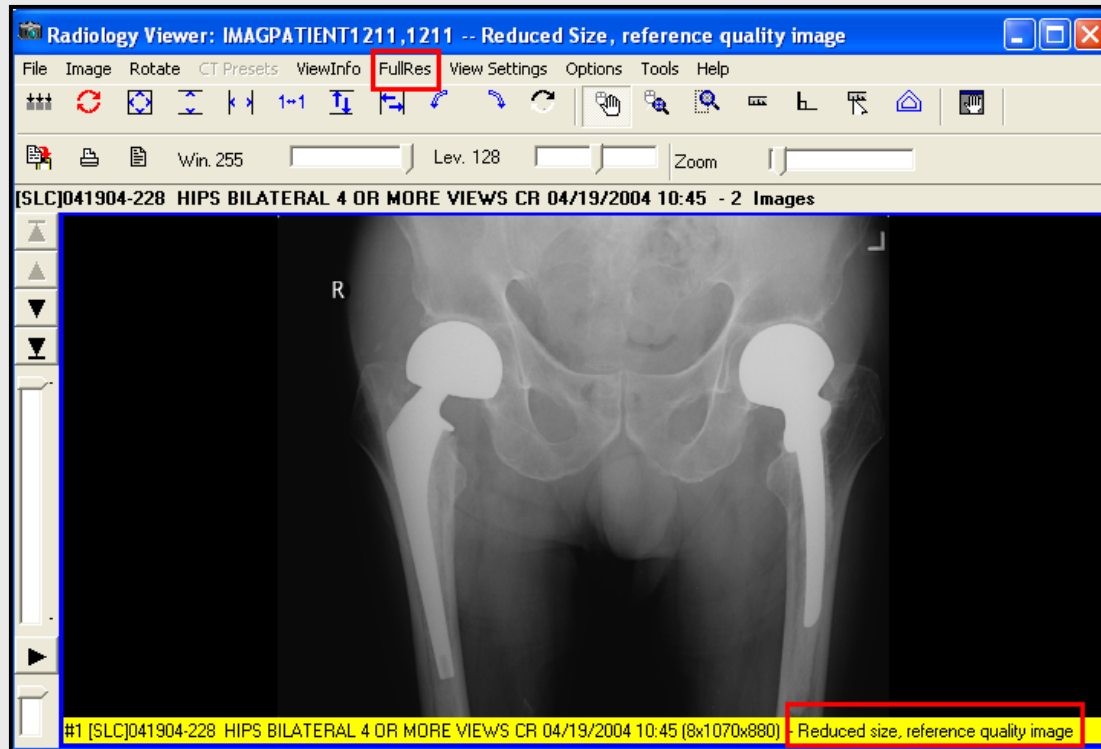
Radiology Image Info: Displays information from the header of the image, including:

- Modality
- Series
- Image numbers

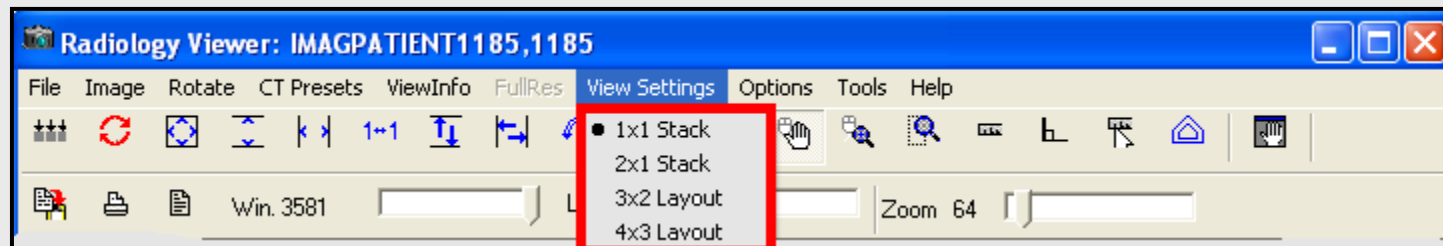


Users who hold the MAG System security key will have the DICOM Header menu and the Image Information Advanced menu available.

Users can view the DICOM Header information and view the associated text files for the displayed images.



