QuantorMed

User Manual *human*

Acquisition and diagnostic software

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Warnings and used symbols

To ensure the safety of patients, staff and other persons, any changes to software and hardware delivered by ***3D Imaging & Simulations Corp.*** may only be made with prior written permission from ***3D Imaging & Simulations Corp.***

Please read the respective manuals of the connected devices, such as of the X-ray generator, sensor, or reader, before starting to use the ***QuantorMed*** software.

The following symbols will be used throughout this manual:

DANGER

The functionality of the software can be destroyed in the case of incorrect use.

If unauthorized changes have been made to delivered software and hardware components, the warranty by ***3D Imaging & Simulations Corp.*** becomes void. ***3D Imaging & Simulations Corp.*** will not accept any responsibility or liability for the proper functioning oh the product in such a case.

CAUTION

The functionality of the software can be limited in the case of incorrect use. Hints that require special attention.

NOTE

Notes represent information that is important to know but which do not affect the functionality of the software.

Medical Device Security

- ✓ User Authentication
  Only authorized users should logon to computers on which medical information systems are installed.

- ✓ Password Security
  In today's world, passwords can be compromised in literally seconds by using a wide variety of tools and techniques. To lower the possibility of a compromised password, it is vital to adhere to a set of protocols.
  - Choose a password between 7 ~ 10 characters using both alpha and numeric characters.
  - Do not share the password.
  - Do not base the password on a pet, relative, or dictionary name.
  - Do not write down the password.
  - Do not leave the account logged on.

- ✓ User Access Control
  Configure the workstation to prompt for logon after coming out of stand-by mode.

- ✓ Internet Usage
  Accessing to the Internet exposes the computer to a plethora of vulnerabilities such as:
  - Virus
  - Spyware
  - Trojans
  - Hostile Code

  It is not recommended to install any unauthorized software on the computer. Peer-to-peer software can expose your entire hard drive to any individual running the same type of software.

- ✓ Antivirus Products
  Use of antivirus software can increase CPU and memory usage, which can cause a slight degradation in the performance of the system. However, functionality should not be affected.

- ✓ Physical Security
  It is recommended that the user employs some method of physical security when dealing with the system to ensure that only authorized personnel have access to the product.
  There are several vulnerabilities a malicious user could exploit locally. Some examples are:
  - Theft of equipment
  - Local password cracking
  - Installation of hardware keyloggers

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Chapter 1. Introduction

QuantorMed is intuitive, easy-to-use workstation software that provides facilities using ***3D Imaging & Simulations Corp.*** CR readers with optimized image acquisition, processing, and management capabilities. Its DICOM compliant interface allows for simple integration into a facility's HIS, RIS, and PACS, providing the full range of capabilities needed for improved productivity and workflow in busy clinics and practices.

This user manual provides detailed information about the operation of ***QuantorMed*** and the use of the range of facilities included in the software to make the processing and administration of your medical X-ray images as efficient as possible.

Safety Instruction

To ensure the safety of patients, staff and other persons, any changes to software and hardware delivered by ***3D Imaging & Simulations Corp.*** may only be made with prior written permission from ***3D Imaging & Simulations Corp.***

Liability

If unauthorized changes have been made to delivered software and hardware components, the warranty by ***3D Imaging & Simulations Corp.*** becomes void. ***3D Imaging & Simulations Corp.*** will not accept any responsibility or liability for the improper functioning of the product in such a case.

QuantorMed is **not approved for** the acquisition of **mammographic image data**.

1.1. *Main Features*

Image Acquisition & Study Management

QuantorMed Software allows facilities to quickly input patient data – or access it directly from their HIS, RIS or PACS for improved productivity and accuracy. Image acquisition is supported by a fully developed list of exams and anatomies, and a viewer displays images on a monitor to facilitate quality control and image management. Once completed, the study can be sent to the PACS, printed on a dry film printer, or burned onto a CD or DVD.

Image Manipulation, Multi-Viewing & Stitching

To optimize images, technicians can crop, etch, enhance, increase brightness and contrast, and perform other adjustments. Regions of interest can be highlighted, and users can easily change the order of images or delete images at the multi-view window. Stitching capabilities for images of legs, spines, and other anatomical areas are particularly useful for orthopedic and chiropractic facilities.

QuantorView Express

For smaller facilities without a HIS, RIS or PACS, ***QuantorMed***'s local database enables direct management of patients and studies utilizing a unique viewer function. Technicians and radiologists can review DICOM and non-DICOM images on the same station they acquired it on.

Full Range of Output Options

QuantorMed features a full range of output options, including DICOM CD-burn, embedded view, DICOM send SCU, and DICOM print for dry film printers. The combined DICOM Patient CD and dry film print option creates patient CD / DVDs that include DICOM DIR structure and a built-in viewer.

1.2. *Start and Termination*

1.2.1. *System Start*

1. Turn on ***FireCR*** CR Reader.
2. Turn on monitor and PC.

> **CAUTION**
> Do not execute other application software than ***QuantorMed*** during operation of the scanner. This may slow the scanner response.

1.2.2. *Start Program*

After Windows is successfully booted, you can launch the ***QuantorMed*** program by double clicking the ***QuantorMed*** icon on your desktop as shown in figure 1.10.

