

MDC PACS Viewer User Guide

R2.3 SP2

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The MDC PACS (model number CDP 5000) medical device software must be installed on appropriate IT equipment that complies with relevant international and national laws and standards on EMC (Electro-Magnetic Compatibility) and Electrical Safety. Such laws and standards define both the permissible electromagnetic emission levels from equipment and its required immunity to electromagnetic interference from external sources.

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Disclaimers



WARNING: Check minimum requirements as specified in System Requirements section. "Unable to Run Viewer" message appears when the minimum requirements are not met.



WARNING: Check screen resolution in System Requirements section to avoid image distortion.
The Software Checks the screen resolution and advises the user if there is a problem related to resolution.



WARNING: Image size exceeding screen resolution is automatically reduced to fit the screen (according to market requirement and based on user's experience with leading manufacturers' workstations).
Philips has taken additional precautions to display zoom factor on the screen.



WARNING: Due to limitations in data acquisition, Philips cannot guarantee that the measurements are accurate for DX, CR and MG images.
Note: There is an inherent magnification effect and distortion when taking x-ray images.



WARNING: Philips cannot guarantee that the calibration data received from the modality is accurate. We cannot guarantee that manual calibration performed by users was done accurately.



WARNING: Philips is not responsible for incorrect pixel size within images received from modalities.



WARNING: Philips cannot guarantee that True-Size images will be printed accurately in the event that the DICOM Printer is calibrated incorrectly.



WARNING: The system displays images with the same image quality as they are received. If the source file is a low quality image, the viewer cannot improve the image quality.

1. Product Features

The MDC DiagNET application provides medical image manipulation and post processing software.

The advantages of using MDC DiagNET software are:

- Includes the most advanced features while maintaining an intuitive, user-friendly interface
- Compact in size
- Does not require installation
- Provides a single application for reading, viewing and distribution
- Compatibility with any PC meeting the minimum system requirements
- WEB enabled

2. System Requirements

The following configuration is recommended:

Minimum 512 MB RAM, recommended minimum 1 GB

17-inch color monitor

Super VGA, 1024x768, True Color

CD drive

3. Intended Use

This application is intended for use by trained medical professionals, including but not limited to radiologists, clinicians and technologists.

4. Reference Documents

This document references to the following documents:

- 4522 170 18301 R2.3 MDC PACS User Guide
- 4522 170 15052 3D Viewer User Guide
- 4522 170 15062 Fusion User Guide

5. Abbreviations

The following list defines abbreviations used in this document:

DICOM	Digital Imaging and Communications in Medicine
DICOMDIR	DICOM Directory File
LUT	Look-Up Table
FPS	Frame Per Second
MIP	Maximal Intensity Pixels

6. Study Preview Panel

This chapter describes buttons used in the image preview panel.

6.1 Collapse / Expand Studies

This button hides / displays the Stacks Preview for each Study (see **Figure 1 – Figure 2**).

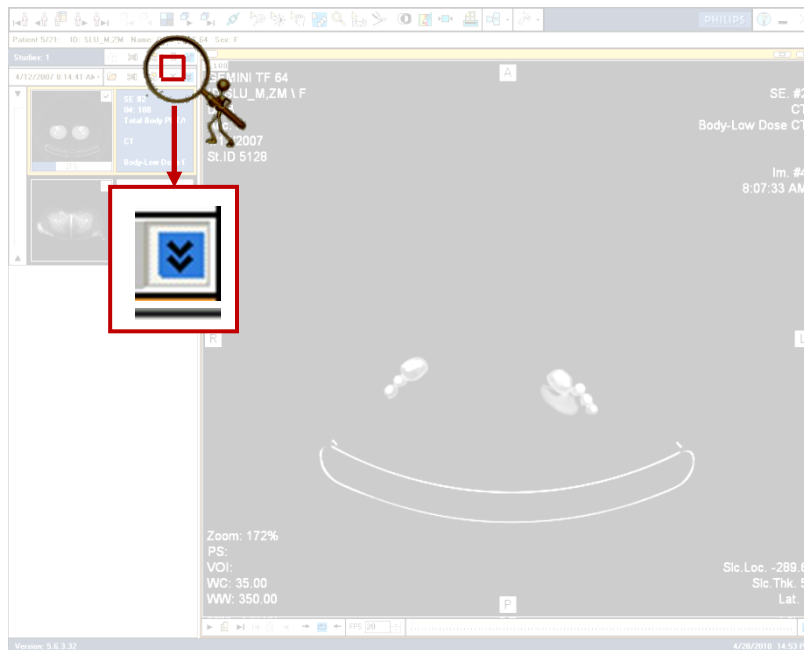


Figure 1: Collapse / Expand button – before clicking it

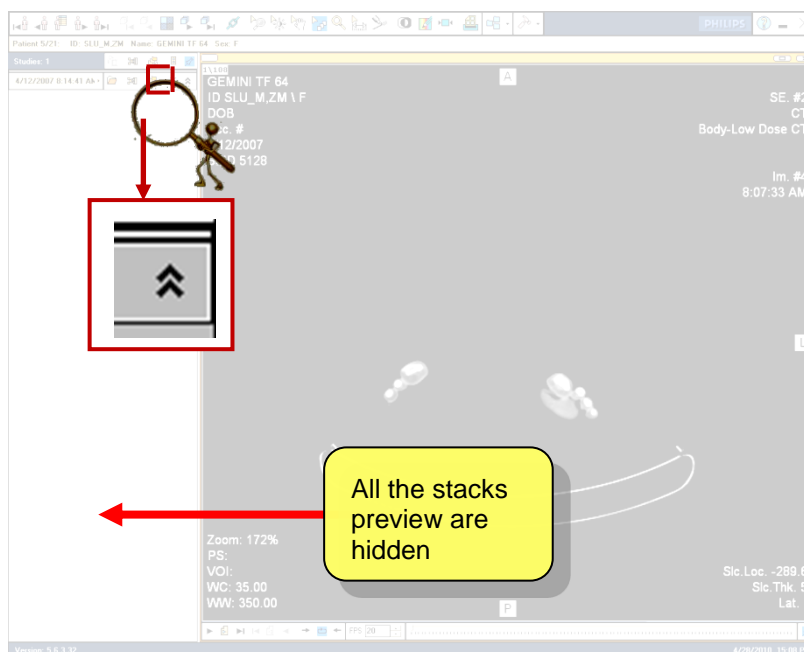


Figure 2: Collapse / Expand button – after clicking it

6.2 Sort Backward

This option enables you to sort studies and stacks in chronological order (see **Figure 3**).

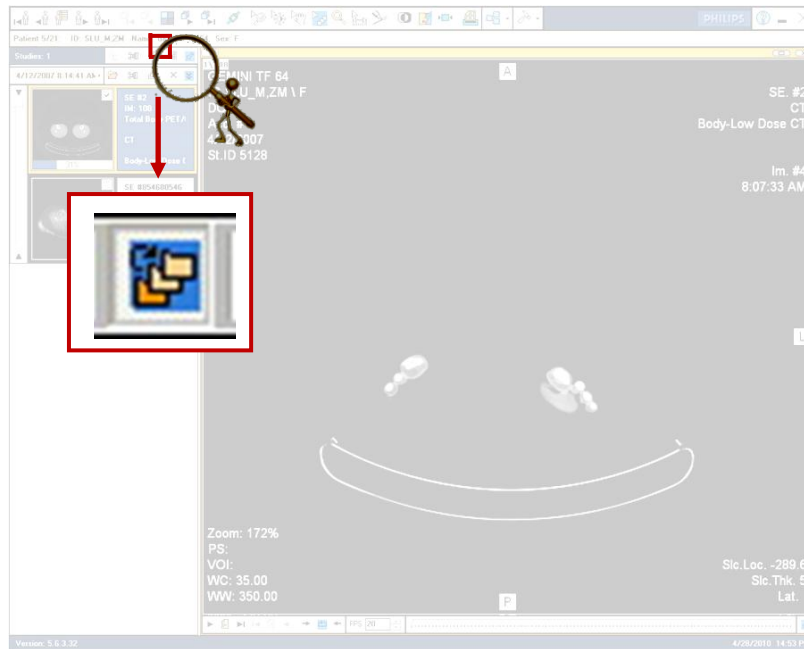




Figure 3: Sort Backwards button



Clicking this button once, causes  button to appear (Sort Forward). Clicking it once again, causes the button to return to its original display.



Clicking this button once, causes  button to appear (Sort Backwards). Clicking it once again, causes the button to return to its original display.

In case of multiple study, the top sort sorts the studies and the internal one sorts the stacks / series (see **Figure 4** for example).

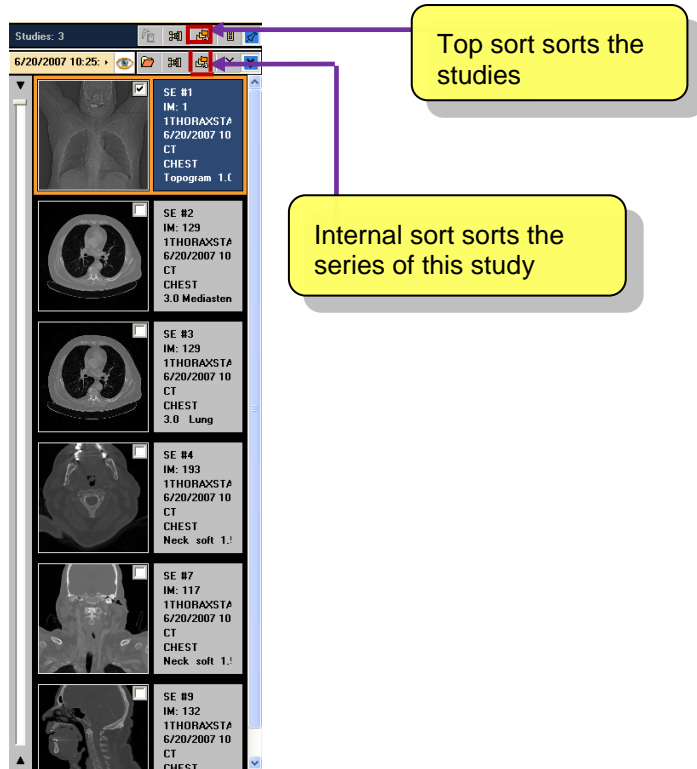


Figure 4: Multi study example

6.3 Only Icons / Image information

This button hides all the information regarding the images. Clicking this button again displays all the information regarding the Stack of the images (see **Figure 5 – Figure 6**).

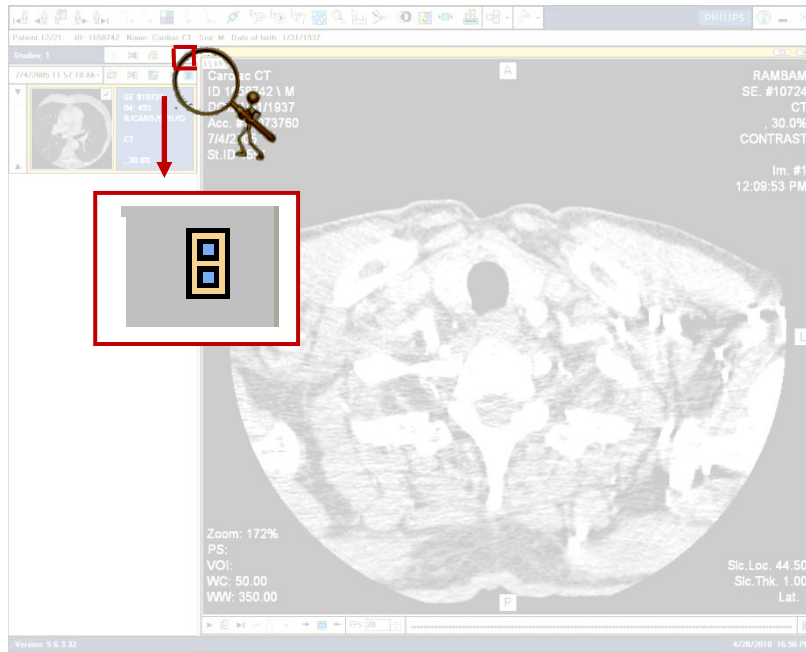


Figure 5: Only icons / image information - before clicking it

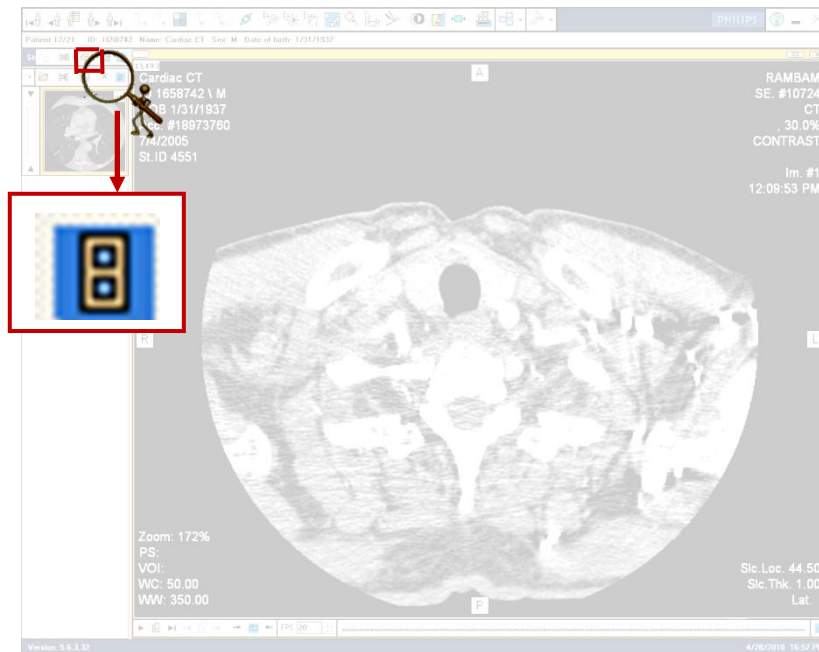


Figure 6: Only icons / image information - after clicking it

7. Auto Hide mode

This chapter describes how to display / hide panels and toolbars

7.1 Fix

The pushpin button shows/hides the panel or toolbar.

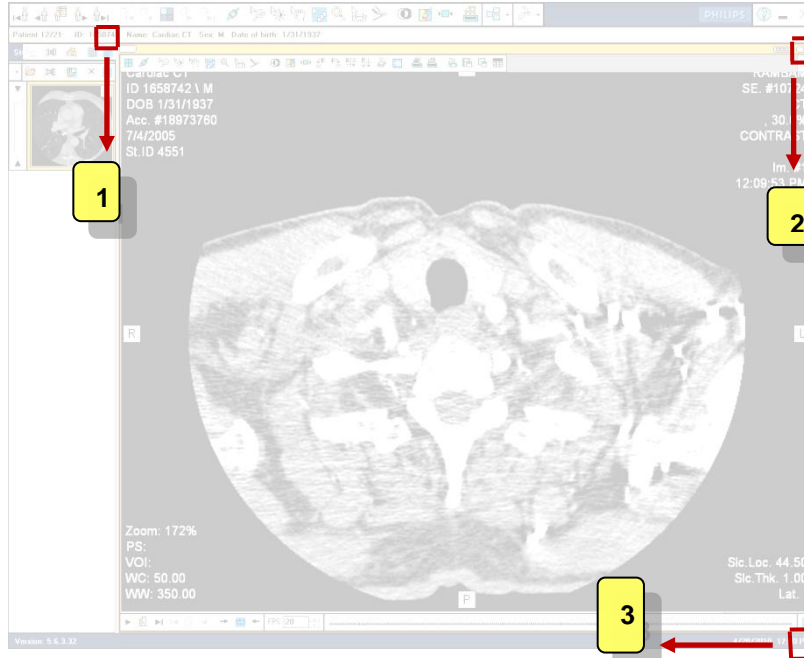


Figure 7: Fix pushpins

Figure 7 shows the Fix pushpin buttons in the DiagNET:

- | | |
|---|-------------------------|
| 1 | For Study Preview Panel |
| 2 | For Image toolbar |
| 3 | For Navigation toolbar |

To define defaults for all three Fix pushpin buttons go to: **Options > Preferences > Main Screen > Defaults on appearance** option, in **MDC PACS Client** screen. This option relates to all three locations (see **Figure 8**). Note that the sequential numbers match the numbers of **Figure 7** explanations.

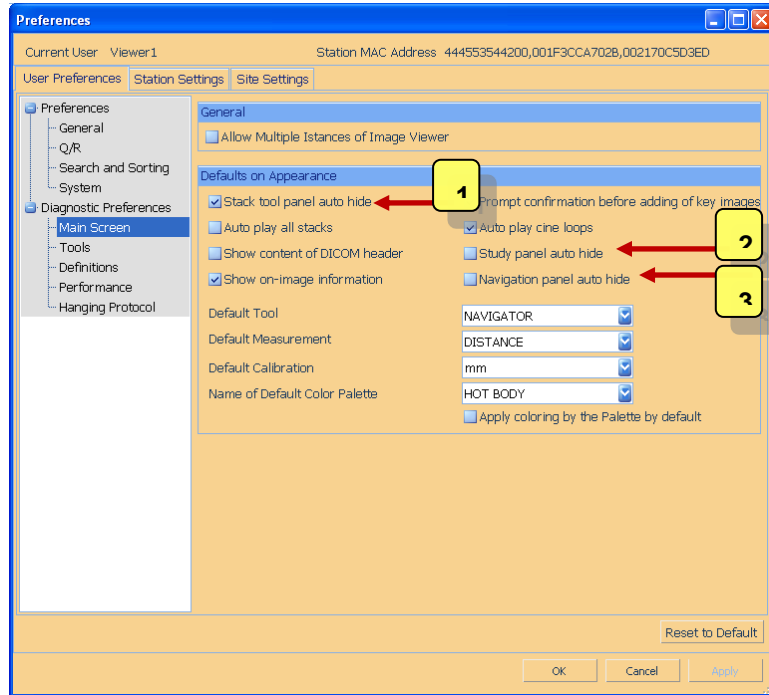


Figure 8: Setting Fix pushpin defaults

- 1 Relates to the Image toolbar
- 2 Relates to the Study Preview Panel
- 3 Relates to Navigation toolbar

8. Image Selection Display

In order to view a specific image use the methods mentioned below.

8.1 General Image Selection

Display a selected image can be done as follows:

Select a requested image by selecting the checkbox (located on the top right side of the image), using the mouse, until the '√' sign is seen.

Drag the requested image using the left button of the mouse from the study preview panel to the middle of the screen.

8.2 Matrix Image Selection

Viewing a selected image on a matrix can be done according to the following:

Drag the requested image using the left button of the mouse from the study preview panel to the requested location on the matrix.

Exchanging images is performed by dragging the required image using the left button of the mouse from the study preview panel to the requested location on the matrix. Note that the current image replaces the previous one.

Placing an image in an empty cell is done by dragging the required image using the left button of the mouse from the study preview panel to the desired location on the matrix.

9. Patient Navigation



TIME SAVER: *DiagNET* consists of buttons to help navigate quickly and easily in work lists

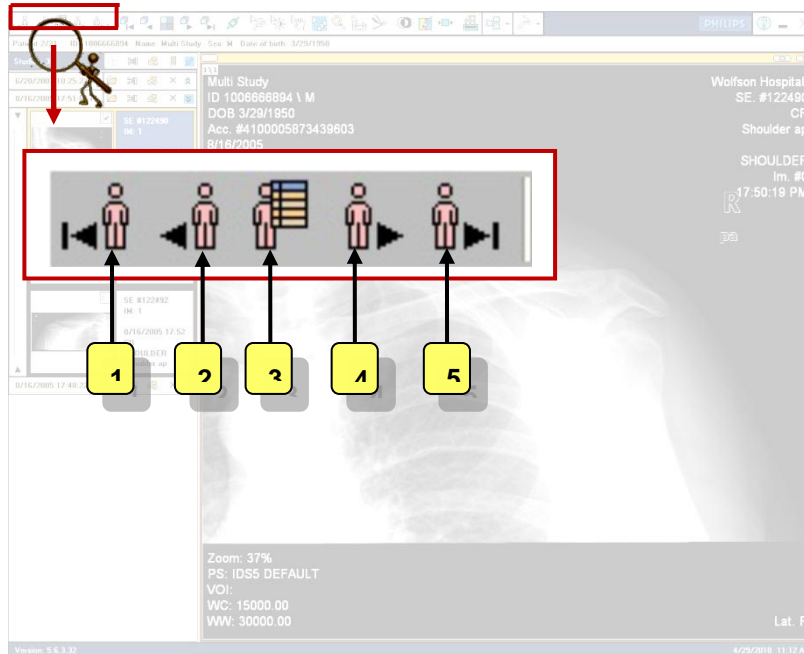


Figure 9: Patient Navigation icons location

Figure 9 consists of the following icons (explanations are provided according to their sequential order):

- | | |
|---|--|
| 1 | To first patient icon: Click this icon to reach the first patient from the list |
| 2 | To previous patient icon: Click this icon to reach the previous patient from the list |
| 3 | Patients' list icon: Click this icon in order to update a patients' list. Clicking it displays the DiagNET screen |
| 4 | To next patient icon: Click this icon in order to reach the next patient from the list |
| 5 | To last patient icon: Click this icon in order to reach the last patient from the list |

10. Study Status Management

Study status management enables the site personnel to both update and follow a **Study** throughout its different stages.

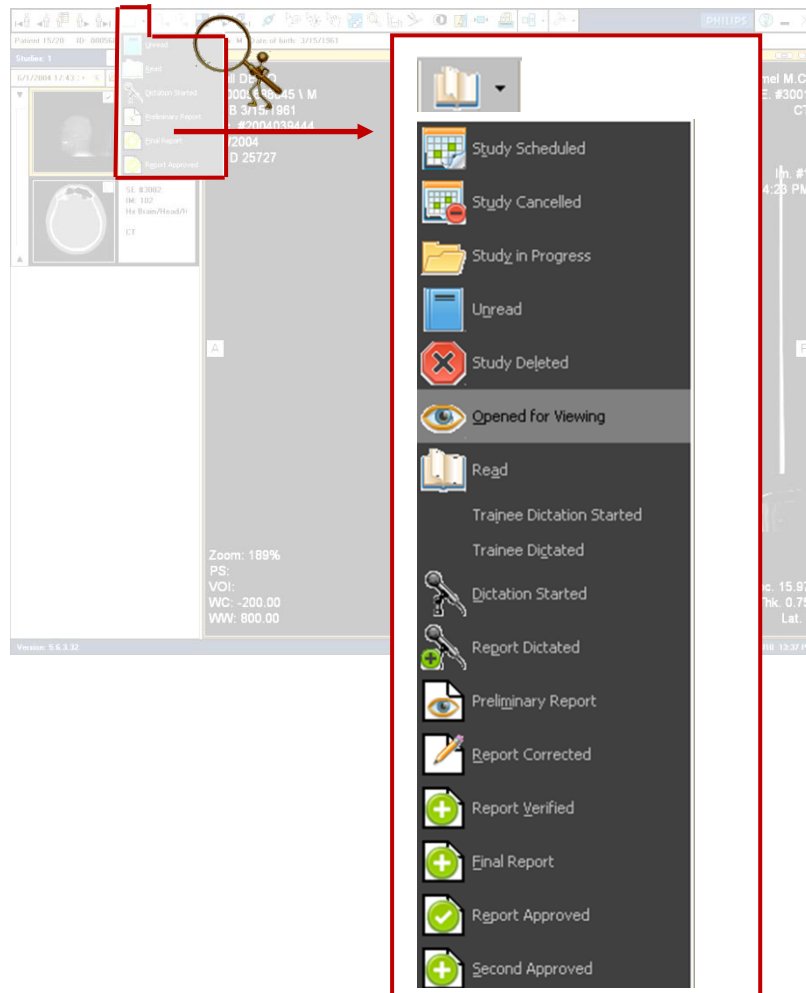






Figure 10: Study Status option

Clicking the arrow near the button causes a drop-down list to appear (see Figure 10). Select the requested stage according to the following possibilities:

	Study Scheduled (dependent on RIS)
	Study Cancelled (dependent on RIS)
	Study In Progress
	Unread: This status indicates that the information has been inserted in the database and therefore, the study is ready to be viewed. It is set automatically from Scheduled , Incoming , Cancelled and Deleted stages. Other statuses will not be changed



Study Deleted



Open For Viewing



Read: This status is updated automatically once exiting the **DiagNET** screen

Trainee Dictation Started: This option indicates that an authorized trainee has started the dictation process

Trainee Dictated: This option indicates that an authorized trainee has finished the dictation process



Dictation Started: This option indicates that dictation by an authorized person has begun



Report Dictated: This option indicates that a report has reached dictated stage



Preliminary Report: This option indicates that all the diagnostic stages are updated to one report



Report Corrected: This option indicates that a corrected report is available



Report Verified: This option indicates that a verified report is available



Final Report: This option indicates that all the diagnostic stages are updated into a final report



Report Approved: This option indicates that the final report has been approved



Second Approve: This option indicates that the final report has been approved for the second time



***TIME SAVER:** User can set automatic changes of study status upon entering and exiting DiagNET. This feature can be configured per user in DiagNET user options.*



***TIP:** Study Status list can be defined per site by the System Administrator*

11. Navigation

Use the buttons below to navigate in and between the stack images.

11.1 Internal Stack Navigation

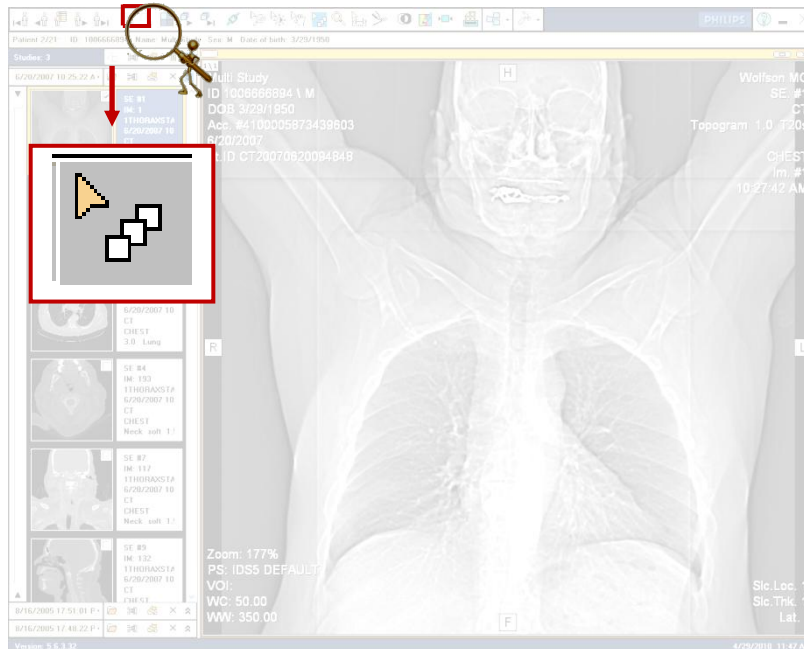



Figure 11: Stack Navigation icon location



Click  button to navigate through the images within a stack. This is done by the following method:

Select the required multi-image/frame stack to start with

Click the button ()

Click and hold the left button of the mouse

- 1) Move the mouse up or down: note that the default order of the images is from head to toe. In this way, moving the mouse upwards – leads to the previous image, and moving the mouse downwards – leads to the next one. When the order of the images is from toe to head, moving the mouse upwards – leads to the next image, and moving the mouse downwards – leads to the previous one.
- 2) Navigation by using mouse wheel: downwards – navigation in the stack until it ends. Upwards – navigation in the stack until reaching the beginning.
- 3) Use arrow keys from the keyboard: downwards – navigation from the first image to the last one. Upwards – navigation from the last image to the first one

NOTE: In single stack cases, the navigation button does not exist.

11.1.1 Image Navigation toolbar

Every stack window containing more than one image displays a navigation bar (Figure 12).

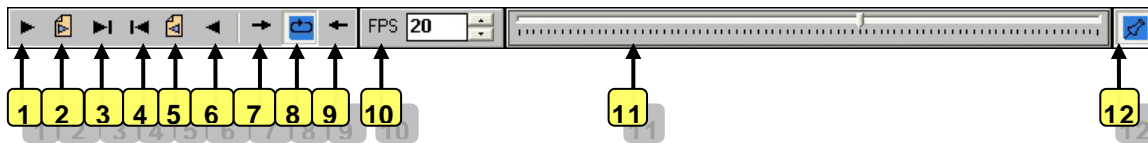



Figure 12: Image toolbar navigation

Figure 12 consists of the following (explanations are provided according to their sequential order):

1	To next – Move to next either frame or image
2	To next page – Move to next page (moves to next group when using a matrix layout)
3	To last – Move to last either frame or image
4	To first – Move to first either frame or image
5	To previous page – Move to previous page (moves to next group when using a matrix layout)
6	To previous – Move to previous either frame or image
7	Run forward - Play forward (as movie)
8	Loop – Play the image continuously without stopping (as movie)
9	Run backward - Play backwards (as movie)
10	FPS - Set movie frame rate (frames per second)
11	Cine cursor - Jog shuttle enables user to grab  the tab (press and hold the left mouse button) and navigating through the stack by moving left or right
12	Fix – causes the navigation bar to be displayed

11.2 Stacks Navigation

Use the buttons below to navigate between the stack images.

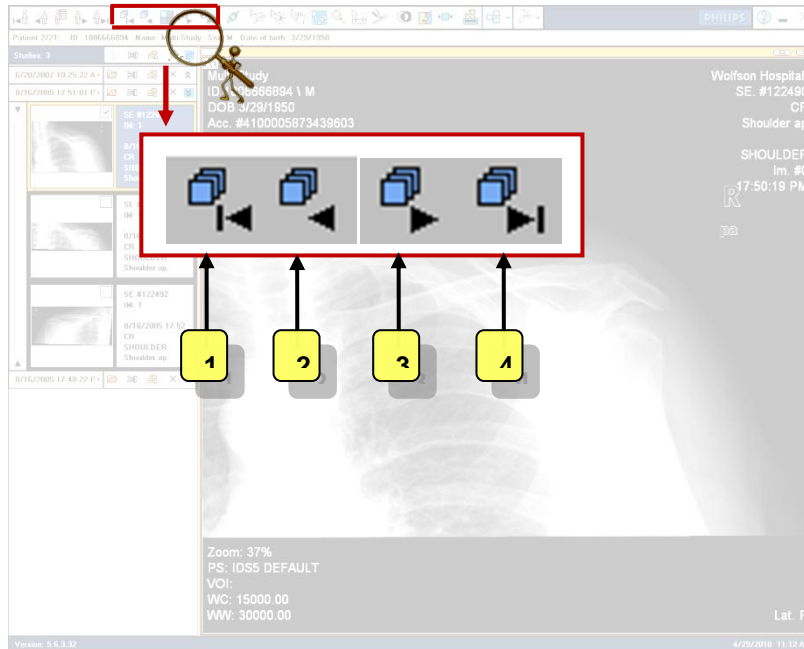


Figure 13: Stack Navigation icons location

Figure 13 contains the following icons (explanations are provided according to their sequential order):

- | | |
|---|---|
| 1 | To first stack: Click this icon to reach the first stack |
| 2 | To previous stack: Click this icon to reach the previous stack |
| 3 | To next stack: Click this icon to reach the next stack |
| 4 | To last stack: Click this icon to reach the last stack |

11.3 Navigation between Stack Images

Use the mouse wheel and arrow keys to navigate between the stack images. Do as follows:

Navigation using mouse wheel: downwards – navigation in the stack (from first image to last) and moving to the next stack. Upwards – navigation in the stack (from last to first) and moving to the previous stack.

Navigation using arrow keys from the keyboard: towards down - navigation from the first image to the last one and moving to the next stack. Towards up - navigation from the last image to the first one and moving to the previous stack.

NOTE: When using the [Matrix](#) option, every method explained above is relevant as well.

11.3.1 Study Navigation

Study navigator (**Figure 14**) provides navigation into the study according to the following:

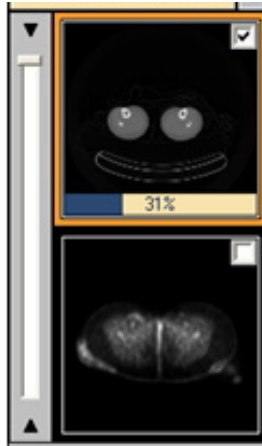


Figure 14: Study Navigator

Enables linear run through stacks within the study

Toggle play forward  and backward 

You can display the navigator for all stacks automatically by selecting: **Options > Preferences > Main Screen > Auto-play all stacks** option, in **MDC PACS Client** screen (see **Figure 15**).

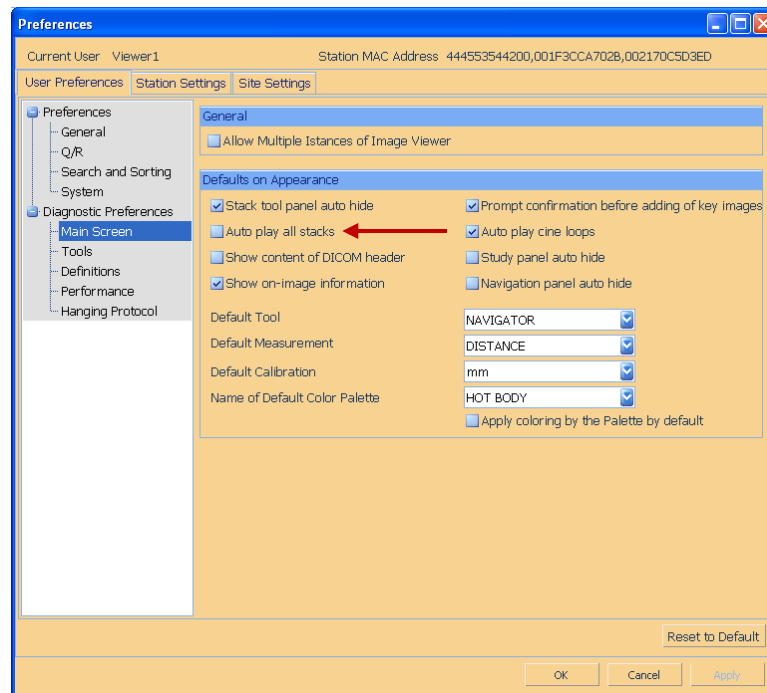


Figure 15: Auto play all stacks option

NOTE: Multi study navigation is done by using either the mouse wheel or arrow keys between the stack images.

During navigation, **Figure 16** appears

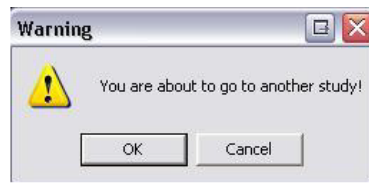


Figure 16: Multi study warning message

Click on **OK** button for confirmation. Otherwise, click on **Cancel** button.

12. Window Operations

This chapter describes how to use matrixes to display stacks in the DiagNET.

12.1 Stacks' Matrix

This option enables to divide the screen to a matrix according to a defined number of cells.

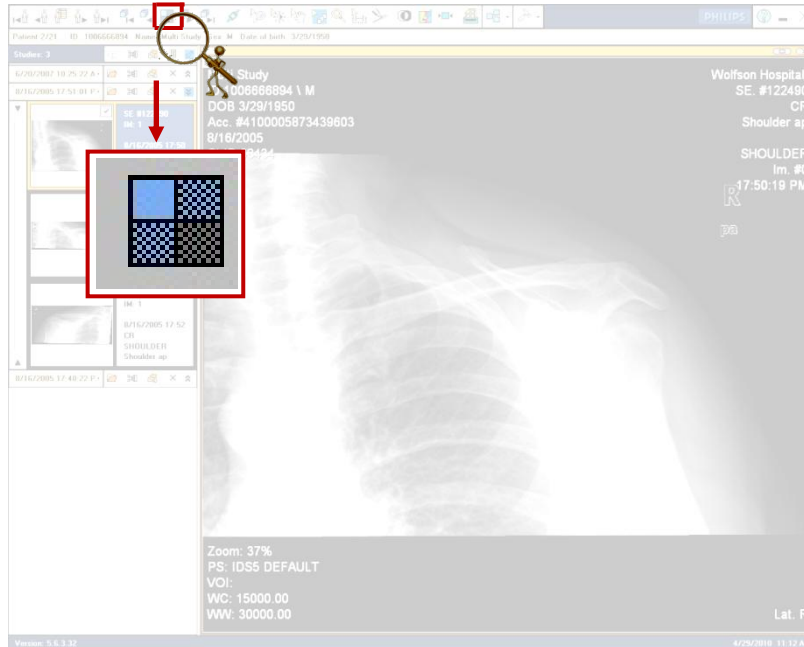


Figure 17: Stacks' Matrix button

Click this icon (Figure 17) to either define or change the stack matrix layout. Clicking this icon leads to Figure 18.

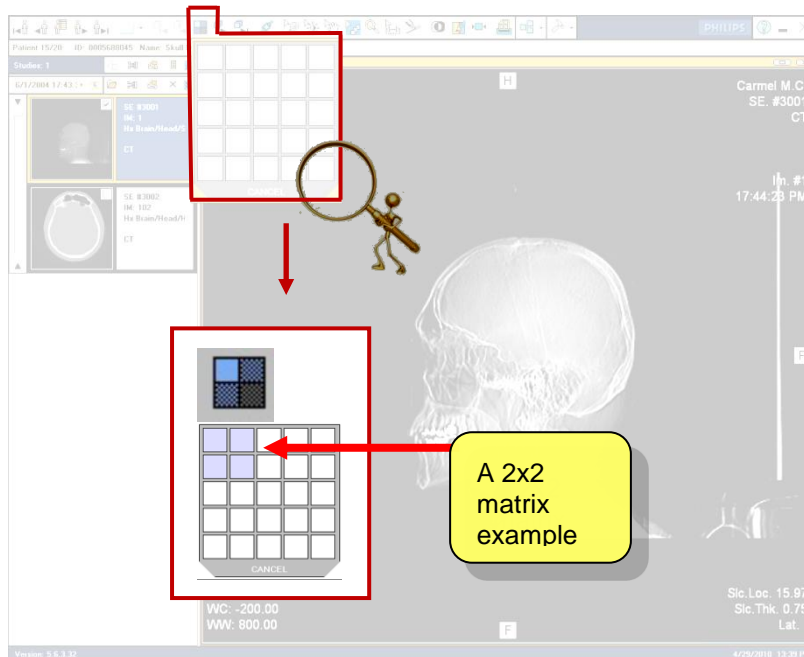



Figure 18: Matrix button

Dragging the bottom either left or right corner of the box changes the matrix size.

Viewing an image in a split window can be done. In such a way, previous images can be tested with the current ones. In order to use this possibility do the following:

Press the button  and select the desired matrix size (see **Figure 18**). For example, if four images are to be displayed in one screen, arranged in two rows and two columns, select the matrix (see **Figure 18**). This is done by selecting both the rows and columns using the mouse. As a result, the images will be arranged as a four image table (**Figure 19**).

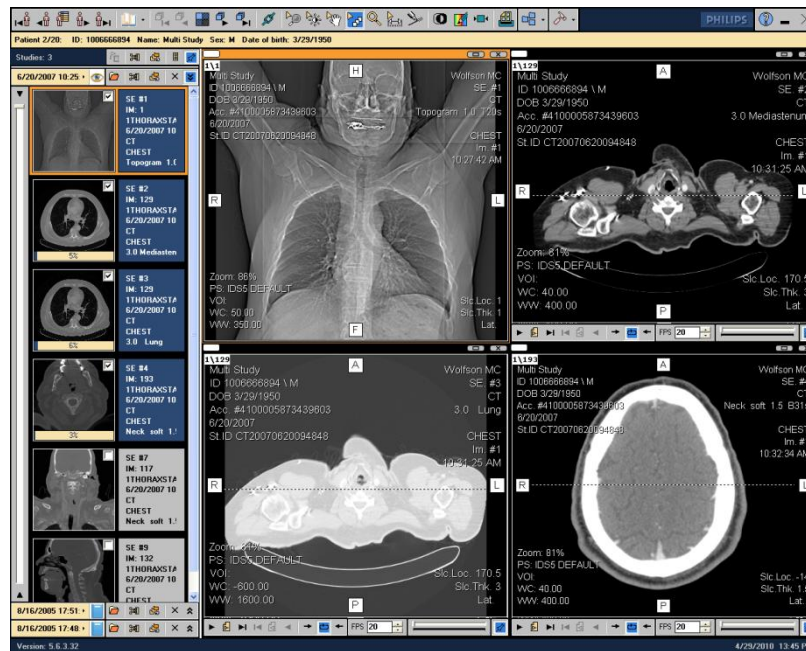




Figure 19: 2x2 matrix image example

Double clicking an image within the matrix maximizes the image over the complete stack window area.

Double clicking again restores the matrix view.

Alternatively pressing the  and  buttons causes a switch between maximize and restore mode of a window.

Pressing the X icon closes the sub window.

12.1.1 Internal Matrix

This option enables to define an internal matrix. Internal matrix can be done for multi- frame stack, and in addition this can be done provided a matrix already exists (**Figure 19**).

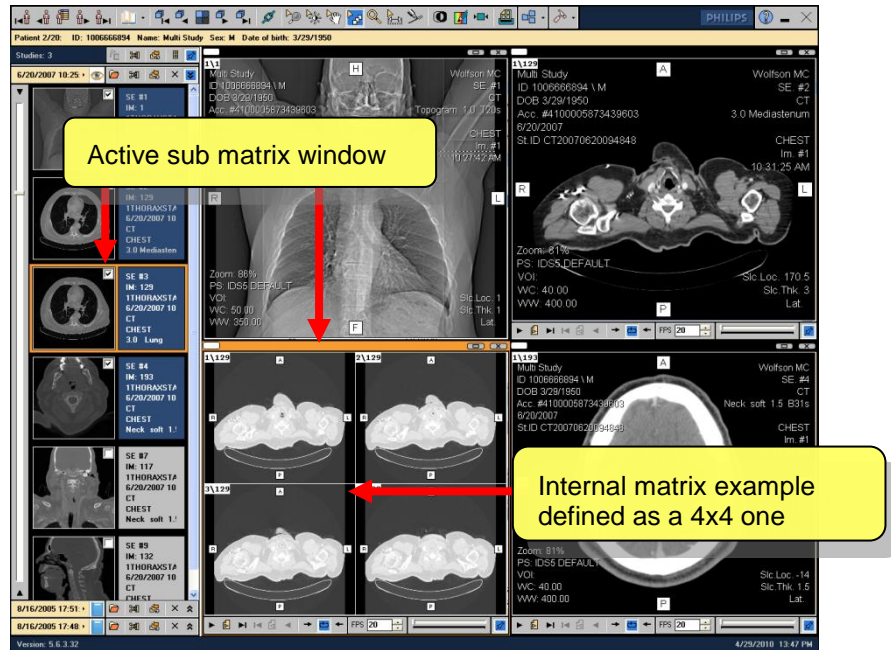


Figure 20: Internal matrix example

This is done according to the following:

Place the mouse on the requested sub matrix window. Note that the active sub matrix window consists of an orange frame around it. Moreover, on the left side of the screen the same image is displayed with a white frame around it as well (as demonstrated in **Figure 20**).