In order to display images more rapidly, VistA Imaging Display provides reduced resolution images. The notation “Reduced size, reference quality image” will be displayed in the Image Description bar. If a full resolution image is available, click on the FullRes menu and select View.

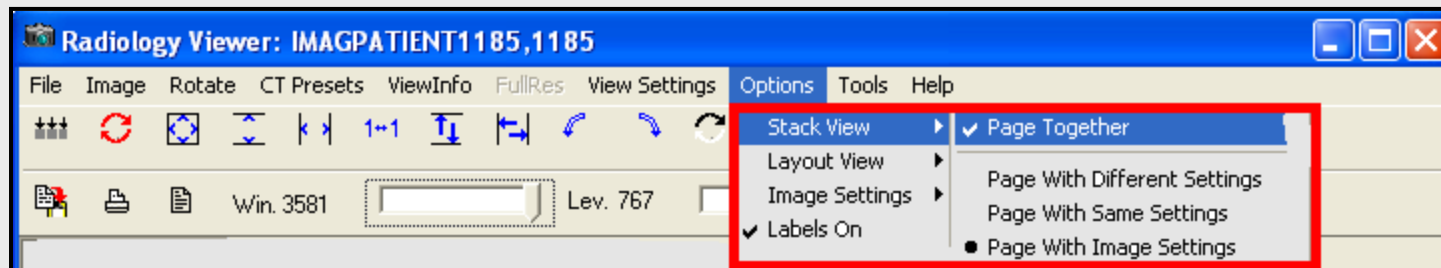


1 x 1 Stack: Puts the viewer into a single image stack mode.]

2 x 1 Stack: Puts the viewer into dual stack mode, where two images from different (or the same) studies can be viewed and compared.

3 x 2 Layout: Puts the viewer into a layout mode, where 6 images are displayed at once.

4 x 3 Layout: Puts the viewer into a layout mode, where 12 images are displayed at once.



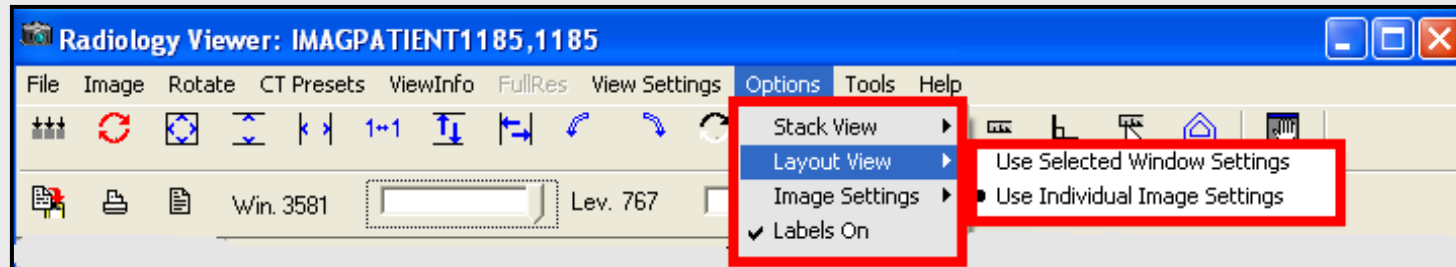
STACK VIEW OPTIONS:

Page Together: When selected, two stacks will page together. This does not guarantee the stacks will always be on the same image number, but as one stack changes images, the other stack will follow.

Page With Different Settings: When selected, each stack will page with the settings held from the previous image in that stack.

Page With Same Settings: When selected, each stack will page with the settings from the stack that changed images. If the left stack changes images, both stacks will change images and then set their view settings (window/level, zoom, etc) to the same as the left stack.

Page With Image Settings: When selected, each image will automatically set itself based on the contents of the image. It does not matter what the previous image had set.



LAYOUT VIEW OPTIONS:

Use Selected Window Settings: When the user changes images, the next image loaded will use the same settings as the previous image.

Use Individual Image Settings: Each image will automatically set itself based on the contents of the image. It does not matter what the previous image used.