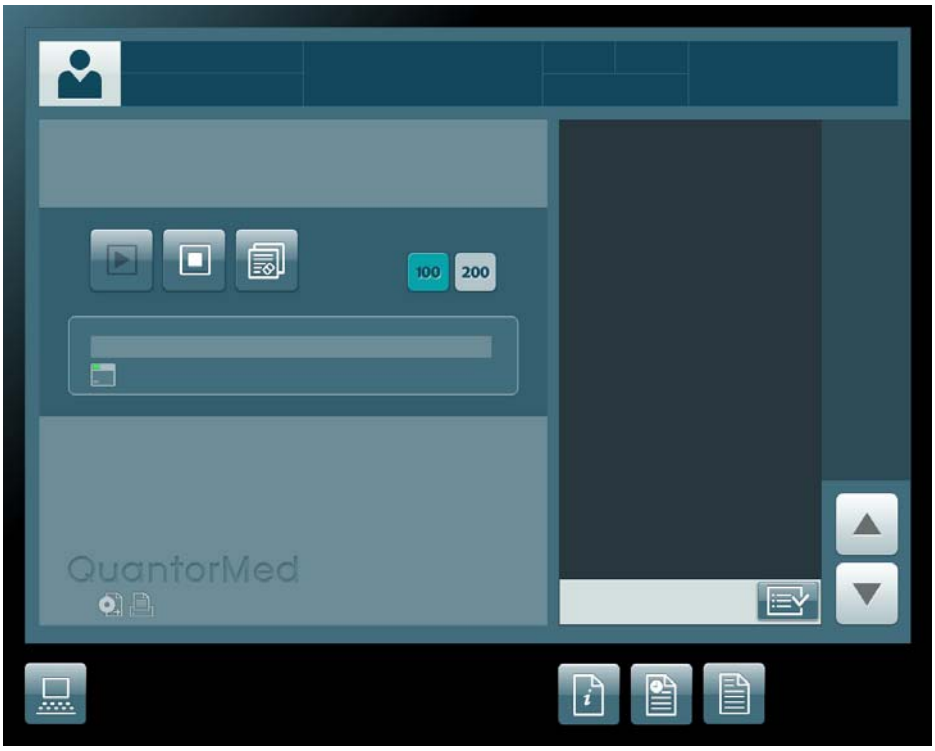


Figure 1.9. Start Window

Figure 1.10. Short Cut Icon

1.2.3. *Terminate Program*

Select System button as shown in Figure 1.11 on main Window.

Figure 1.11. System Button

Now you can “Exit Application” or “Shut Down System” by selecting buttons in the System Menu. “Shut Down System” will turn off your workstation.

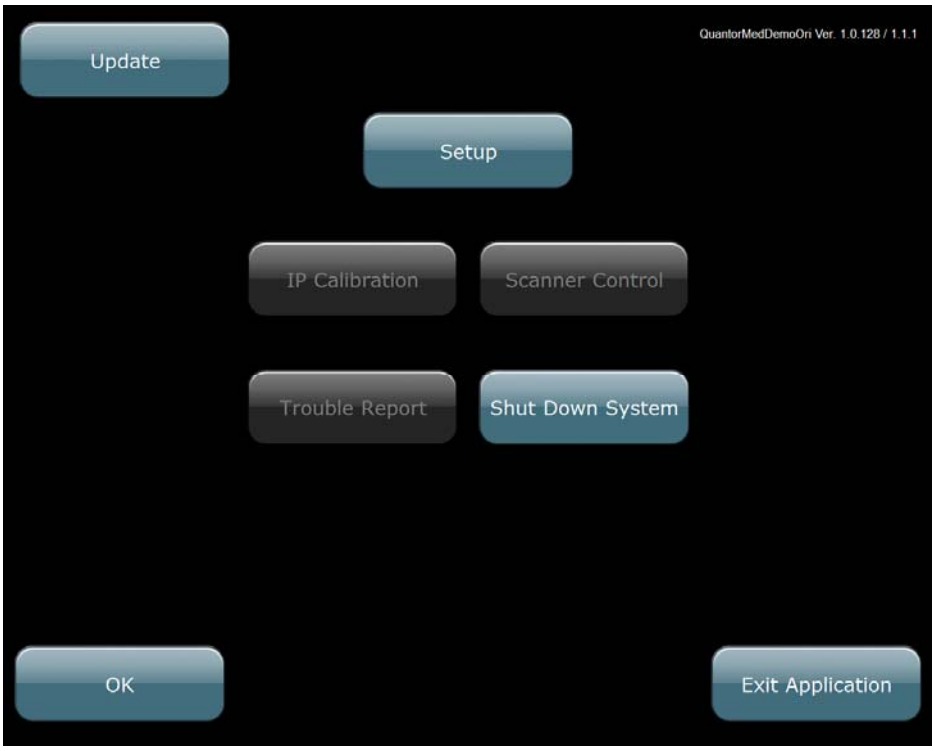


Figure 1.12. System Menu

1.3. *FireCR Calibration*

Select IP Calibration in System Menu, then following window will pop up. Follow the steps of the menu or click “Help” for more information.

CAUTION

Calibrate the scanner before use. “Please calibrate system” message pops up if the scanner is not calibrated or calibration data does not exist.

It is recommended to calibrate the reader after moving it and as a part of regular maintenance.

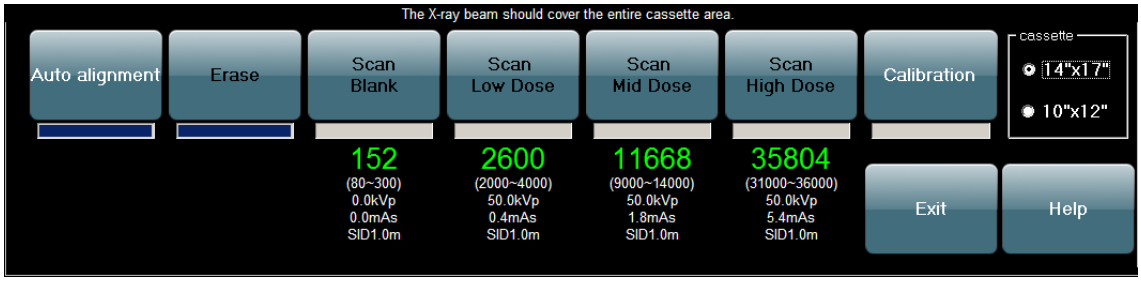


Figure 1.13. IP Calibration

CAUTION

Calibration should be done for both Universal Cassette containing IP 14” x 17” and Universal Cassette containing IP 10” x 12”.