Click the icon (see **Figure 21**) and define the matrix size.

In order to enlarge a specific image on the internal matrix (to the size of the matrix window), place the mouse on the requested one and double click it. Double clicking it once again, causes the original internal matrix to be displayed.

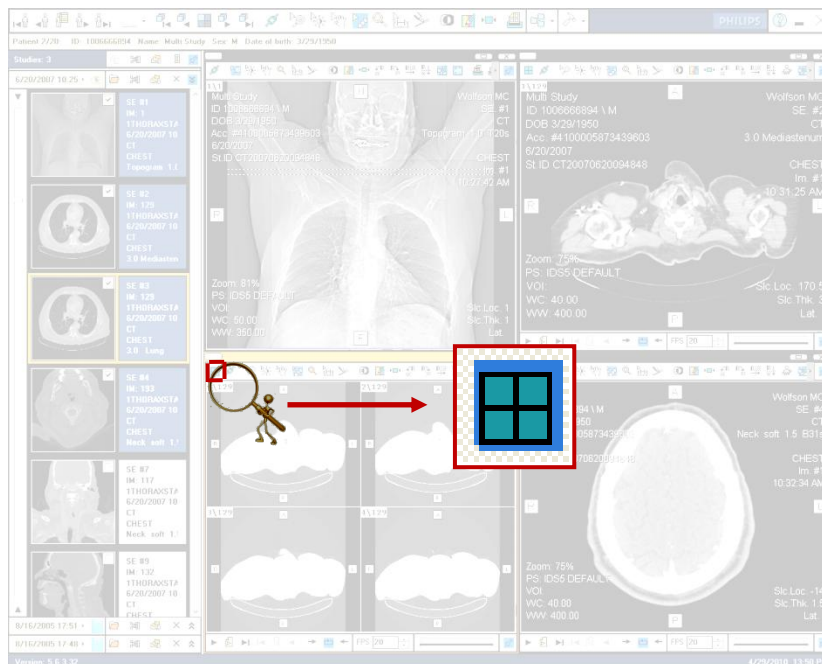


Figure 21: Internal Matrix icon location

The size of an internal matrix can be changed according to the following:

Right click on multi-frame image (**Figure 21**). Select the Matrix option.
Figure 22 and **Figure 23** are displayed. Drag the bottom either to the left or to the right corner of the box changes the matrix size.

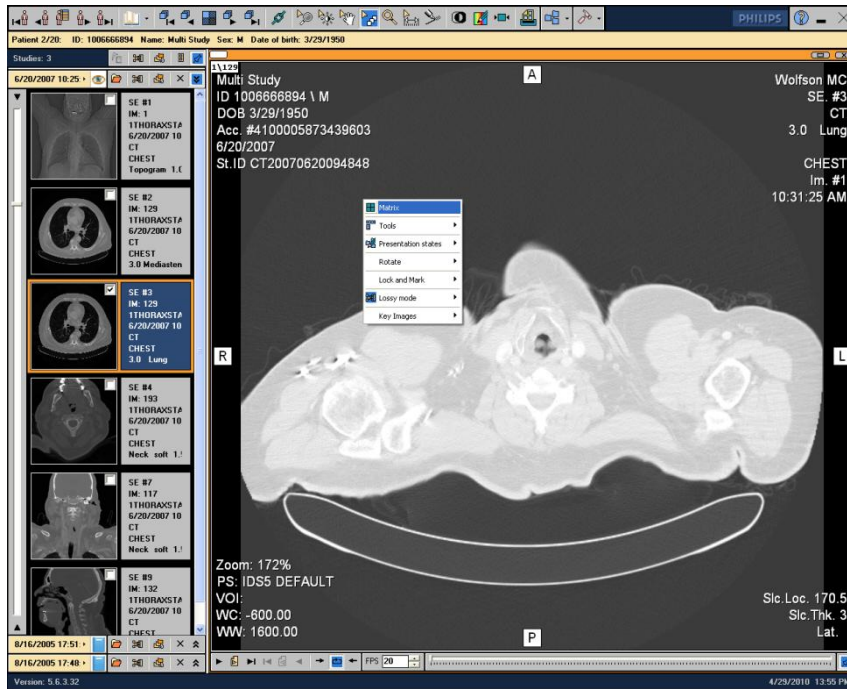


Figure 22: Right click of multi-frame image options

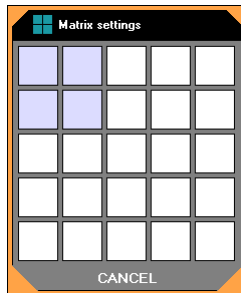


Figure 23: Internal matrix size

12.2 Image Stack location on Matrix

This option enables placing a selected image elsewhere in an existing matrix.

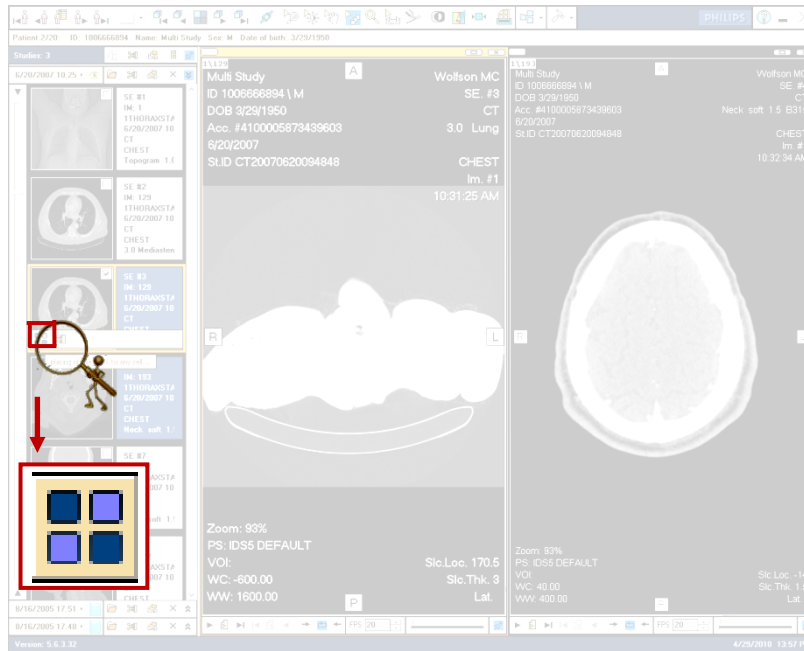


Figure 24: Placing Matrix on any cell icon location

Click this icon (Figure 24) to place the selected image on a different location on an existing matrix. This is done by the following:

Place the mouse on the bottom of a requested stack preview. An icon bar consisting of two icons is seen (see Figure 24). Click the left one.

An indication of the matrix is displayed (see Figure 25).

Select the location in the matrix indication and this position is marked in black. Click the desired new location and the matrix images change accordingly.

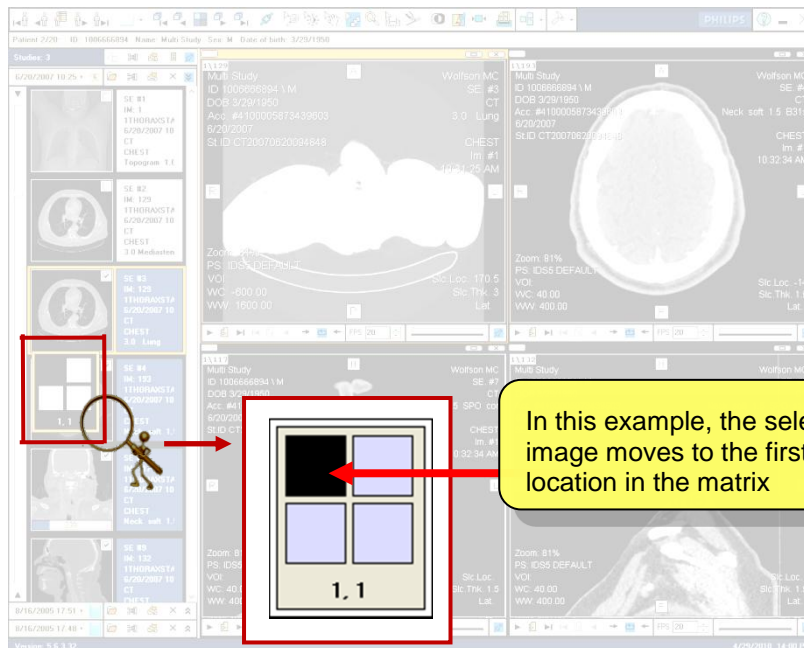



Figure 25: Indication matrix location

It is possible to update the image location according to the following:



Use  icon to move a selected image to an updated location on the matrix.

Click the mouse on the requested stack preview image and drag it to the desired location on the matrix.

Place the mouse on the requested sub matrix window and drag the requested image to the desired location on the matrix. Note that the active sub matrix window consists of an orange frame around it. Moreover, on the left side of the screen the same image is displayed with an orange frame around it as well.

13. Viewing Options

This chapter consists of options regarding viewing images.

13.1 Presentation State

This button enables you to apply a presentation state to an image.

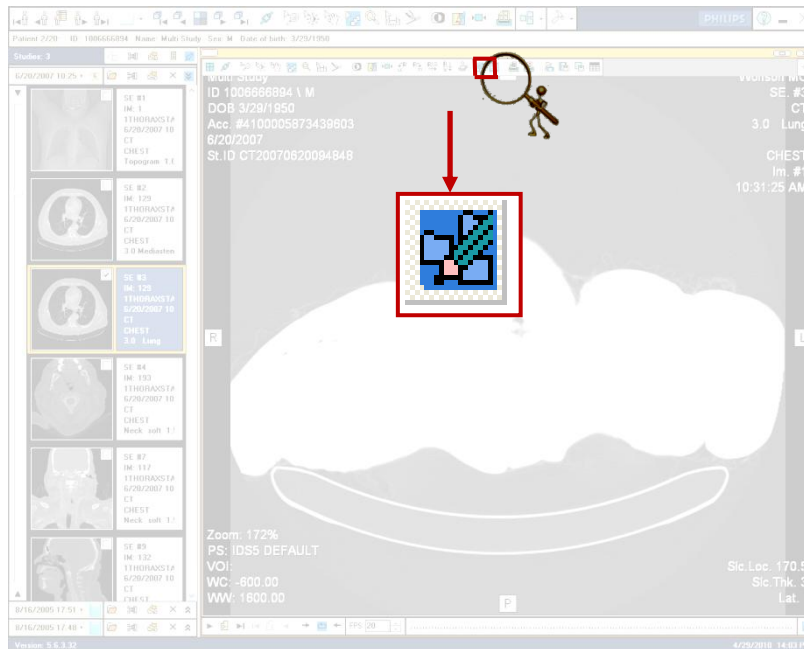


Figure 26: Presentation State icon image location

This option (Figure 26) can also be reached by right-clicking (Figure 27).

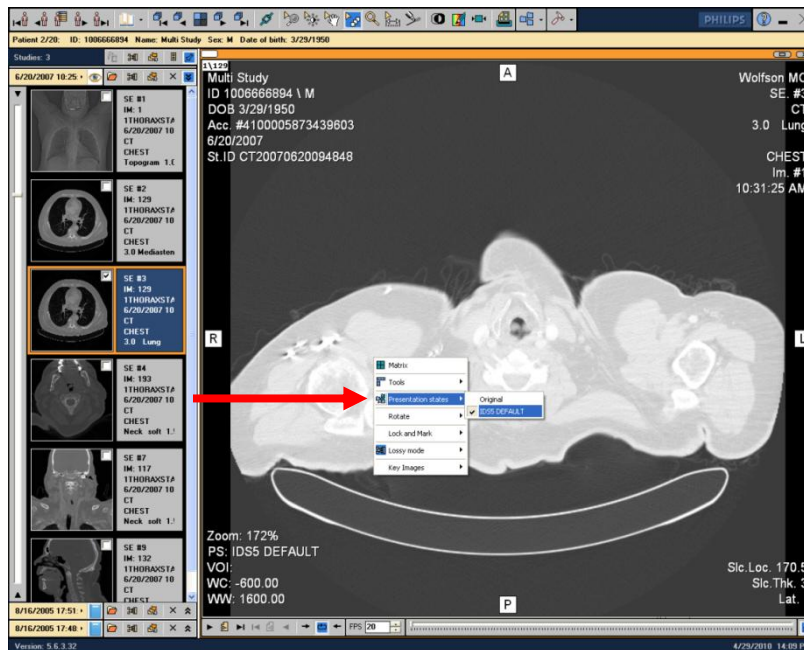


Figure 27: Presentation State via right click

This selection enables the user to define how to present an image. This option appears only when presentation states are available in the DICOM file.

NOTE: Some Presentation states can be defined for one stack.

13.2 Lossy Mode

This option causes an image to be in Lossy mode.

This option can be reached using the following possibilities (refer to the relevant option):

[Stack](#)

[Study](#)

[All Studies](#)

Per Stack

Option number 1: right-click the mouse located on an image and select **Lossy mode > Set Lossy Stack** option (Figure 28).

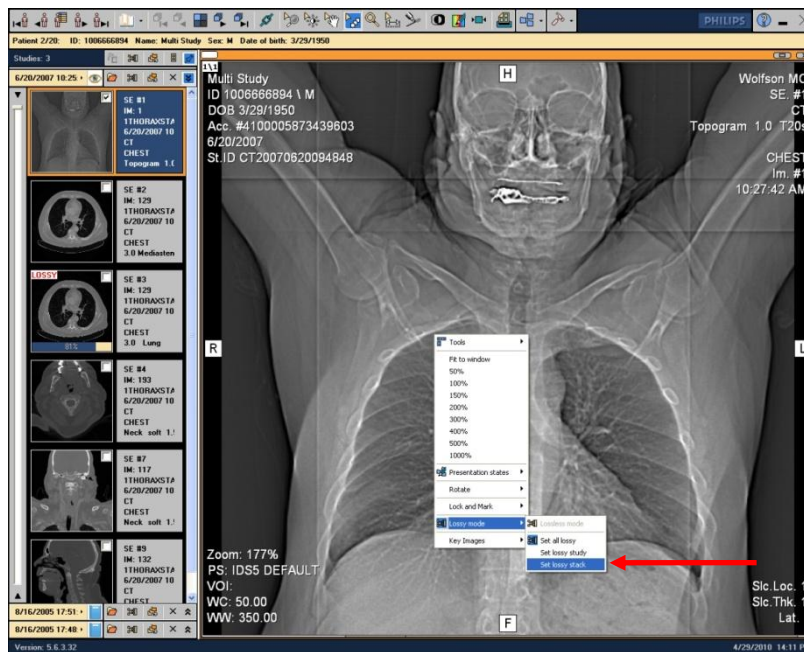


Figure 28: Set Lossy Stack option via right click

Option number 2: Place the mouse on the bottom of a requested stack preview image. An icon bar consisting of two icons is seen (see Figure 29). Click the **Set Lossy mode** one.

Place the mouse on the bottom of a requested stack preview image. Click the **Set Lossless mode - Set Lossless Mode** to the current stack.

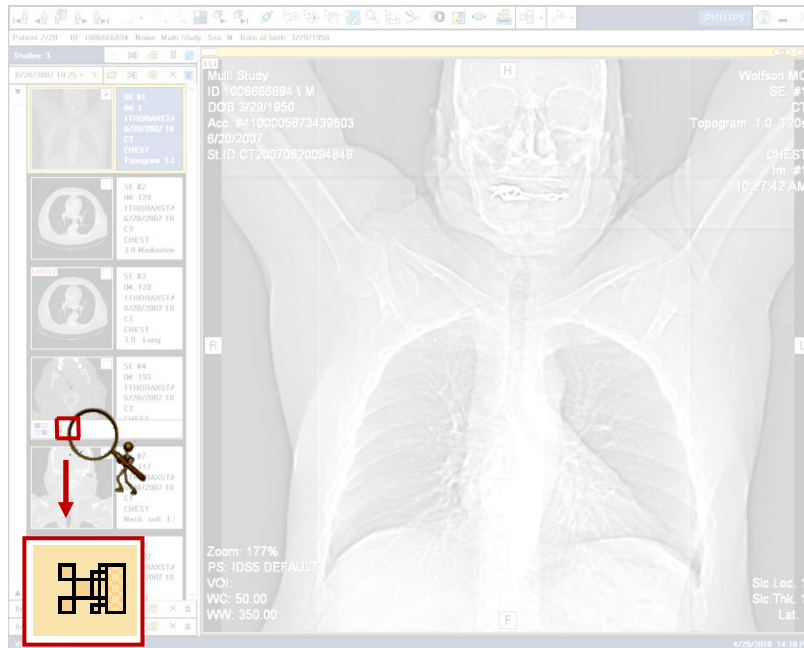


Figure 29: Set Lossy mode option per stack icon location

Per Study

Choose the requested selection:

Right-click on an image and select the following option – **Lossy mode > Set Lossy Study**. Define Lossy option to the stacks of images in a specific study.

Click the icon seen in **Figure 30**

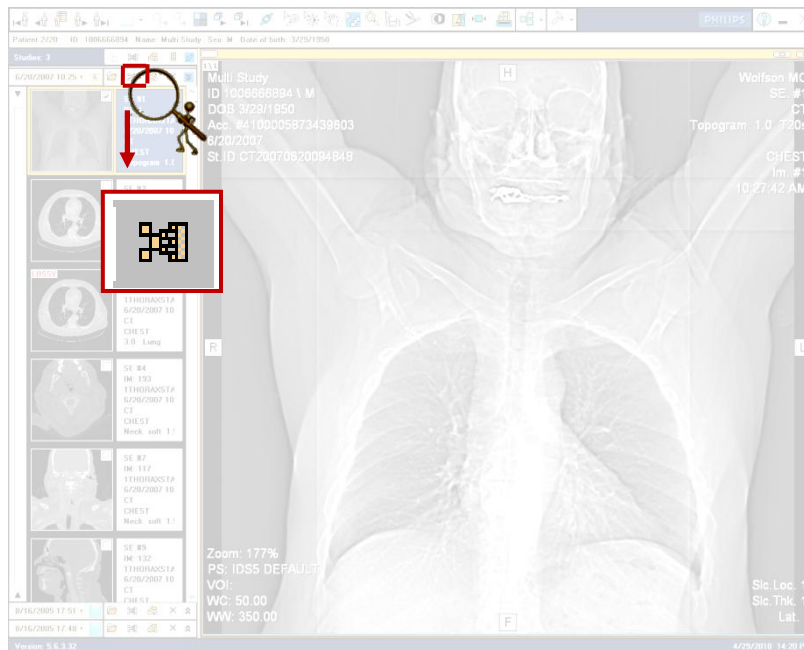


Figure 30: Set Lossy Compression to the study icon location

After selecting this option, **Figure 31** appears.

Figure 31 Click the **OK** button to confirm stack initialization. Otherwise, click the **Cancel** button.

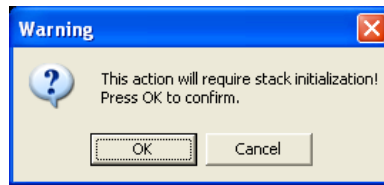


Figure 31: Stack Initialization confirmation window

Click **Set Lossy Compression** to the study icon once again.

Right-click on an image and select **Lossy mode > Lossless mode** option - Set **Lossless Mode** to the current study.

After selecting this option,

Figure 31 appears. Click the **OK** button, to confirm stack initialization.

NOTE: Stack Initialization message (**Figure 32**) appears if **Lossy Compression Usage** options are marked (this is done by marking: **Options > Preferences > Performance > Lossy compression usage** options, in **MDC PACS Client** screen (see **Figure 33**).

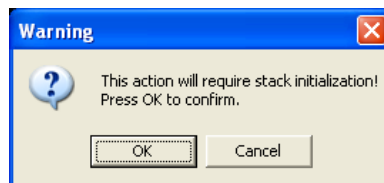


Figure 32: Stack Initialization confirmation window

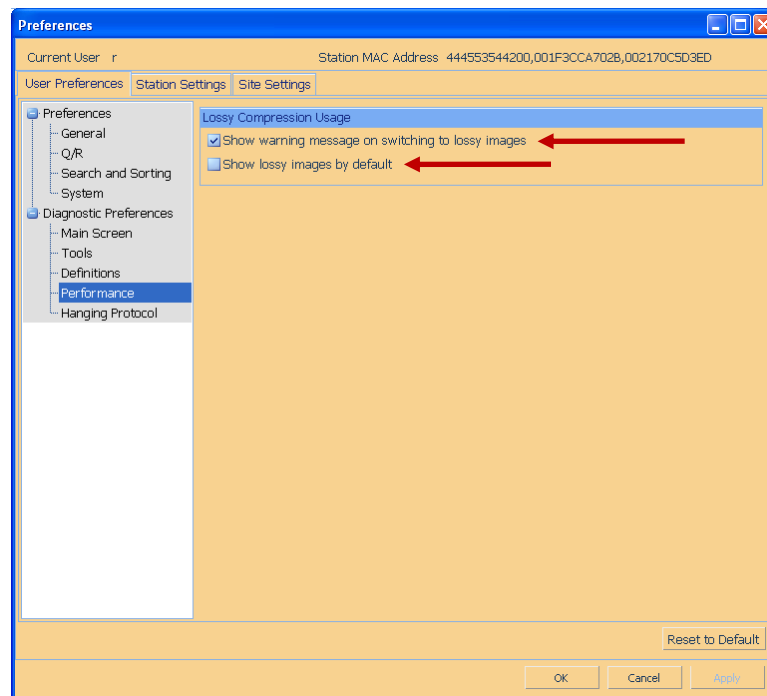


Figure 33: Lossy Compression Usage options

Per All Studies

Choose the requested selection:

Right-click the mouse located on an image and select the following – **Lossy mode > Set all Lossy**: Define Lossy mode to all studies.

Click the button shown in **Figure 34**.

After selecting this option,

Figure 31 appears. Click the **OK** button, to confirm stack initialization. Otherwise, click the **Cancel** button.

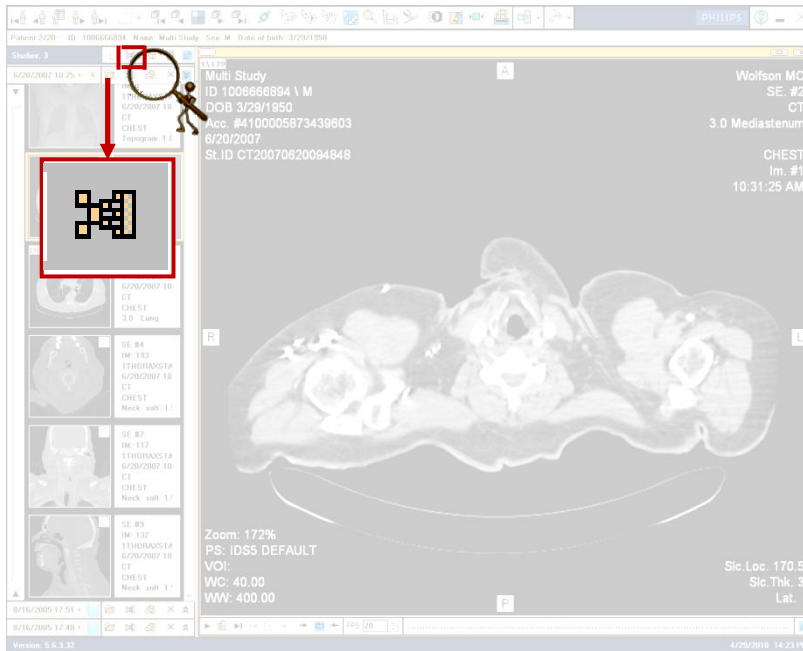


Figure 34: Set Lossy Compression to the all studies icon location

Click **Set Lossy Compression to the all studies** icon once again.

Right-click the mouse located on an image and select **Lossy mode > Lossless mode** option - **Set Lossless Mode to the all studies**.

After selecting this option, **Figure 31** appears.

Figure 31 Click the **OK** button, to confirm stack initialization.

NOTE: Whenever **Lossy mode to all studies** icon is set and **DiagNET** is open for another patient, causes all his studies to be in Lossy mode.

Once this option is done, the image is marked with a **LOSSY** caption both in the top left side of the selected image and on the image itself when viewed (see **Figure 35** for example).

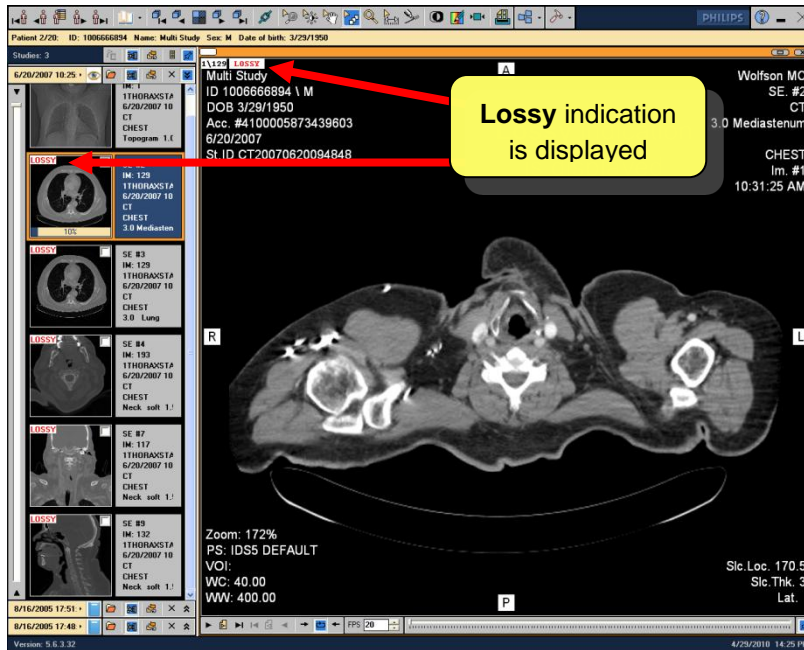


Figure 35: LOSSY caption example

NOTE: Lossy mode is for quick access purposes and does not serve as a diagnostic tool

13.3 Show DICOM Information

This option enables to view information regarding DICOM file.

When you click this button DICOM information is displayed (Figure 36).

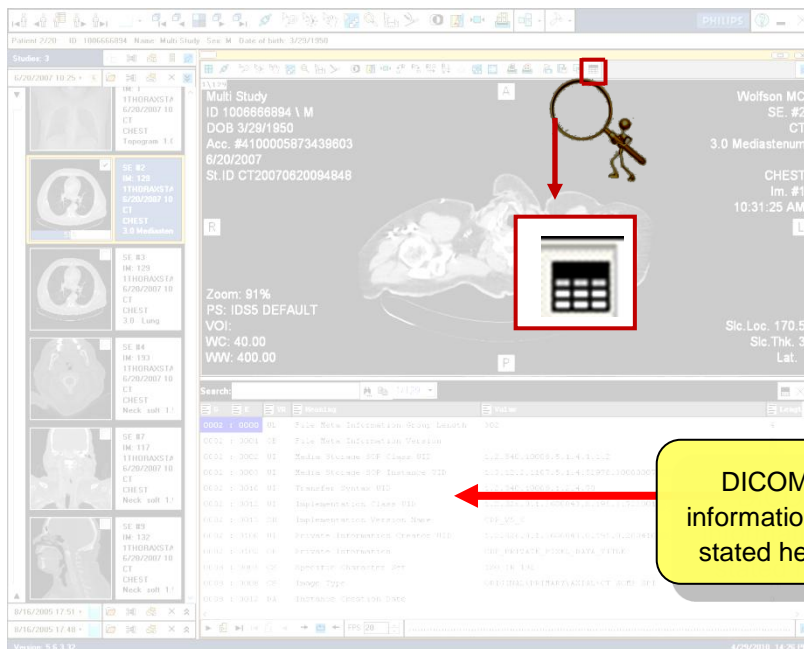


Figure 36: Show DICOM Info icon location

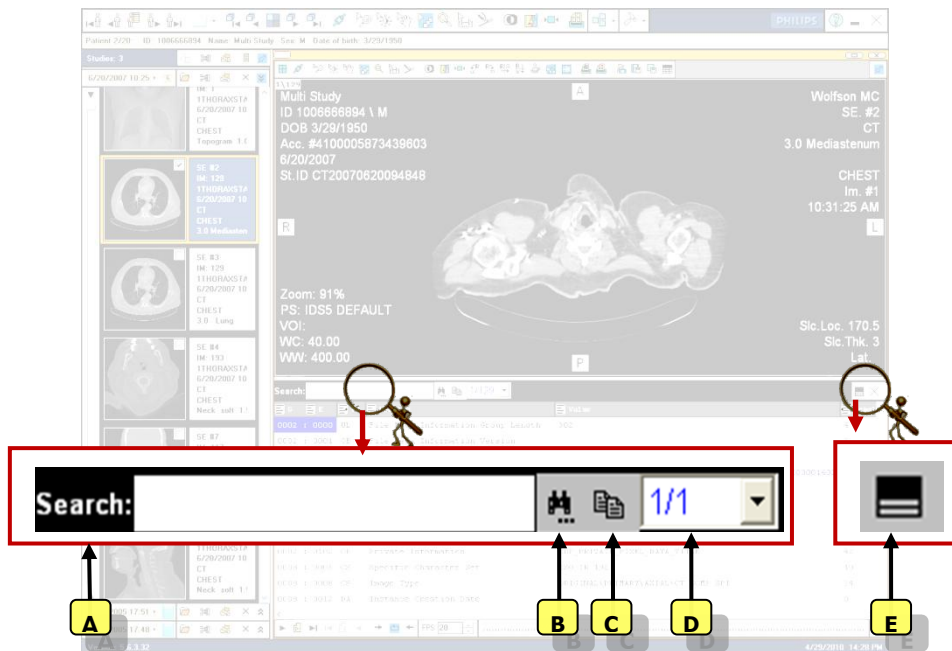


Figure 37: DICOM Info icons

The DICOM information part consists of the following icons (see **Figure 37**) explained in alphabetic order:

- A** **Search** field: insert relevant text to search through the information displayed below.
- B** **Search Next** icon: click it to view the next time the text inserted in Search field is seen in the information displayed below.
- C** **Copy** icon: copy relevant information. Usually is used when search is needed.
- D** **Image number** field: states the current image number out of the total images. For example, image number 1 displayed out of 3 images will be seen as: '1/3'.
- E** **Expand Info** icon: click this to enlarge the DICOM information stated below the image (see **Figure 38**).

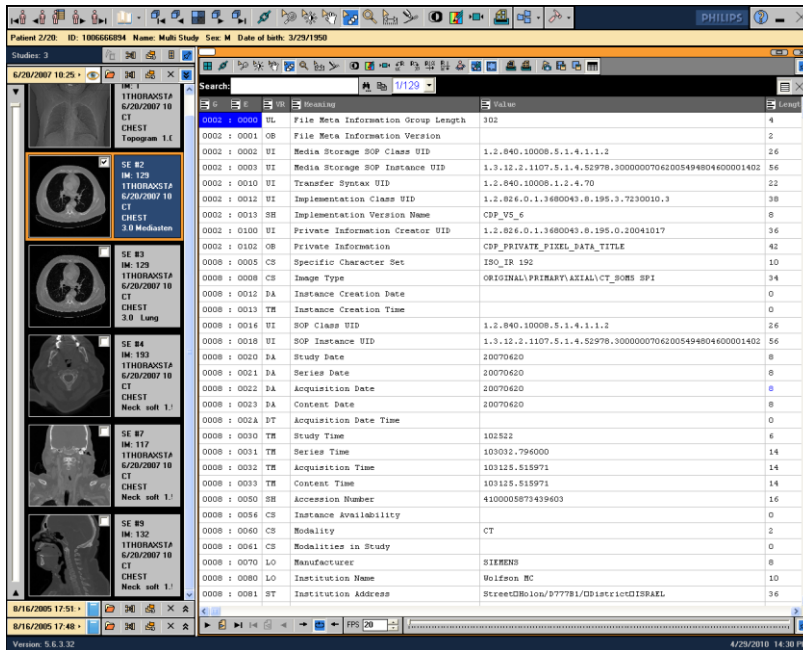


Figure 38: Expand Info icon result

It is possible to cause the DICOM information to be displayed automatically by marking: **Options > Preferences > Main screen > Show content of DICOM header** option, in **MDC PACS Client** screen (see Figure 39).

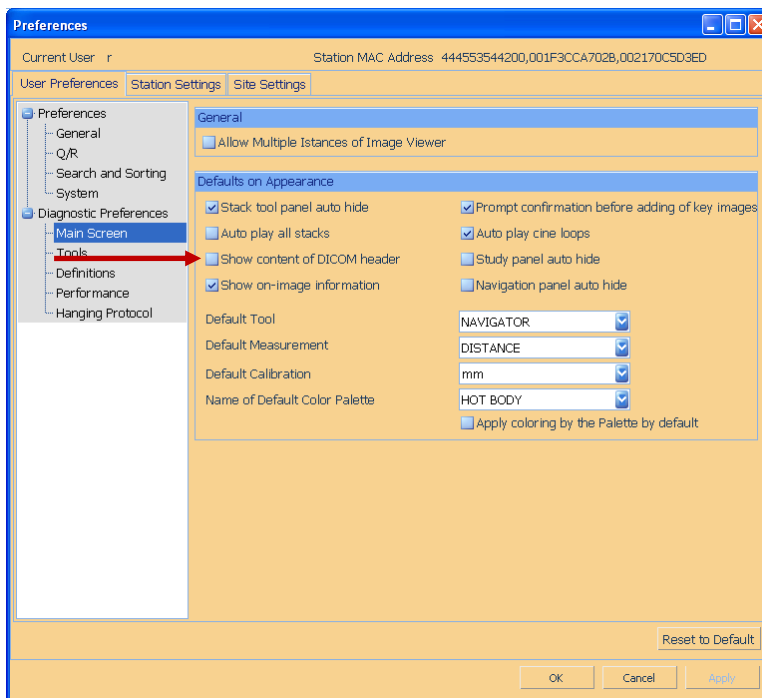


Figure 39: Show content of DICOM header

14. Image Processing Tools

This chapter describes image manipulation tools, such as: zoom, and pan.

14.1 Zoom

This option enables zooming images.

There are two **Zoom** buttons:

Screen - **Figure 40**

Image - **Figure 41**

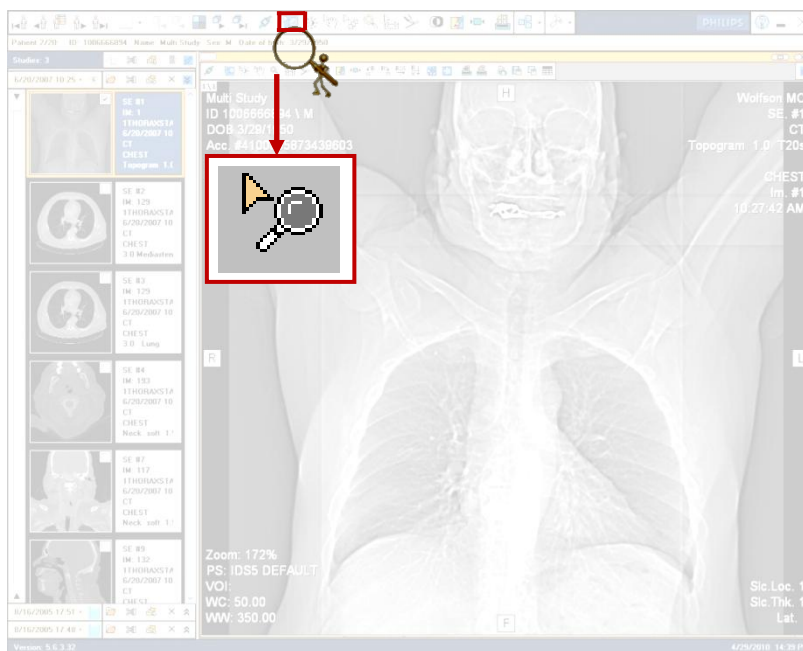


Figure 40: Zoom icon screen location

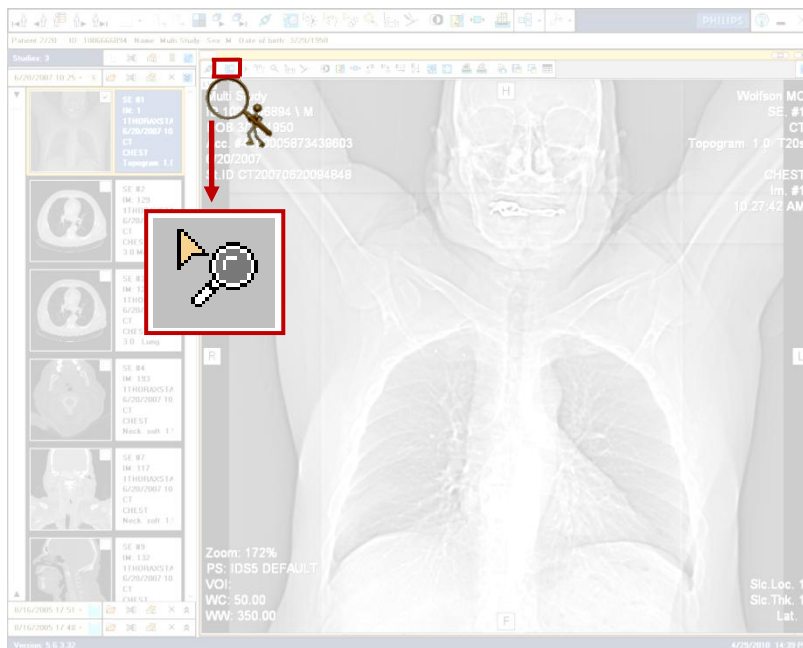


Figure 41: Zoom icon image location

It is possible to define the zoom percentage every image begins with. This is performed by selecting this percentage from the drop down list of **Zoom** option by going to: **Options > Preferences > Tools > Zoom** option, in **MDC PACS Client** screen (see **Figure 42**).

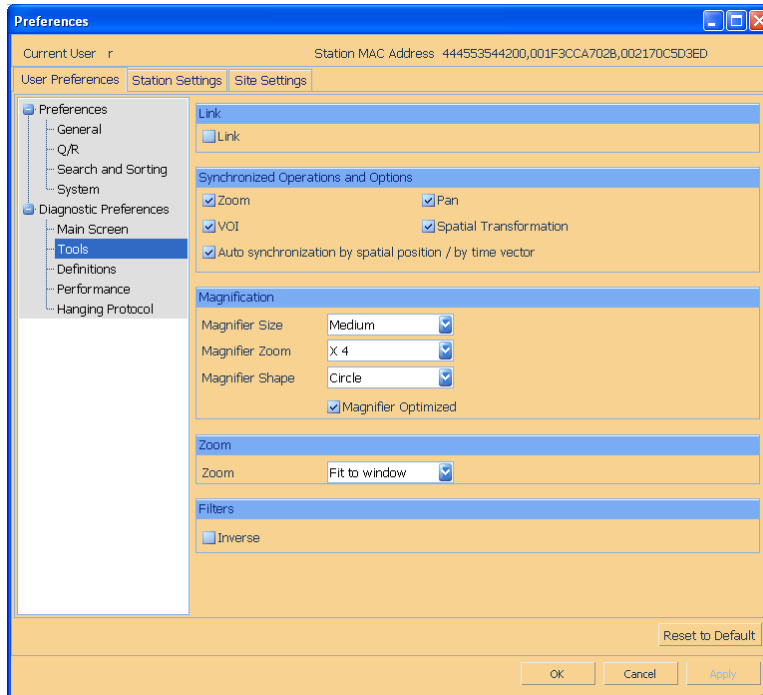


Figure 42: Zoom option selection

Click this icon to zoom a specific item in an image as follows:

Select the required image to be displayed.

Click the icon ()

Click and hold the left button of the mouse.

Drag the mouse towards up – the image zoom increases (**Figure 43**). Drag the mouse towards down – the image zoom decreases (**Figure 44**). It is possible to use Ctrl + Mouse wheel for this purpose as well.

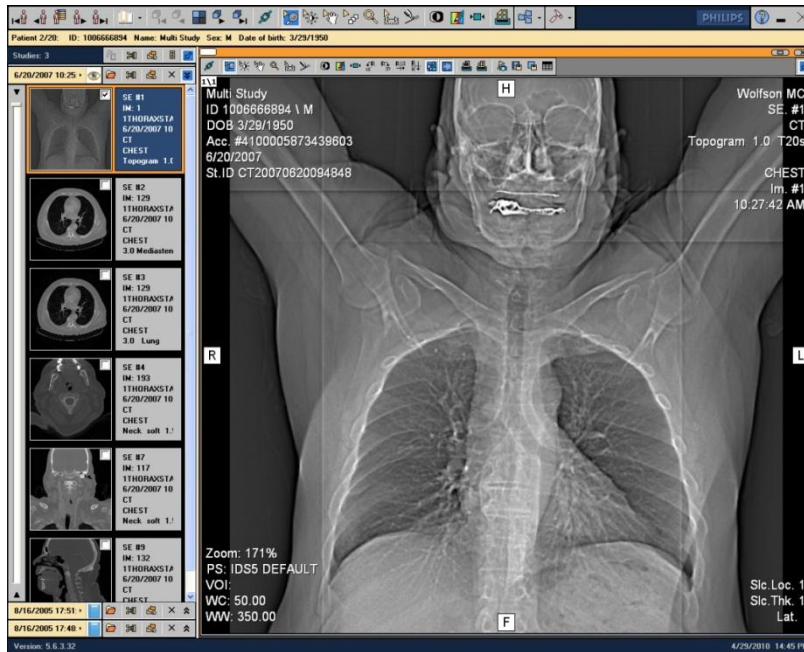


Figure 43: Zoom icon – example number 1

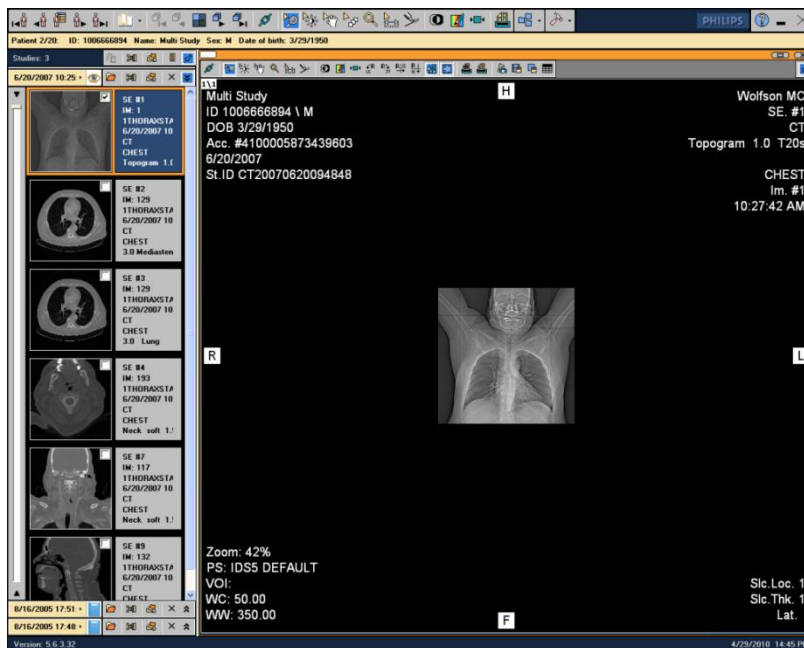


Figure 44: Zoom icon - example number 2

Using **Zoom** option can be reached by using right click mouse on the selected displayed image (see **Figure 45**). Another possibility is using right click mouse for fixed options selection of zoom (see **Figure 46**).