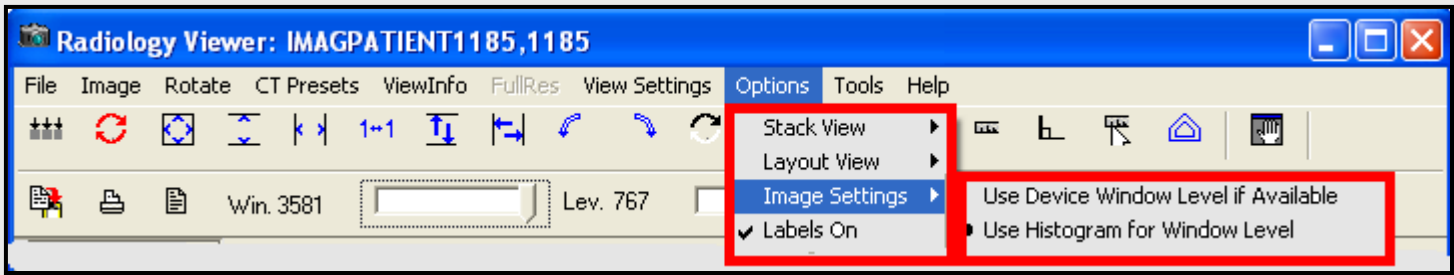
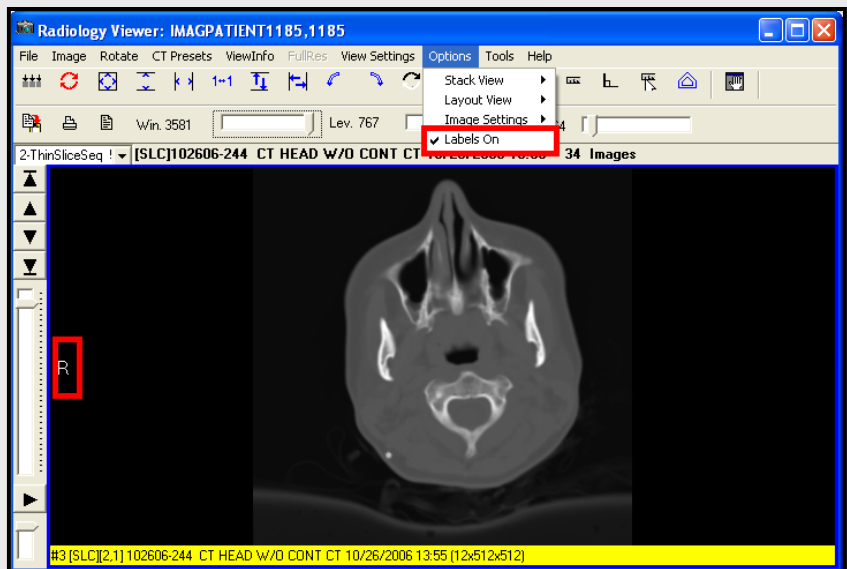


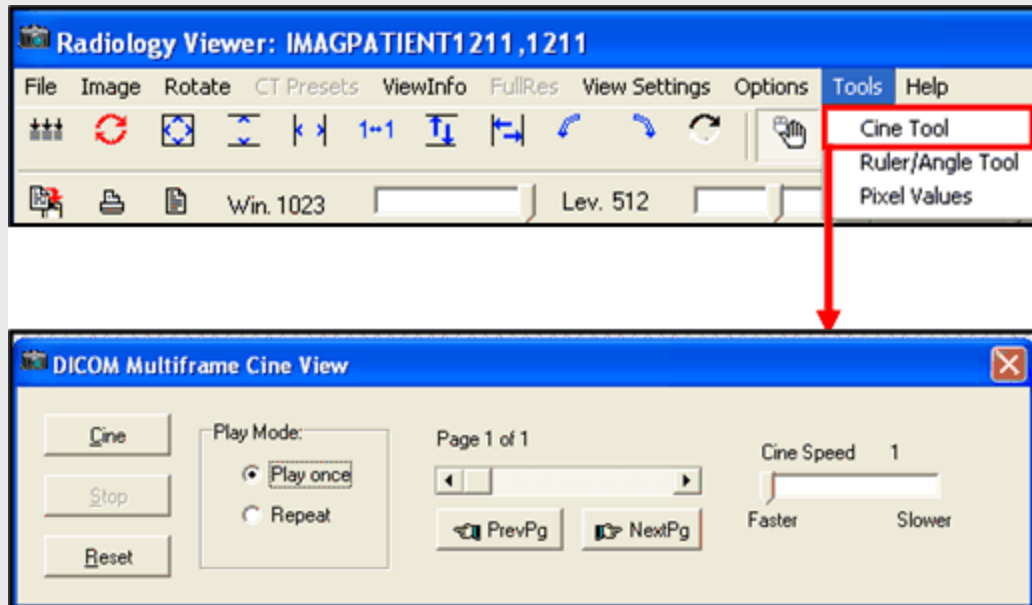
IMAGE SETTINGS OPTIONS:

Use Device Window Level if Available: When selected, the image will be automatically windowed/leveled using values specified in the DICOM header (if available).