1.3.1. *Calibration Geometry*

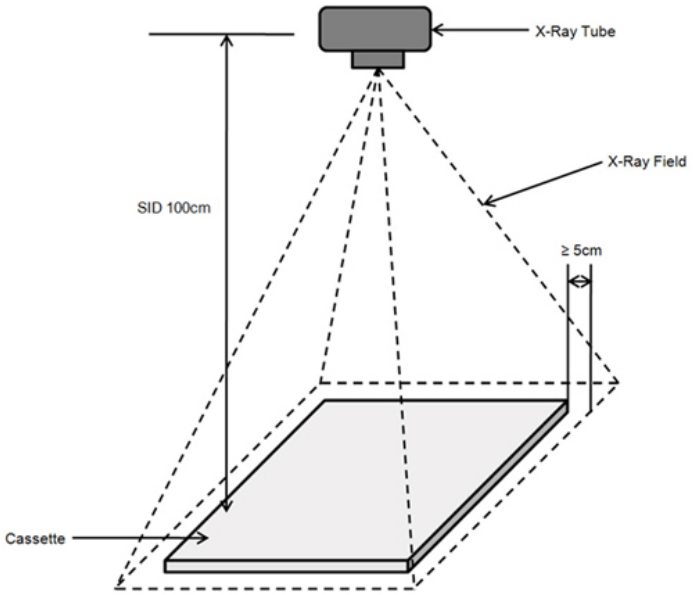


Figure 1.14. Calibration Geometry

CAUTION

X-ray radiation field must cover the whole area of the cassette.

Chapter 2. Acquisition

2.1. *Add Study*

There are two methods for creating a study. One is to retrieve study information from a Work List server and the other is to input study information manually.

NOTE
DICOM Worklist server has to be configured appropriately in ***QuantorMed*** to add studies from Worklist server.

2.1.1. *Create Study Using Work List*

- Select “Work List” button at Start Window.

Figure 2.1. Work List Button

- Select “Query Server” button at Work List Window.

Figure 2.2. Query Server Button

- Select desired study in the Work List Window.
- Select ***“Start Study”*** button in the Work List Window.

Figure 2.3. Start Study Button

2.1.2. *Work List Window*

You can query Work List using various options in the ***Work List Window*** as shown in Figure 2.4. The ***Work List Window*** consists of function buttons and a list which displays query results.

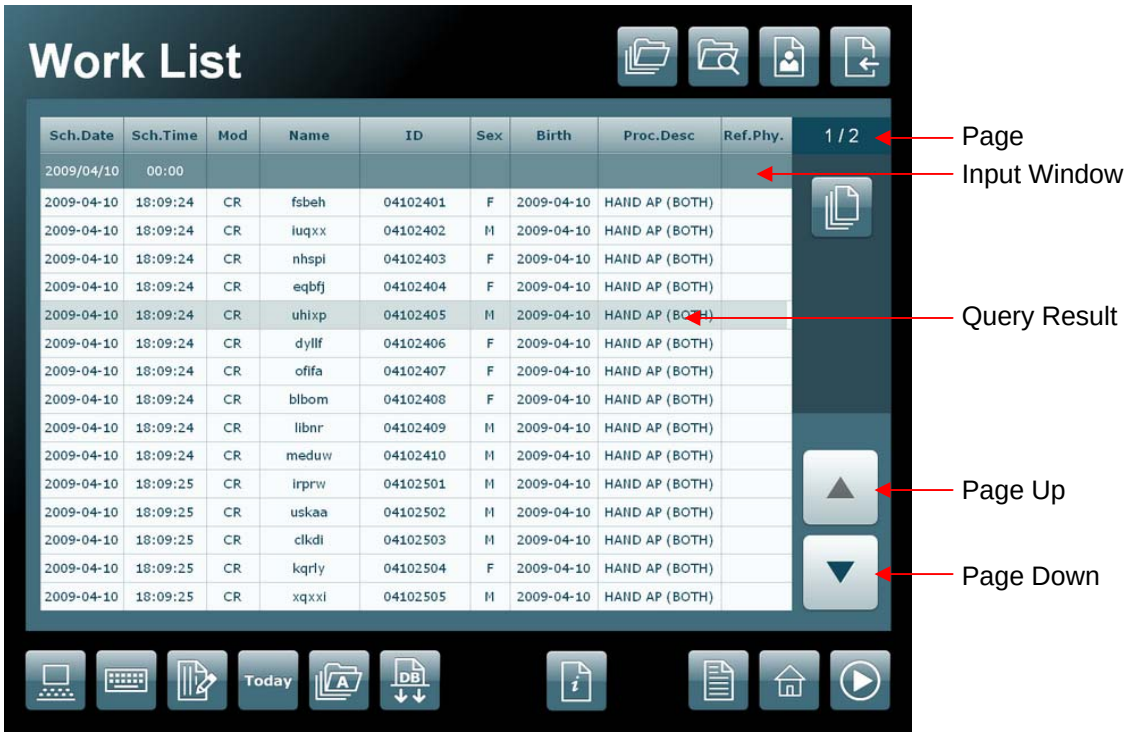


Figure 2.4. Work List Window

- You can input query conditions for all columns.
- You can scroll through pages using the page up/down buttons or mouse wheel button.
- Page information is “Current Page/Total Page” format

Input Window (Query Condition)

- This is input field for query condition.
- Type query condition in each column of Input Window, and click Search button.
- In order to use Auto Query function, Auto Query interval has to be set in ***QuantorMedSetting***, and its unit is minute.

Query Result

- Worklist query results up on each query condition are shown in Query Result.
- Each column of the Worklist can be sorted. Click the title of each column to sort by the value of this column.

2.1.3. *Columns of Work List*

Item	Description
Sch.Date	Scheduled Study Date. Query format is one of following. – YYYY/MM/DD – YYYY.MM.DD – YYYY-MM-DD – YYYYMMDD – MM-DD – MM/DD – DD – Blank will be changed to today automatically
Sch.Time	Scheduled Study Time. Query format is one of following. – HH:MM – HHMM – Blank will be changed to “00:00” automatically
Mod	Modality
StationAE	Station Application Entity Title
Name	Patient Name
ID	Patient ID
Sex	Patient Sex. Only ‘M’, ‘F’, ‘O’ are used for query.
Birth	Patient Birth Date
Age	Patient Age
Proc.Desc	Procedure Scheduled Description
Station	Station Name
Proc.ID	Procedure Scheduled ID
Study UID	Study UID
Acc.No.	Accession Number
Ref.Phy.	Referring Physician

2.2. *Add Study (Manual)*

2.2.1. *New Study Window*

You can add new study at the New Study Window. If you use touch screen monitor, select input window and use Keyboard Panel.