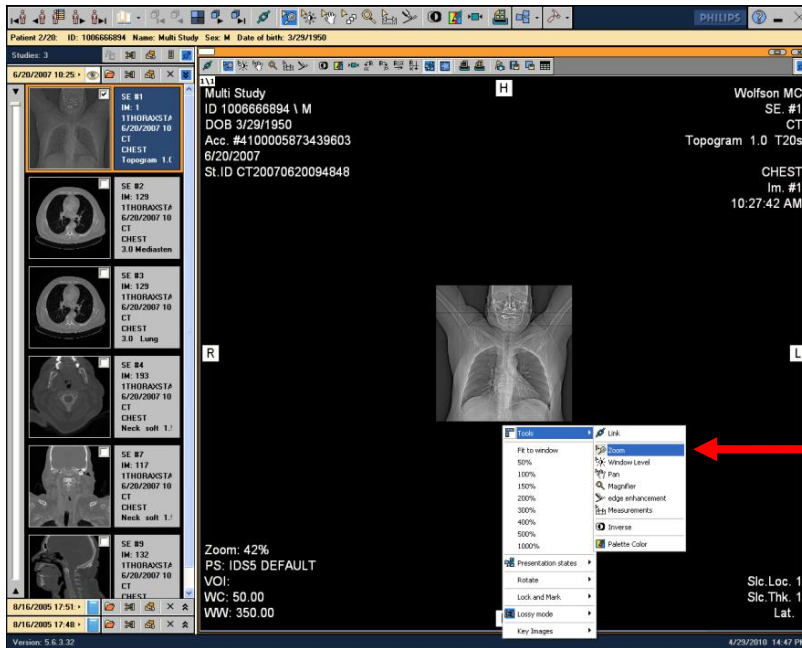


Figure 45: Zoom option using right click

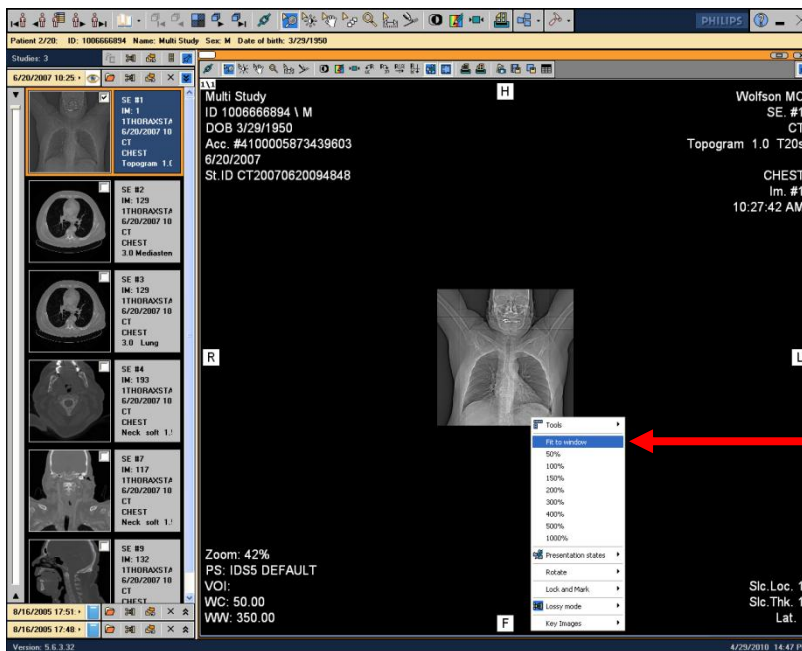


Figure 46: Another Zoom option via right click

14.2 Window Level Control

This option enables to change the Window Level of an image.

There are two locations of **Window Level Control** icons:

Screen - Figure 47

Image - Figure 48

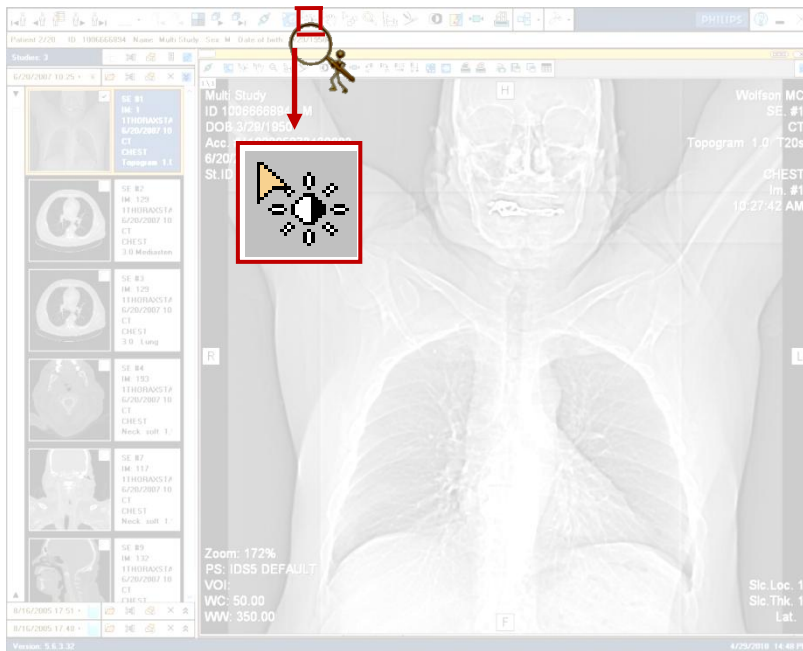


Figure 47: Window Level Control icon screen location

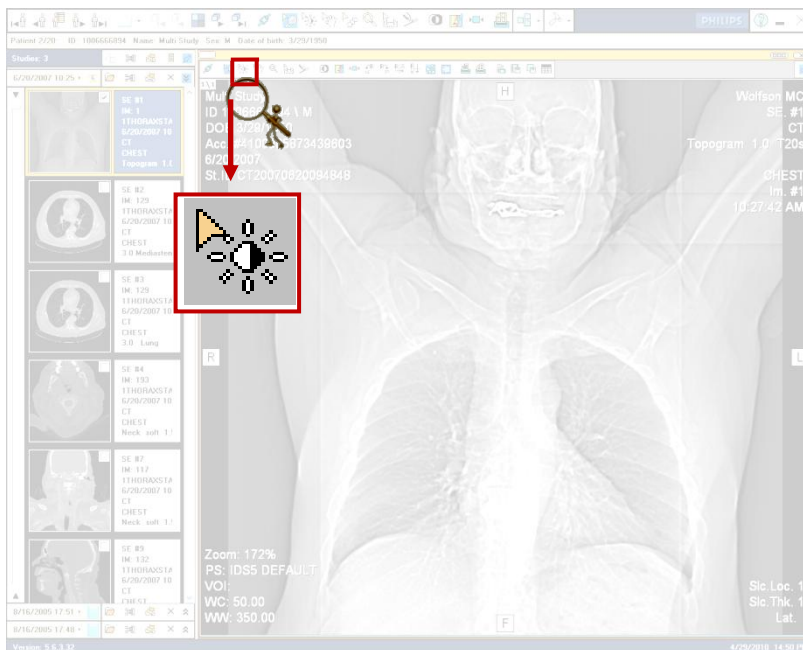


Figure 48: Window Level Control icon image location

Click this icon to change the Window Level as follows:

Choose the requested image to be displayed.

Click the icon ()

Click and hold the left button of the mouse.

Drag the mouse downwards – the image darkens (Figure 49). Drag the mouse upwards – the image brightens (Figure 50).

Press and hold the left mouse button over the image: Drag the mouse left/right – the width of the image LUT changes. Drag the mouse up/down – the center of the image LUT changes.

NOTE: Pressing the mouse wheel and dragging it produce the same result regardless of the selected tool.

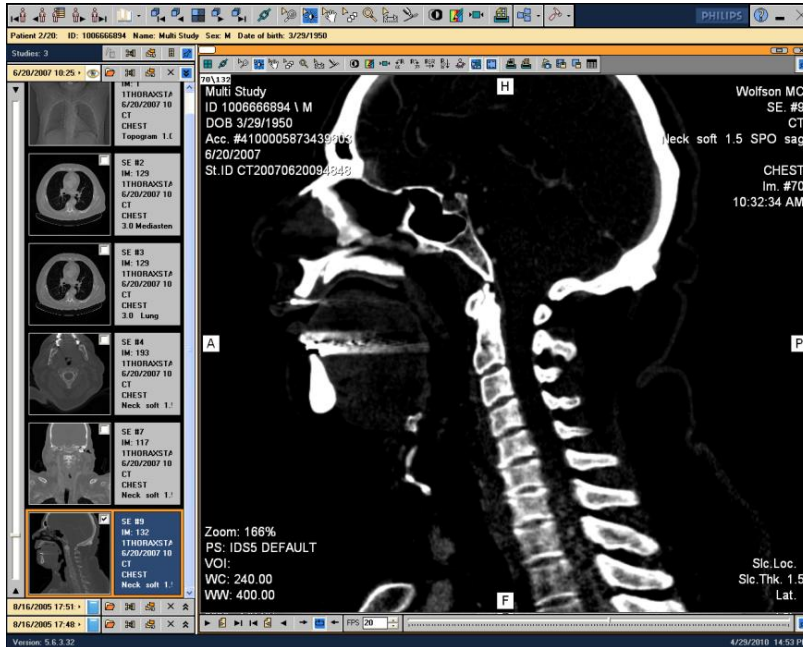


Figure 49: Dark image example

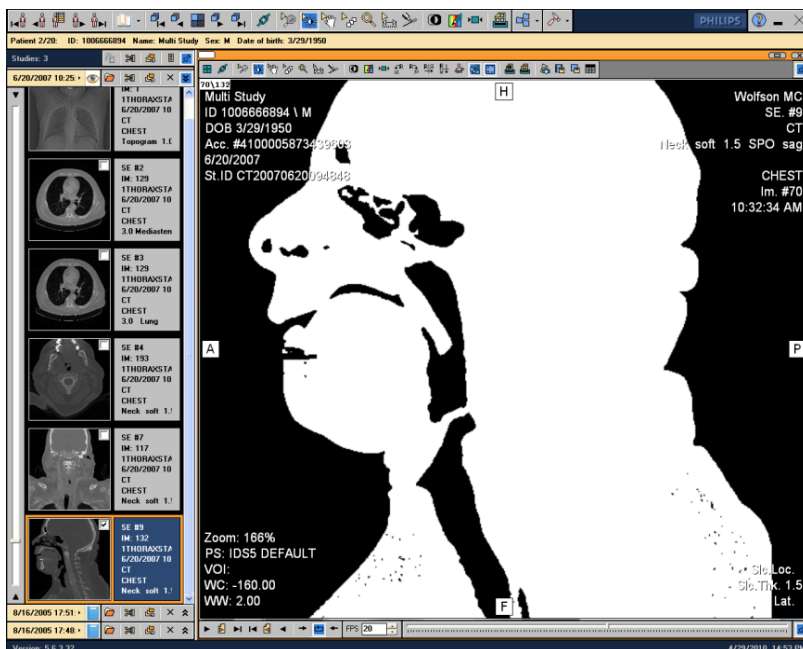


Figure 50: Bright image example

When Window Level icon is active, right clicking the mouse enables to select **Full range** (see

Figure 51).

Pressing **F5** key from the keyboard sets the **Full Range** option.

To use the **Window Level Control** option right-click on the selected image (**Figure 52**).

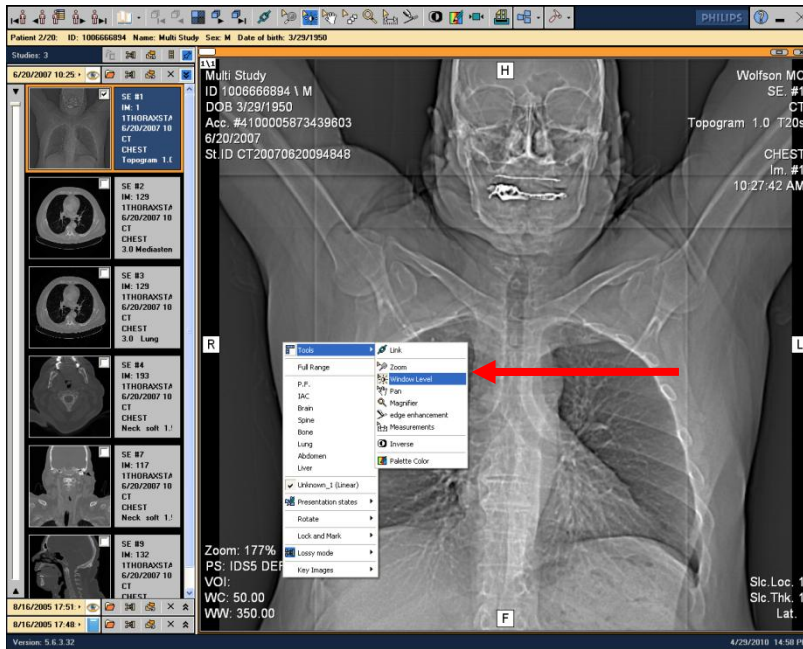


Figure 51: Window Level Control via right click

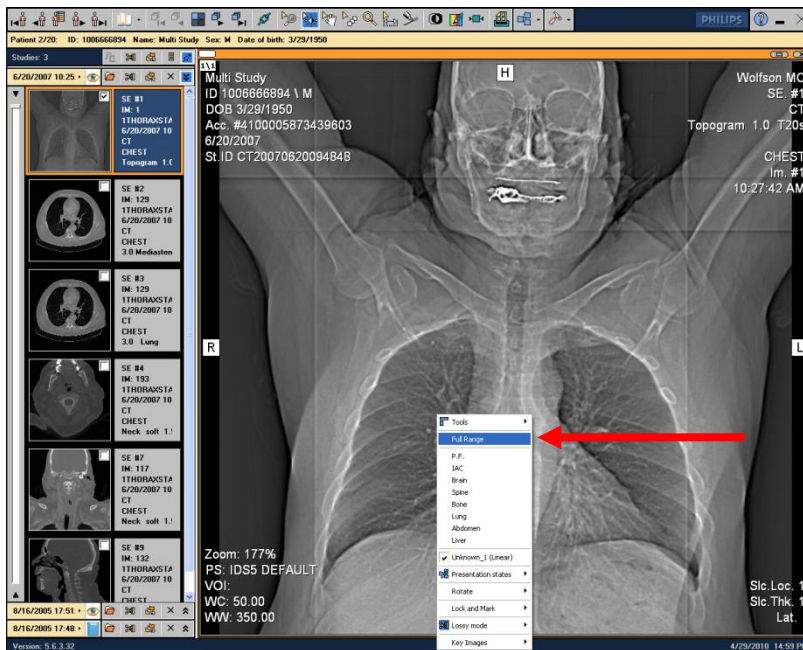


Figure 52: Full range option

14.2.1 Window Level Presets

The user can select from the drop list preconfigured presets for Center and Width values (see **Figure 53** for example).

Pressing **F6** key from the keyboard cycles through the available Window Level presets.

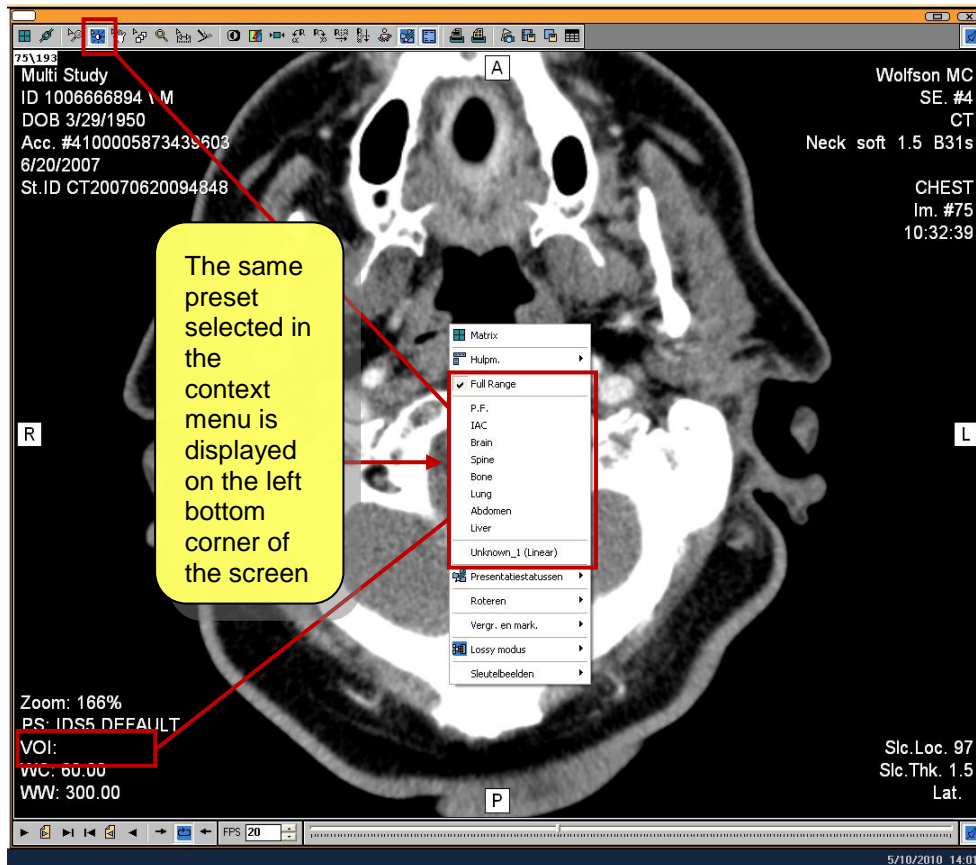


Figure 53: Window Level presets example

14.3 Pan

This option enables to move images to different locations on their image screen.

There are two **Pan** icons:

Screen - **Figure 54**

Image - **Figure 55**

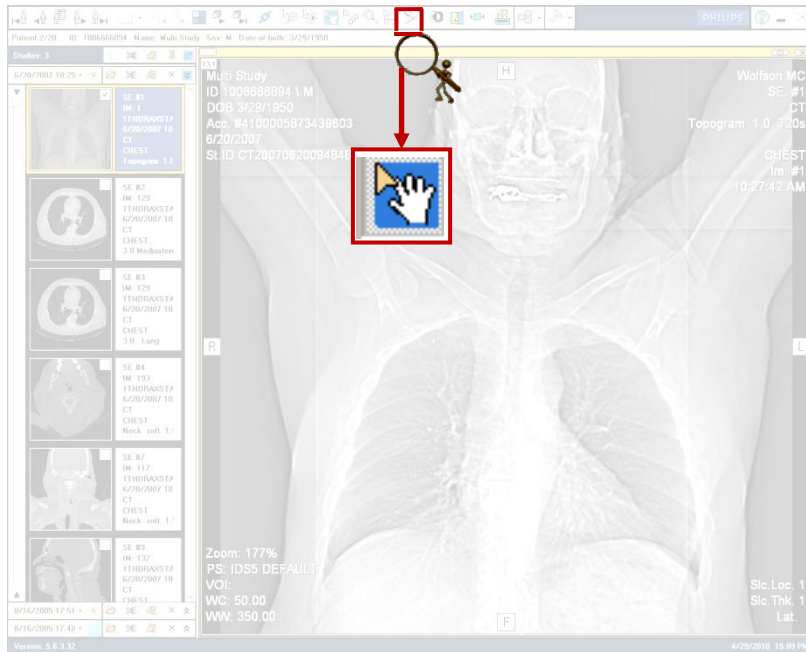


Figure 54: Pan Icon screen location

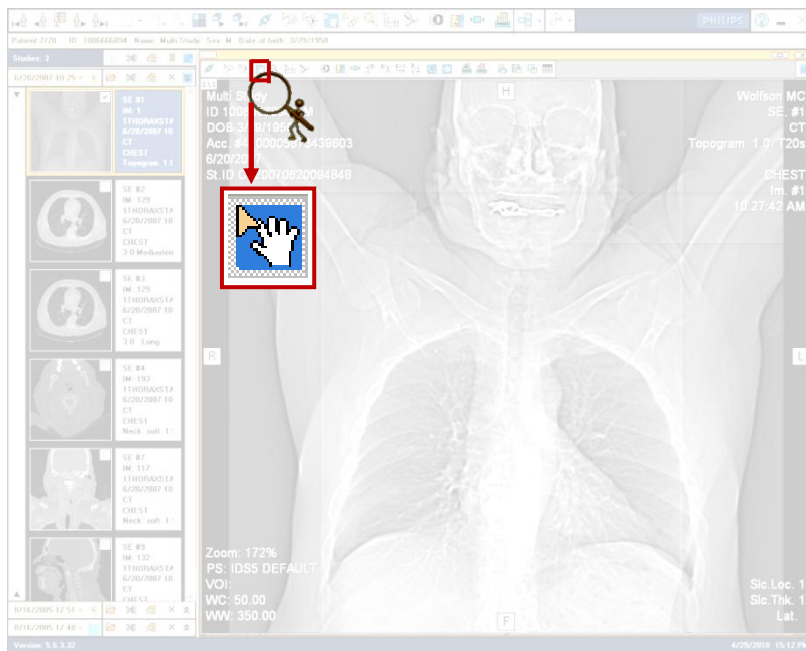


Figure 55: Pan Icon image location

Click this icon to move the location of the image in the screen. This is done according to the following:

Select the required image to be displayed.

Click the  icon.

Click and hold the left button of the mouse.

Drag the mouse to a desired location. The image moves in the same direction as the mouse (see **Figure 56** for example).

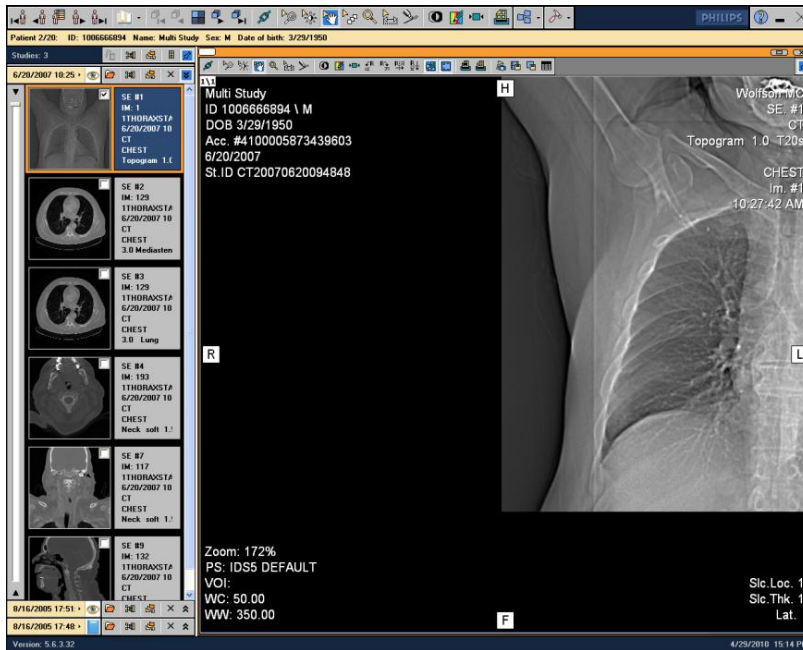


Figure 56: Pan icon image example

When [Linking](#) two (or a few images) images and using the **Pan** function, you can do the following:

Moving the images in the same direction (Figure 57 for example).

Moving the images in the opposite direction (such as in Figure 58).



Figure 57: Moving the images to the same direction example

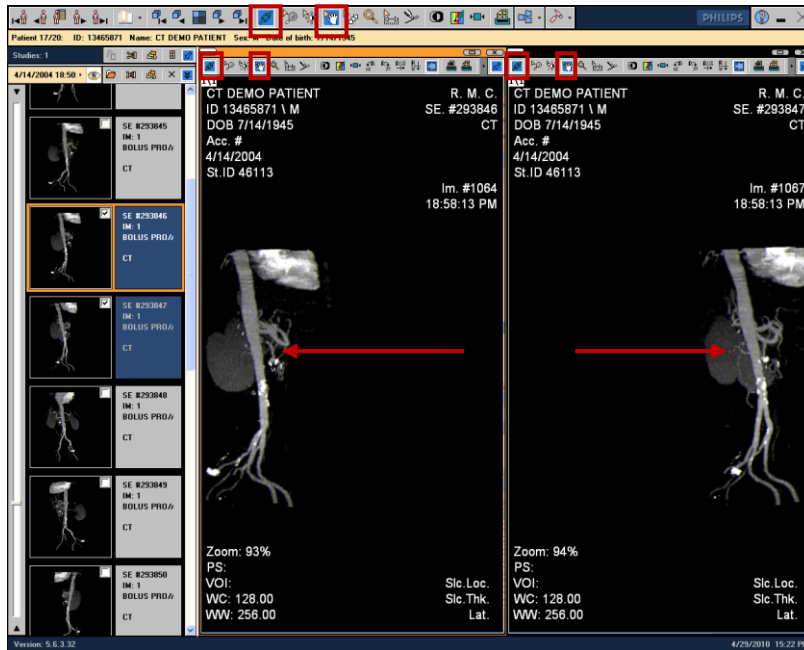


Figure 58: Moving the images to opposite directions example

When the **Pan** icon is active, you can right-click and select horizontal **opposite panning** (see **Figure 59**). Pressing **[shift]** key while dragging the mouse also results in horizontal opposite panning. This option can be used for linked stack images in **Matrix** mode.

NOTE: Opposite panning operates only in [link](#) mode.

NOTE: Opposite panning is relevant to Mammography images.

Using the **Pan** option can be reached by using right click mouse on the selected displayed image (see **Figure 59 - Figure 60**).

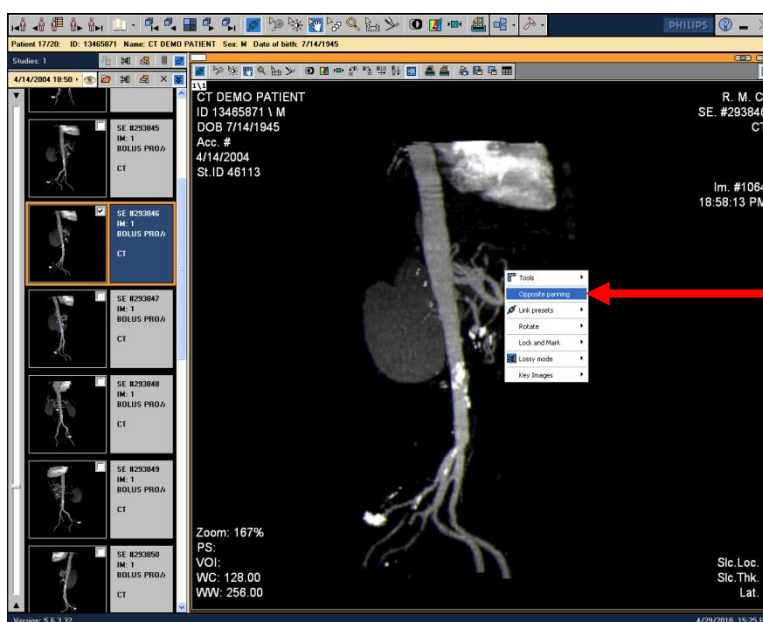


Figure 59: Opposite panning option

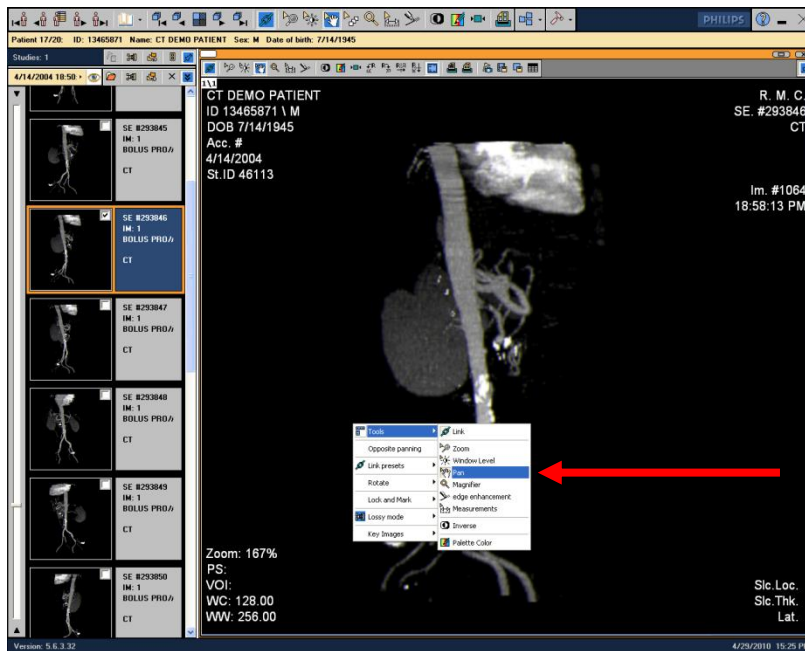


Figure 60: Pan option via right-click menu

14.4 Magnifier

This option enables you to enlarge specific areas in an image.

There are two **Magnifier** icons:

Screen - **Figure 61**

Image - **Figure 62**

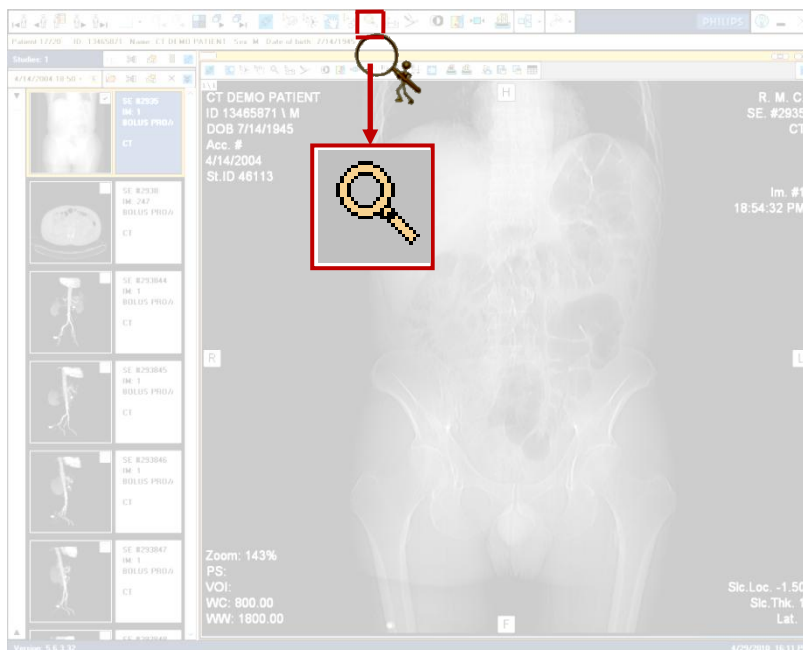


Figure 61: Magnifier icon screen location

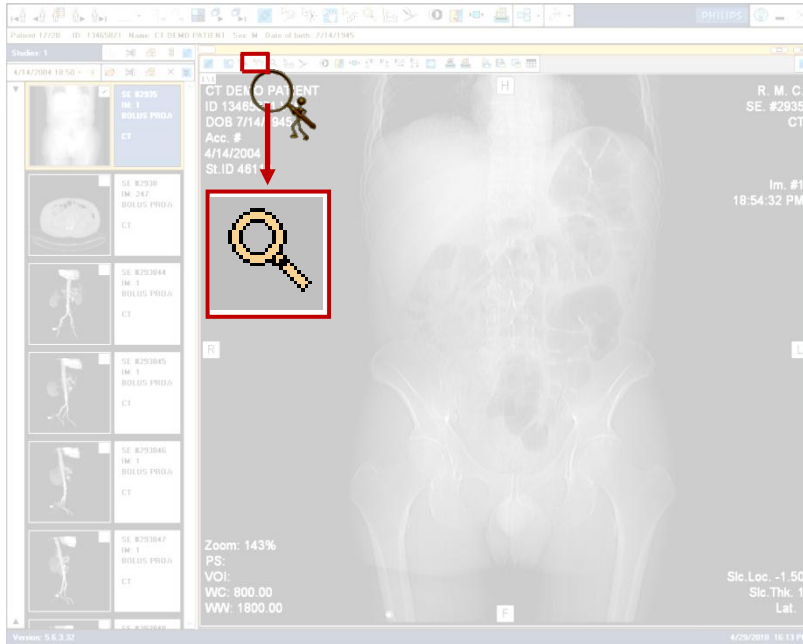



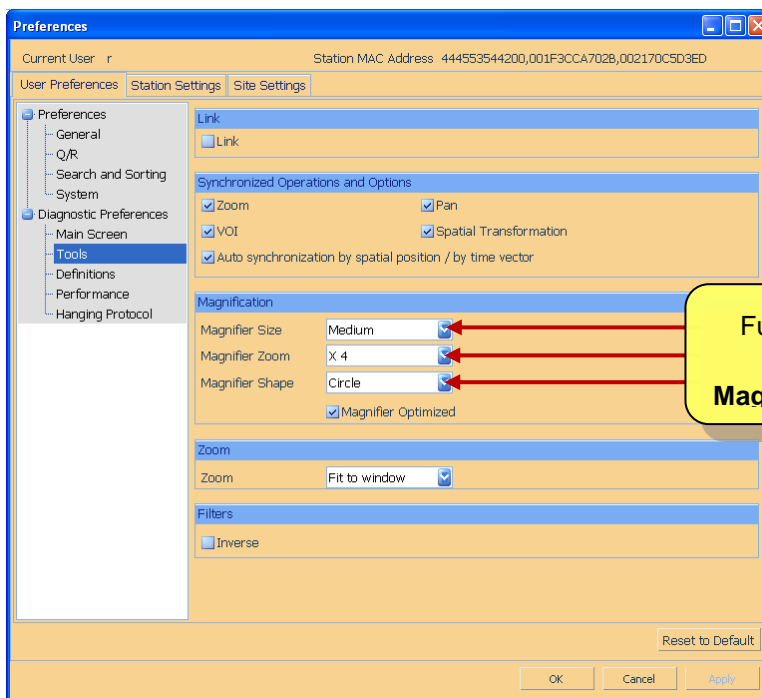
Figure 62: Magnifier icon image location

Click this icon to enlarge different locations on the image. This is done according to the following steps:

Select the required image to be enlarged.

Click the  icon until a magnifier shape appears (as defined in: **Options > Preferences > Diagnostic Preferences > Tools**, in **MDC PACS Client** screen – see **Figure 63**). In addition, you can define the size, zoom and shape units of the magnifier.

Drag the magnifier shape using the mouse to a required location on the image (see **Figure 64** for example).



Further options regarding **Magnifier** definition

Figure 63: Magnifier Shape definition screen

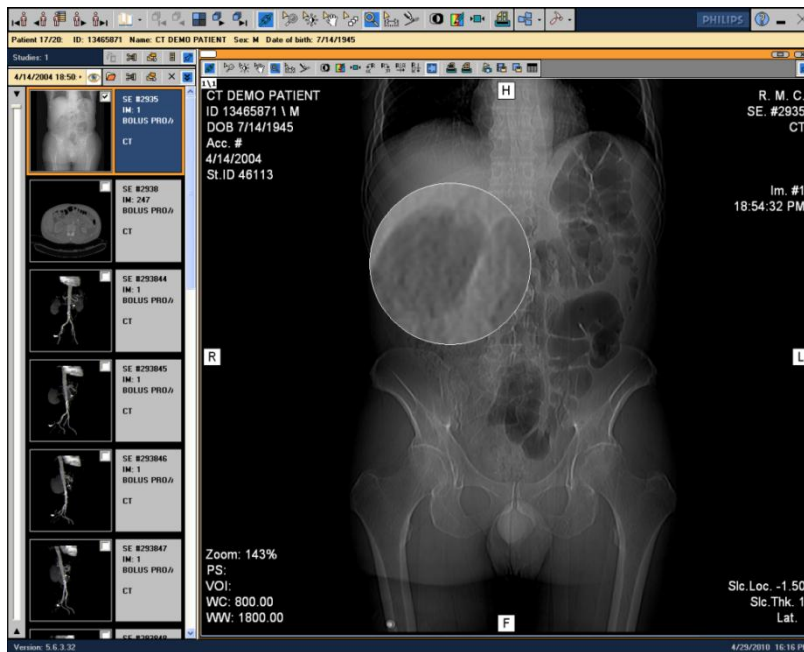


Figure 64: Magnifier example

When **Magnifier** icon is active, right clicking the mouse enables to select the requested size and Magnification factor, size and shape (see **Figure 65**). Using **Magnifier** option can be reached by using right click mouse on the selected displayed image (see **Figure 66**).

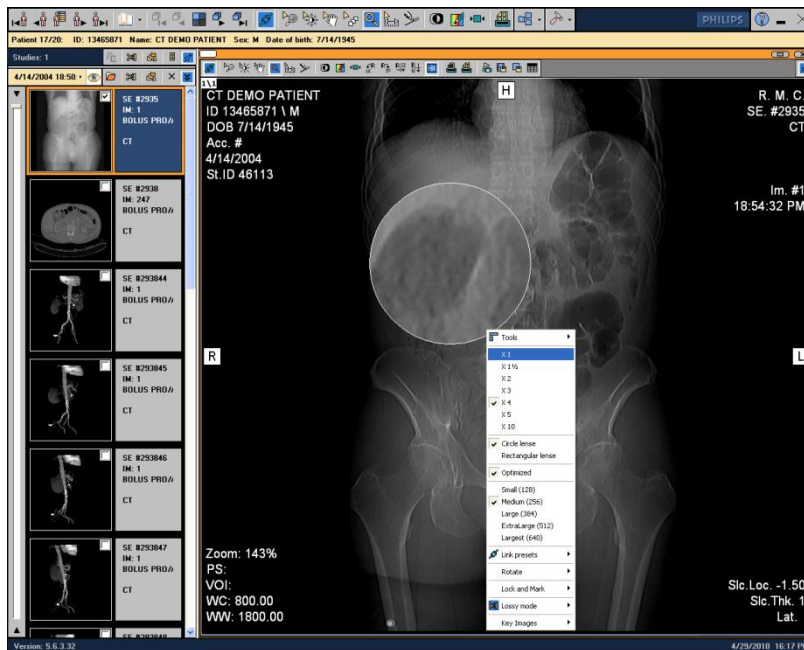


Figure 65: Magnifier icon options

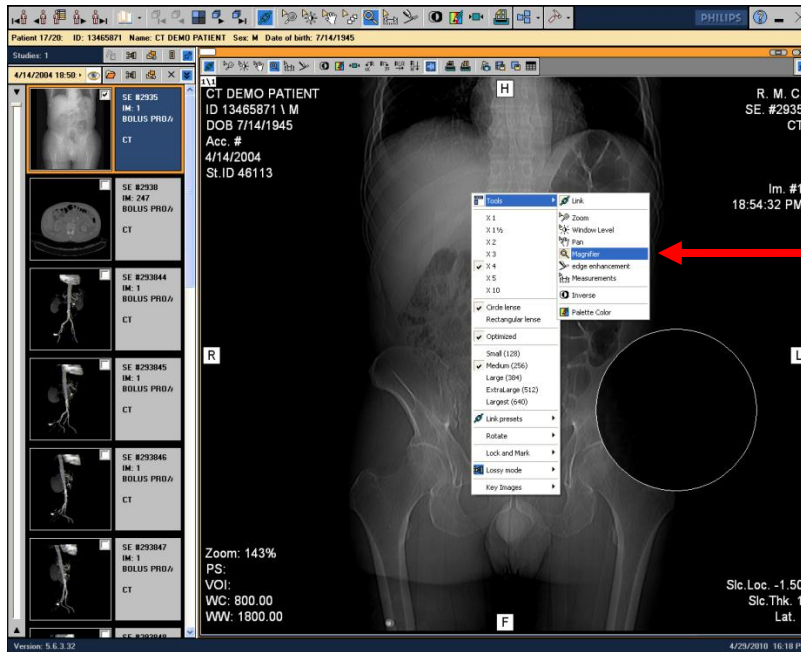


Figure 66: Magnifier option via right click

14.5 Edge Enhancement

This option enables to sharpen an image.