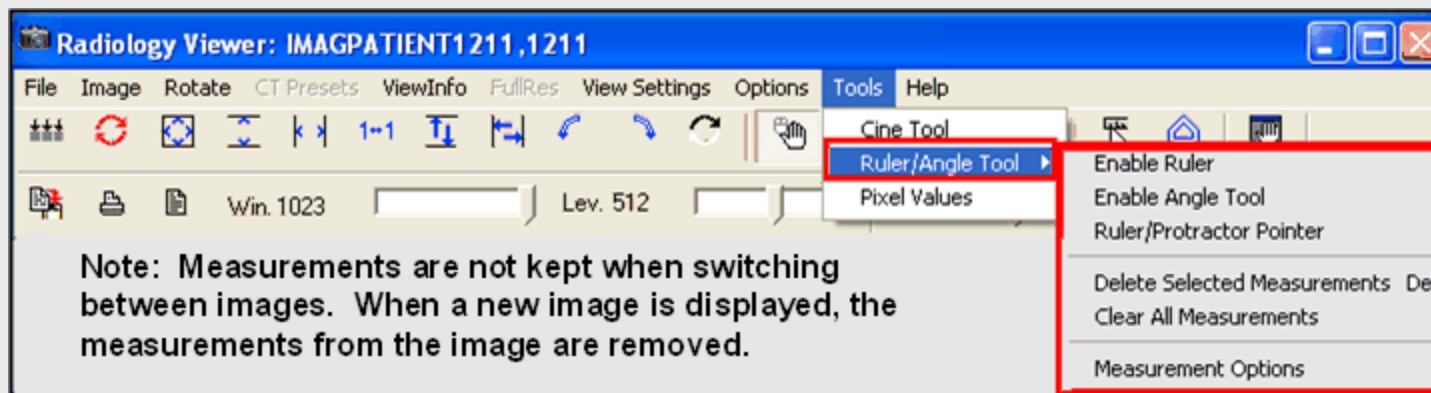
Use Histogram for Window Level: The image will be windowed/leveled using the contents of the image.



To disable labels temporarily, in the Options menu, click Labels On to disable or invoke labels. The setting is retained for the session.



Selecting Cine Tool from the Tools menu opens the DICOM Multiframe Cine Viewer dialog window. The Cine Tool allows moving through image multiframe in a single loop. Studies could include angiography, cardiac catheterizations, etc.



Enable Ruler

Turns on the Ruler tool (enabled if the image contains the necessary information to make accurate measurements).