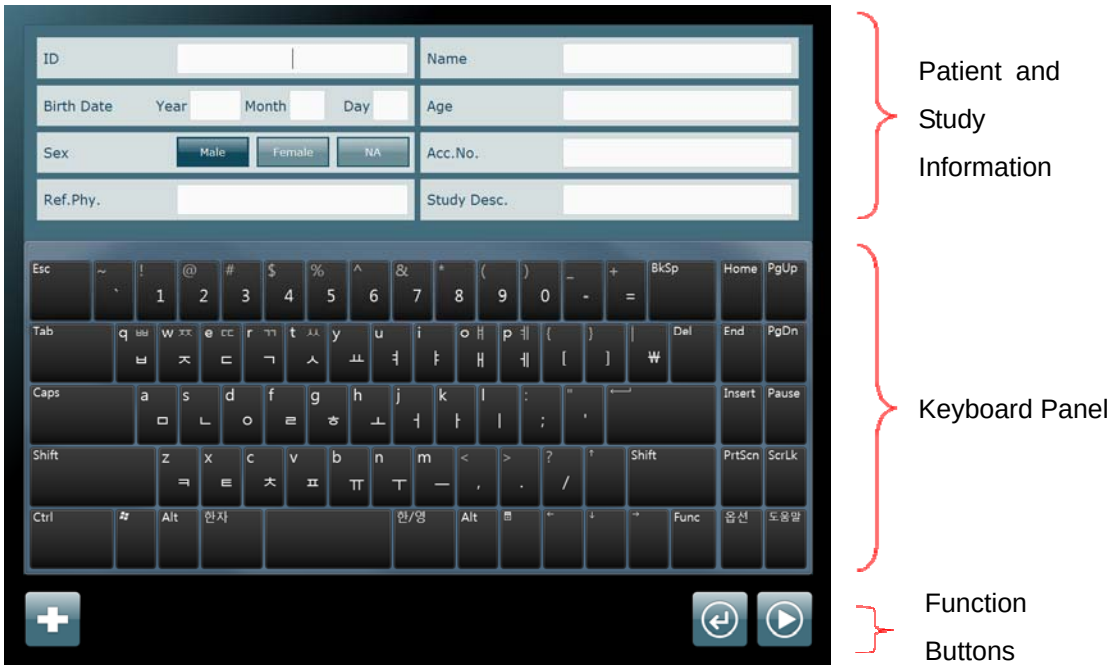


Figure 2.5. New Study Window

- Input patient ID in ID field. ID is a required field.
- Input patient name in Name field. Name is a required field.
- Input patient date of birth in Birth Date field. This is not a required field but either Birth Date or Age has to be input. In case that only Age field is input, year of Birth Date is calculated automatically and displayed in the Birth Date field with the month and date of January 1st.
- Input patient age in Age field. In case that both Birth Date and Age are input, Age is recalculated based on Birth Date.
- Select patient sex. Male is the default setting.
- Input study accession number in Acc.No. field. Accession number is not a required field
- Input study referring physician in Ref.Phy. field. Referring physician is not a required
- Input study description in Study Desc. field.

2.2.2. *Buttons of the New Study Window*

Icon	Name	Hot Key	Description
	Previous Window	ESC	Go back to the previous window
	Start Study	Enter	Add new study and start study
	Emergency	F9	Fill patient and study information automatically

2.2.3. *Patient and Study Information*

Name	Description
ID	Patient ID
Name	Patient name
Birth Date	Patient birth date
Age	Patient age
Sex	Patient sex
Acc.No.	Accession number
Ref. Phy.	Referring physician
Study Desc.	Study description

2.3. *Edit Column*

2.3.1. *Edit Column Window*

You can add or remove columns in Edit Column Window.

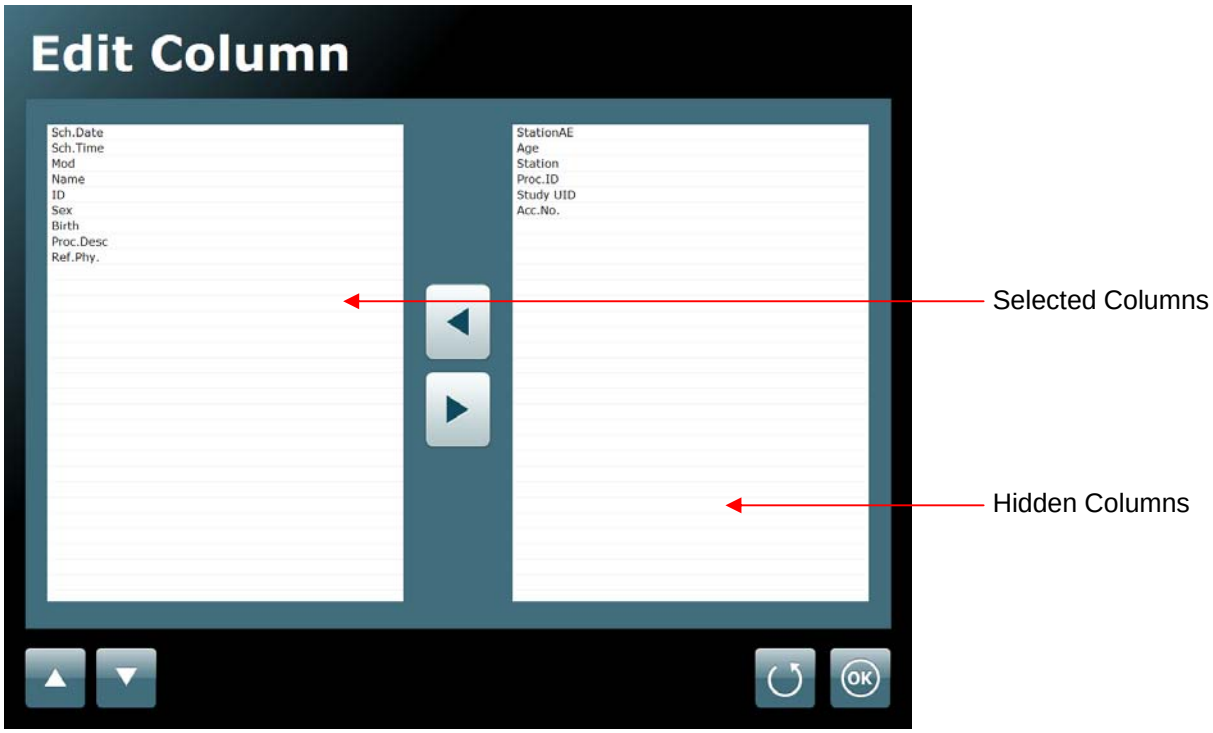


Figure 2.6. Edit Column Window

- Left Column: List that is displayed in column header in Work List and Study List
- Right Column: List that is not displayed in column head in Work List and Study List
- Order of Edit Column list is identical to the order of column header in Work List and Study List.