There are two Edge Enhancement icons:

Screen - Figure 67

Image - Figure 68

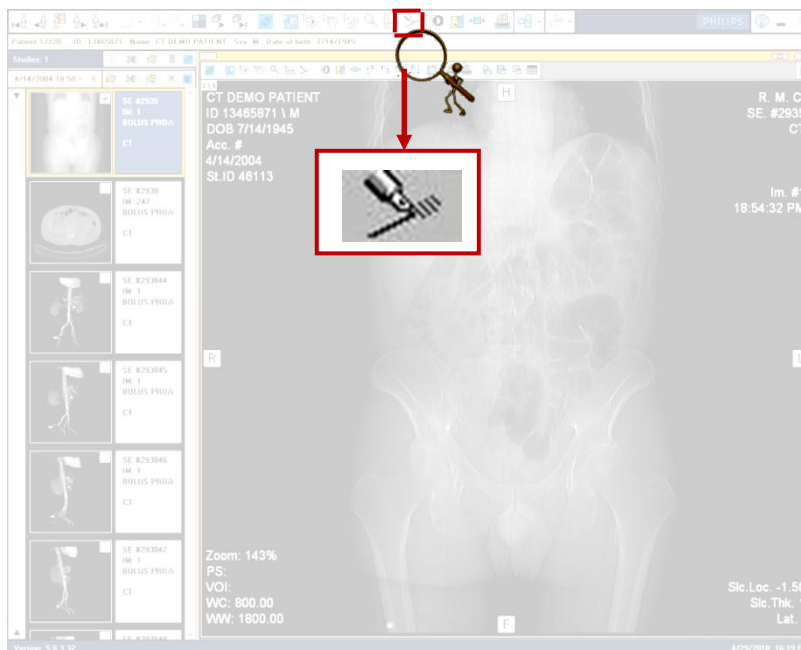


Figure 67: Edge Enhancement icon screen location

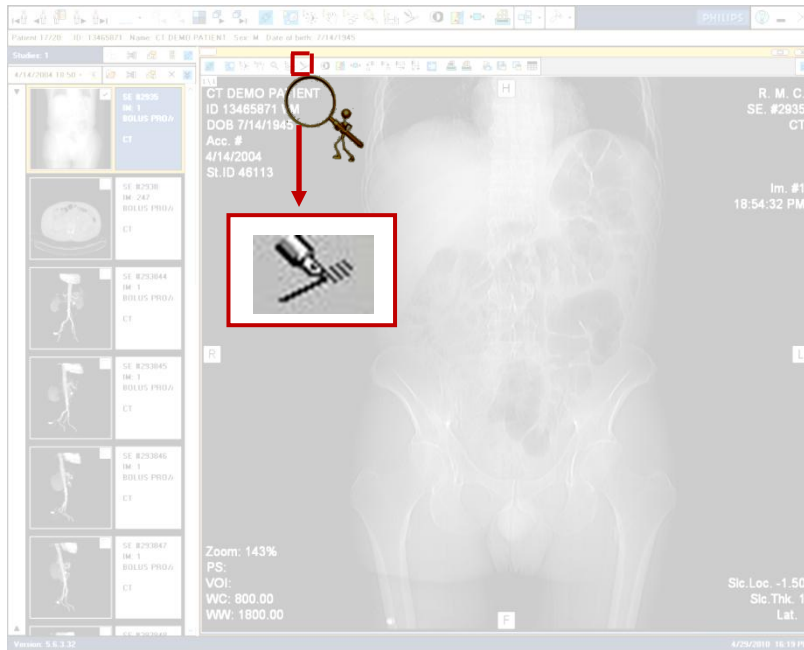


Figure 68: Edge Enhancement icon image location

Click this icon to sharpen an image. This is performed according to the following:

Select the required image to be sharpened.

Click the  icon.

Click and hold the left button of the mouse.

Drag the mouse towards down – sharpening of the image increases (**Figure 69**). Drag the mouse towards up – sharpening of the image decreases and un-sharpens it (**Figure 70**).

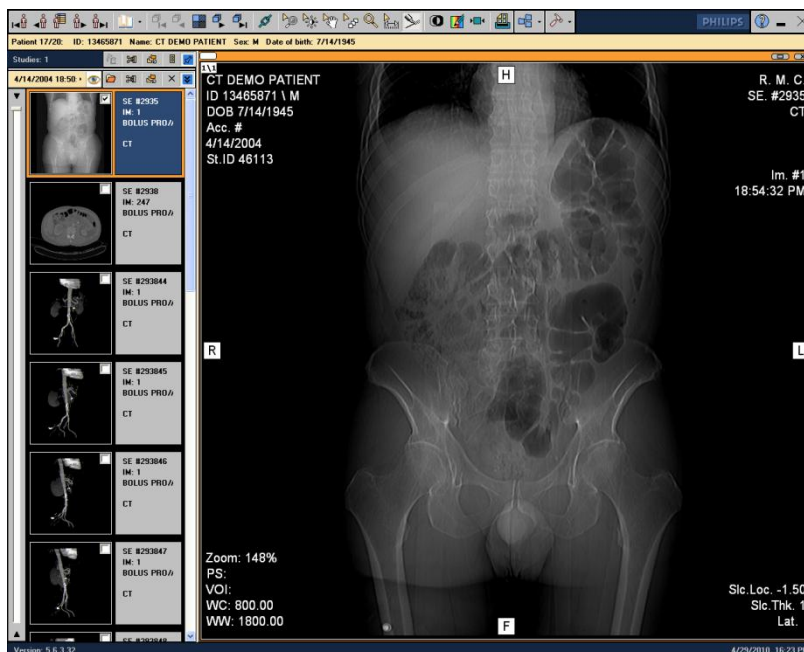


Figure 69: Edge Enhancement icon example – before sharpening

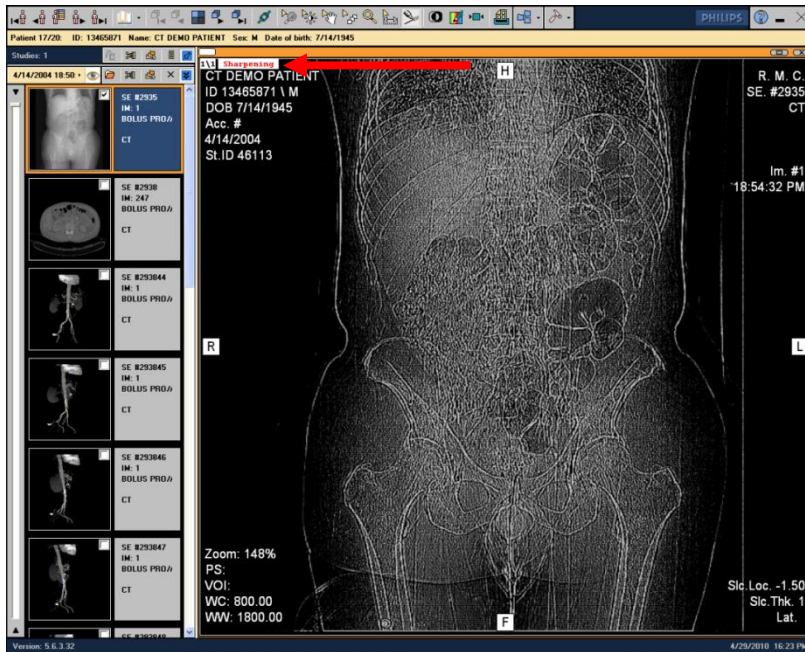


Figure 70: Edge Enhancement icon example – after sharpening

Using **Edge Enhancement** option can be reached by using right click mouse on the selected displayed image (see Figure 71).

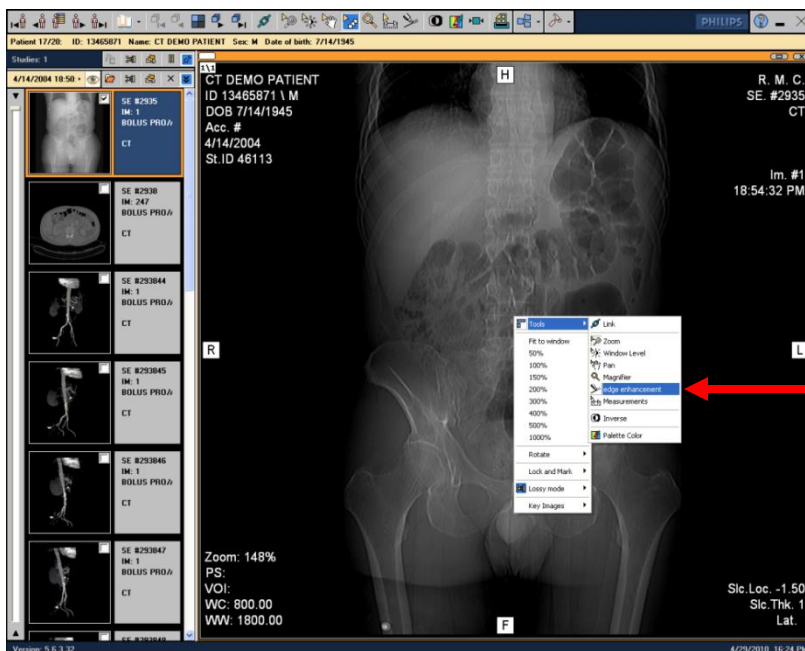


Figure 71: Edge Enhancement option via right click

14.6 Blending Mode

This option allows changing the level of subtraction (**Figure 72**).

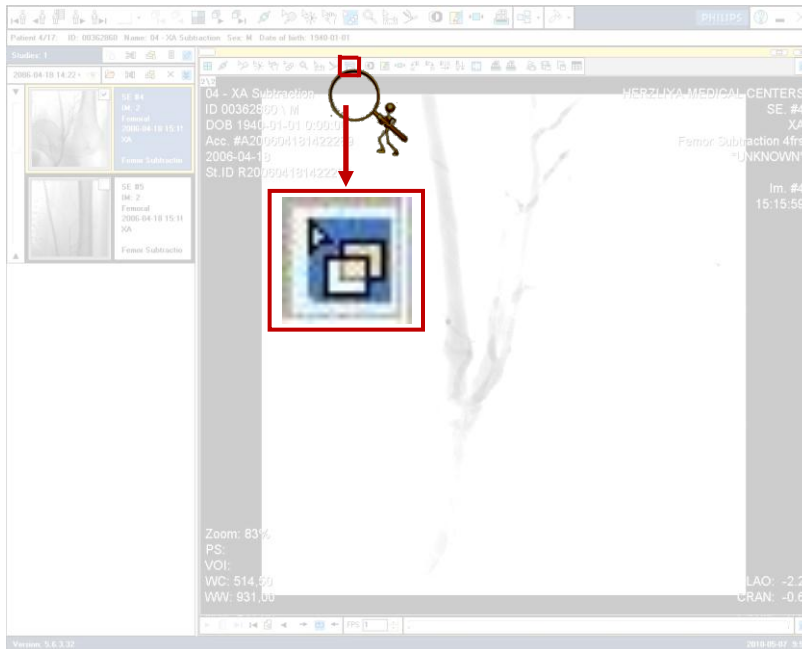


Figure 72: Blending Mode icon location

This is performed according to the following:

Select the required image to be blended.



Click the icon.

Press and hold the left mouse button over the image and drag the mouse towards up - to un-subtract. Drag the mouse towards down - to subtract (**Figure 73**).

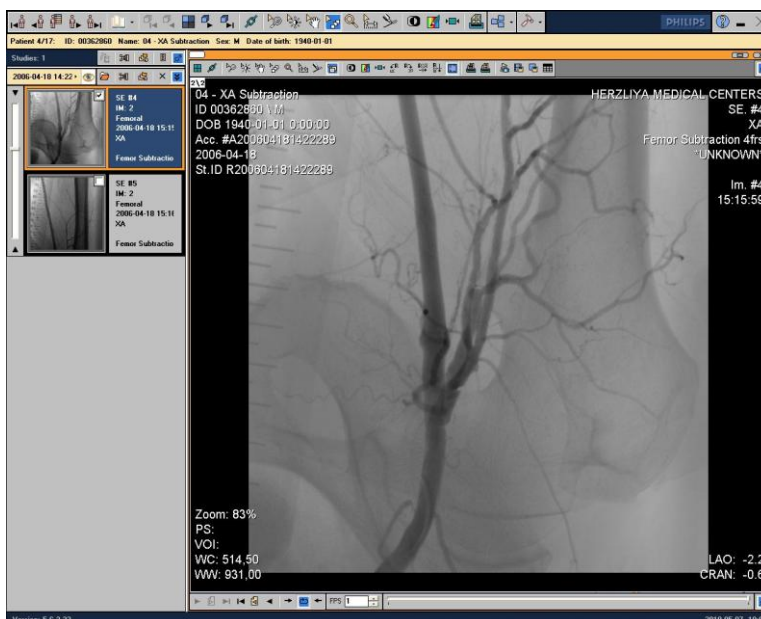


Figure 73: Blending Mode example

NOTE: This function is only possible on subtracted angiography (XA) images.

14.7 Inverse icon

This option performs the inversion of the image colors.

There are two **Inverse** icons:

Screen - **Figure 74**

Image - **Figure 75**

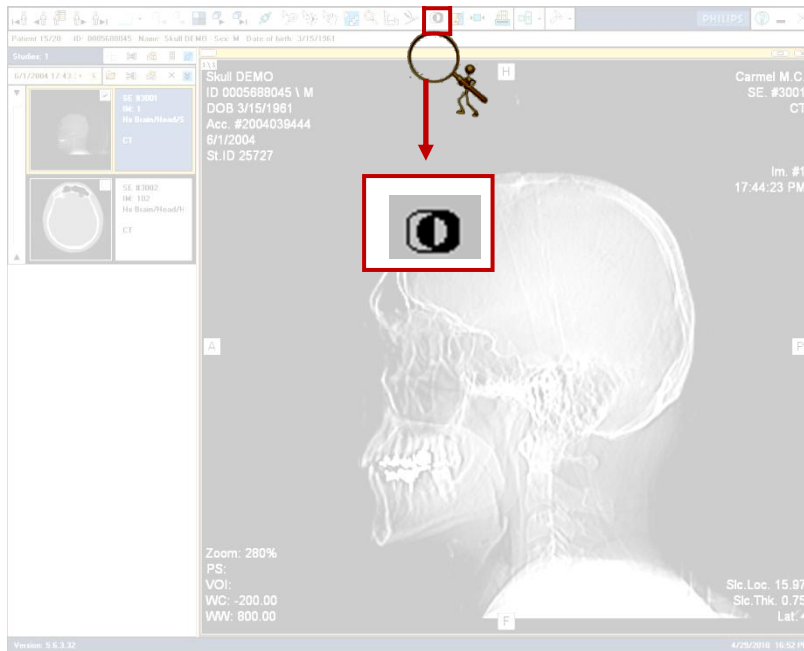


Figure 74: Inverse icon screen location

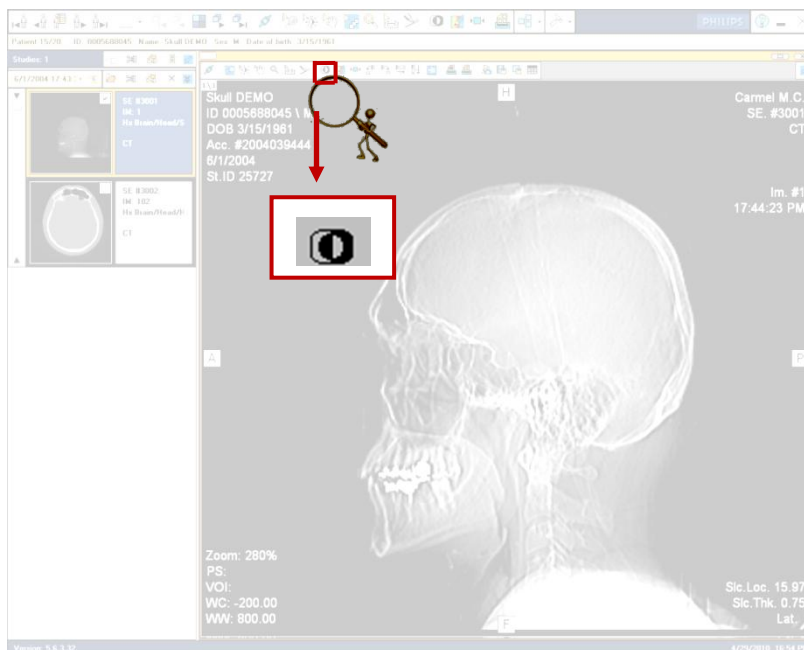


Figure 75: Inverse icon image location

This is done according to the following:

Select the required image to be inverted.



Click the icon. The colors of the selected image have been inverted (**Figure 76**).

Using **Inverse** option can be reached by using right-click mouse on the selected displayed image (see **Figure 77**).

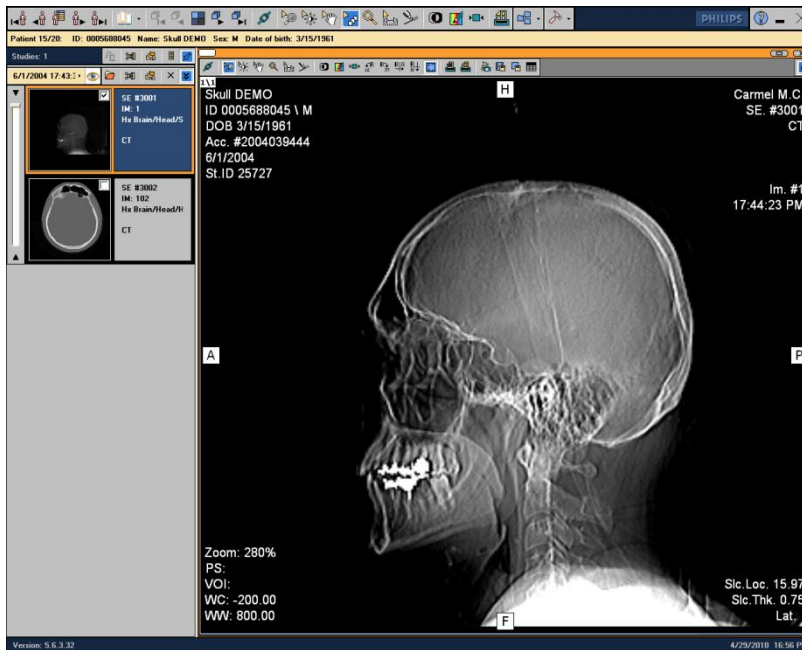


Figure 76: Inverse example

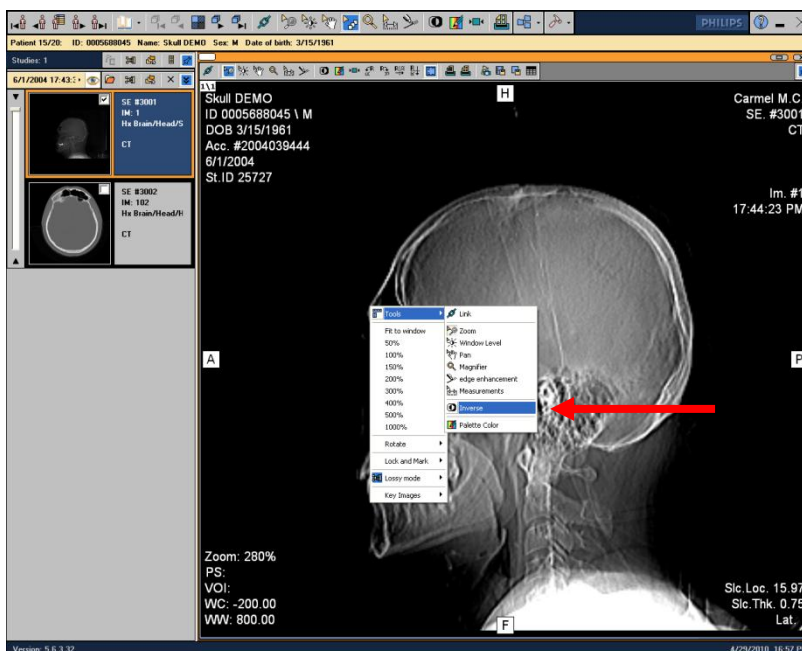


Figure 77: Inverse option via right click

It is possible to define the inverse option to be automatically set whenever **DiagNET** starts. This is done by marking: **Options > Preferences > Diagnostic Preferences > Tools > Inverse option**, in **MDC PACS Client** screen (see **Figure 78**).

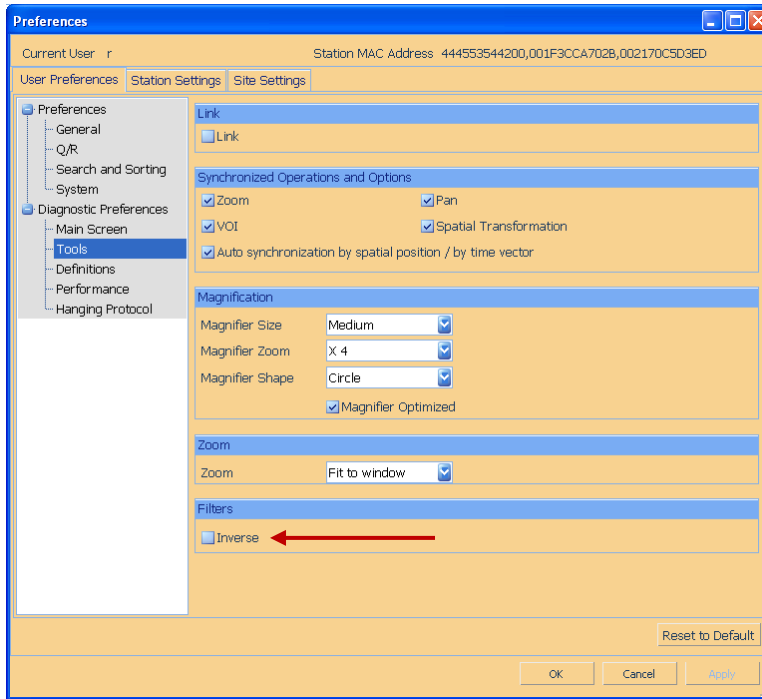


Figure 78: Inverse option selection

14.8 Reset

This option enables to reset all the attributes to their default settings.

There are two locations of **Reset** icons:

Screen - **Figure 79**

Image - **Figure 80**

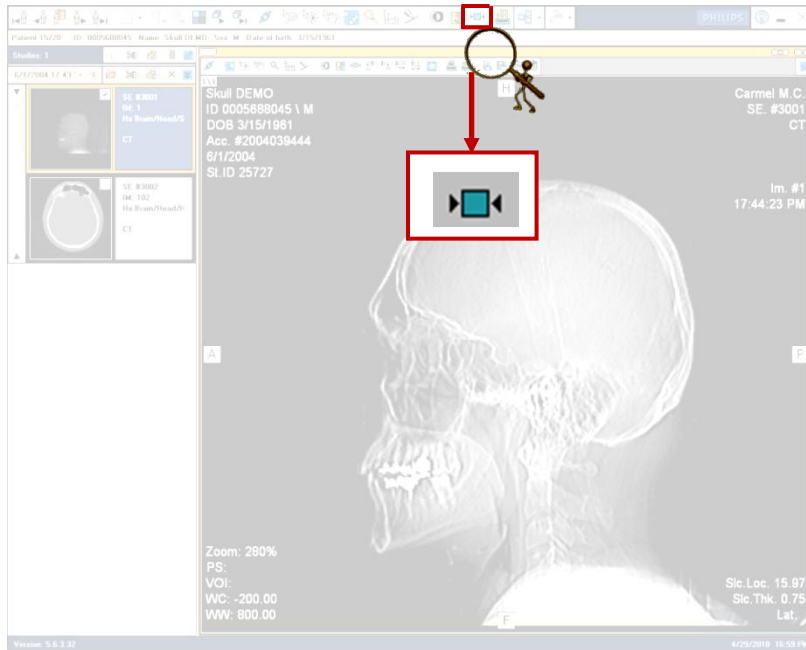


Figure 79: Reset icon screen location

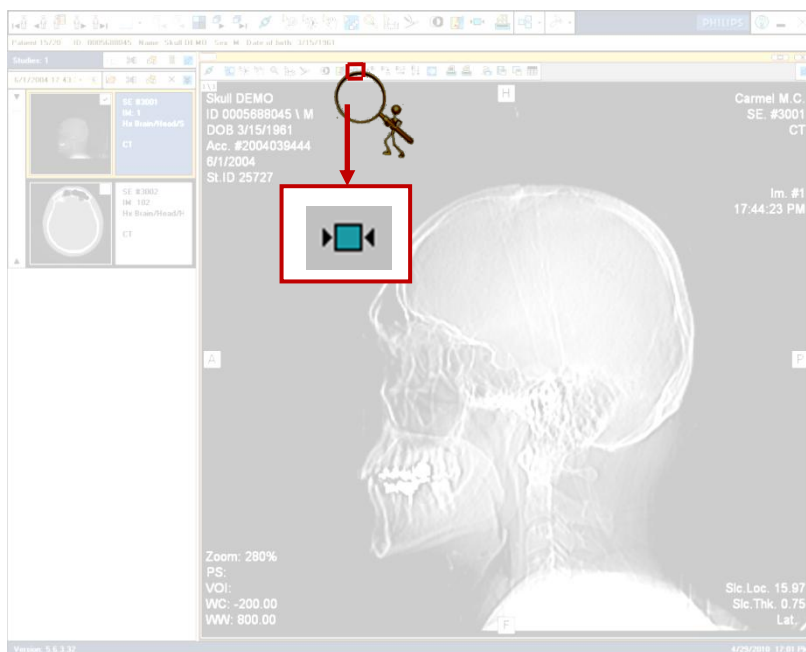




Figure 80: Reset icon image location

14.9 Rotation Operations

You can perform the following rotation operations:

To rotate an image 90° counter clockwise using the  icon, right-click and select **Rotate > Left**.

To rotate an image 90° clockwise using the  icon, right-click and select **Rotate > Right**.

To flip an image horizontally using the  icon, right-click and select **Rotate > Flip Horizontal**.

To flip an image vertically using the  icon right-click and select **Rotate > Flip Vertical**

14.10 On-Image Information On/Off

This option enables a display of all information on an image.

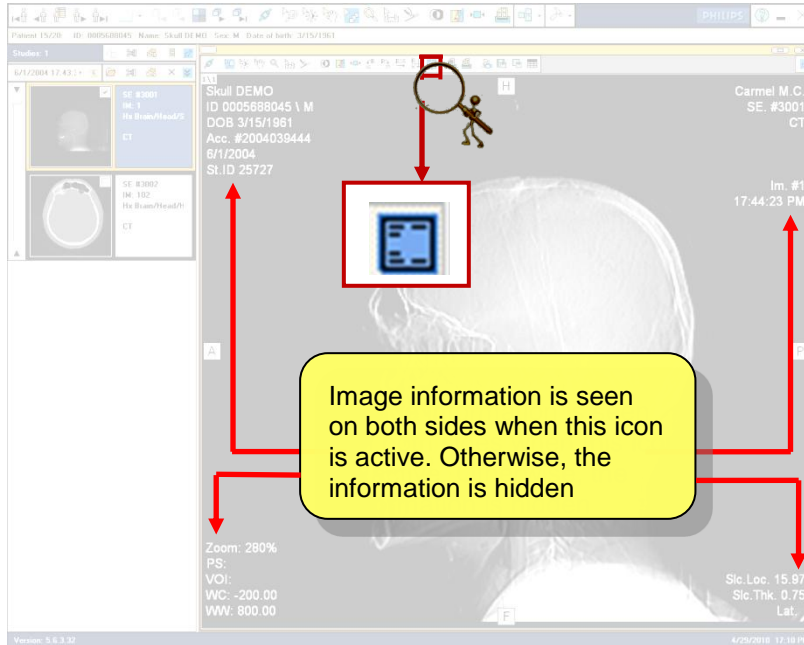


Figure 81: On-Image Information On/Off icon image location

Use this button (**Figure 81**) to view the relevant DICOM information regarding the image. When this icon is active (on state) the information is displayed. Otherwise, it is not displayed (off state).

It is possible to define on image information to begin with every time **DiagNET** begins. This is done by marking: **Options > Preferences > Diagnostic Preferences > Main screen > Show on-image information** option, in **MDC PACS Client** screen (see **Figure 82**).

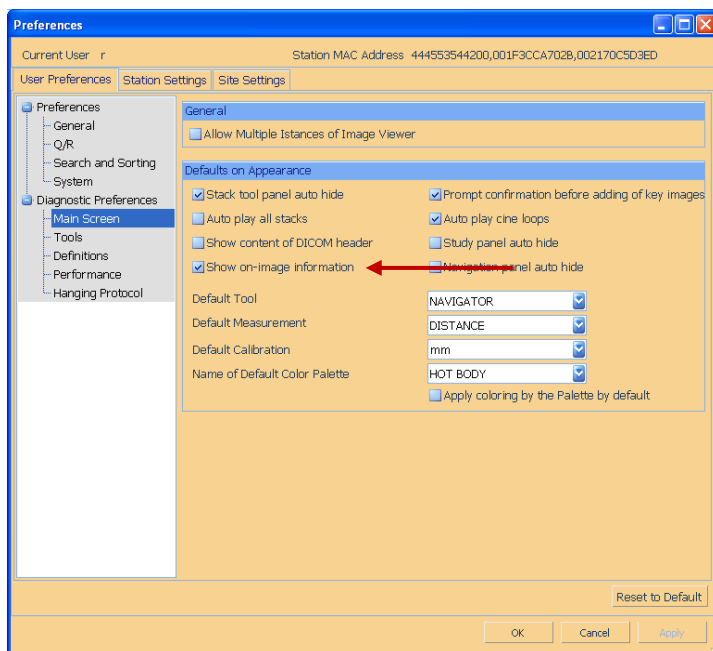


Figure 82: Show on-image information selection

NOTE: If the image is decreased in a way that causes the information font to be too small, the information is not displayed.

14.11 Palette Color

This option allows applying a palette color to an image.

There are two locations of **Palette Color** icons:

Screen - **Figure 83**

Image - **Figure 84**

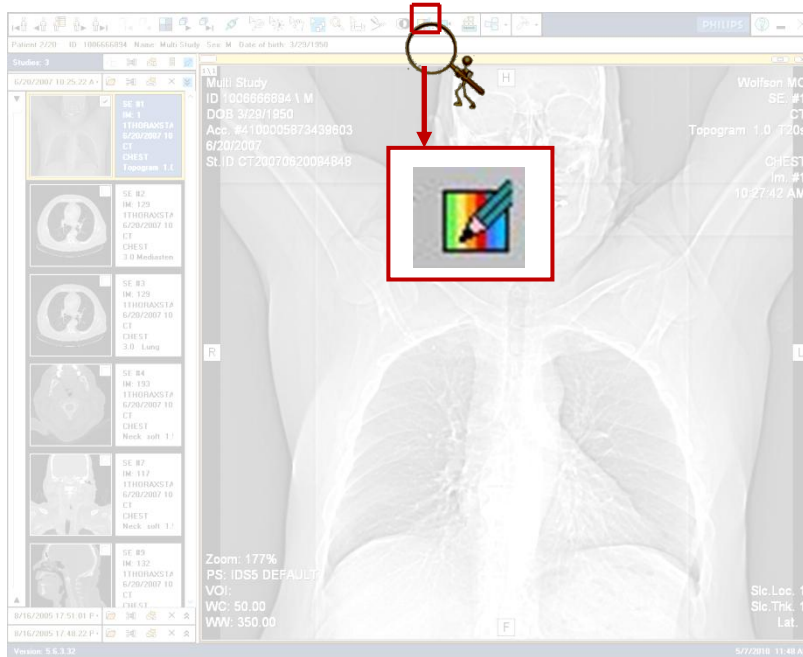


Figure 83: Palette Color icon screen location

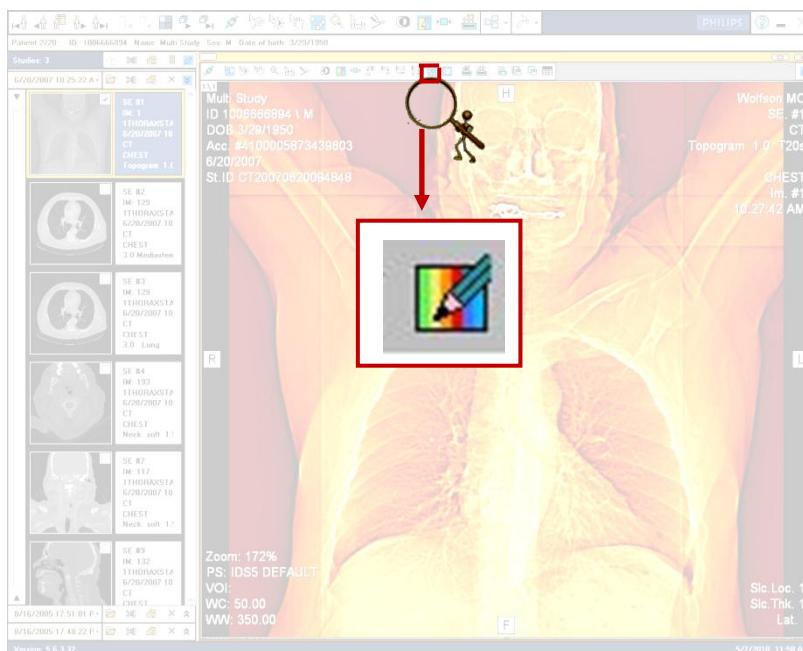


Figure 84: Palette Color icon image location

This is performed according to the following:

Select the required image to be inverted.



Click the icon. A palette color has been applied (**Figure 85**).



Figure 85: Palette color example

It is possible to define **Palette Color** option as seen in **Figure 86** as follows:

Go to: **Options > Preferences > Definitions > Main screen** section in **MDC PACS Client** screen.

Select the following: default color palette and whether to automatically apply palette color.

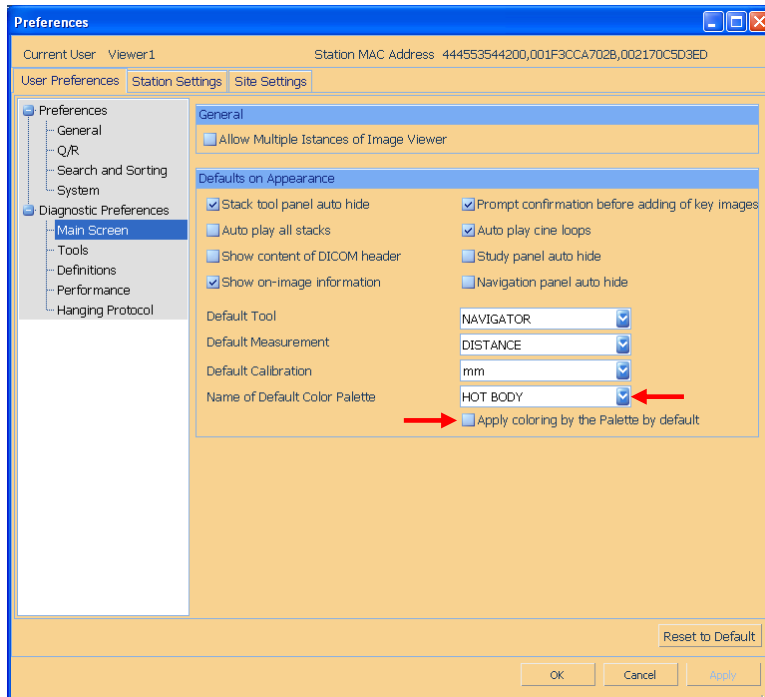


Figure 86: Palette Color option

When **Palette Color** button is active, right clicking the mouse enables to select the requested palette color choices (see **Figure 87**).

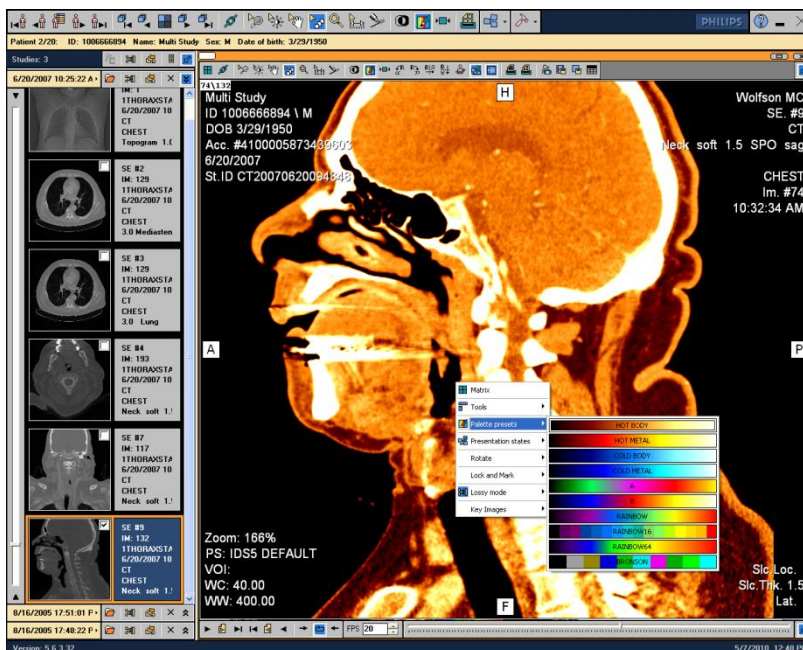


Figure 87: Palette Color options using right click

Using **Palette Color** option can be reached by using right click mouse on the selected displayed image (see **Figure 88**).



Figure 88: Palette Color option via right click

15. MPR

The Multi-Planar Reconstruction (MPR) feature enables an easy method of viewing original spatial DICOM image series in different projections (Axial, Coronal, Sagittal or Oblique), different visualizations (MIP, Weighted MIP, Average, etc.), and different slice thickness.

Using MPR, it is possible to create a new derived DICOM series based on the selected projection and slice thickness. For more information see **Creating a Secondary Derived Series**.

To construct a Multi-Planar Reconstructions (MPR):

Select the required DICOM series and press the MPR icon (see **Figure 89**).

OR

Press **MPR Mode** from the right-click menu (see **Figure 90**).

The screen is divided into four parts according to the following slice images: **Axial**, **Coronal**, **Sagittal**, and **Oblique** (see **Figure 91**).

NOTE: The icon will become active once the series is fully loaded (see **Figure 89**).

NOTE: The active series can be identified by the orange bar across the top (highlighted in red in **Figure 89**).

NOTE: Click the MPR icon or **MPR Mode** again to toggle to the previous view.

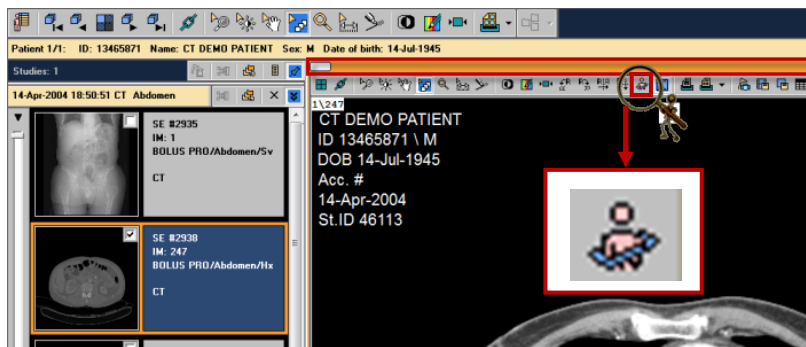


Figure 89: MPR icon location

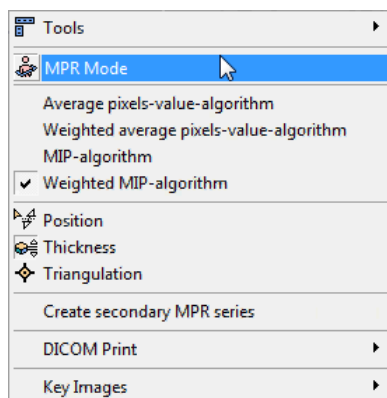


Figure 90: Right-Click Menu MPR Mode

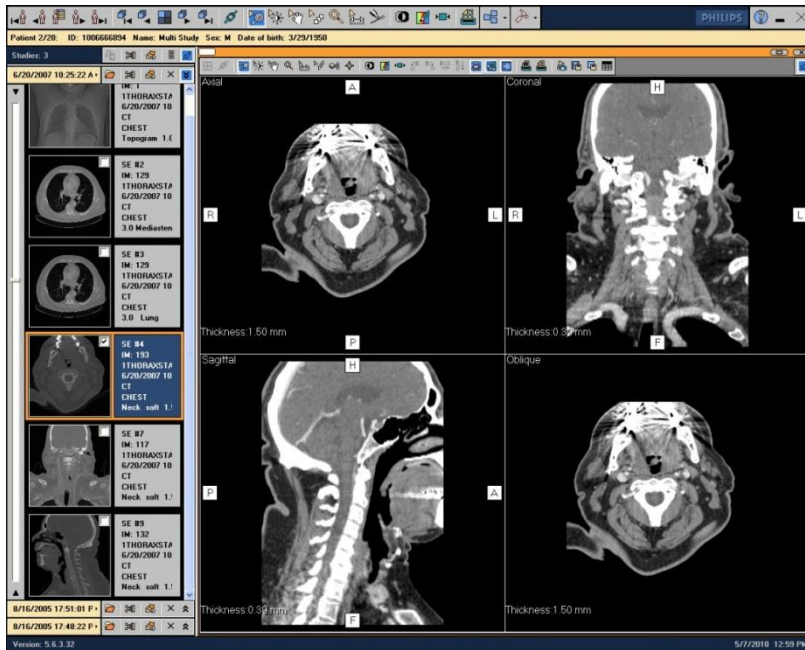


Figure 91: MPR Mode: Divided screen according to four slice views

In order to view one of the four slice images as the main image, double-click the required slice view. This causes the layout to change (see Figure 92).

NOTE: Double-click the image again to toggle to the previous view.

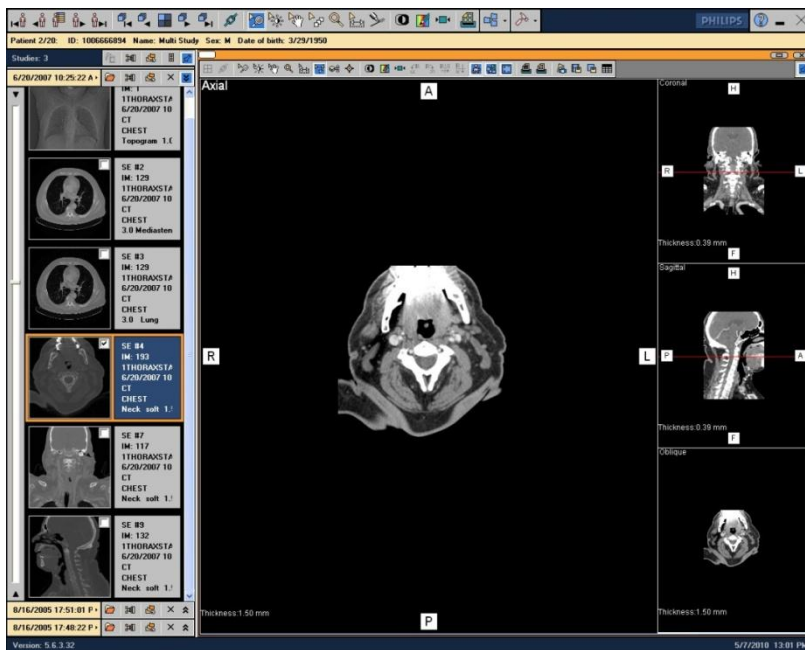


Figure 92: Axial slice image as a main image example

15.1 MPR Editing Tools

Once MPR Mode is activated, three additional project manipulation icons appear both in the image toolbar and the right-click menu (see **Figure 93** and **Figure 94**).