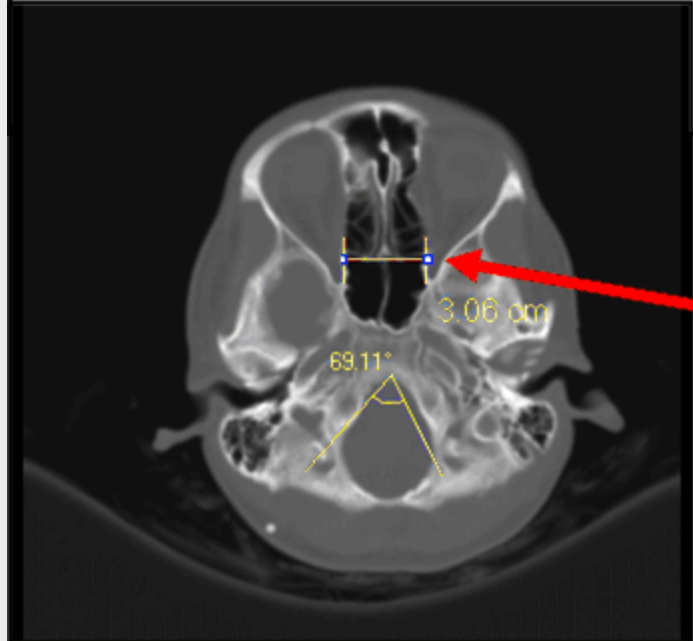
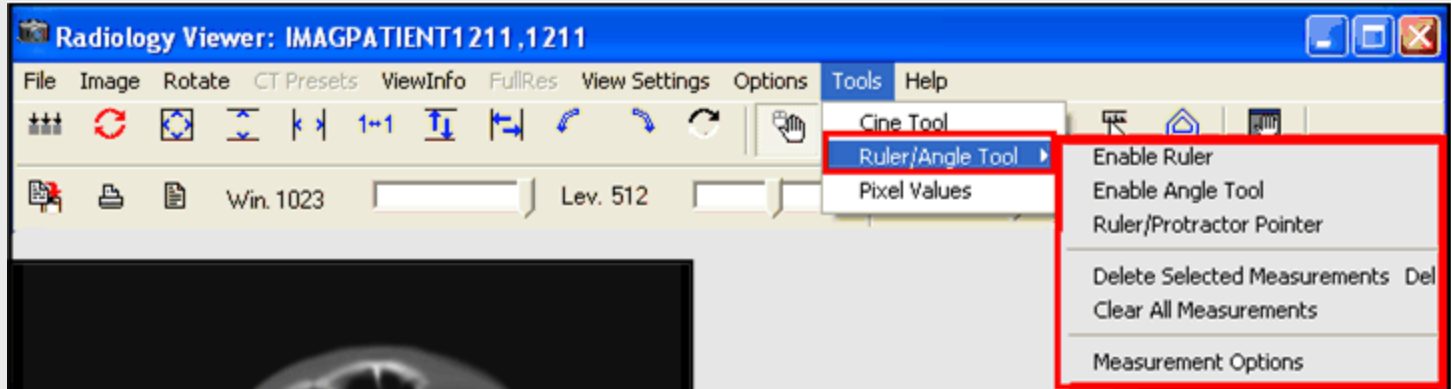
Enable Angle Tool

Turns on the Angle Measurement tool.



Ruler/Protractor Pointer

Changes the current tool to the pointer for measurements. This allows a user to move and modify a measurement mark. If the user right-clicks anywhere on the image, the selected tool will change to the Ruler/Angle pointer, which allows the user to select and modify measurements.



Delete <u>S</u> electe Measurements	Deletes any measurements the user has selected. If a measurement is selected, the user can also click the Delete button to delete the selected measurement.
Clear All Measurements	Clears all measurements from the image.

The screenshot displays the Radiology Viewer application window for patient IMGPATIENT1185,1185. The main window features a menu bar (File, Image, Rotate, CT Presets, ViewInfo, FullRes, View Settings, Options, Tools, Help) and a toolbar with various navigation and tool icons. A status bar at the bottom shows the current image: #8 [SLC][2.6] CT HEAD W/O CONT (#6) CT 06/06/2006 08:49 (12x512x512).

Two measurement tools are active on a CT scan of a head: a horizontal line measuring 2.83 cm and an angle measuring 79.62°. A red arrow points from the 'Measurement Options' dialog box to the horizontal measurement line. Another red arrow points from the 'Mark attributes' dialog box to the angle measurement.

The **Measurement Options** dialog box is open, showing the following settings:

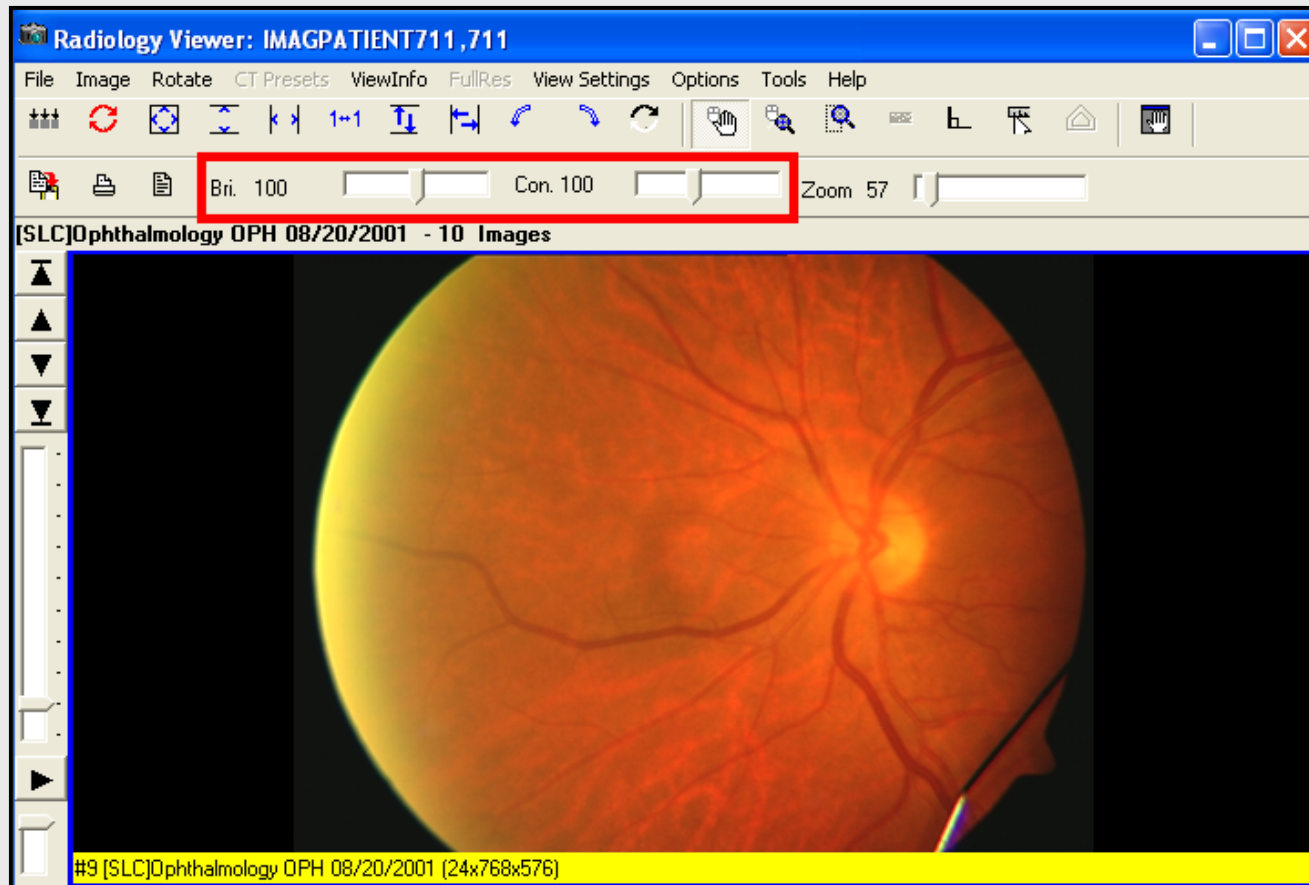
- Line Width: 2
- Measurement Units: Centimeters
- Measurement Color: c\Yellow

The **Mark attributes** dialog box is also open, with tabs for Font Attributes, Line Attributes, Ruler Attributes, and Color Attributes. The Line Size is currently set to 4.

The **Tools** menu is open, showing the following options:

- Cine Tool
- Ruler/Angle Tool (selected)
- Pixel Values
- Enable Ruler
- Enable Angle Tool
- ✓ Ruler/Protractor Pointer
- Delete Selected Measurements Del
- Clear All Measurements
- Measurement Options (highlighted with a red box)

Right-click on a selected measurement to adjust the attributes.