2.4. *Add Exam*

2.4.1. *Exam Window*

If you select “Start Study” button in Work List Window or in Add Study Window, Exam Window (Figure 2.7) will come up. If the Scheduled Procedure Description or ID of the study matches with database, exam will be added automatically.

Figure 2.7. Exam Window

- Patient and Study Information will be always displayed at top of the window (Figure 2.8). Select “Edit” button to edit information.

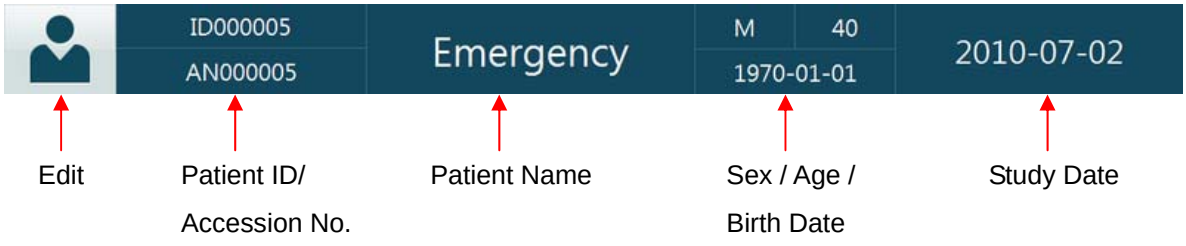


Figure 2.8. Patient and Study Information

2.4.2. *Add Exam*

a. Select Body Part. All related Exams will be displayed at Exam area.
b. Select Exam.
c. Selected Exam will be added to Exam List.
d. If you select Exam with “Add Study” button selected, predefined studies which have selected Exam will be displayed (Figure 2.10)
e. Select Study.
f. Selected Study will be added to Exam List.

Figure 2.9. Add Exam

- Exam List (c) displays all exams belonging to each study.
- Acquired exam images are displayed as thumbnails and spots under the study bar show the status of image acquisition. Dark spots represent exams which images were acquired exam and white spots represent exams which images were not acquired.

Figure 2.10. Predefined Study List

2.4.3. *Edit Exam*

a. Select an exam in the Exam list.
b. Click ***Edit Mode*** button, then ***Add Mode*** button will be released.
c. Body Part of selected Exam will be changed to newly selected Body Part.
d. Exam Position of selected Exam will be changed to newly selected Exam Position.

Figure 2.11. Edit Exam

2.5. *Image Acquisition*

2.5.1. *Acquisition Window*

Acquisition Window is composed of CR Control at the left half of the screen and Exam List at the right half of the screen (Figure 2.12).

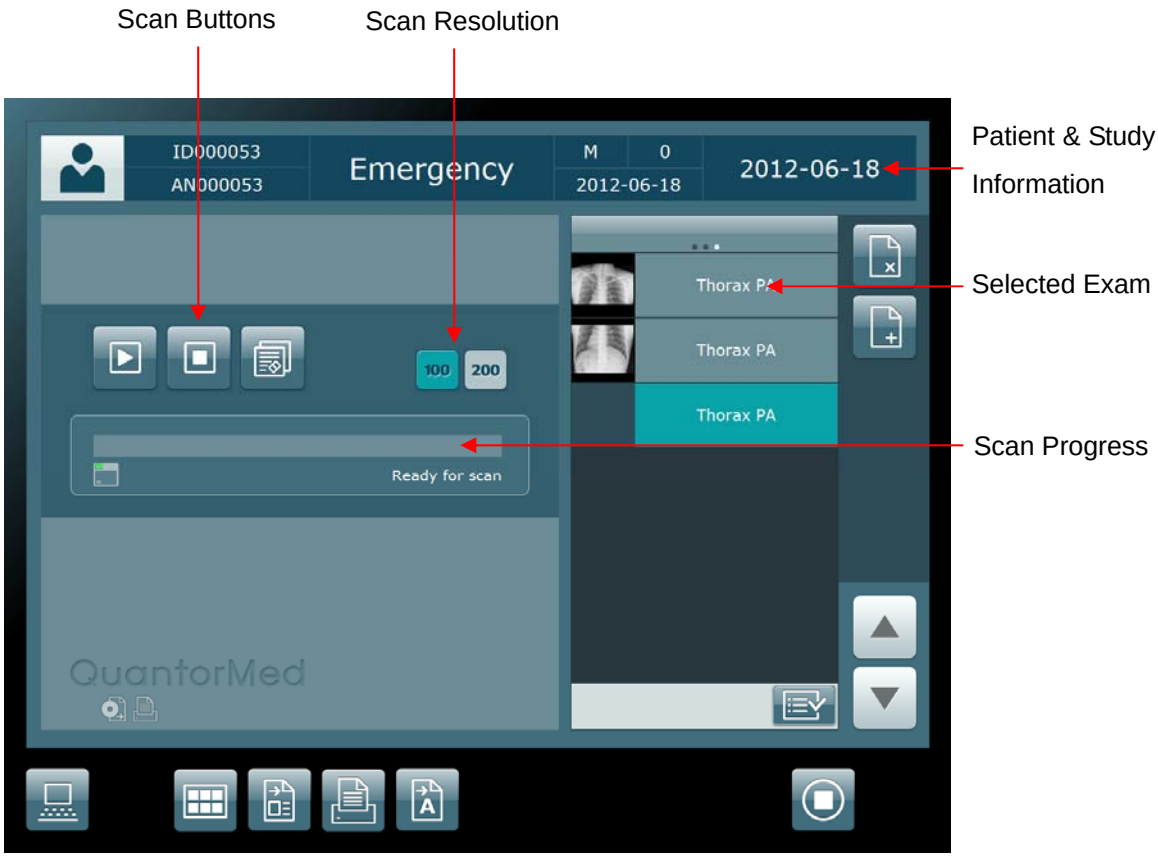


Figure 2.12. Acquisition Window

- Select Exam.
- Change resolution if needed.
- Press the Scan Button.
- Image will come up after several seconds. (Figure 2.13)
- Rectangular ROI (Region of Interest) box will be displayed automatically. ROI box can be moved by dragging. Size of ROI can be modified by dragging the small control boxes.
- ROI is applied by double clicking the ROI box. Figure 2.14 is the ROI applied image.
- Select next Exam and repeat above process.