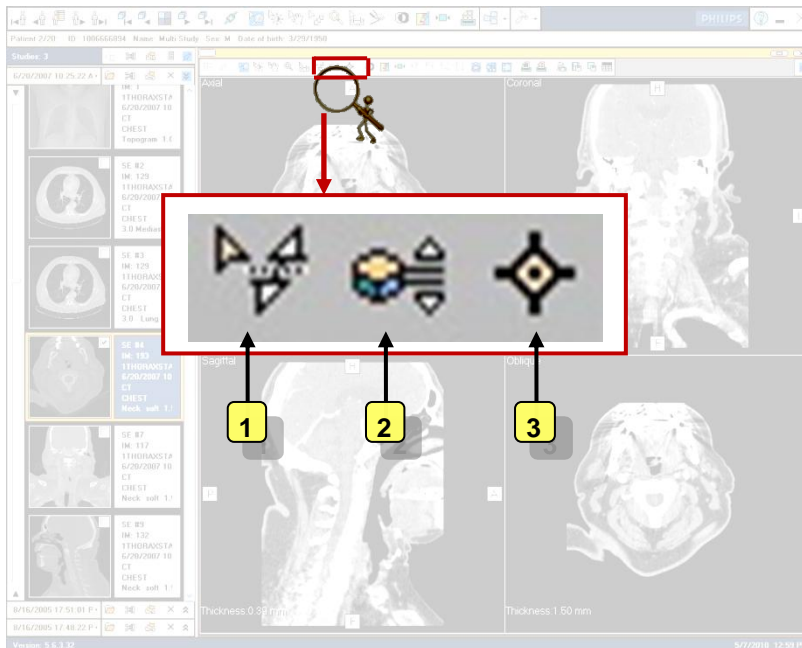


Figure 93: MPR icons location

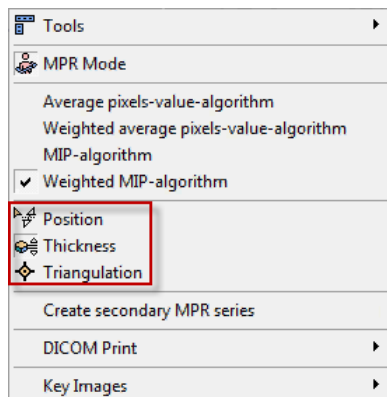


Figure 94: MPR Project Manipulation Icons

All MPR DICOM series can be edited with a number of various tools. Explanations of the MPR editing tools, highlighted in **Figure 93** and **Figure 94**, are given in the sections below according to the same sequential order they appear in the image.

15.1.1 Positions

To activate navigation, click the **Position** icon or select **Position** from the right-click menu. Press and hold the left mouse button on any of the projections (Axial, Coronal, and Sagittal) and Oblique plane. Move the mouse up and down. The referenced location is seen in all four slice images (**Figure 95**).

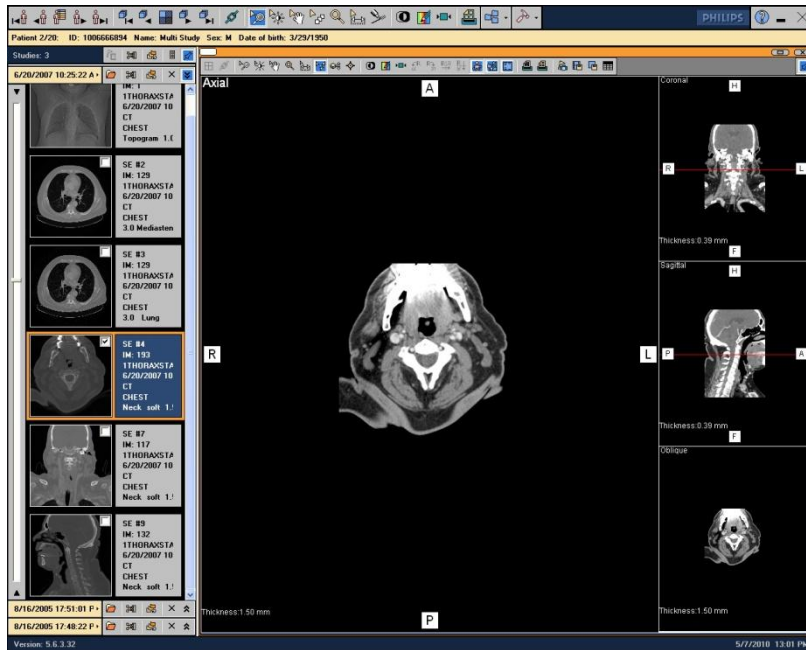


Figure 95: After clicking Position icon

15.1.2 MPR Slab Thickness

To activate the thickness tool, click on the **MPR Slab Thickness** icon or click **Thickness** from the right-click menu. Press and hold the left mouse button on any of the projections (Axial, Coronal, and Sagittal) and Oblique plane. Move the mouse up and down to change the slab thickness. The thickness is indicated by the distance between the parallel red lines in another view (**Figure 96**). The referenced location is seen in all four slice images. The slice thickness value is presented.

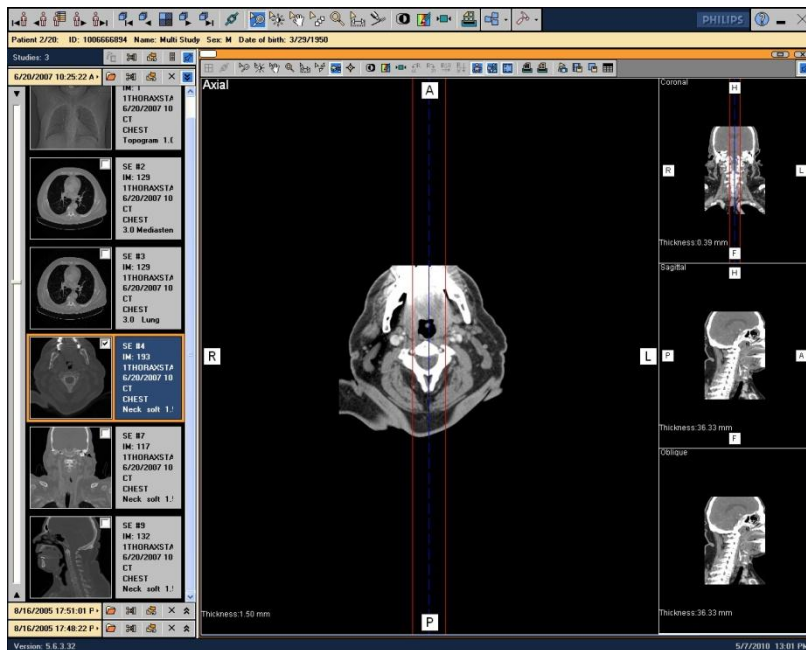


Figure 96: After clicking MPR Slab Thickness

15.1.3 Triangular Mode

To activate triangulation mode, click the **Triangulation Mode** icon or click **Triangulate** from the right-click menu. Press and hold the left mouse button on any of the projections (Axial, Coronal and Sagittal) and Oblique plane. Move the mouse up or down and the position of the other views is synchronized accordingly (**Figure 97**). The referenced location is seen in all four slice images.

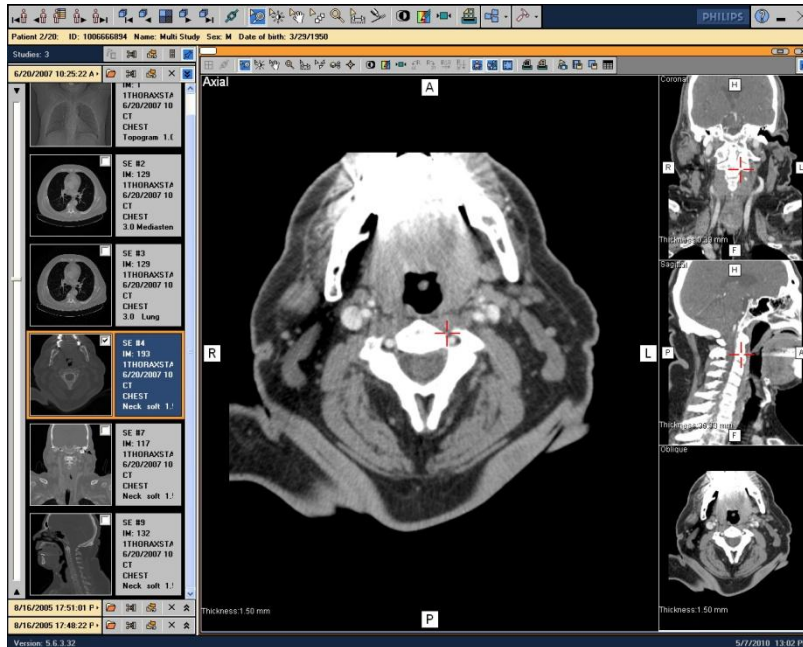


Figure 97: After clicking Triangulation button

15.2 MPR Visualization Projection Tools

In addition to the various MPR editing tools available, the visualization of how the images are projected can be altered as well.

Explanations of the MPR visualizations, highlighted in **Figure 98**, are given in the sections below according to the same sequential order they appear in the image.

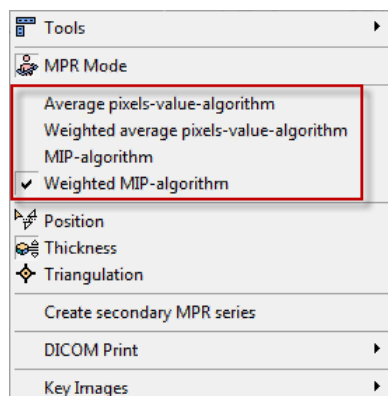


Figure 98: MRP Visualizations

15.2.1 Average Pixels-Value-Algorithm

An average pixels value is a computer visualization method for 3D data that projects in the visualization plane the volumetric pixels with average intensity that fall in the way of parallel rays traced from the viewpoint to the plane of projection.

To access the feature:

Select **Average pixels-value-algorithm** from the right-click menu (see **Figure 99**).

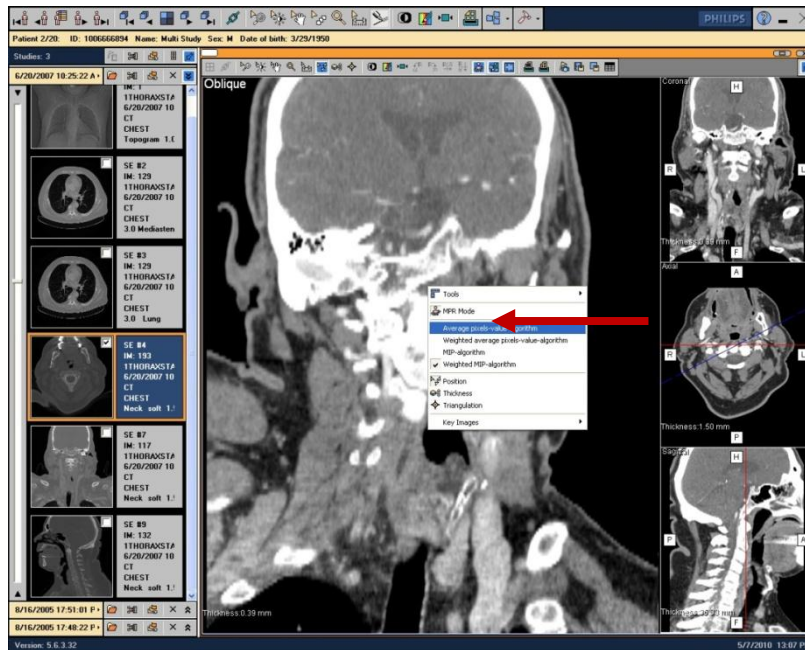


Figure 99: Average pixels-value-algorithm option via right click

15.2.2 Weighted Average Pixels-Value-Algorithm

Weighted average pixels value is a reconstruction algorithm in which average intensity is calculated according to weighting of pixel value.

To access the feature:

Select **Weighted average pixels-value-algorithm** from the right-click menu (see **Figure 100**).

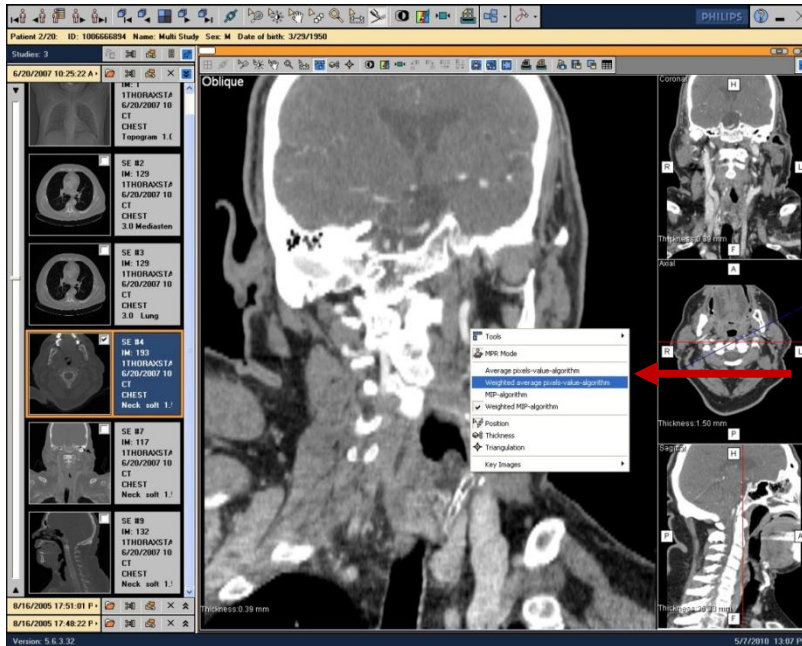


Figure 100: Weighted Average pixels-value-algorithm option via right click

15.2.3 MIP-Algorithm

A MIP is a computer visualization method for 3D data that projects in the visualization plane the volumetric pixels with maximum intensity that fall in the way of parallel rays traced from the viewpoint to the plane of projection.

To access the feature:

Select **MIP-algorithm** from the right-click menu (see **Figure 101**).

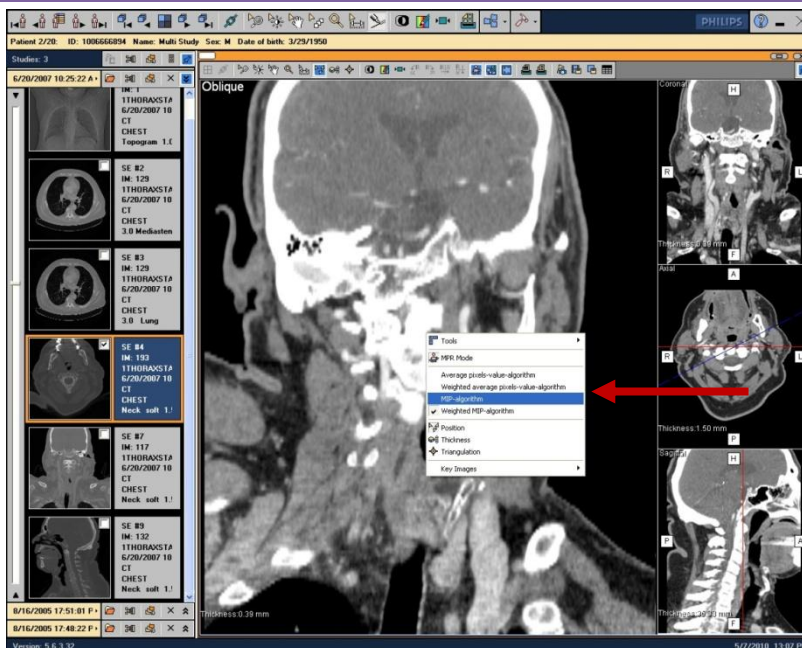


Figure 101: MIP-algorithm option via right click

15.2.4 Weighted MIP-Algorithm

Weighted MIP is an algorithm for reconstruction when maximum intensity is calculated according to weighting of pixel value. Weighted MIP produces higher local contrast than compositing by average.

To access the feature:

Select **Weighted MIP-algorithm** from the right-click menu (see **Figure 102**).

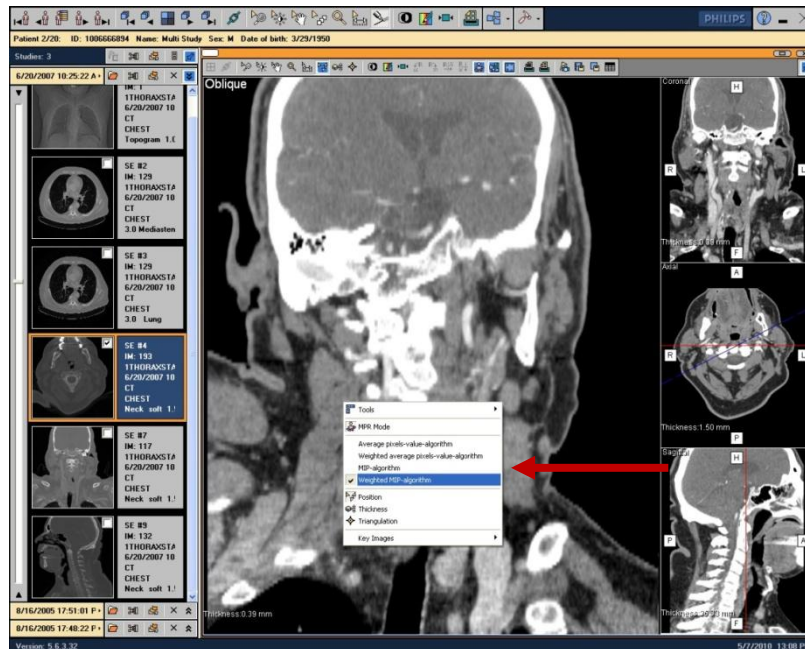


Figure 102: Weighted MIP-algorithm option via right click

16. Creating a Secondary Derived Series

From MPR Mode, DiagNET provides the ability to create a secondary derived DICOM series. The new image series will be created according to various parameters received from MPR and edited by the user (such as set thickness, location, and tilt). Once created, this new series will be accessible immediately in DiagNET and will be saved to the patient archive.

IMPORTANT NOTE: *Creating a secondary derived series is only possible for users with Export Data rights in the User Data rights.*

To create a secondary MPR series:

Select the required DICOM series and toggle to MPR Mode.

Apply all necessary modifications with the MPR tools available, and apply any required visualization projections to the image series (see **15. MPR**).

Select **Create secondary MPR series** from the right-click menu (see **Figure 103**).

The *Secondary MPR Series Creation* dialog is open (see **Figure 104**).

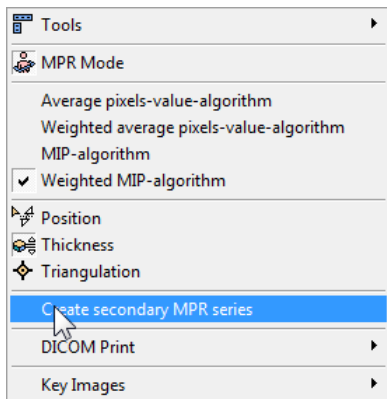


Figure 103: Create Secondary MPR Series

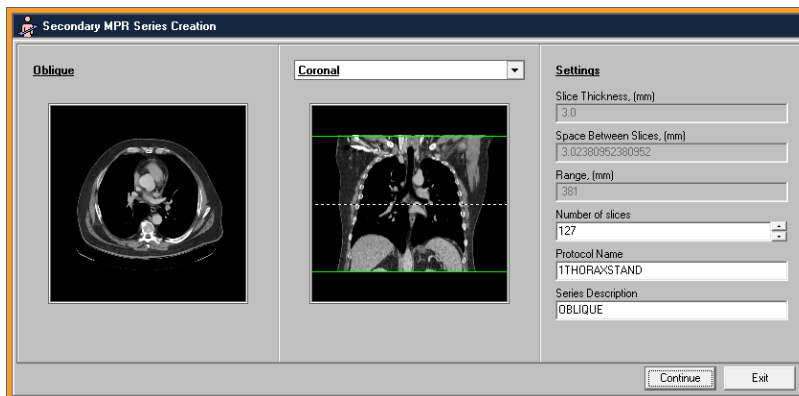


Figure 104: Secondary MPR Series Creation

Edit the settings required by dragging the reference lines (range and number of slices) in the images shown.

The following settings can be manually edited:

- Image projection (from the drop-down menu). The projections available depend on the currently selected view (Axial, Coronal or Sagittal).
- Space Between Slices, (mm)
- Protocol Name (tag will be automatically added to the new DICOM Series)
- Series Description (tag will be automatically added to the new DICOM Series)

NOTE: *Slice Thickness settings can only be changed in MPR Mode. If any changes are required, return to MPR mode, change the thickness and follow the **Secondary Series Creation** procedures.*

NOTE: *Number of Slices is displayed for user convenience and shows the number of slices that will be created according to the parameters set (slice thickness, space, between slices and range).*

NOTE: *The Performing Physician tag will be automatically added to the new DICOM series according to the Description (e.g. Real user name) of the User currently logged-in to the system. Note that the description field is not mandatory and it should be the responsibility of the user/administrator to make sure the description field is filled/updated correctly.*

Press **Continue** to create the *Secondary MPR DICOM Series* or **Exit** to cancel the process.

The *Secondary MPR Series Creation* begins processing (see **Figure 105**).

Once completed, the new DICOM series is immediately added and accessible in DiagNET. It is also automatically sent to the server for archiving and can be viewed at any time thereafter (see **Figure 106**).

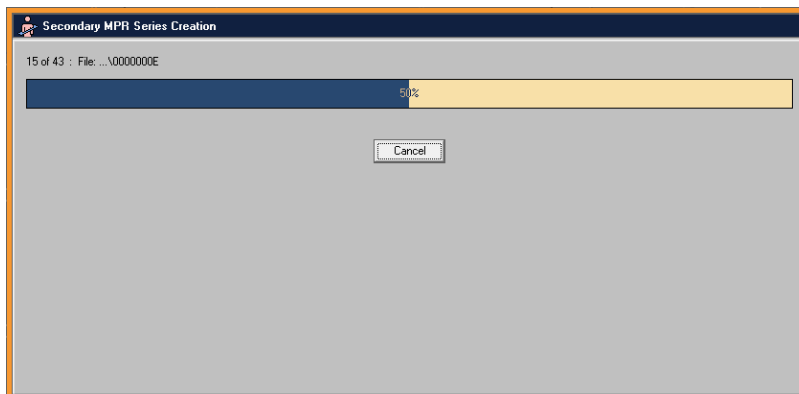


Figure 105: Secondary MPR Series Creation Processing

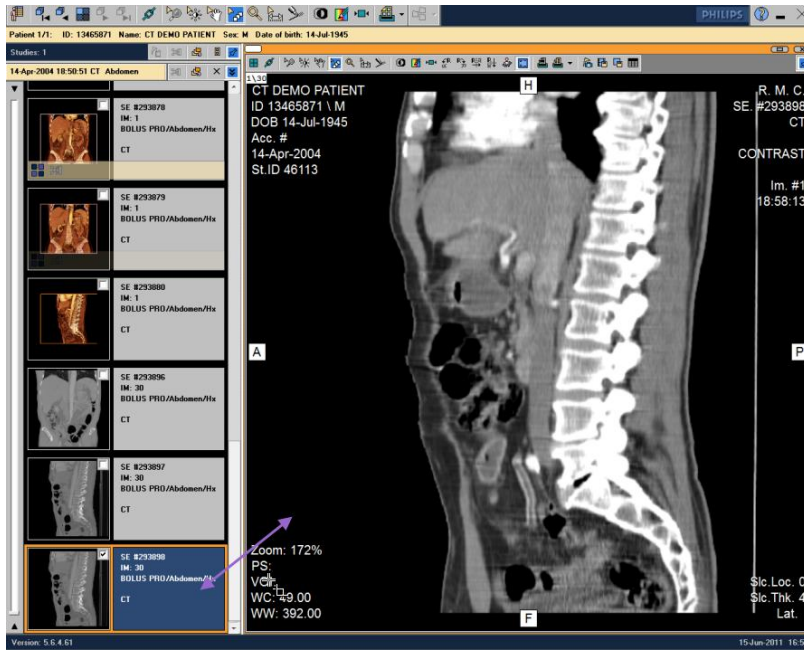


Figure 106: The new series in MDC PACS DiagNET

17. Image Manipulations

This chapter consists of manipulations performed on the images.

17.1 Lock and Mark

The Lock and Mark feature enables you to quickly lock and mark any images, while browsing through studies. Images can be locked to ensure that no further changes can accidentally be made. The images can be marked for various reasons, such as compiling a report of only specific images.

This function is used from within a matrix display for reporting, selecting, or printing images.

The options available through Lock and Mark are shown below:

Mark	Enables the selection of either one or more images. The image can be marked and then viewed separately.
Select Marks only	Enables the isolation of a group of only marked images. A new matrix can be constructed of only the number of marked images.
Release All Marks	Enables the release of marks on all images at once.

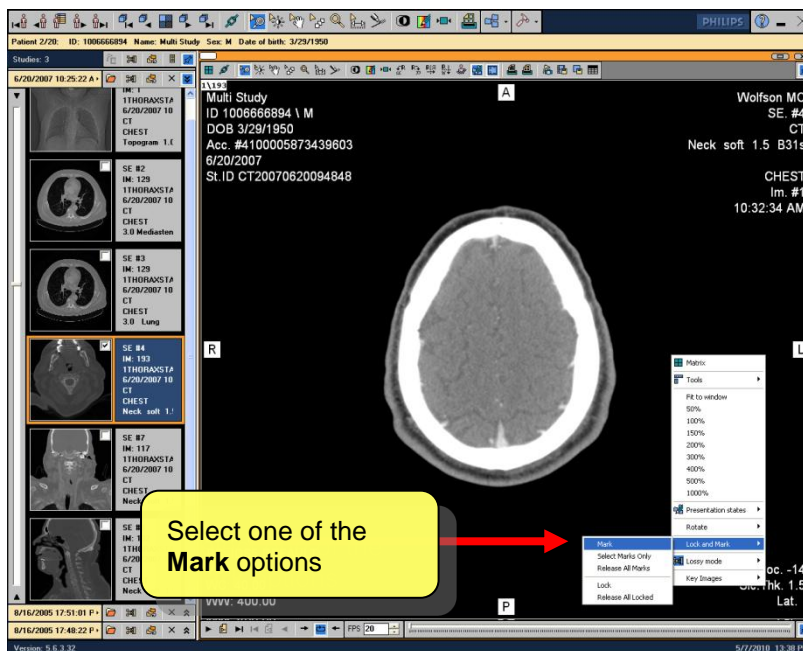


Figure 107: Mark options

To mark an image:

Select **Lock and Mark** from the right-click menu, as shown in **Figure 107**.

Once an image is marked, a 'M' sign appears at the top right corner of the screen (see **Figure 108**).

Click either on the 'M' icon or **Release All Marks** in order to release the lock. Once released, any image manipulations (such as [measurements](#), [pan](#) or [zoom](#)) can be made.

Lock and Mark the image once again to save it with the newest changes.

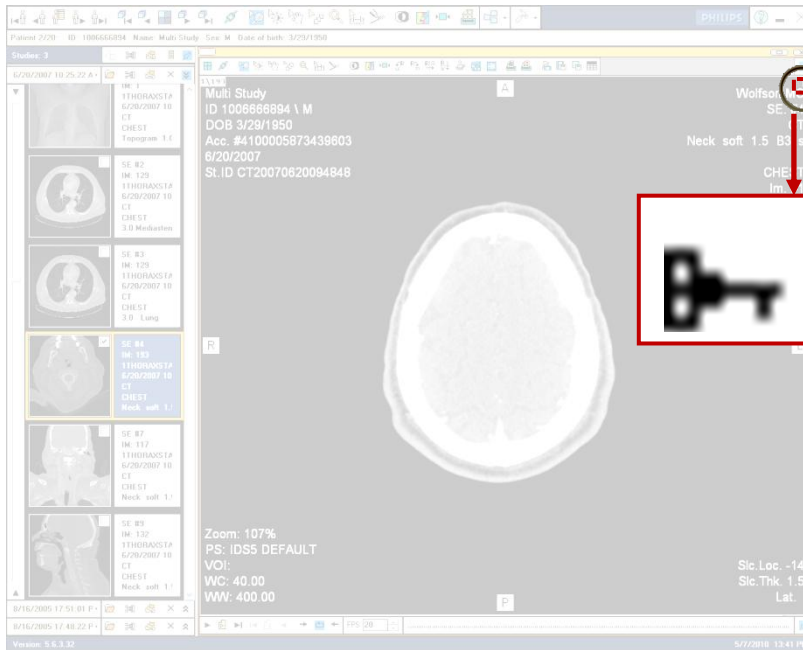


Figure 108: Mark sign location

17.2 Lock

The Lock feature enables you to block the ability to manipulate the image properties. This way, image properties (such as changing the [Window Level](#) or [Zoom](#)) of all images within a study can be modified, while the properties of the locked image remain the same.

This option is meant to be used regarding both [DICOM](#) print and preparing images for a report. Although, its' main use is when using matrixes.

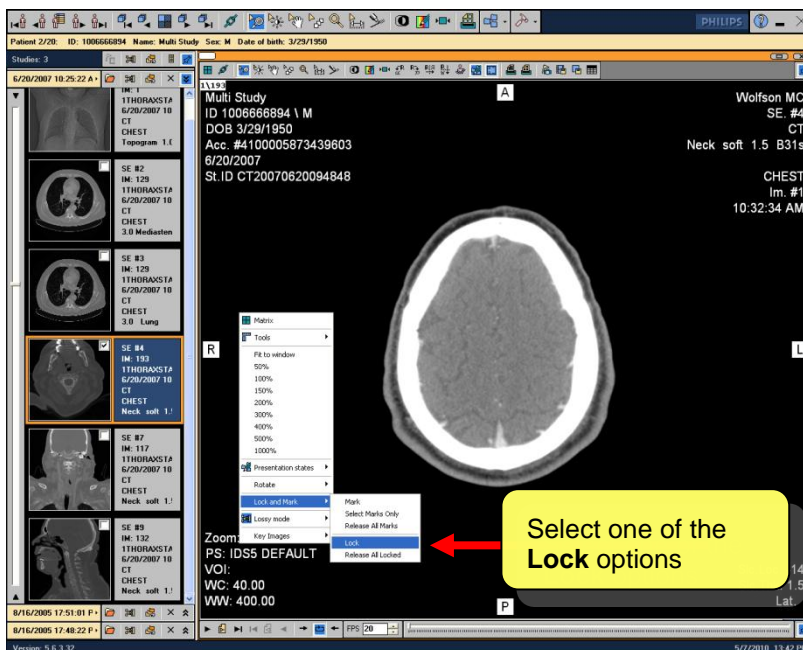


Figure 109: Lock options

In order to lock an image, select it, right click the mouse and choose the **Lock and Mark** option. The following possibilities appear (**Figure 109**):

Lock Allows you to isolate a group of images. Lock the requested images and build a new matrix according to the number of locked ones. Once an image is locked, it can serve as a reference to the same image locked in another position.

Release All Locked Enables you to release the locked images at once.

Once an image is locked a '🔒' sign appears at the top right corner (see **Figure 110**).

In order to release it, either click the '🔒' sign or select **Release All Locked**. It is possible to do all the relevant actions (such as: [pan](#), [zoom](#), etc.) on a selected image and only then lock it. In this case, the locked image is saved with the changes done.

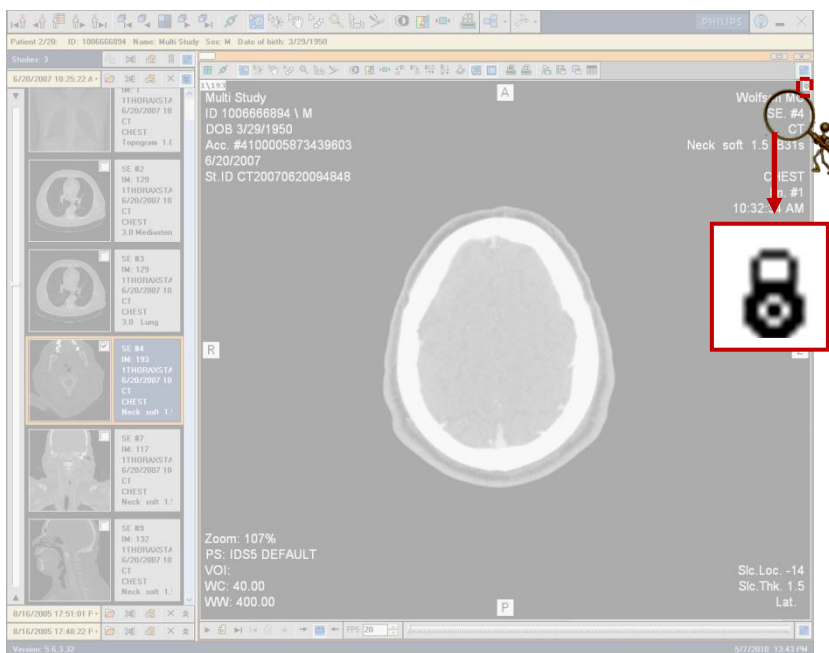


Figure 110: Lock sign location

17.3 Link

This option enables to define linking and the exact parameters linked between several stacks.

There are two **Link** icons:

Screen - **Figure 111** - on main toolbar, links all active stacks.

Image - **Figure 112** - on image toolbar, links only the selected stack.

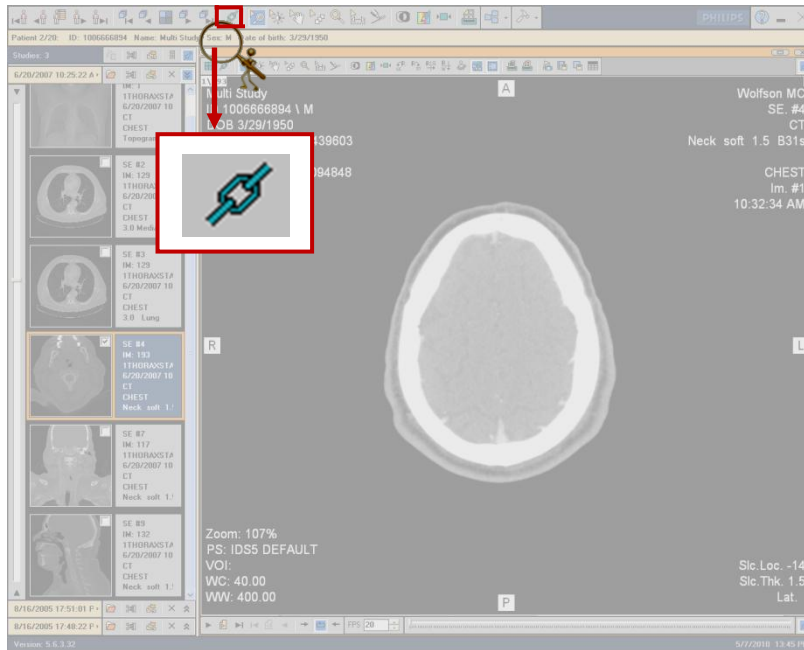


Figure 111: Link icon screen location

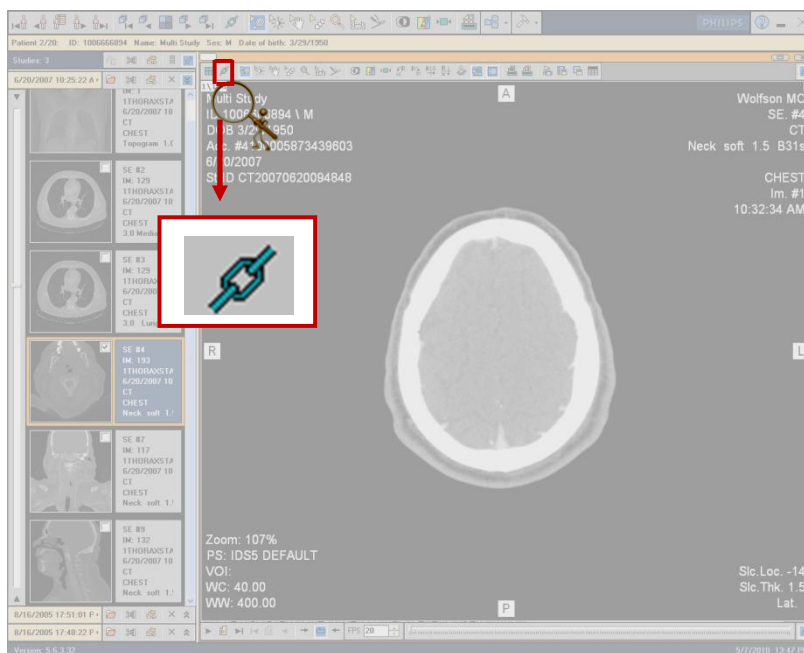



Figure 112: Link icon image location

This is performed by the following:

Select the required stacks to be linked to (either all active or selected ones).

Click the icon () in its correct location, according to the choice from previous stage.

Linking enables selected image manipulations, such as: scrolling, zooming, panning etc. to be synchronized between several stacks. It is possible to perform automatic link, in which the system automatically decides which images to link according to time and position properties. It is possible to perform manual link in which the images to be linked is selected manually.

This icon will be displayed in the top left corner in every linked window.

Using **Link** option can be reached by using right click mouse on the selected displayed image (see **Figure 113**).

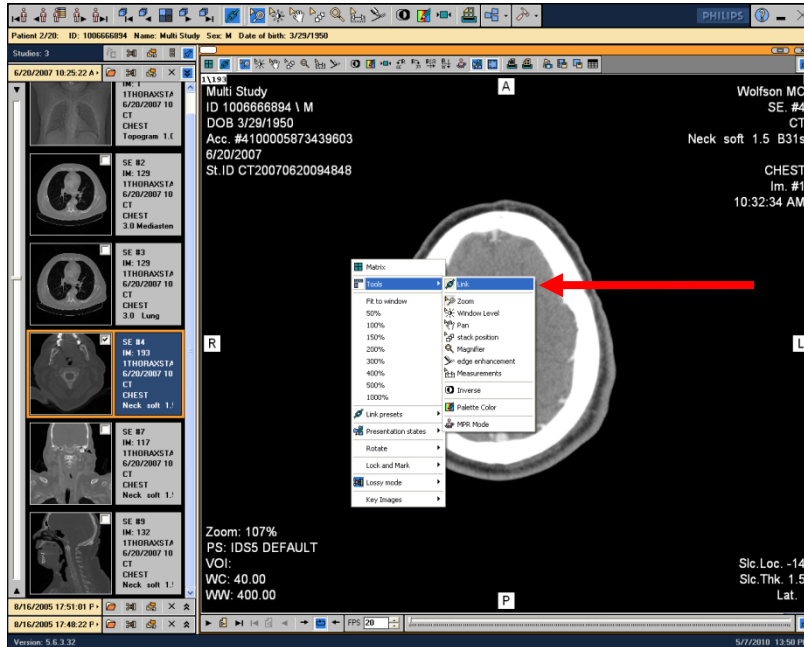


Figure 113: Link option using right click

It is possible to define **Link** option as seen in **Figure 114** (go to: **Options > Preferences > Tools > Link** section in **MDC PACS Client** screen). This enables a combination of **Link** option together with the options selected in (see **Figure 114**).

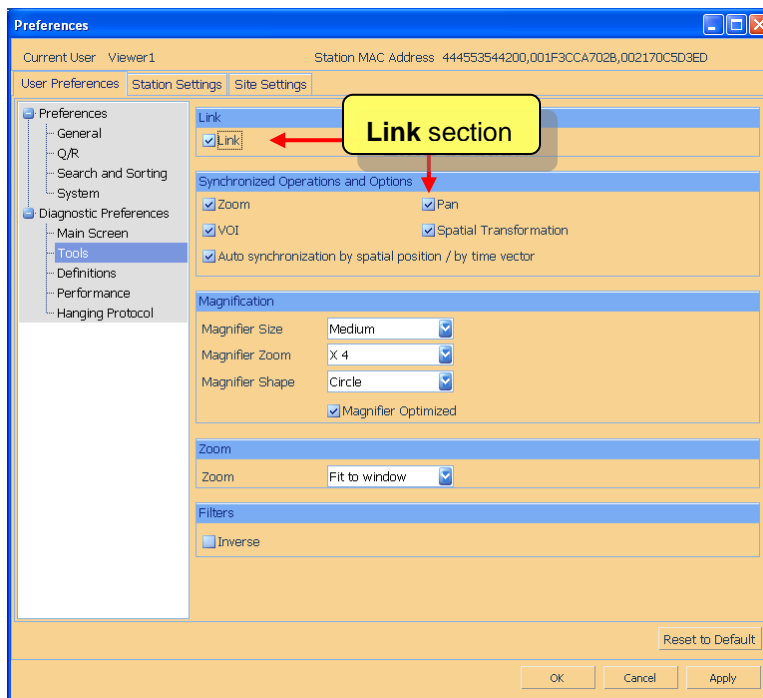


Figure 114: Link definitions window

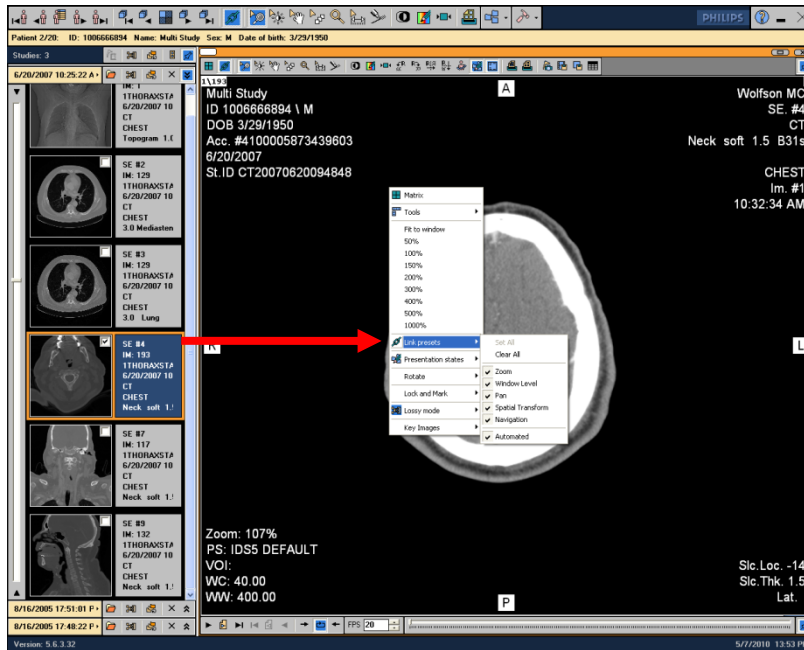


Figure 115: Link Presets option

After **Link** icon is selected, right clicking the mouse enables further options regarding **Link presets** (Figure 115). The following choices are presented:

Set All	This option selects all available presets.
Clear All	This option clears all available presets.
Zoom	Select this option to link images according to Zoom function. Whenever zoom is performed to one image it automatically is performed to all the linked ones provided this preset is selected.
Window Level	Select this option to link images according to Window Level function. Whenever window level is changed in one image it is also changed in all the linked images.
Pan	Select this option to link images according to Pan function. Whenever pan is performed on one image it is also performed on all linked images.
Spatial Transform	Select this option to link images according to Spatial Transform function (rotation or flipping). Whenever spatial transform is performed on one image it is also performed on all linked images.
Navigation	Select this option to link images according to Stack Navigation function. Whenever you navigate in one image you automatically navigate in all linked images.
Automated	Select this option to determine if the linked images are selected automatically (by the system), otherwise it is selected by the user.