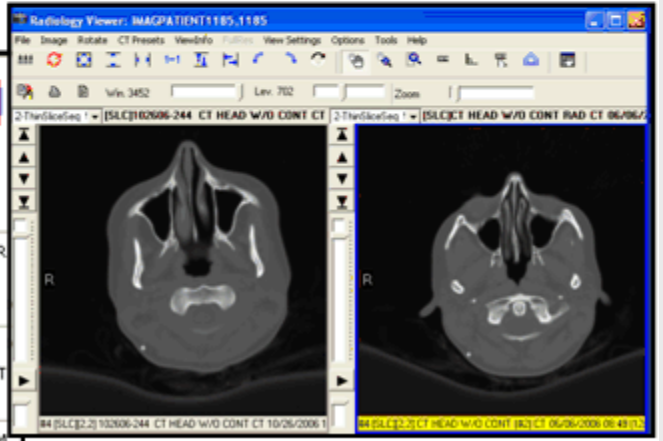
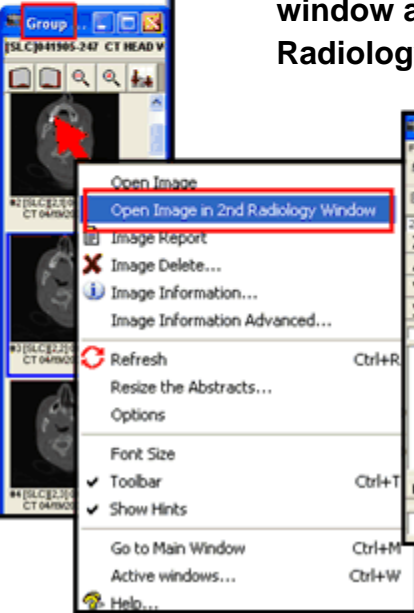
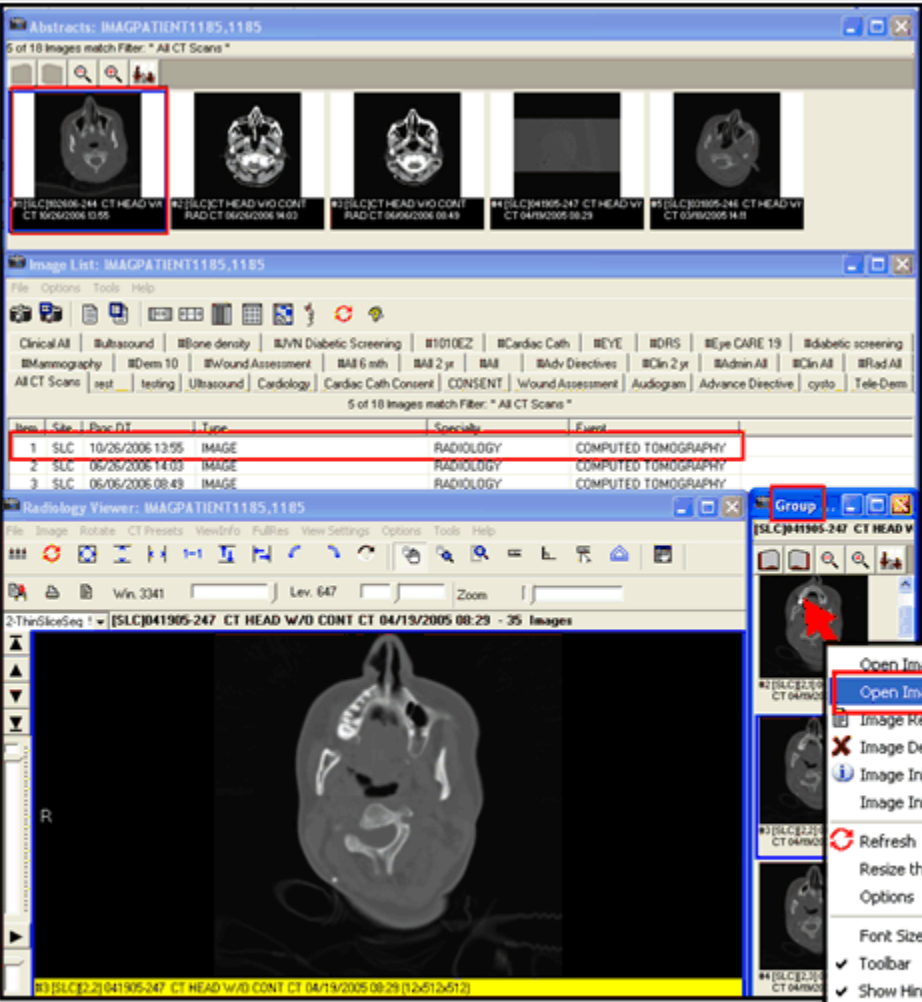
When viewing color DICOM images, the screen will display Brightness and Contrast slider bars. Drag the slider bars to the right or left to adjust the brightness and contrast. Right-click and drag the mouse vertically and horizontally to adjust Brightness and Contrast.