2.5.2. *Exam / Review Window*

Figure 2.13. Acquired Image

- Scanned images are displayed as shown in Figure 2.13, and ROI box and marks are displayed on the image.

NOTE
ROI size, Mark and Mark position can be created and edited in ***QuantorMed*** Organizer.

- Size and position of ROI and Mark can be adjusted and moved by dragging of the mouse with the left mouse button click.
- Window settings can be adjusted by dragging the mouse with the right mouse button clicked.
- After ROI adjustment, ROI is applied to the image by double clicking of the left mouse button. This adjustment is applied to Thumbnail image in the Exam list.

Figure 2.14. ROI Applied Image

- ROI applied image is displayed as shown in Figure 2.14.
- Selected Exam can be retaken by using ***Retake*** button.
- ***Auto Window*** button finds optimized window settings for the ROI applied image.
- Window settings of the image can be adjusted by dragging the mouse with the right mouse button clicked.
- ROI box appears for adjustment when the image is double clicked.
- Stitching button is enabled when there are more than 2 exam images.

NOTE
Refer to Chapter 4.3. Image Stitching.

- Close the study by clicking End Study button when all image acquisitions are finished.
- If Auto-Send button is enabled, non-transferred images in study are transferred to the archive server automatically when study ends.

2.6. *Study Management*

2.6.1. *Study List Window*

Studies can be managed at the Study List (Figure 2.15.). You can search, delete, edit and send studies at the Study List.

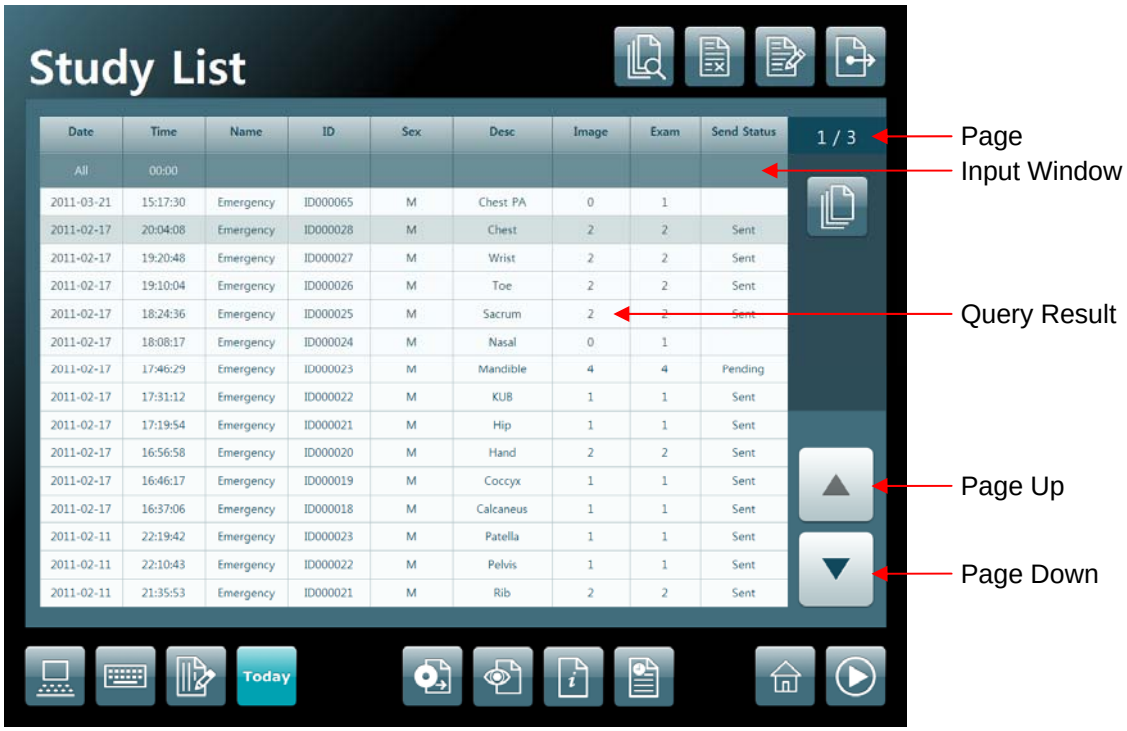
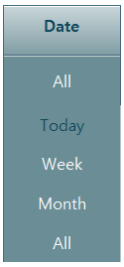


Figure 2.15. Study List Window

- You can page up/down using buttons and mouse wheel button.
- Page information is “Current Page/Total Page” format.

Input Window (Query Condition)

- This is the input field for query condition.
- Type query in each column of Input Window, and click Search button.
- If you select Input Window of Date, selectable menu is displayed as shown blow.



Query Result

- Study List query results up on each query condition are shown in Query Result.
- Each column of Study List can be sorted. Click the title of each column to sort by the value of this column.

2.6.2. *Study / Image Transfer*

- If a PACS is installed, images are transferred to the DICOM Archive server after image acquisition and adjustment.

CAUTION

QuantorMed provides image storage for temporary purpose. So it is strongly recommended to transfer and store images in permanent storage after image acquisition for safety and security reasons.

- ***QuantorMed*** provides Study and image transfer / auto transfer functions. You can perform all other tasks in QuantorMed while Study and image are being transferred.

NOTE

DICOM Archive server has to be configured appropriately in ***QuantorMed*** to transfer Study and images.