18. Measurements

This chapter contains different types of image measurements.

There are two **Measurement** icons:

Screen - **Figure 116**

Image - **Figure 117**

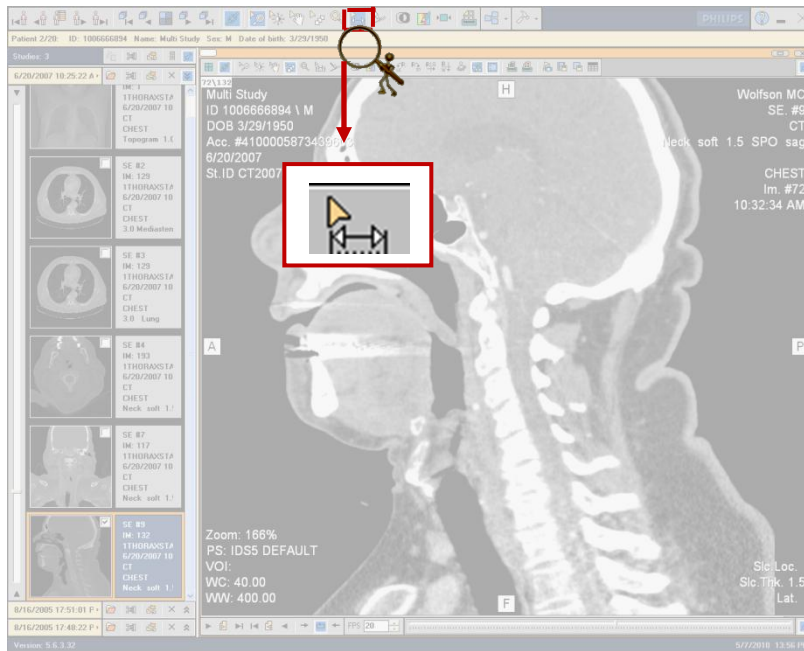


Figure 116: Measurement icon screen location

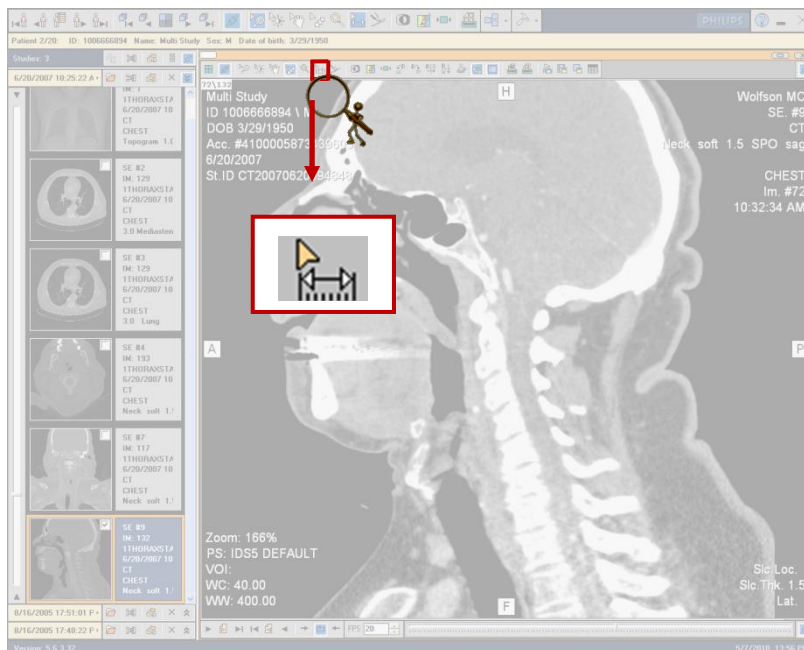


Figure 117: Measurement icon image location

Click this icon to measure an image. This is done according to the following:

Select the required image to be measured.



Click the icon.

Place the mouse on the part of image to be measured. Click and hold the left button of the mouse and drag the measurement shape (from the previous stage) to a required place on the image. The area to be measured is calculated automatically (see **Figure 118**).

After the measurement is executed it is possible to do the following:

Move the measurement – by dragging it with the mouse to a desired location.

Move the labels' measurement – by dragging it with the mouse to a requested location.

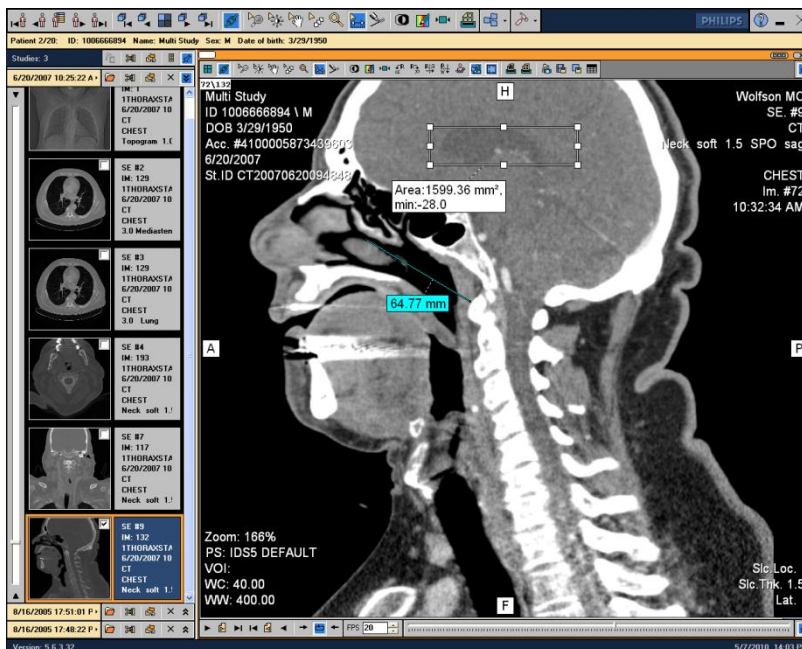


Figure 118: Measurement example

The default measurement is defined as seen in **Figure 119** (go to: **Options > Preferences > Main screen > General section > Default Measurement** option in **MDC PACS Client** screen). Choose the required measurement.

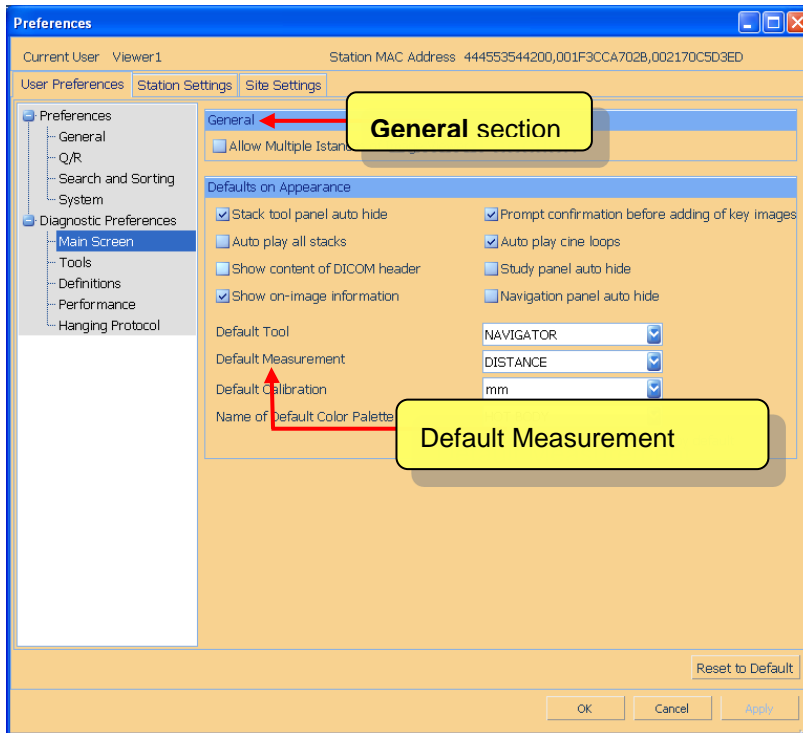


Figure 119: Default Measurement selection

Using **Measurements** option can be reached by using right click mouse on the selected displayed image (see Figure 120).

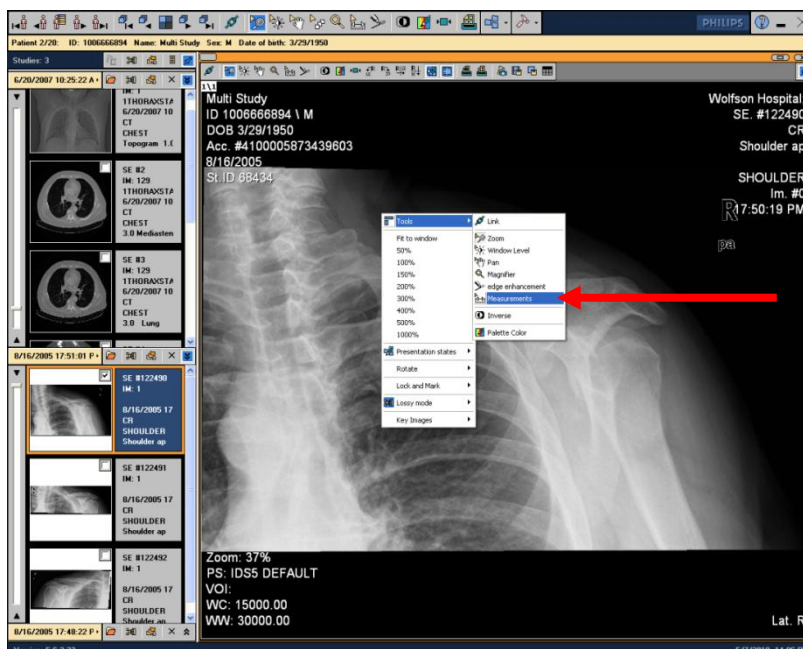


Figure 120: Measurement option via right click

When **Measurements** icon is active, right clicking the mouse enables to select the requested kinds of measurements (see Figure 121).

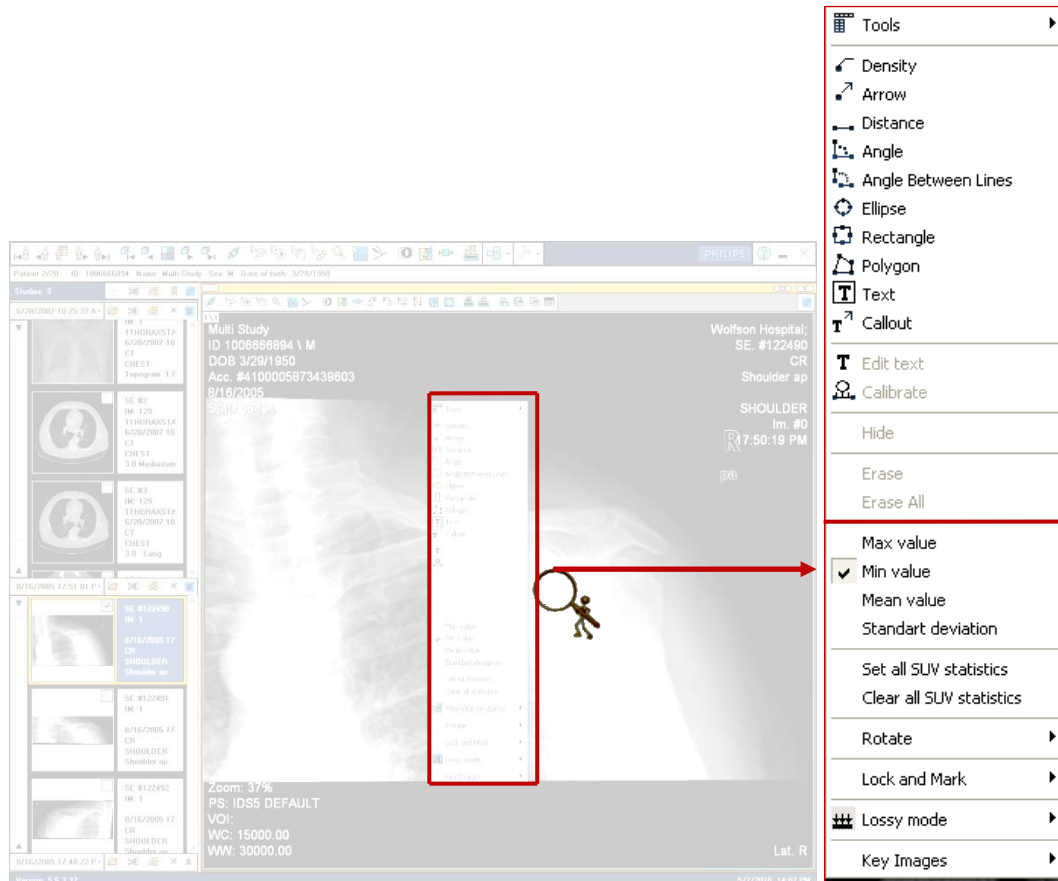


Figure 121: Measurements right click possibilities

Each possibility seen in **Figure 121** is explained in the sections below.

18.1 Linear Measurement (Distance choice)

This option allows measuring a line distance of two selected points

This is done as follows (**Figure 122**):

Select **Distance** option using the mouse.

Move the mouse to a chosen location on the image.

Hold the left button of the mouse and place the mouse on the requested source measured point.
Drag the mouse to a desired measurement destination point.

Once leaving the left button the measured distance is displayed (including its calculations).

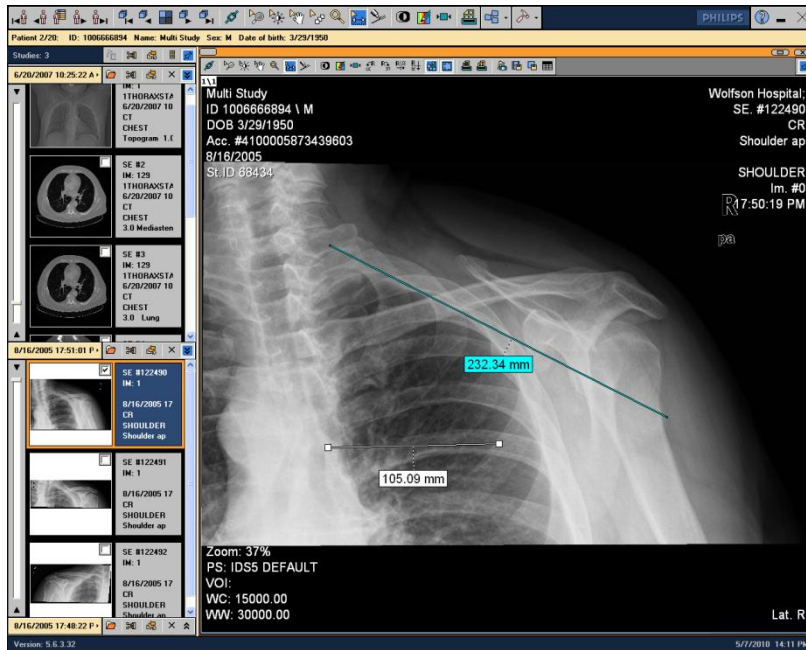


Figure 122: Linear Measurement example

18.2 Density Values Measurement (Density choice)

This option allows measuring the density of a chosen point.

This is done as follows (**Figure 123**):

Select **Density** option using the mouse.

Move the mouse to a chosen location on the image.

Hold the left button of the mouse and place the mouse on the requested measured point on the image.

Once leaving the left button the measured density is seen (including its calculations).

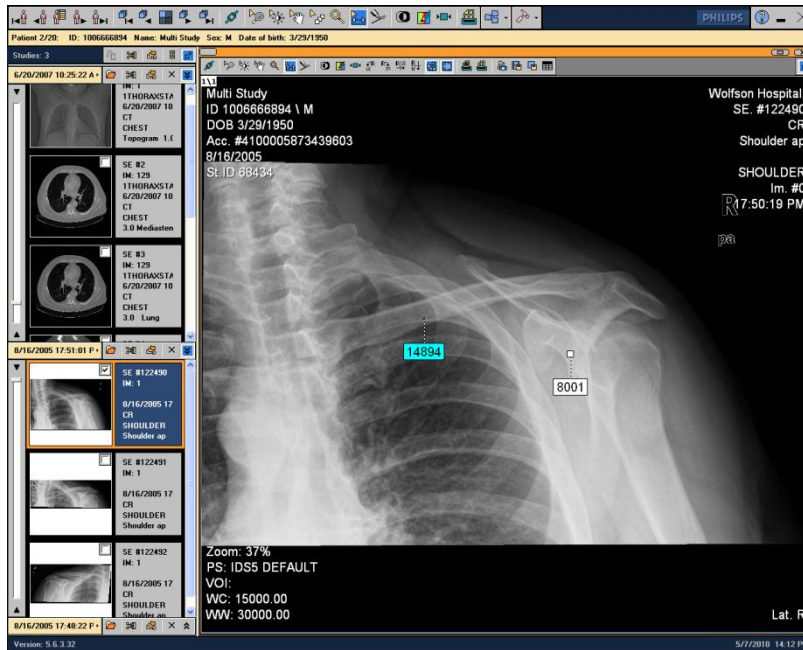


Figure 123: Density Measurement example

18.3 Area Measurement (Ellipse, Rectangle, Polygon Choice)

This selection allows measuring the area under an ellipse (Figure 124), rectangle (Figure 125) and polygon (Figure 126).

To measure both an ellipse and a rectangle do as follows:

Select the required shape using the mouse.

Move the mouse to a chosen location on the image.

Hold the left button of the mouse and place the mouse on the requested source measured point. Drag the mouse to a desired measurement destination point.

Once leaving the left button the measured area including its minimum calculated intensity point is displayed.

In order to measure a polygon, do as follows:

Select the required shape using the mouse.

Move the mouse to a chosen location on the image.

Hold the left button of the mouse and place the mouse on the requested source measured point. Drag the mouse to a desired polygons' edge. When you release the left mouse button, the polygons' edge is set.

Continue with the polygons' creation according to the previous stage.

Double-click or press the <ESC> button to end the polygon's creation and the measured area including its minimum calculated intensity point is displayed.

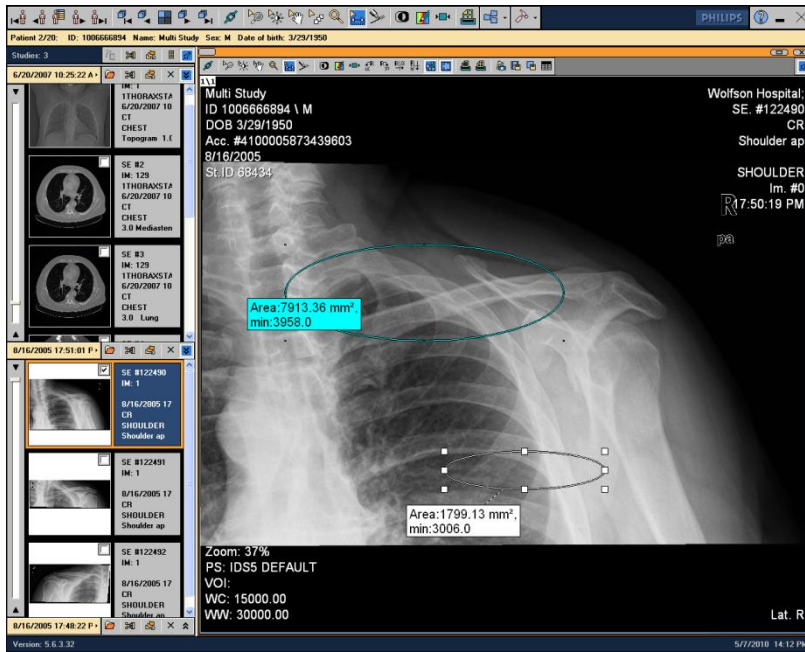


Figure 124: Ellipse area measurement example

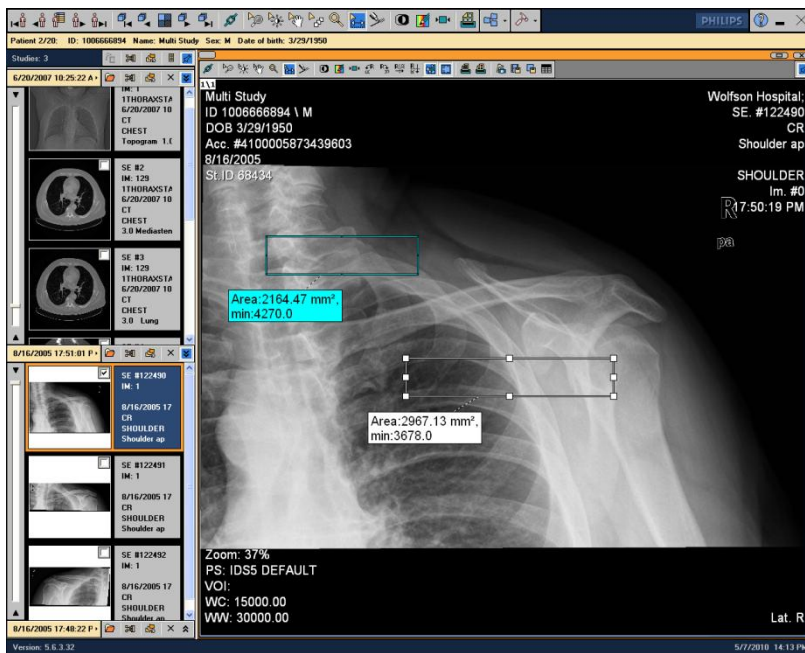


Figure 125: Rectangle area measurement example

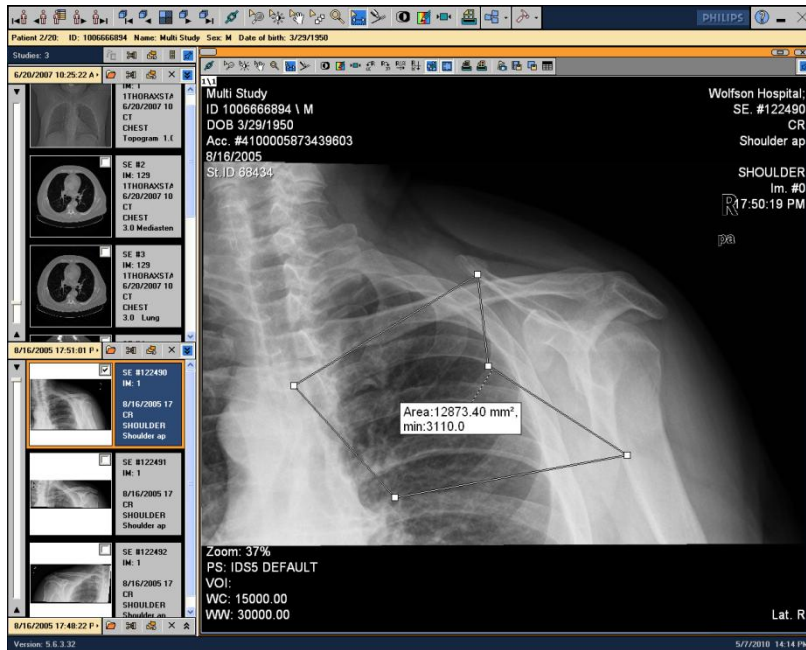


Figure 126: Polygon area measurement example

18.4 Intersecting Angle Measurement (Angle choice)

This option allows measuring an angle between its openings.

This is done as follows (Figure 127):

Select **Angle** option using the mouse.

Click the mouse once on the desired location until an angle of 90° is displayed.

Hold the left button of the mouse and drag the angles' lines openings to the desired ones.

Once leaving the left button the measured angle is being shown (including its calculations).

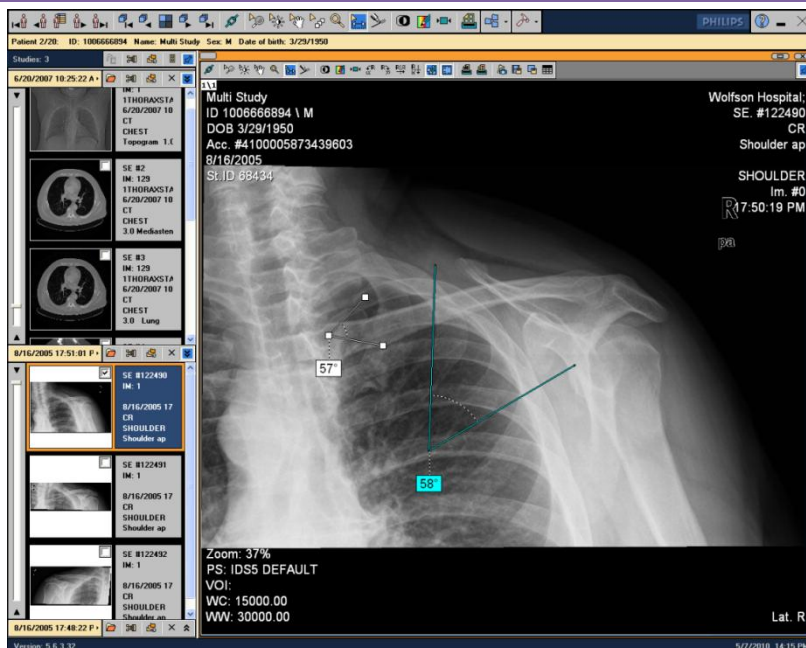


Figure 127: Angle measurement example

18.5 Cobb Angle Measurement (Angle between Lines Choice)

This option allows measuring an angle between defined lines.

This is done as follows (Figure 128):

Select **Angle between Lines** option using the mouse.

Click the mouse once on the desired image location until an angle of 0° is displayed.

Hold the left button of the mouse and drag the angle itself to the desired location.

Once leaving the left button the measured angle between the lines is being shown (including its calculations).

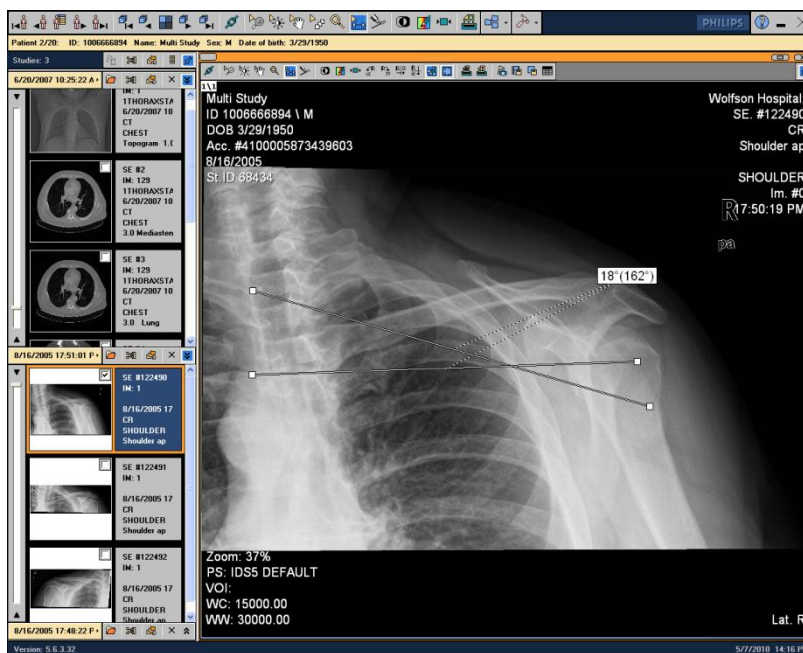


Figure 128: Angle between lines measurement example

18.6 Text comment Measurement (Callout Choice)

This option allows adding a text callout comment.

This is performed as follows (Figure 129):

Select **Callout** option using the mouse.

Click the mouse once on the desired image location until a text box is displayed.

Insert the required text. Click **OK** to confirm. Otherwise, click on **Cancel** button.

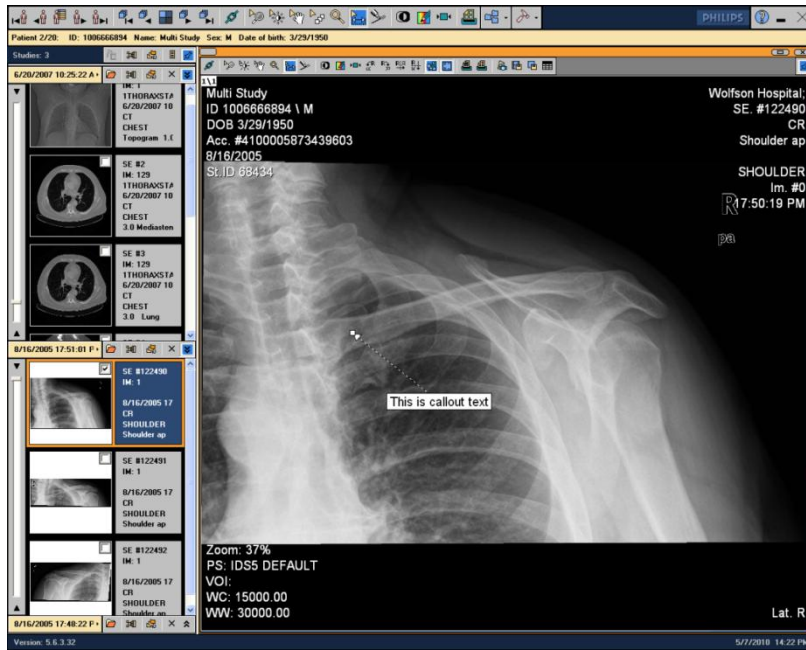


Figure 129: Callout measurement example

18.7 Pointer Interest Annotation (Arrow Choice)

This option allows arrow pointing.

This is performed as follows (Figure 130):

Select **Arrow** option using the mouse.

Move the mouse to a chosen location on the image.

Hold the left button of the mouse and place the mouse on the requested source measured point.

Drag the mouse to a desired measurement destination point.

Once leaving the left button the pointed area is displayed.

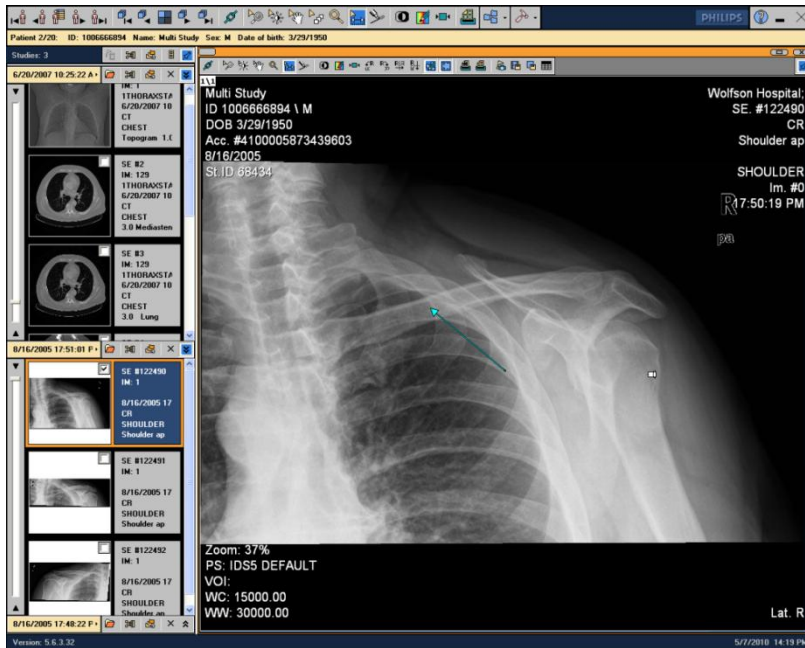


Figure 130: Arrow measurement example

18.8 Text Annotation (Text Choice)

This option allows adding text.

This is performed as follows (Figure 131):

Select **Text** option using the mouse.

Click the mouse once on the desired location on the image until a text box is displayed.

Insert the required text. Click **OK** for confirmation. Otherwise, click on **Cancel** button.

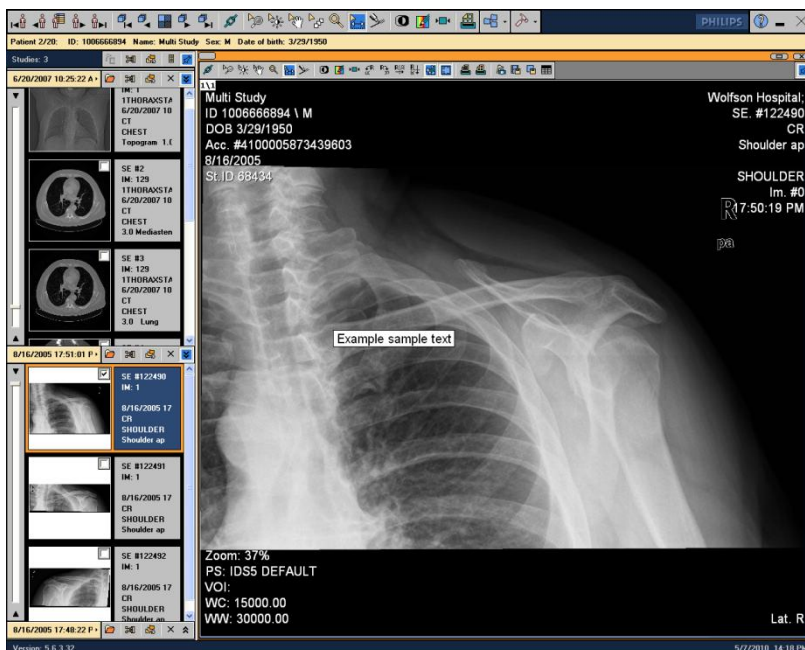


Figure 131: Text measurement example

18.9 Edit Text Annotation

This option allows editing text after inserting it.

This is done as follows (Figure 132):

Select the text to the image to be edited.

Right-click and select **Edit Text**.

Edit the required text. Click **OK** for confirmation. Otherwise, click on **Cancel** button.

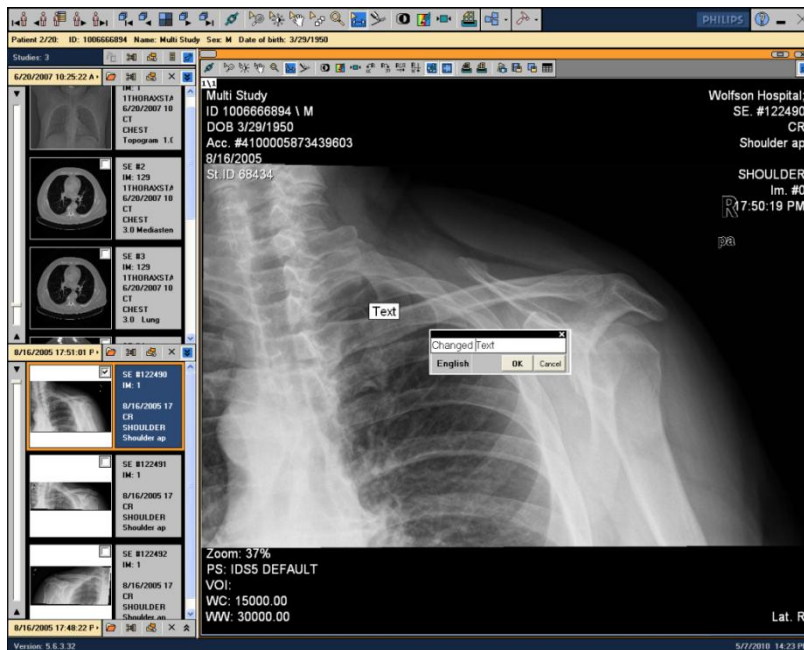


Figure 132: Edit Text Measurement example

18.10 Calibrate

This option enables the calibration of image measurements. This option is available only on non-calibrated images or on non-calibrated image areas. Note that this option becomes active using [Distance](#) option. After the calibration definition is set, it is used for every kind of selected measurement.

This is performed as follows (Figure 133):

Select **Distance** choice using the mouse.

Measure the required distance in pixels.

Right-click and select **Calibrate**. A text box appears (Figure 134).

Edit the required units. Click on **OK** button for confirmation. Otherwise, click on **Cancel** button.

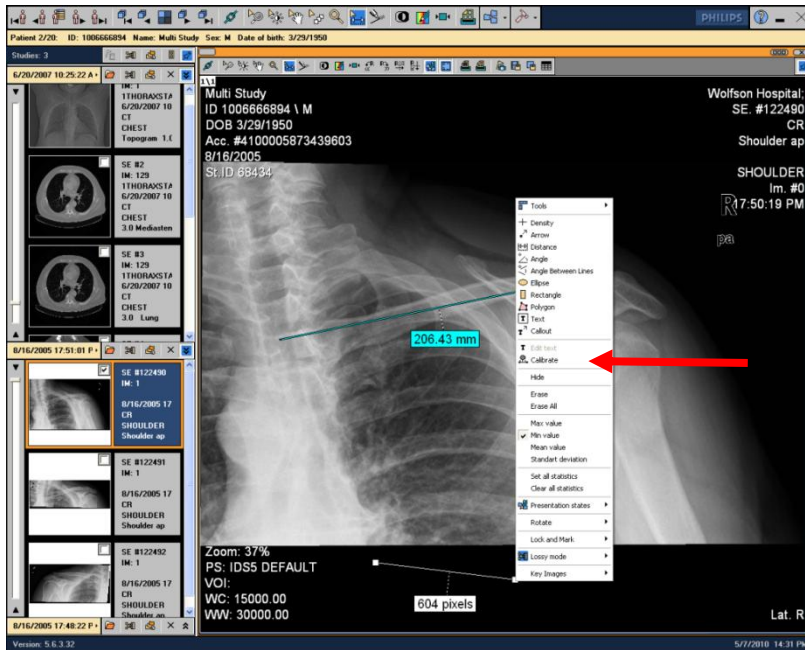


Figure 133: Calibrate option is active

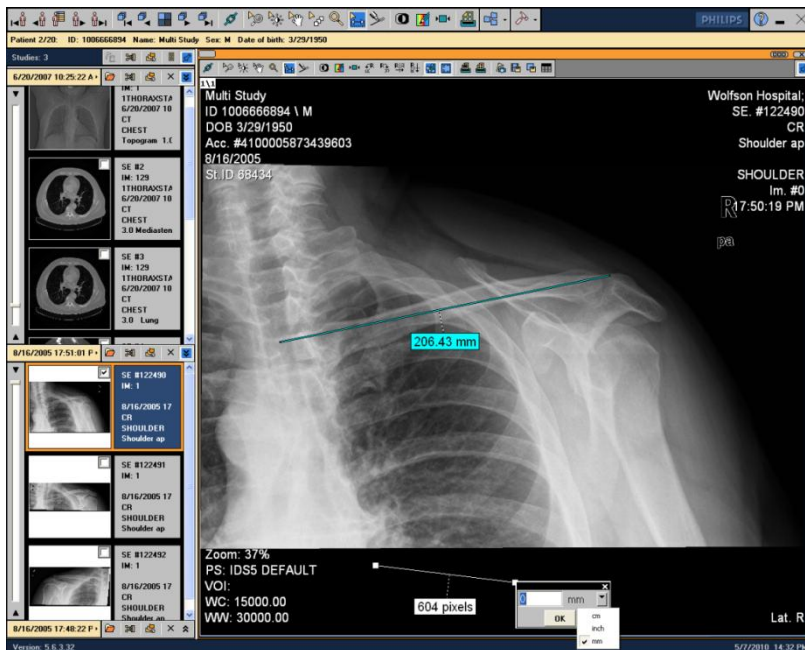


Figure 134: Calibration box example

18.11 Hide

This option hides the entire measurements performed.

Select **Hide** option using the mouse and all the measurements are hidden (**Figure 135**).

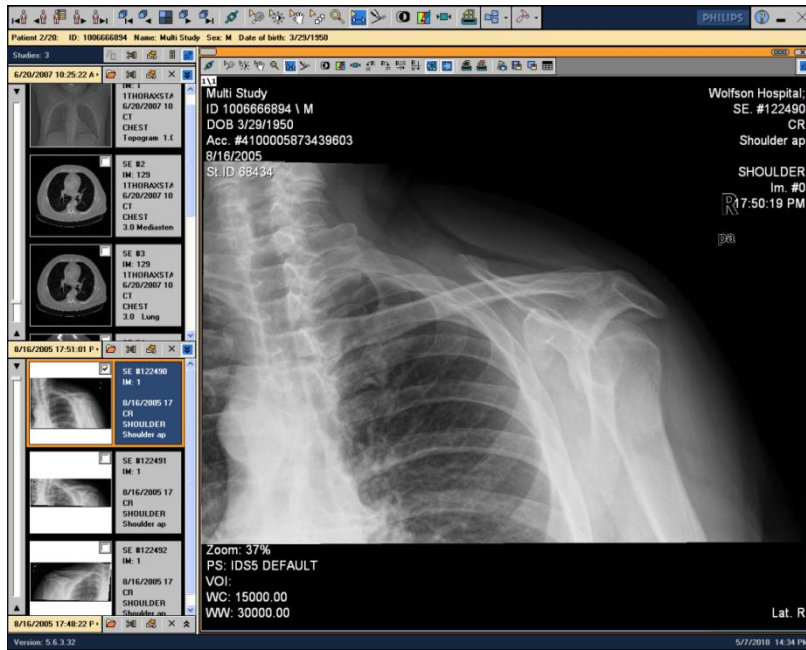


Figure 135: Hide Measurements example

18.12 Erase

This option erases a selected measurement.

This is done as follows:

- Place the mouse on the object to be deleted and click it.
- Select the **Erase** option using the mouse.

18.13 Erase All

This option erases all the measurements.

Select **Erase All** option using the mouse and all the measurements are erased.

18.14 Displayed Values for Area Measurement

In cases of [Area Measurement \(Ellipse\)](#) in addition to the value given as default (Area), it is possible to add the values as seen below.

Right-click and select one of the following values to be added: **Max Value, Min Value, Mean Value, Standard Deviation** or **Set All Statistics** option using the mouse.

Choose one of the area measurement possibilities (Ellipse, Rectangle or Polygon).

Select the desired area to be measured.

In order to clear all the displayed values, select **Clear All Statistics** option using the mouse.

19. Key Image

This option generates new image manipulations performed on an image or a set of images.

19.1 Save Key Image

It is possible to define a set including all kinds of different operations performed on an image or a set of images and add it as a new image (it is added as a key image).