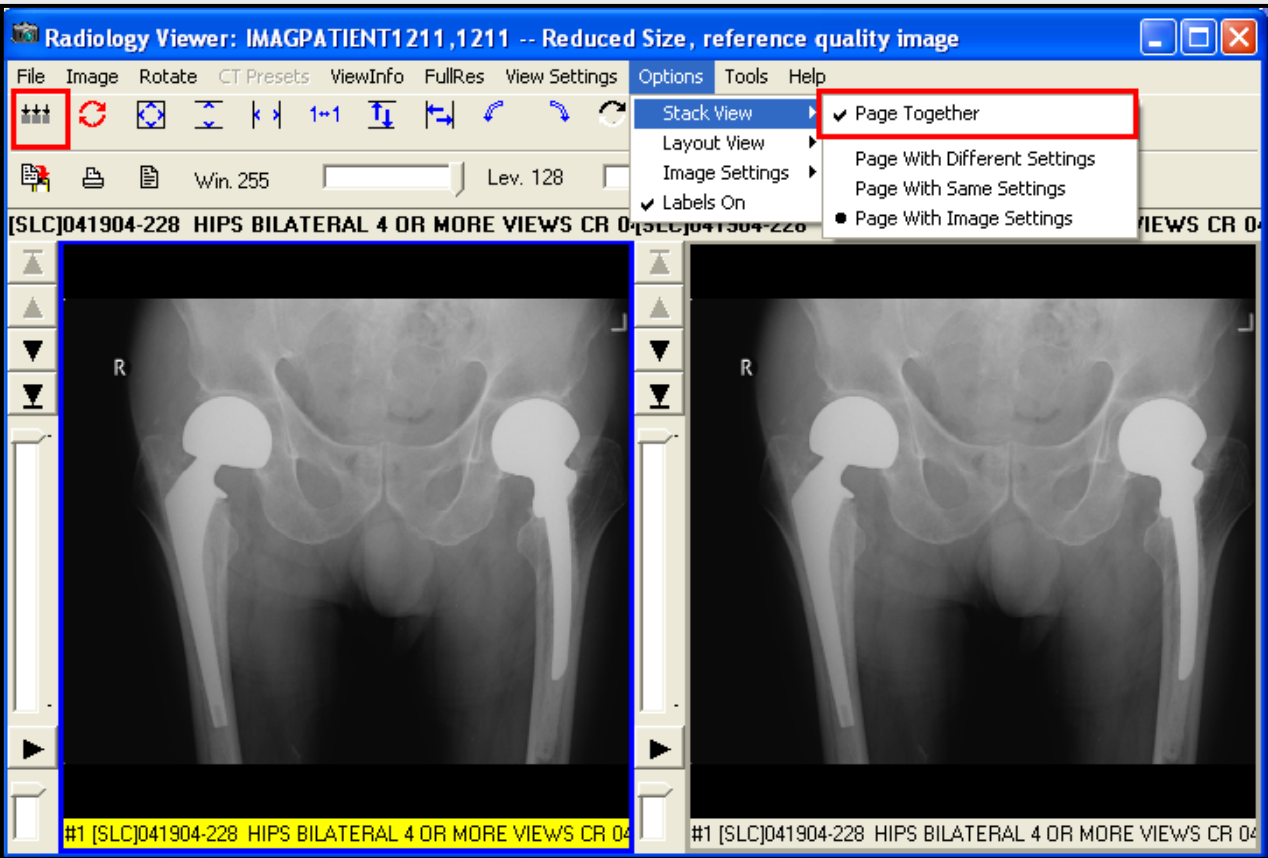
TO COMPARE TWO STUDIES:

Select a study by clicking it from the Abstract window, or double-click the study from the Image List window. Click on an image from the Group Abstract window to open it in the Radiology Viewer.

Select the study for comparison from the Abstract window, or double-click the study from the Image List window so it opens in the Group Abstract window.

Right-click on an image in the Group Abstract window and click Open Image in second Radiology Window.





When the second image is displayed in the Radiology Viewer, click the Options menu, select Stack View, and click Page Together to add or remove the check mark.

Click the Apply Actions to All Images button to apply various tool bar functionality to both windows at the same time. Click the button again to stop the action.