2.6.3. *CD / DVD Write (Option)*

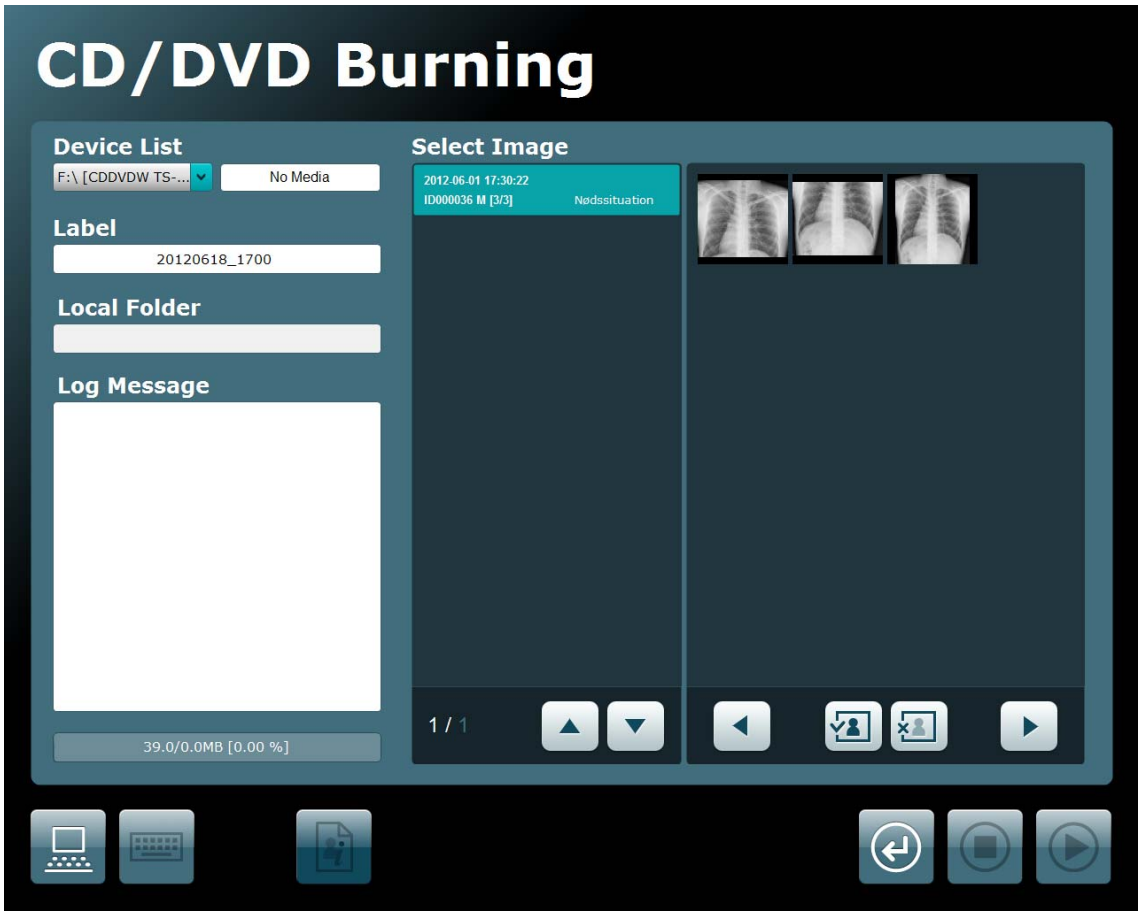


Figure 2.16. CD / DVD Write

- Choose Recorder: Select recorder to burn media
- Volume Label: Insert Volume Label
- Write Speed: Select writing speed
- Burn: Start burn to media
- Abort: Abort burning
- Erase: Erase rewritable media
- Close: Close dialog box

2.7. *Transport Status*

2.7.1. *Transport Status Window*

You can check send and print information on Transport Status Window (Figure 2.17).