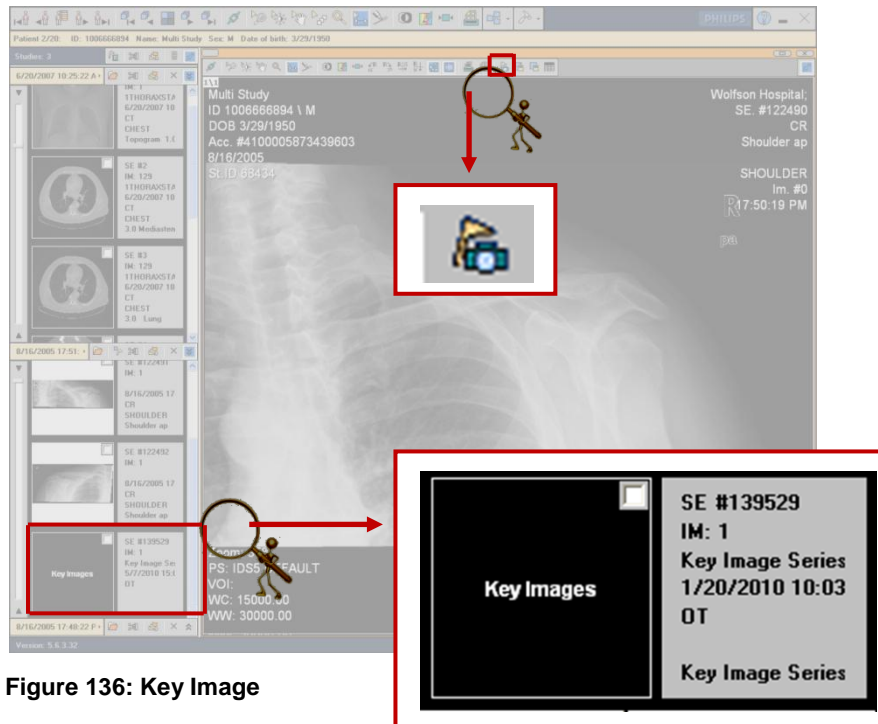


Figure 136: Key Image

This is performed according to the following steps:

Select an image to be saved as a key image (make sure it is displayed on the screen)

Perform all desired operations

Click  icon and **Figure 137** appears

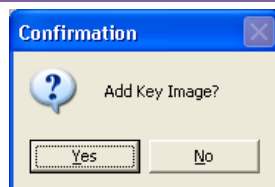



Figure 137: Key Image confirmation

Click on **Yes** button to add a Key image. This Key Image is added as an image preview on the left side of the screen (**Figure 138**). Otherwise, click **No** button

It is possible to use  icon to store in the database images saved as key images.

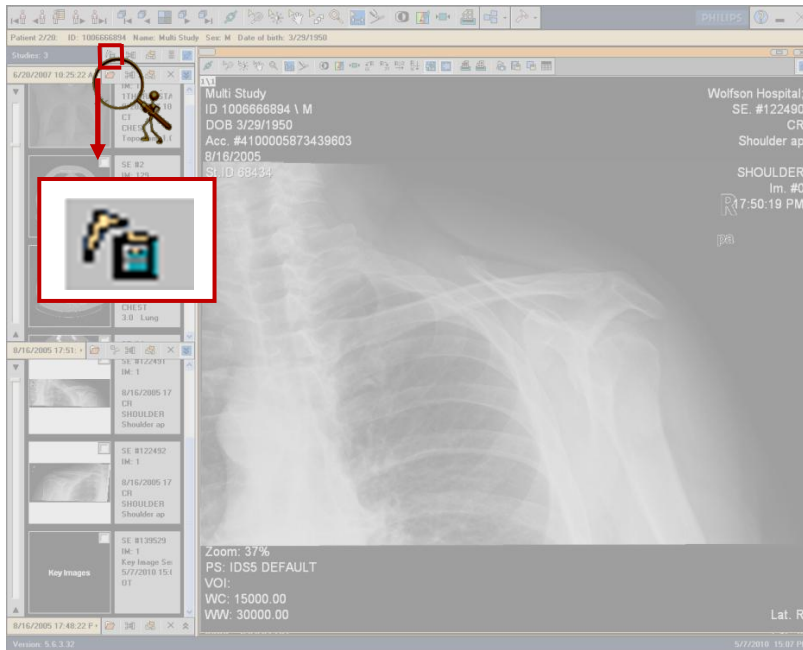


Figure 138: Save Key Image icon location

It is possible to add a key image using the right click option; right click the mouse while placing it on the selected image, and select **Add Key Image** (see Figure 139):

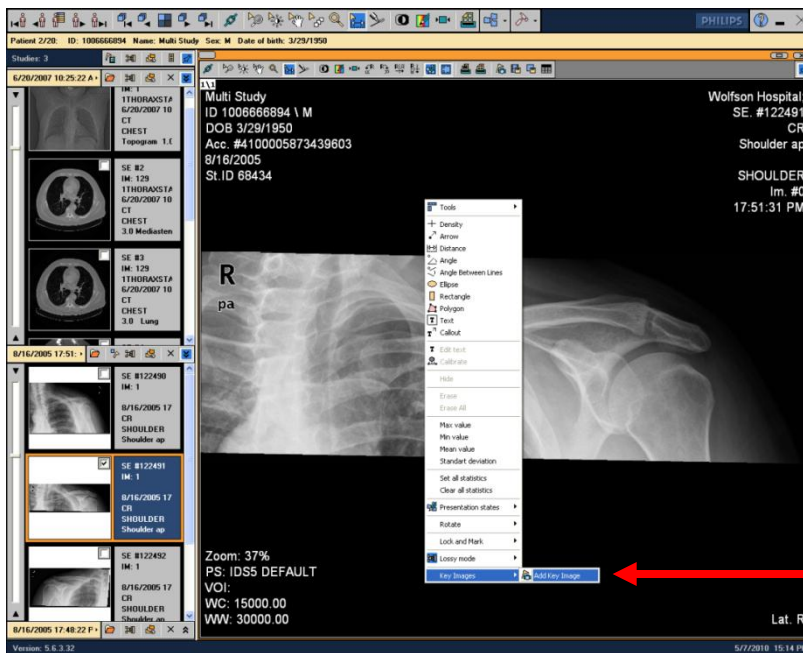


Figure 139: Add Key Image via right click



TIME SAVER: To add key images without having to confirm each one: Go to: **Options > Preferences > Main screen > General section > Prompt confirmation before adding of key images** option in MDC PACS Client screen (Figure 140) and uncheck this option. You no longer need to confirm each key image as in Figure 137.

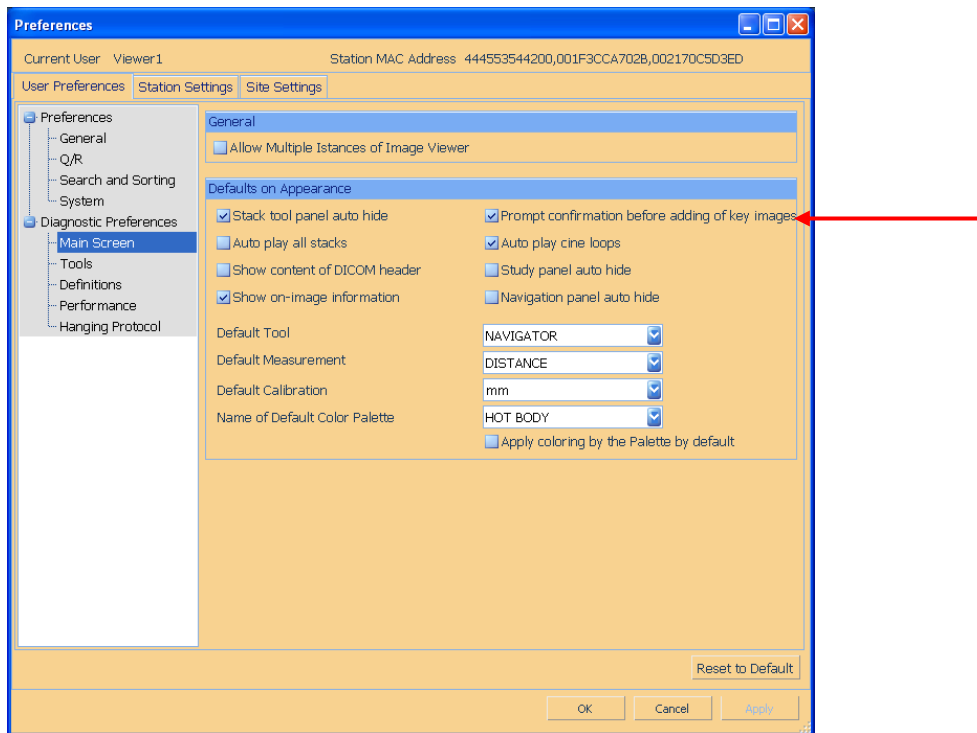


Figure 140: Prompt confirmation before adding of key image option

19.2 Remove Key Image

It is possible to remove an existing key image previously added by doing as follows:

Right click the mouse while placing it on the selected image

Select **Remove key image** (Figure 141)

After choosing Remove key image option, **Figure 142** appears.

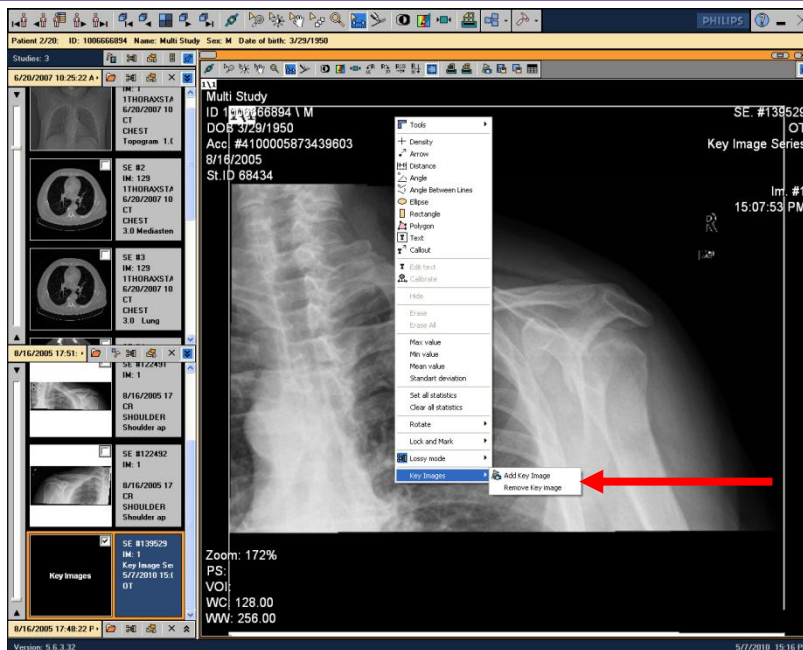


Figure 141: Remove Key Image selection

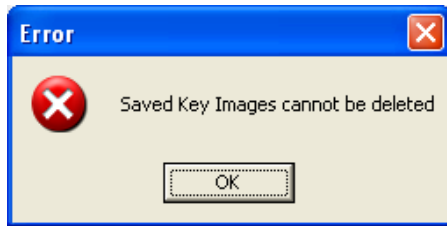


Figure 142: Remove key image Error message

Note that if a Key Image is saved, it cannot be deleted.

20. Hanging Protocol

This option defines how the studies appear by default in the **DiagNET**. Configure Hanging Protocols in the **MDC PACS Client** as follows: go to: **Options > Preferences > Hanging Protocol** section (**Figure 143**). This screenshot shows a list of Hanging Protocols (refer to **MDC PACS Client** user manual for further explanation). Note that by default the first protocol is being viewed.

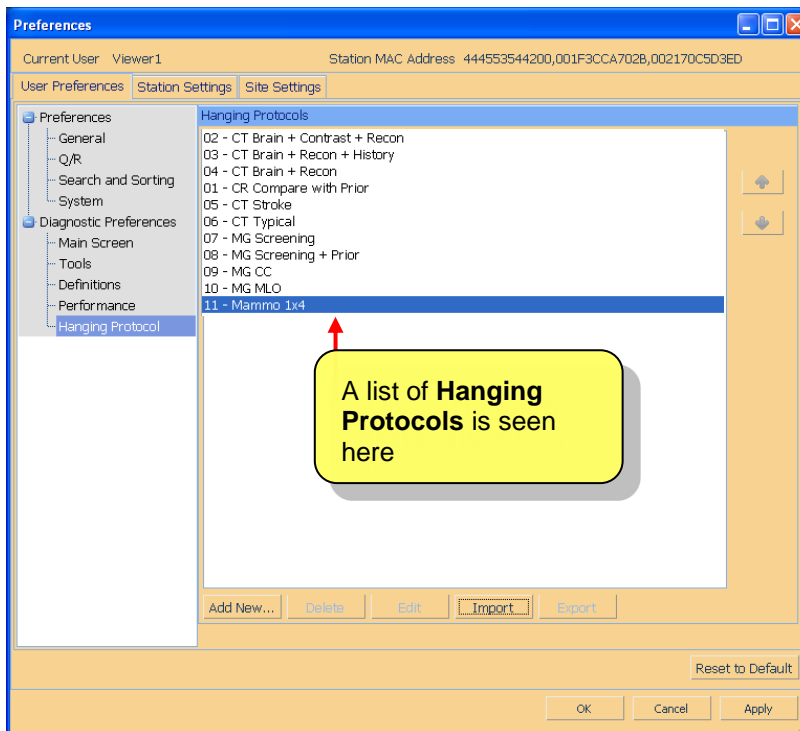


Figure 143: Hanging Protocol screen

Figure 144 emphasizes that the hanging protocol is applied automatically and the defined matrix is displayed (in this example, a 1x2 matrix with side-by-side view).

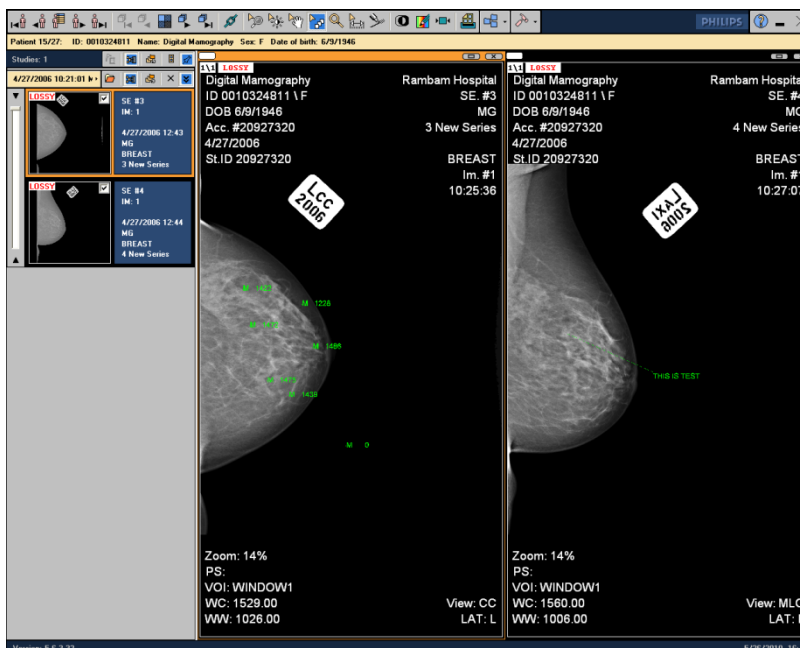


Figure 144: Hanging Protocol example

20.1 Hanging Protocol Selection

It is possible to select a specific Hanging Protocol by using the following ways:

Click the arrow next to the Hanging Protocol button and a drop-down list of set protocols are shown (**Figure 145** for example). Choose the required hanging protocol.

Click on **F11** key on the keyboard to move to the next hanging protocol.

Click on **F12** key on the keyboard to reach the previous hanging protocol.

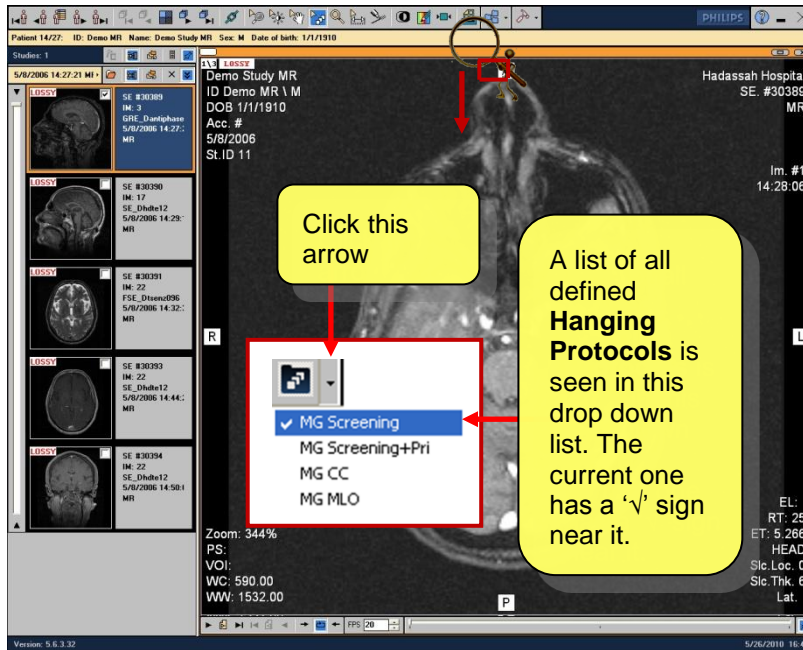


Figure 145: Hanging Protocol selection option

21. DICOM Print

This chapter describes the printing features of the *MDC PACS*. The *MDC PACS* enables the user to print any images to a DICOM Printer.

Printing DICOM images can be done by either:

- Direct DICOM Print – Printing the current layout directly from *DiagNET*
- Print Composer – Previewing and creating a layout of multiple pages

21.1 Direct DICOM Print

The Direct DICOM Print workflow enables printing images to a DICOM Printer directly from *DiagNET*. A print dialog is not displayed. Rather, the print is immediately sent to the station's default printer.

This section describes how to:

- Define the default DICOM Printer for the station
- Create the layout and print the required images

21.1.1 Defining the DICOM Printer for the Station

A DICOM Printer must be defined for the station used to print.

To configure the DICOM Printer:

Select **Options** from the menu bar in *MDC PACS Client*.

Select **Preferences**.

In the *Station Settings* tab, select **Printer Settings**.

In the *Default Printer Settings*, choose the *printer*, *template* and all the required configuration settings from the drop-down menus.

Click **Apply** to apply the settings to *MDC PACS*.

Click **OK** to configure the selected printer.

The selected printer is set as the default printer for all users from that specific station.

NOTE: It is required to logout from *MDC PACS Client* for the settings to take effect.

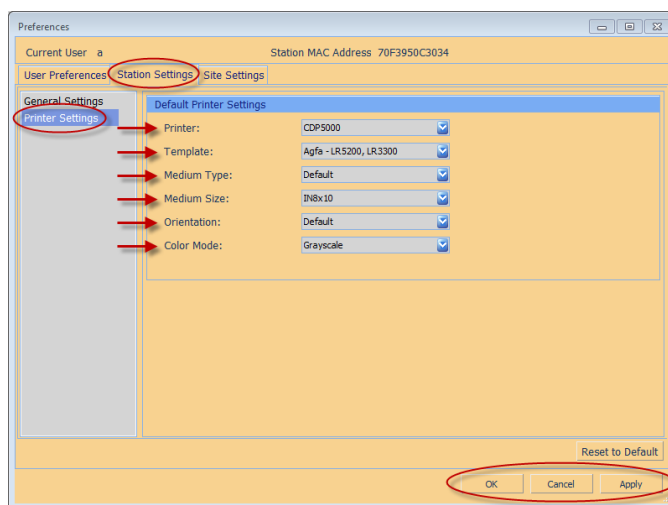


Figure 146: Printing Preferences Page

NOTE: A temporary default printer cannot be set for one session. However, one can easily configure the default printer and then change it once the session is complete. If no DICOM print settings appear, speak to system administrator.

21.1.2 Creating the Layout and Printing

Direct DICOM Print enables the user to print the layout as it is displayed in *DiagNET* to a pre-configured DICOM Printer. The print appears exactly as it is shown in *DiagNET* including the matrix layout, patient information and any image annotations and manipulations.

NOTE: In order to use the Direct DICOM Print feature, it is required that a default DICOM Printer be defined for the station from which the printing is executed.

NOTE: All screen specific information, such as the zoom factor or window level, are not printed on the images since factors may change once printed on film.

NOTE: Reference lines will appear on images printed through the Direct DICOM Print workflow. Reference lines do not appear on images printed through the Print Composer.

NOTE: True Size printing is only available through the Print Composer.

NOTE: If images from different studies are printed on one film, "Multi Study" is printed in place of study information (e.g. Accession Number, Study Date, etc...). However, annotations on patient level will always be printed. This practice ensures that a mismatch between images and on-film annotations never occurs.




WARNING: For safety purposes, image specific annotations that appear on pages with images from different studies are replaced by multi study annotations.

There are three alternative ways the image can be printed.

To print an image to a DICOM printer:

- Select **Print Screen** from the DICOM Print drop-down menu (see **Figure 147**).

NOTE: The  icon can be selected to repeat the last print selection. Meaning, if **Print Screen** is selected, the DICOM Print icon will print the screen again.

- Right-click on the selected image > select **DICOM Print**> select **Print Screen**.
- Press **Ctrl+P** (shortcut keys).

NOTE: It is possible to set user specific keyboard shortcuts through the user preferences (see **Figure 162: Print Composing Default Settings**).

The image is sent to the print spooler (*MDC Client Service*) and printed.

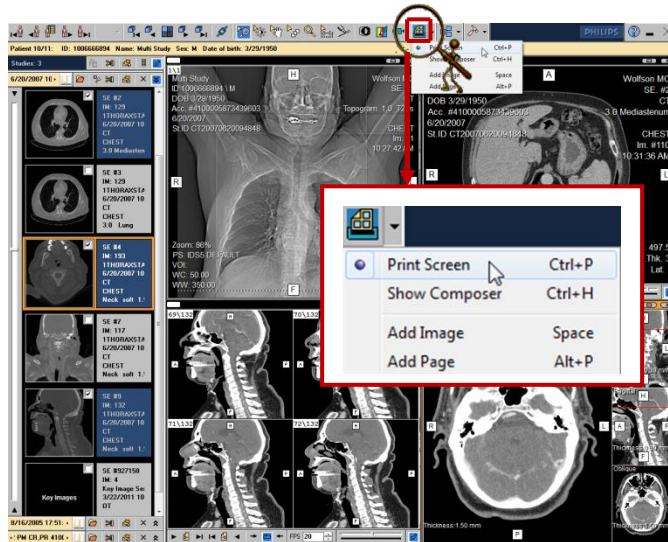


Figure 147: DICOM Print icon

NOTE: The Print Spooler (MDC Client Service) is an autonomous system tray application that notifies the user on any status updates, such as pending print jobs, print errors or job completion. As a separate application, the MDC Client Service can continue to handle all print jobs even if DiagNET or MDC PACS Client are closed.

21.2 Print Composer

The Print Composer enables the user to preview and layout the print pages before sending to the printer (See **Figure 148**).

The first image that is added launches the *Print Composer* and adds the image to the *Thumbnail Preview Panel*. Any additional images are added to the *Thumbnail preview Panel* in a sequential order.

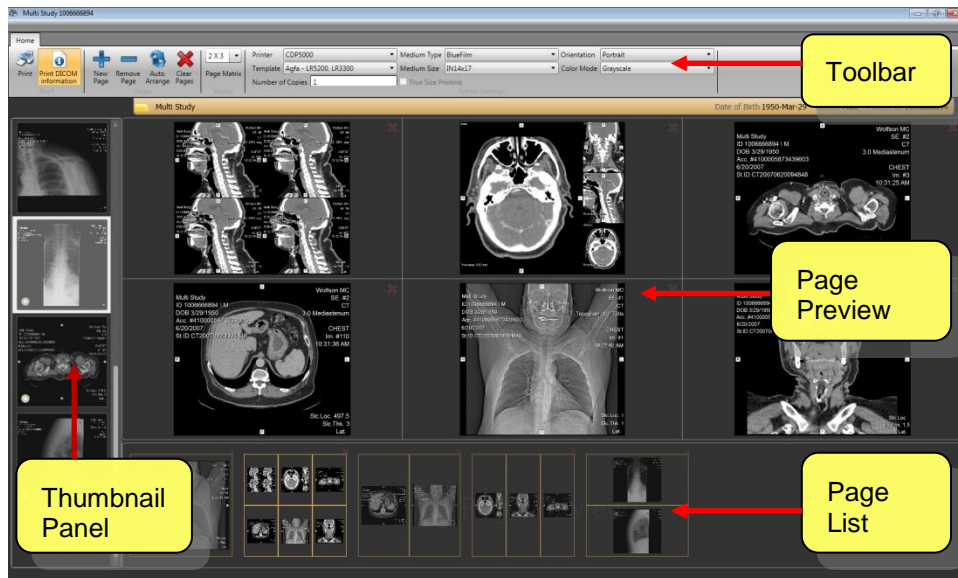


Figure 148: Print Composer

NOTE: The default monitor and location of the Print Composer can be modified through the Station Settings. (See section 12.2 Station Settings in the MDC PACS R2.3 SP2 User Guide.)

Once launched, Print Composer can be open by:

- Selecting the Print Composer in the Taskbar (see **Figure 149**).



Figure 149: Print Composer Taskbar Icon

- Selecting Show Composer from the right-click menu (see **Figure 150**).

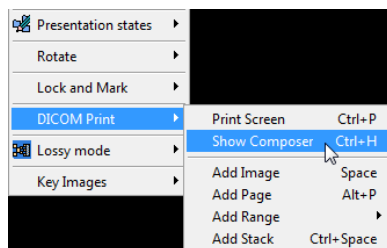


Figure 150: Show Composer from Right-click Menu

- Pressing the shortcut keys Ctrl+H (default).

NOTE: The shortcut keys can be modified at any point. For a further explanation on where to modify the shortcut keys, see *Adding Images from Pre-Configured Shortcut Keys*.

NOTE: If the *Print Composer* is closed with images on pages that have not yet been printed, the images will not be saved. The following error message is displayed:

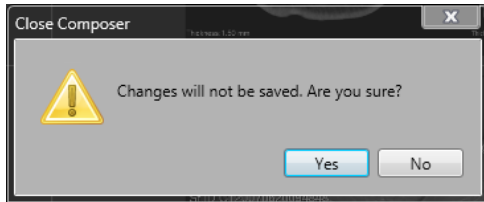


Figure 151: Close Composer Message

There are various different features available with the *Print Composer*. This section describes:

- Adding images from *DiagNET*
- Adding images from *DiagNET* through pre-configured shortcut keys
- Adding/Removing pages in *Print Composer*
- Setting the matrix layout in *Print Composer*
- Arranging the images in the *Print Composer*
- Printing configuration settings
- Printing images

21.2.1 Adding Images from *DiagNET*

It is possible to add a single image, a matrix layout, a range of images, or a complete stack of images from *DiagNET* to the *Print Composer*.

NOTE: An internal matrix layout in *DiagNET* that is added to the *Print Composer* is added as a single page.

21.2.1.1 Adding an Image

The **Add Image** option adds only the selected image in *DiagNET* to the *Thumbnail Panel* in the *Print Composer*.

To add a single image to the *Print Composer*:

Right-click in *DiagNET* on the image you want to add to the *Print Composer*.

Select **DICOM Print** from the right-click menu > then select **Add Image** (see **Figure 152**).

OR

Select **Add Image** from the DICOM Print icon drop-down menu (see **Figure 153**).

The image is added to the *Thumbnail Preview Panel* in the *Print Composer*.

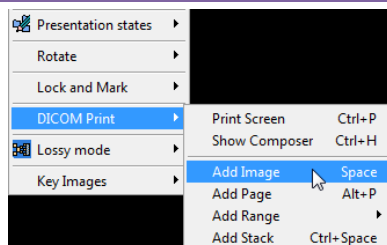


Figure 152: Add Image from Right-click Menu

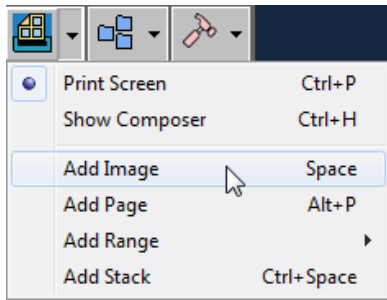


Figure 153: Add Image from Toolbar Icon Drop-Down Menu

NOTE: Adding images can be added with a shortcut key as well. The default shortcut key is Space bar. For more instructions on how to modify the shortcut keys see 21.2.2 **Adding Images from Pre-Configured Shortcut Keys.**

21.2.1.2 Adding a Page

The **Add Page** option adds the current page layout in *DiagNET* to the *Print Composer*. The page is added to the *Thumbnail Panel* and onto a page in the *Page List*. The page is displayed in the *Page Preview*.

To add a page to the *Print Composer*:

Right-click in *DiagNET* on any image.

Select **DICOM Print** from the right-click pop-up menu > then select **Add Page** (see **Figure 154**).

OR

Select **Add Page** from the *DICOM Print* icon drop-down menu (see **Figure 155**).

The page is added to the *Thumbnail Preview Panel*, the *Page List*, and the *Page Preview* in the *Print Composer*.

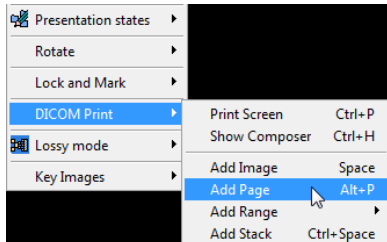


Figure 154: Add Page from Right-Click Menu

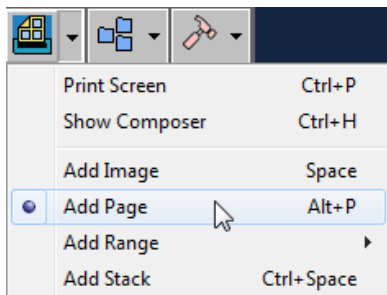


Figure 155: Add Page from Toolbar Icon Drop-Down Menu

NOTE: When pages are added with more than one image from a series, although the page appears in the *Print Composer* as it appeared in *DiagNET*, each of the individual images is added to the *Thumbnail Panel*.

NOTE: Adding pages can be added with a shortcut key as well. The default shortcut key is *Alt+P*. For more instructions on how to modify the shortcut keys see *21.2.2 Adding Images from Pre-Configured Shortcut Keys*.

21.2.1.3 Adding a Range of Images

The **Add Range** option gives the ability to add a portion of images (with possible internal skips) from a full series to the *Print Composer*. The images will appear in the *Thumbnail Panel* in the same sequential order they appear in the series.

To add a range of images to the *Print Composer*:

Right-click on the image you want to add to the *Print Composer* in *DiagNET*.

- Select **DICOM Print** from the right-click menu > then select **Add Range > Add Range** (see **Figure 156**).
- OR
- Select **Add Range > Add Range** from the DICOM Print icon drop-down menu (see **Figure 157**).

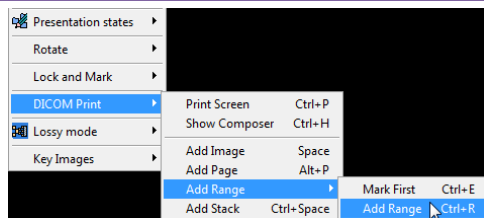


Figure 156: Add Range from Right-Click Menu

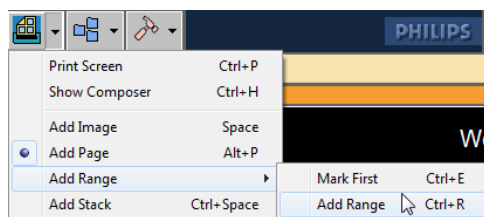


Figure 157: Add Range from Toolbar Icon Drop-Down Menu

The *Collecting images* window is shown.

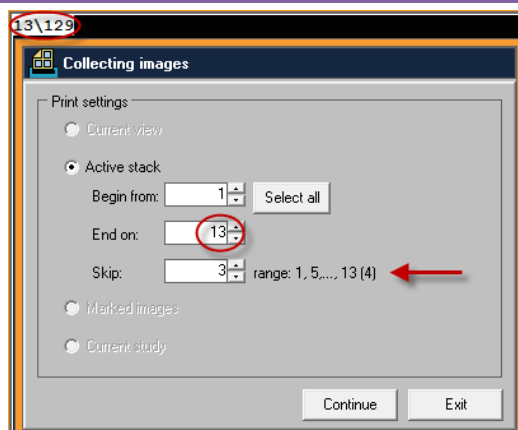


Figure 158: Collecting images window

Click **Continue** to add the selected images to the *Print Composer*.

NOTE: The add range feature automatically populates the **Begin from:** with the first image and **End on:** with the image currently viewed. In **Figure 158** the currently viewed image 13 is what automatically appears in the **End on:** field.

NOTE: The number inserted into the **Skip** field specifies the number of images that will be “skipped” between each consecutive image that will be sent to the **Print Composer**. (i.e. as shown in **Figure 158**, the number next to the **Skip** field show that within the range of 1-13, since 3 slides are to be skipped, slides 1, 5, 9, and 13 will be printed.)

NOTE: Adding a range of images can be added with a shortcut key as well. The default shortcut key is **Ctrl+R**. For more instructions on how to modify the shortcut keys see **21.2.2 Adding Images from Pre-Configured Shortcut Keys**.



TIME SAVER: To add a specific range of images without having to manually enter in the data:

Select: **Add Range > Mark First**.

Mark First enables **DiagNET** to remember the image that should appear in the **Begin from:** field of the collecting images window (see **Figure 158**).

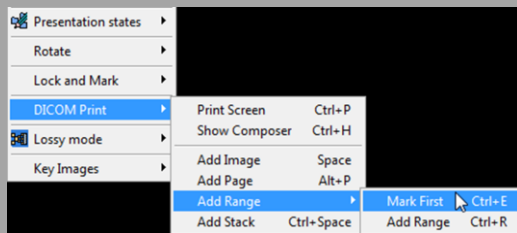


Figure 159: Mark First Selection

Scroll to the image that should appear in the **End on:** field of the collecting images window (see **Figure 158**).

Select: **Add Range > Add Range**.

The **Collecting image** window is shown with the marked images in the **Begin from:** and **End on:** fields selected.

Click **Continue**. The range of images is added to the **Print Composer**.

21.2.1.4 Adding a Stack of Images

The **Add Stack** option adds all images within a stack/series of images to the **Print Composer**.

To add a stack of images to the **Print Composer**:

Right-click in **DiagNET** on the image you want to add to the **Print Composer**.

Select **DICOM Print** from the right-click pop-up menu > then select **Add Stack** (see **Figure 160**).

OR

Select **Add Stack** from the **DICOM Print** icon drop-down menu (see **Figure 161**).

The images are added to the **Thumbnail Preview Panel** in the **Print Composer**.

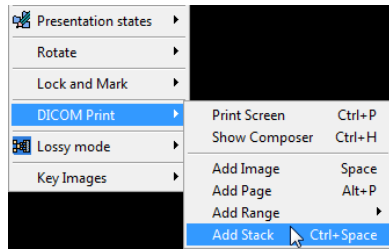


Figure 160: Add Stack from Right-Click Menu

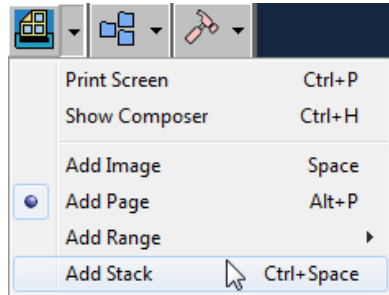


Figure 161: Add Stack from Toolbar Icon Drop-Down Menu

NOTE: Adding a stack of images can be added with a shortcut key as well. The default shortcut key is *Ctrl+Space*. For more instructions on how to modify the shortcut keys see [21.2.2 Adding Images from Pre-Configured Shortcut Keys](#).

21.2.2 Adding Images from Pre-Configured Shortcut Keys

It is possible to perform all add image operations through shortcut keys. The *MDC PACS Client* is installed with pre-configured shortcut keys as follows:

Print Composing Default Settings	
Add image shortcut key:	Space
Add range of images shortcut key:	
Mark First:	Ctrl+E
Add Range:	Ctrl+R
Show Composer shortcut key:	Ctrl+H
Add page shortcut key:	Alt+P
Add stack(series) shortcut key:	Ctrl+Space
Print screen shortcut key:	Ctrl+P

The pre-configured shortcut keys can be modified per user through the user preferences. (See **Figure 162**: Print Composing Default Settings)

To define the shortcut keys:

Select **Options** from the menu bar in the *MDC PACS Client*.

Select **Preferences**.

In the *User Preferences* tab, in the *Preferences* tree, select **DICOM Printer Settings**.

In the *Print Composing Default Settings* section, insert the *Shortcut keys for printing* in the text fields available.

Click **Apply** to apply the settings to MDC PACS.

Click **OK** to configure the selected shortcut keys.

NOTE: It is required to logout from PACS client for the settings to take effect.

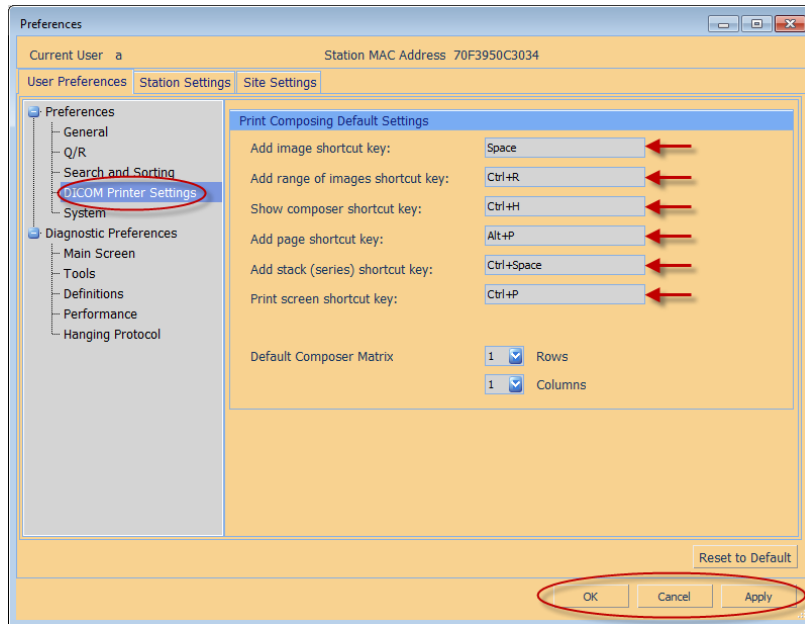



Figure 162: Print Composing Default Settings

21.2.3 Adding/Removing Pages in the Print Composer

Pages can be both added and removed in the Print Composer.

To add or remove pages:

Click the  icon to add a new page to the Print Composer (See **Figure 163**).

Click the  icon to remove the active page from the Print Composer (See **Figure 163**).

OR

Click the  icon to delete the active page from the Page Preview and the Page List (See **Figure 164**).

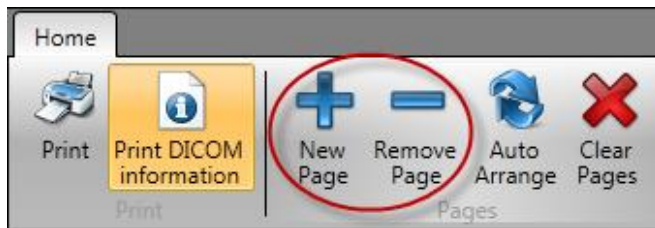


Figure 163: Pages Settings

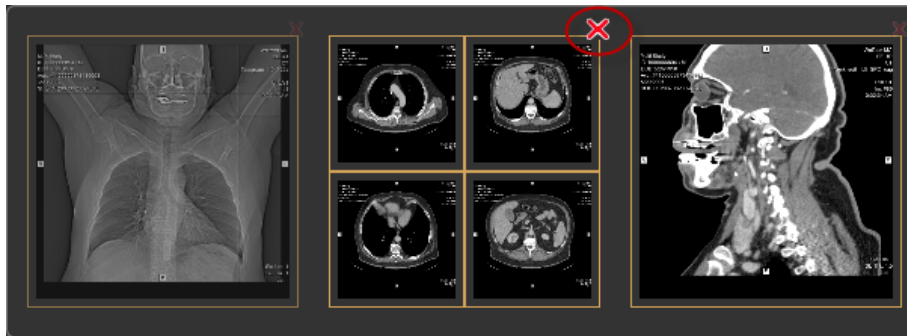



Figure 164: Remove Page Icon

NOTE: New pages are always added at the end of the Page Preview. However, any individual page can be deleted by first selecting it before clicking the  icon to remove the page.

All pages added, appear in the Page Preview along the bottom of the screen. The page, currently selected, is what appears in the Page Preview.

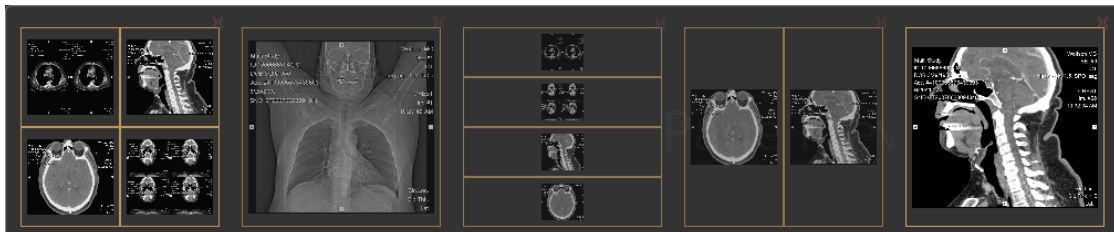


Figure 165: Page List

21.2.4 The Matrix Layout

The layout of the pages in the Print Composer can be configured by selecting the number of images the page should contain in the Page Matrix menu (see **Figure 166**). The Page Matrix setting applies to the active page in the Print Composer and remains until modified once again or the Print Composer is closed.

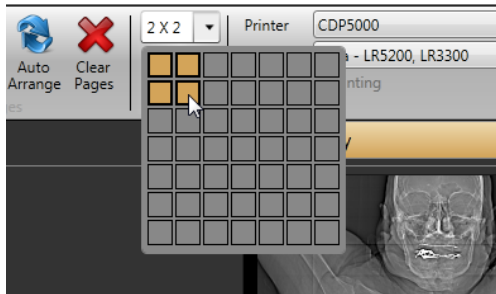
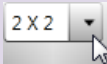


Figure 166: Page Matrix Setting

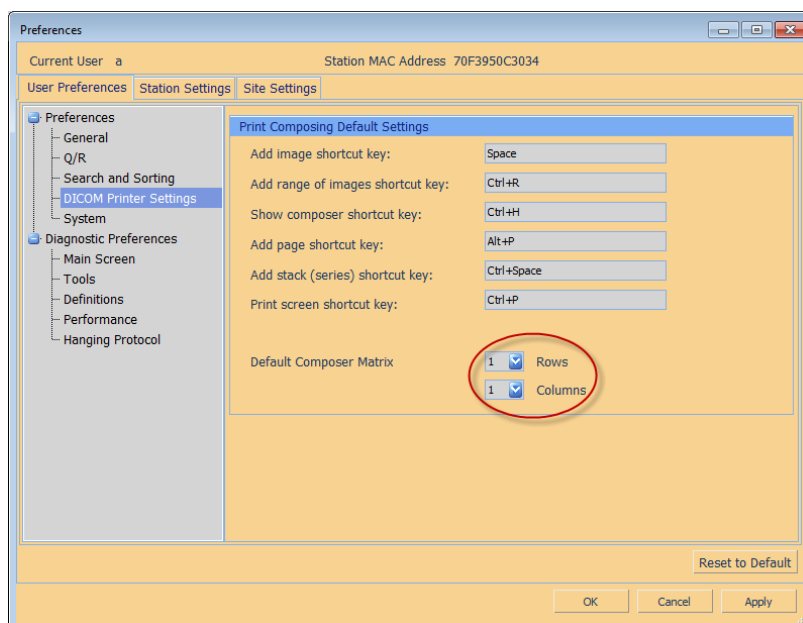
To set the page matrix:



Click the arrow to access the page matrix window.

Select the square that would represent the bottom right hand section of the page by moving the cursor onto that space. For example, the table in **Figure 166** would represent 2 rows with 2 columns.

NOTE: The Page Matrix layout is, by default, set to 1 row and 1 column. The Default Composer Matrix configuration setting can be modified in the Preferences screen of MDC PACS Client. For instructions on how to access the PACS Client Preferences, see **Adding Images from Pre-Configured Shortcut Keys**.



21.2.5 Arranging the Images in the Print Composer

Images can be added to the pages in the *Print Composer* both manually and through an automatic arrangement. All images that have been placed onto composed pages are marked with a small circle on the bottom-left side of the image in the Thumbnail Panel (see **Figure 167**).

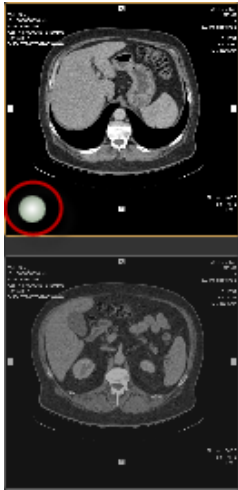


Figure 167: Added Icon in the Thumbnail Preview Panel

This section describes how to:

- Manually arrange the images on the pages in the Print Composer
- Automatically arrange the images on the pages in the Print Composer

21.2.5.1 Manually Arrange the Images on the Pages

Manually adding the pages provides the ability to add selected images on to the pages with various matrix layouts.

To add an image to one of the pages:


Select the page in which you want to add the image by clicking the page in the *Page List*. The page appears in the *Page Preview*.

Drag the image from the *Thumbnail Panel* into the *Page Preview*.

The *Page Preview* now displays the page with the selected image.

Images can also be manually removed from the pages, regardless of the layout selected.

To remove an image from one of the pages:

Select the  icon on the image you want to delete.

The image is deleted.



Figure 168: Print Composer

21.2.5.2 Automatically Arrange the Images on the Pages

The Auto Arrange feature enables you to automatically layout all the images in the Thumbnail Panel into a sequential order of the pages, according to the matrix defined.

The Auto Arrange feature is handy in the case that many images were added to the Print Composer and manual layout would be tedious.

NOTE: When using Auto Arrange, all pages already laid out will be cleared.

To use the Auto Arrange feature:

Set the preferred matrix to be used in all pages for *Auto Arrange*.



Click the **Auto Arrange** icon.

The images are automatically arranged according to the *Page Matrix* layouts currently defined configuration setting.

21.2.6 Printing Configuration Settings

The Print Composer includes various printer configuration settings. The configurable Printer Settings available in the Print Composer are:

- Printer
- Template
- Medium Type
- Medium Size
- Orientation
- Color mode
- Number of Copies
- True size Printing

Printer	CDP5000	Medium Type	BlueFilm	Orientation	Portrait
Template	Agfa - LR5200, LR3300	Medium Size	IN14x17	Color Mode	Grayscale
Number of Copies	1	<input type="checkbox"/> True Size Printing			

Printer Settings

Figure 169: Print Composer Printer Settings

NOTE: The pre-configured default DICOM Printer is automatically selected in the Printer Settings.

21.2.6.1 Printer

The Printer drop-down menu displays all printers available to print on. The printers that appear in the menu are those that have been configured in the MDC PACS Client.

For more information on how to configure a printer, see **Defining the DICOM Printer for the Station**.

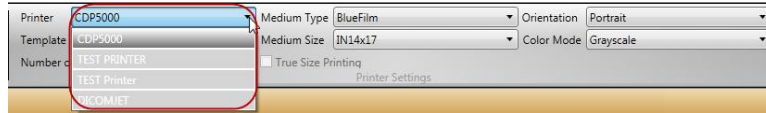


Figure 170: Printer Drop-Down Menu

21.2.6.2 Template

All DICOM images printed from MDC PACS client or the Print Composer are printed on a template that defines all print specific configuration settings. (i.e. annotations, calibrations, resolution settings, etc...).

NOTE: Only the system administrator can configure the templates, but all configured templates are available in the Template drop-down menu.

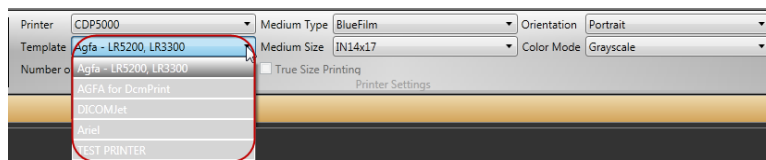


Figure 171: Template Drop-Down Menu

21.2.6.3 Medium Type

The medium type defines what type of film the DICOM image is printed on.

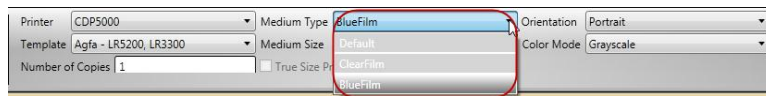


Figure 172: Medium Type Drop-Down Menu

21.2.6.4 Medium Size

The medium size defines the size of the film desired for printing.

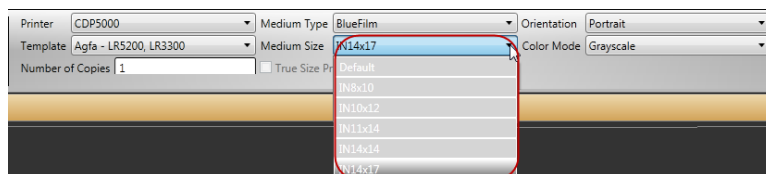


Figure 173: Medium Size Drop-Down Menu

21.2.6.5 Orientation

The orientation defines whether the printed film will be a portrait or landscape image.

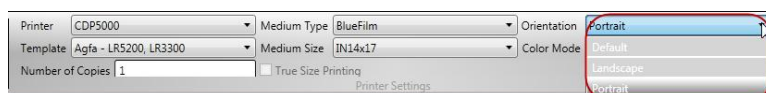


Figure 174: Orientation Drop-Down Menu

21.2.6.6 Color Mode

The color mode configuration enables printing colored images in grayscale mode.

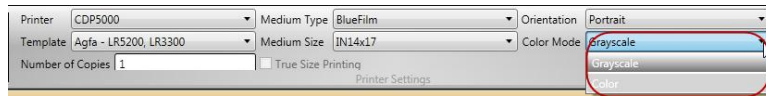


Figure 175: Color Mode Drop-Down Menu

NOTE: Printing grayscale images in color can reduce the quality of the image.

21.2.6.7 Number of Copies

The number of copies required for printing.

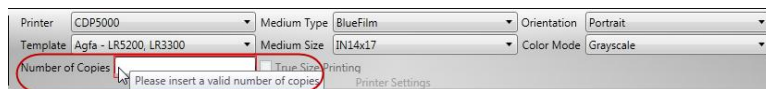


Figure 176: Number of Copies Drop-Down Menu

21.2.6.8 True Size Printing

Images can be printed in true-size through the Print Composer. Images printed in true-size are accurately measured to a true scale of the patient.

WARNING: Before printing an image in true-size, the printer, template, and film size must first be properly calibrated by the system administrator.

WARNING: There is no label on the image that specifies whether it is a true-size image or not. The user must be aware of which type of image is printed on the DICOM Printer.

WARNING: When printing a true-size image, on a properly calibrated DICOM Printer, the patient information or image annotations could potentially be cropped. If the true-size image is larger than the film size available in the DICOM Printer, the image is automatically cropped from the edges until the image is printed at a true scale.

To print DICOM images in true-size:

Mark the checkbox next to *True size printing* in the *Printer Settings* of the *Print Composer*.

NOTE: If *True Size Printing* Checkbox is disabled and cannot be selected, the specific printer or medium size was not calibrated. To correct this, contact the System Administrator.

NOTE: Not all images can be printed in True Size. If the images do not contain the relevant tags, a message will be shown when the print is attempted in True Size.

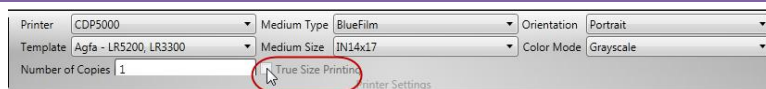





Figure 177: True Size Printing Checkbox



Click the  icon. The images are printed in true-size on the DICOM Printer.


21.2.7 Printing Images

Through the *Print Composer*, images are printed as they appear when in the *Page Preview*. All images in the *Thumbnail Panel* are printed.

Images can be printed with or without DICOM information. Click the grey icon  to print images with DICOM information or the orange icon  to print images without DICOM information.

To print the images in the Print Composer:



Click the  icon in the Toolbar to print according to the pre-configured printer settings. Images on each of the composed pages are printed.

22. Print

The **Print** feature enables printing of selected images on a PC printer. Images printed from DiagNET are printed exactly as they appear (i.e. annotations and DICOM information will be printed on the image if they exist).

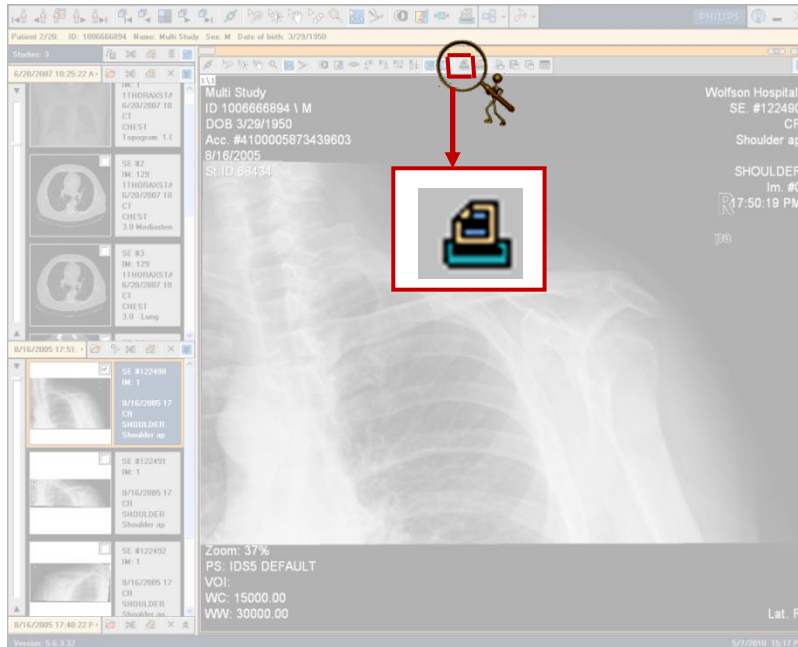



Figure 178: Print Icon

To print the images exactly as they appear in DiagNET:

Click the  icon in the image toolbar (see **Figure 178**).
The print dialog window is shown.

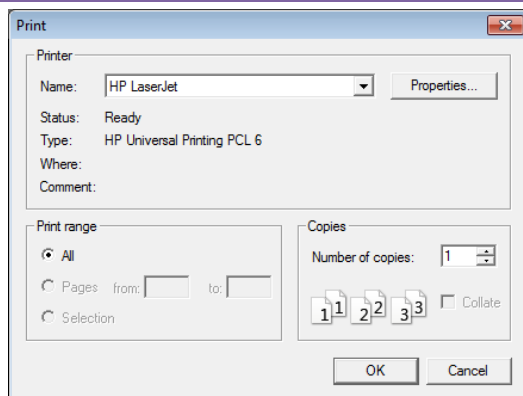



Figure 179: Print Dialog Window

NOTE: When printing images from DiagNET, print properties, other than the Number of copies, are inactive through the Print dialog window.

Click **OK** to send the image to the selected printer.
The image is printed (see **Figure 181**).

NOTE: On image information can be added or removed by selecting the  icon before printing the image (see **Figure 180**).

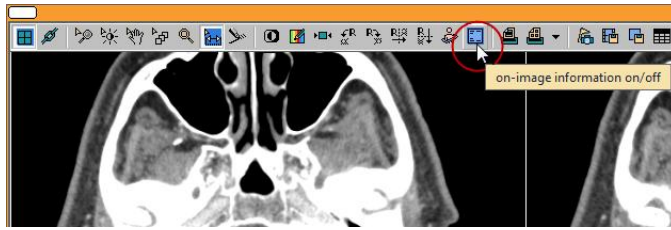


Figure 180: On-image information on/off icon

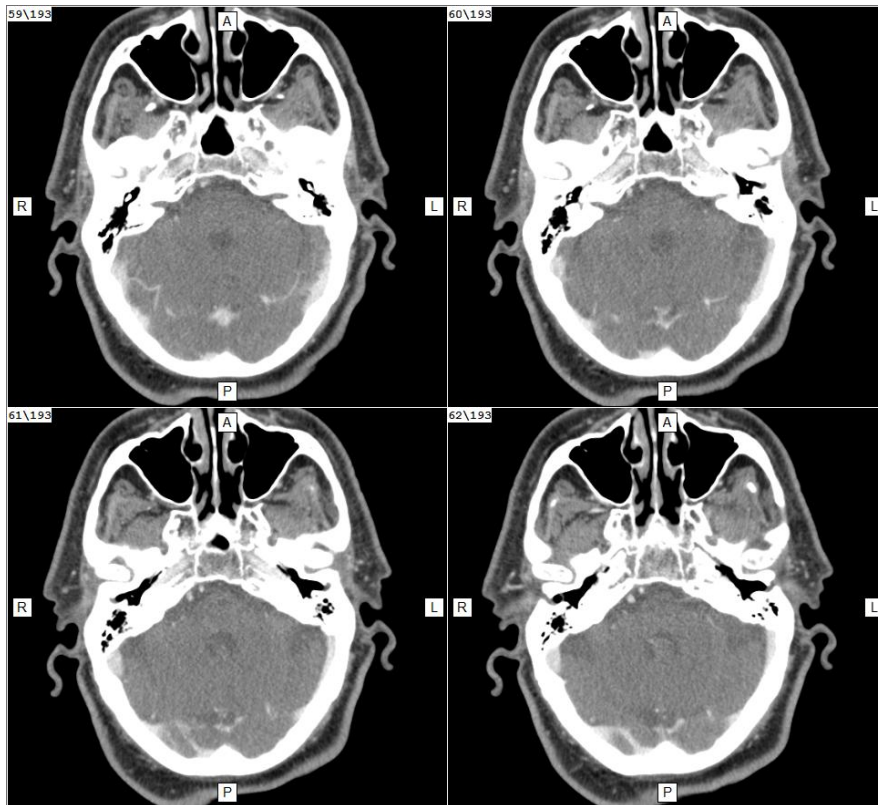


Figure 181: Example of a printed image without DICOM information

23. Advanced Tools

This chapter describes DiagNET advanced visualization tools.

Click this icon (**Figure 182**) to use PET/CT Fusion, 3D Viewer or any other available 3rd-Party advanced visualization tool.

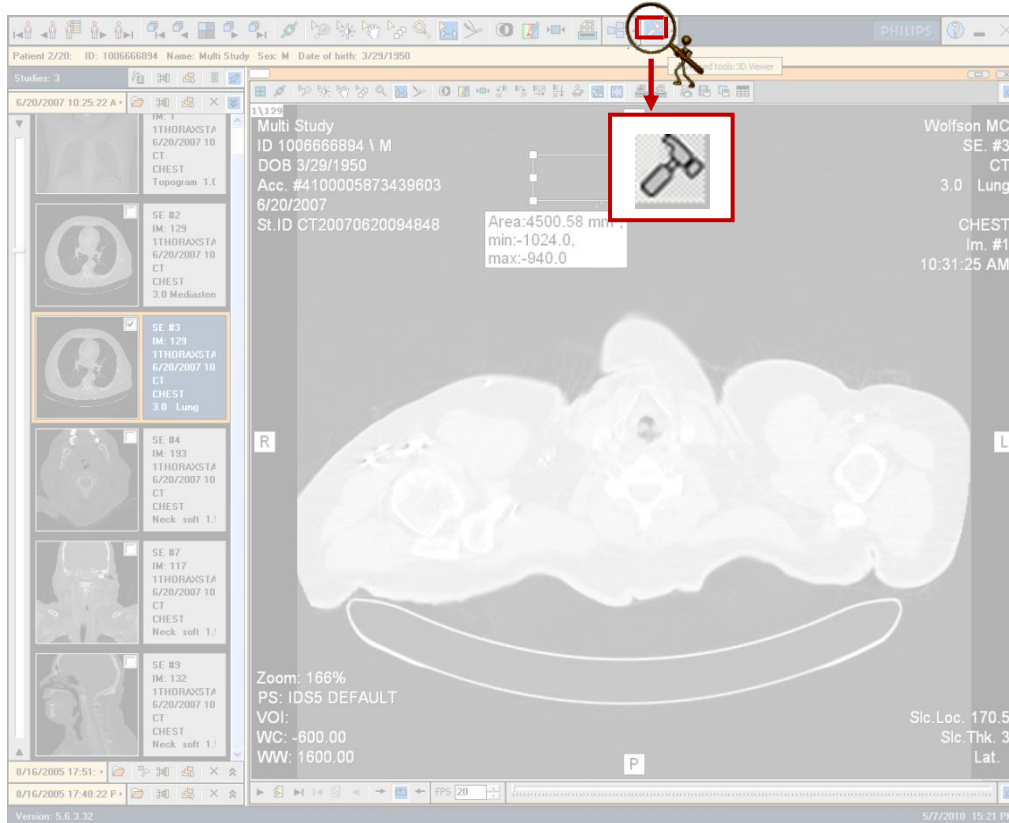


Figure 182: Advanced Tools icon location

Select one of the following options from the drop-down list:

3D Viewer	Refer to 3D Viewer user manual
Fusion	Refer to Fusion user manual

24. Attachments

This chapter deals with different attachments.

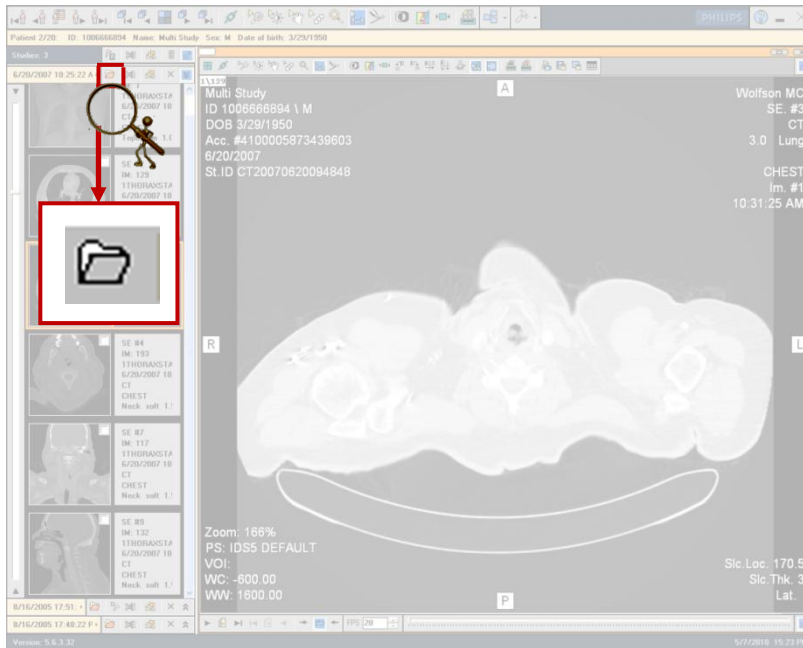


Figure 183: Open Attachments button

Clicking this icon (**Figure 183**) causes **Figure 184** to be seen. The explanations are provided according to their alphabetic order.

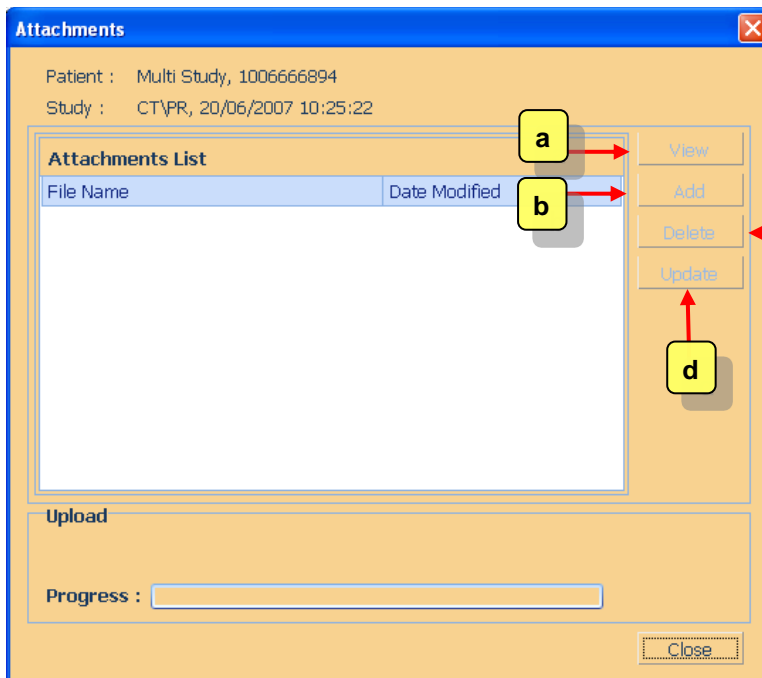


Figure 184: Open Attachments screenshot

A View button: views the selected attached file.

B Add button: adds another attachment to the **Attachments List**. Clicking it displays **Figure 185**. Select the requested file and click the **Open** button. Make sure the file is actually attached.

C Delete button: deletes the selected file (see **Figure 186 - Figure 187**).

D Update button: causes an attachment to be updated online, according to the following:

- Select the attachment to be updated
- Update it
- Click the **Update** button (**Figure 188** is seen).

View the attachment (by clicking the **View** button). Make sure the updating procedure has been successful. If no updates are done, **Figure 189** is displayed.

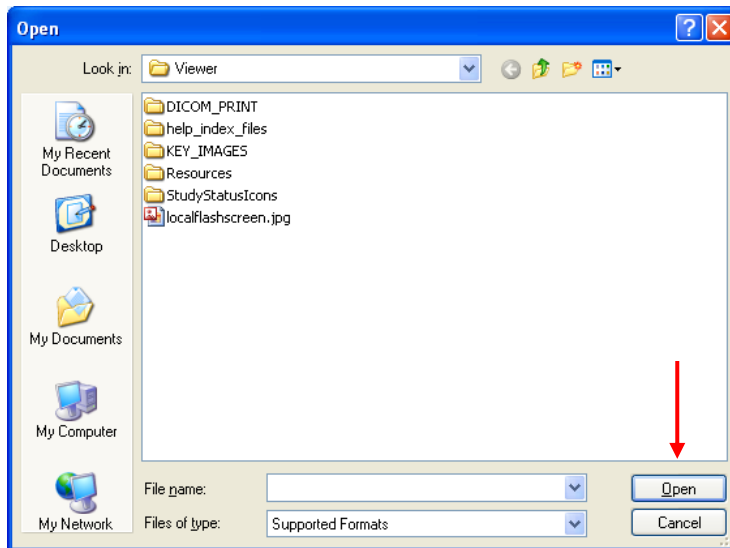


Figure 185: File to be attached screenshot

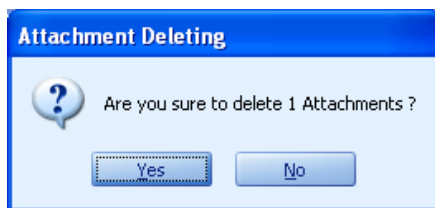


Figure 186: Delete message

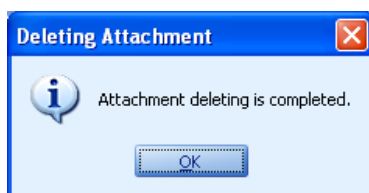


Figure 187: Deleting Attachment confirmation

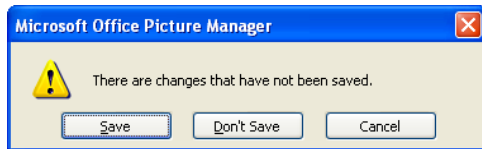


Figure 188: After clicking the Update button window

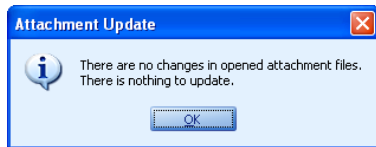


Figure 189: Attachment update not done message

25. Exporting Files

This chapter describes the various imagery file formats that can be exported from DiagNET.

25.1 Exporting AVI files

The **Export to AVI** feature enables you to export an image to an AVI file format. Therefore, if there are many frames within the image that can be viewed in sync, exporting it as an AVI file enables you to capture the entire series.

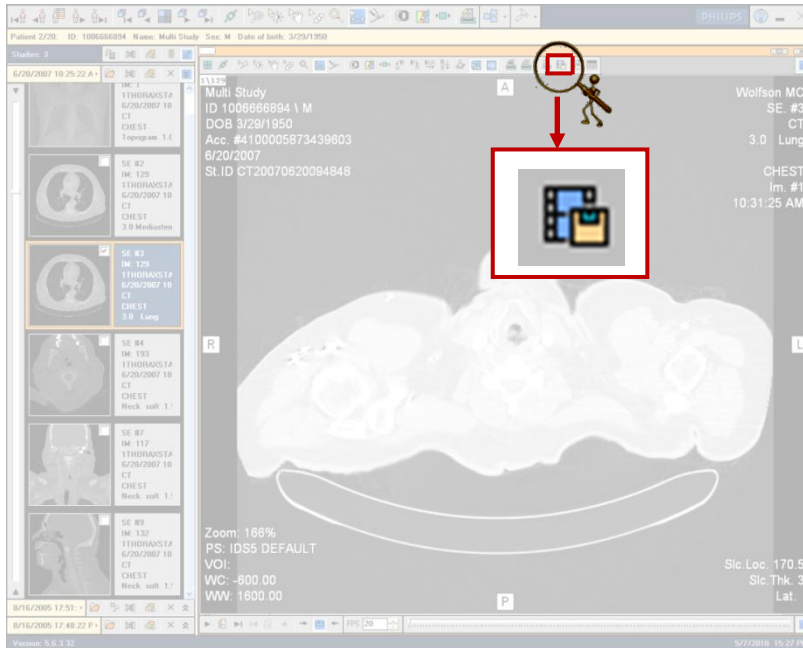



Figure 190: Export to AVI icon location

To export to an AVI file:

Click the  icon in the image you wish to export.
The Export to AVI settings are displayed. (See **Figure 191**)

The table below provides explanations according to the sequential order in which they appear in the Export to AVI settings page:

- | | |
|---|--|
| 1 | Path: Shows the path of the files to be exported. |
| 2 | Quality: Allows you to change the files' quality. Move the mouse along the bar to select Low , Medium or High image quality. |
| 3 | Lossless: Click this button to select lossy or lossless formatting. |
| 4 | Frames per second: Allows you to change the number of frames per second. |

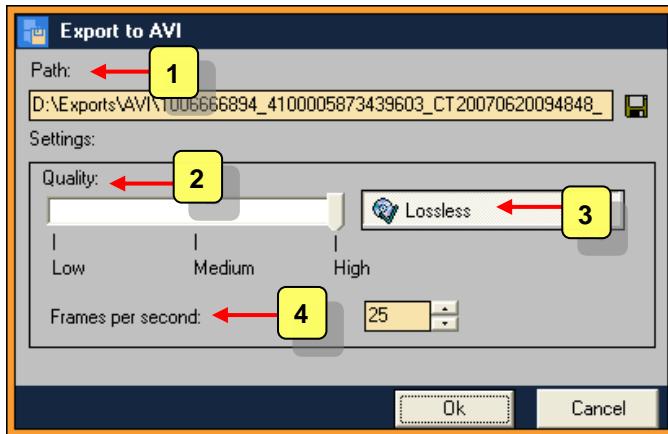


Figure 191: Export to AVI screenshot

Click **Ok** to confirm the specified settings.

NOTE: The default directory of where all exports should be saved can be defined in the Administration Utility tool.

To change the Default for Export location:

Go to: **Options > Preferences > Station settings > Default directory for export of Cine** option in **MDC PACS Client** screen. In this field insert the full path (See Figure 192).

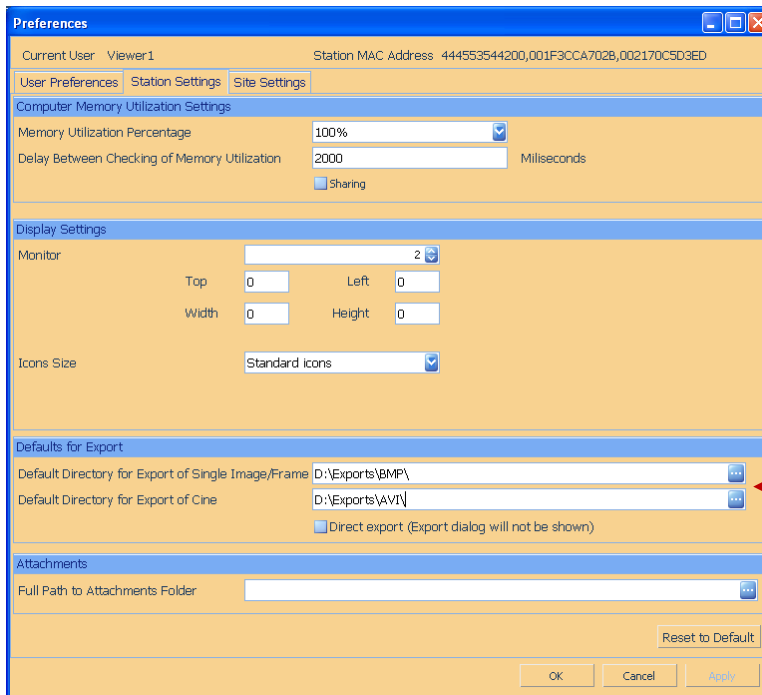


Figure 192: Default directory for export of cine selection

25.2 Exporting BMP/JPEG Files

The Export to BMP/JPG feature enables you to export images to a BMP or JPEG file.

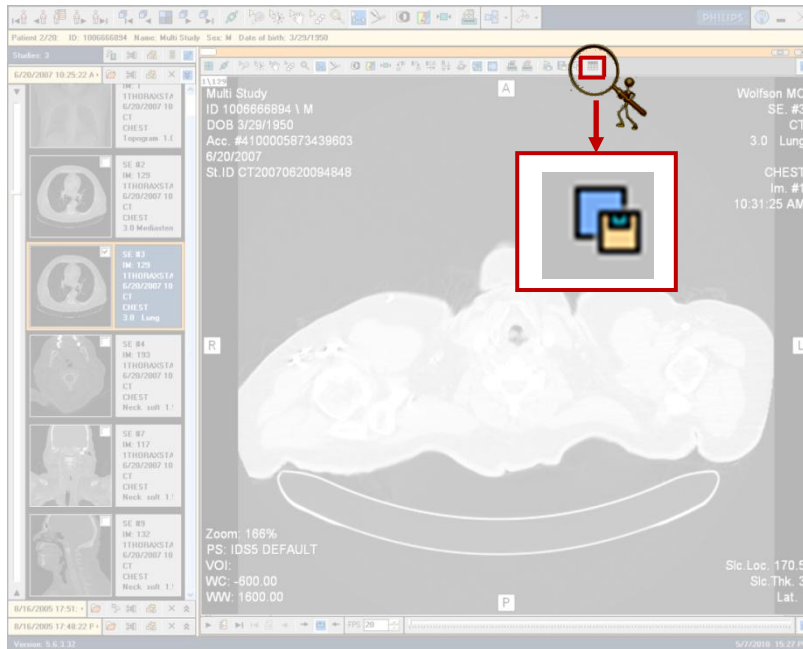



Figure 193: Export to BMP/JPG icon location

To export to a BMP/JPG file:

Click the  icon in the image you wish to export.

The Export to BMP/JPG settings are displayed. (See **Figure 194**)

The table below provides explanations according to the sequential order in which they appear in the Export to BMP/JPG settings page:

- | | |
|---|--|
| 1 | Path: Shows the path of the files to be exported. |
| 2 | Settings: Allows you to choose between a BMP or a JPEG file. |
| 3 | Grayscale: Allows you to save the image as a grayscale image. |
| 4 | Quality: Allows you to change the files' quality. Move the mouse along the bar to select Low , Medium or High quality. |
| 5 | Lossless: Click this button to select lossy or lossless. |

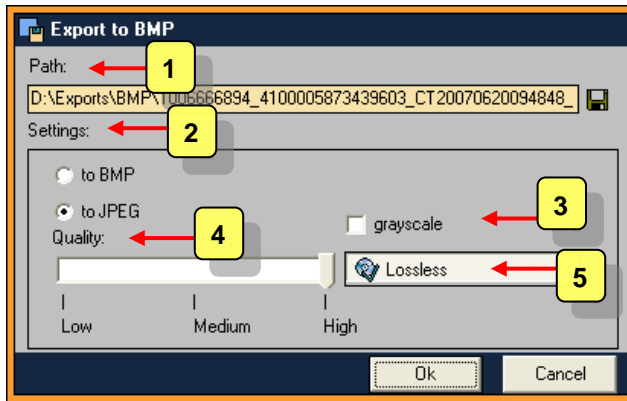


Figure 194: Export to BMP/JPEG screenshot

Click **Ok** to confirm the specified settings.

NOTE: The default directory of where all exports should be saved can be defined in the Administration Utility tool.

To change the default for export location:

Go to: **Options > Preferences > Station settings > Default directory for export of Single Image / Frame option** in **MDC PACS Client** screen. In this field insert the full path (See Figure 195).

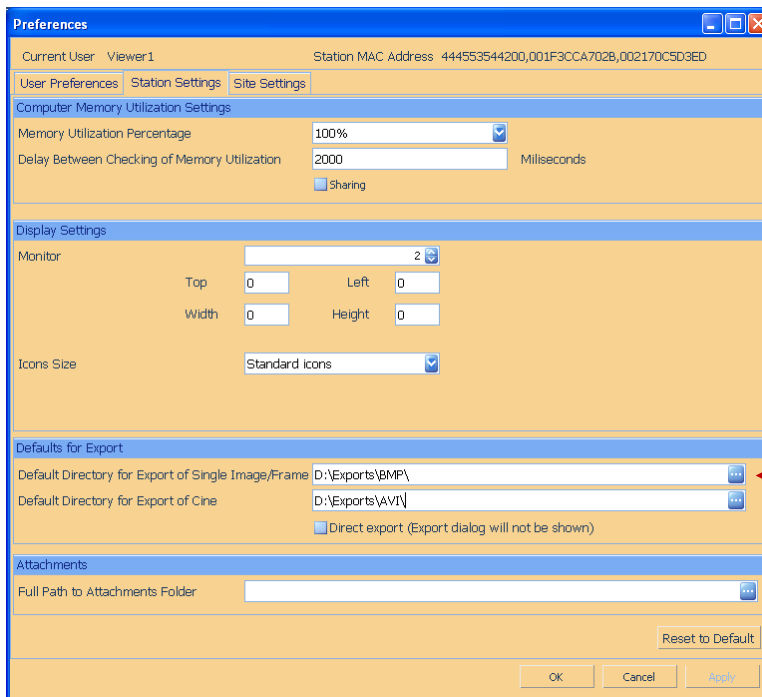


Figure 195: Default directory for export of single image / frame selection

26. Troubleshooting

26.1 Running Movie Image Problem

Problem: The loaded movie image does not stop running. How can I stop it?

Solution: Click on the upper left button of the image scrollbar (see **Figure 196**).

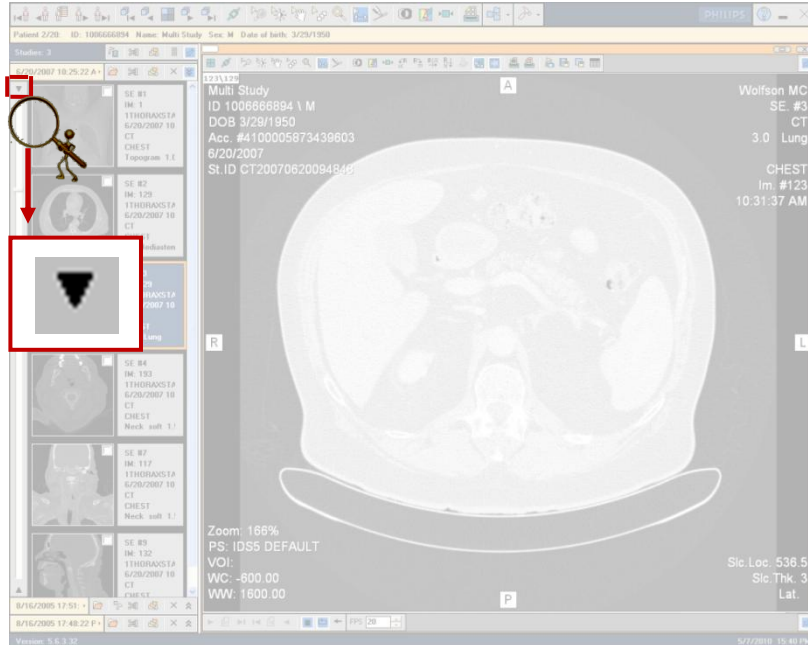




Figure 196: Stop running movie

26.2 Sorting Problem

Problem: The images are not sorted although sorting icons were used. What is wrong?

Solution: Choose one of the following possibilities:

Ascending order sorting

Click  to sort the images in ascending order. Note that once this icon becomes active,  icon appears. Clicking it once again, returns the sorting to descending order, and the icon returns to its original appearance.

Descending order sorting

Click  to sort the images in descending order. Note that once this icon becomes active,  icon appears. Clicking it once again, returns the sorting to ascending order, and the icon returns to its original appearance.

26.3 Measurement Problem

Problem: Clicking on **Measurement** icon causes the measurement to be done in a circle shape. How can this be changed?

Solution: Choose one of the following possibilities:

Click **Measurement** icon and right-click while placing it on the image. Select the required measurement (see **Figure 197**).

Go to the **MDC PACS Client**. Select the following: **Options > Preferences > Diagnostic Preferences > Main screen**. In the **Default Measurement** field, open the drop-down list (see **Figure 198**) and select the requested measurement shape. The chosen shape will be set as default, unless you change it again.

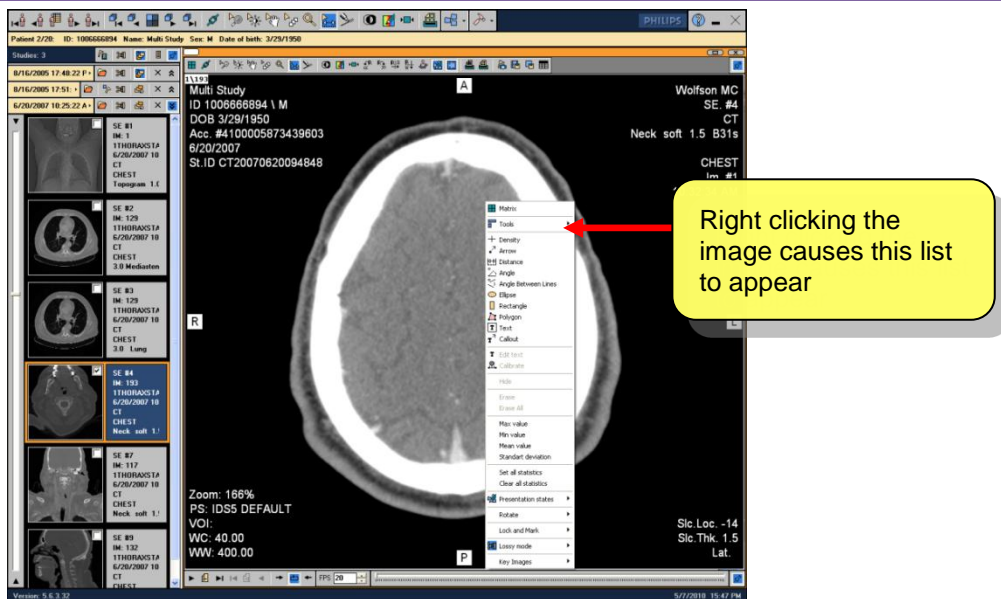


Figure 197: Changing measurement – option number 1

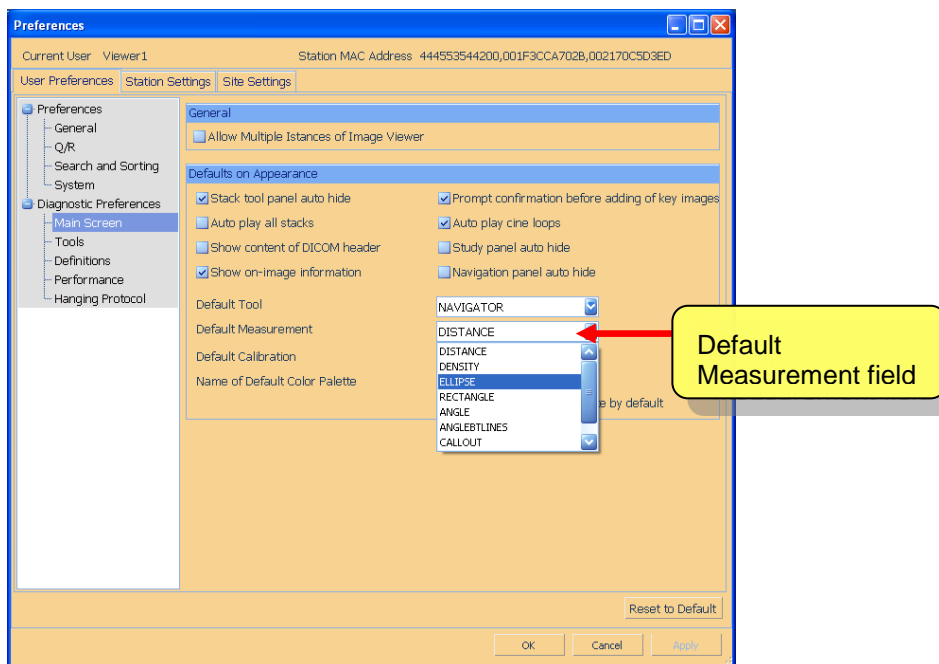


Figure 198: Changing measurement – option number 2

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