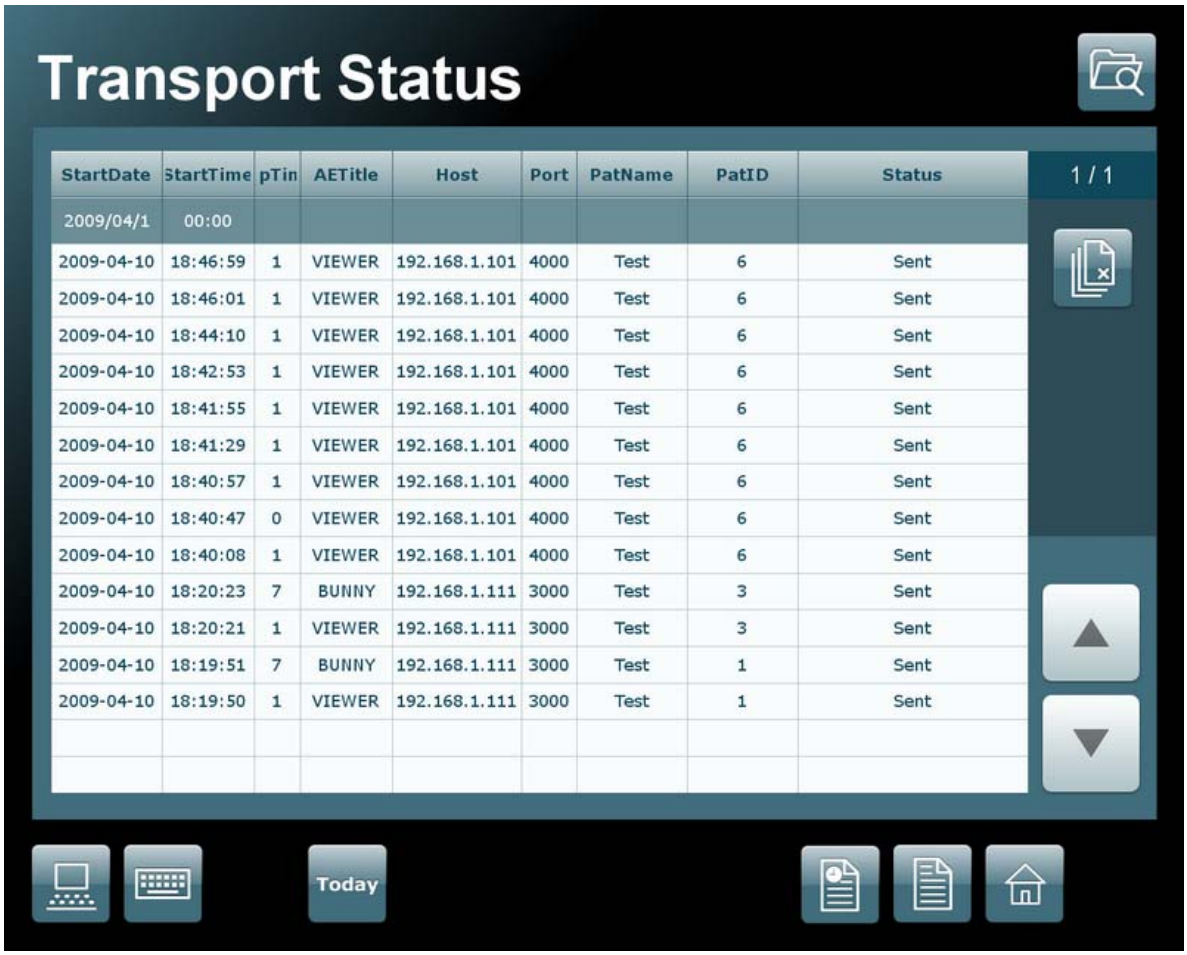


Figure 2.17. Transport Status Window

2.7.2. *Columns of Transport List*

Item	**Description**
Start Date	Start Date of Transport. Query format is one of following. – YYYY/MM/DD – YYYY.MM.DD – YYYY-MM-DD – YYYYMMDD – MM-DD – MM/DD – DD – Blank will be changed to today automatically
Start Time	Start time of transport. Query format is one of the following. – HH:MM – HHMM – Blank will be changed to “00:00” automatically
Lap Time	Times lapsed
AE Title	Destination Application Entity Title
Host	Destination IP Address
Port	Destination Port
PatName	Patient Name
PatID	Patient ID
Status	Transport Status

2.8. *Print (Option)*

2.8.1. *Print Window*

You can print multiple (1-4) images on a single film using **Print Window**. Print Preview is displayed on the left side of the window. You can add images to Print preview by selecting an exam and clicking on the Print Preview.

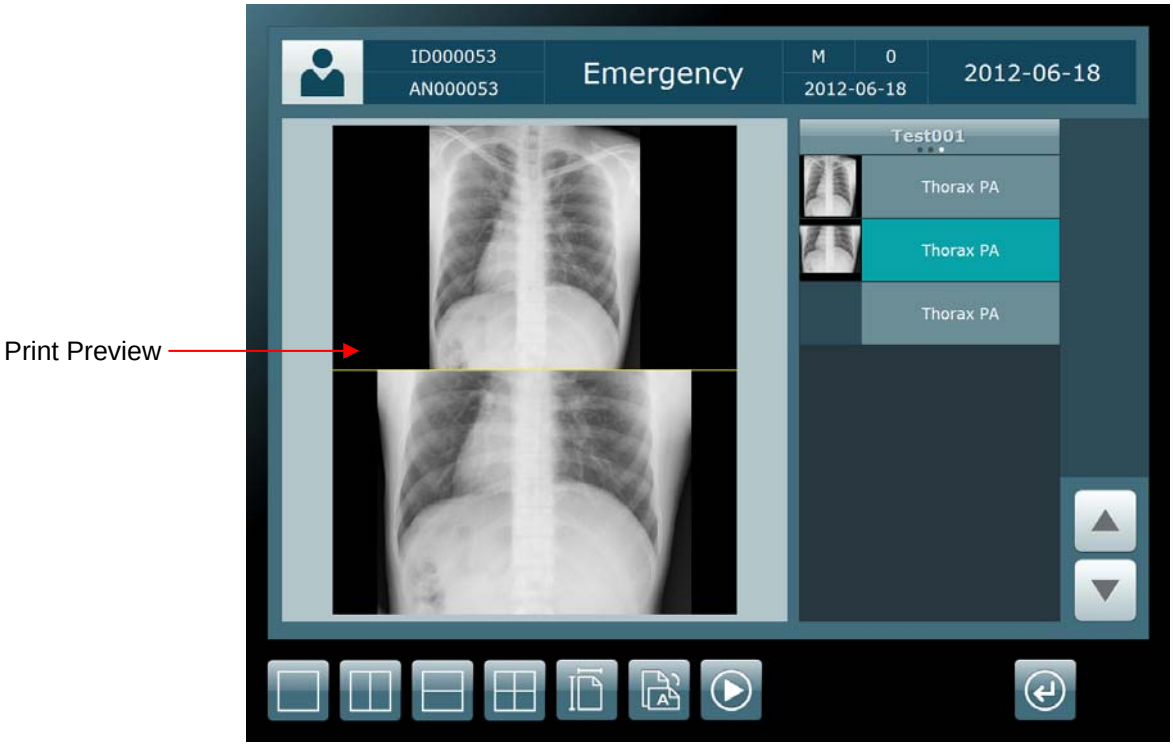
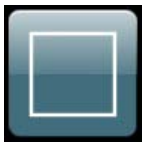
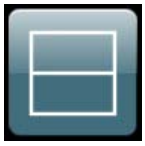


Figure 2.18. Print Window

- ***QuantorMed*** provides DICOM print function, and image layout can be configured in preview window.

> **NOTE**
> DICOM Printer has to be configured appropriately in ***QuantorMed*** to transfer Study and images to DICOM Printer.

2.8.2. *Buttons of the Print Window*

Icon	Name	Hot Key	Name
	1 x 1		1 row 1 column mode
	2 x 1		2 row 1 column mode
	1 x 2		1 row 2 column mode
	2 x 2		2 row 2 column mode
	Start Print		Start Print (Send to Print Server)
	Main Window		Move to Main Window

Chapter 3. Image Manipulation

3.1. *Image Manipulation*

3.1.1. *Image Manipulation Window*

You can adjust image processing by pressing the ***QA*** button. Figure 3.1 is a QA (Quality Assurance) window. Image is displayed at left half and various controls are displayed at right half.

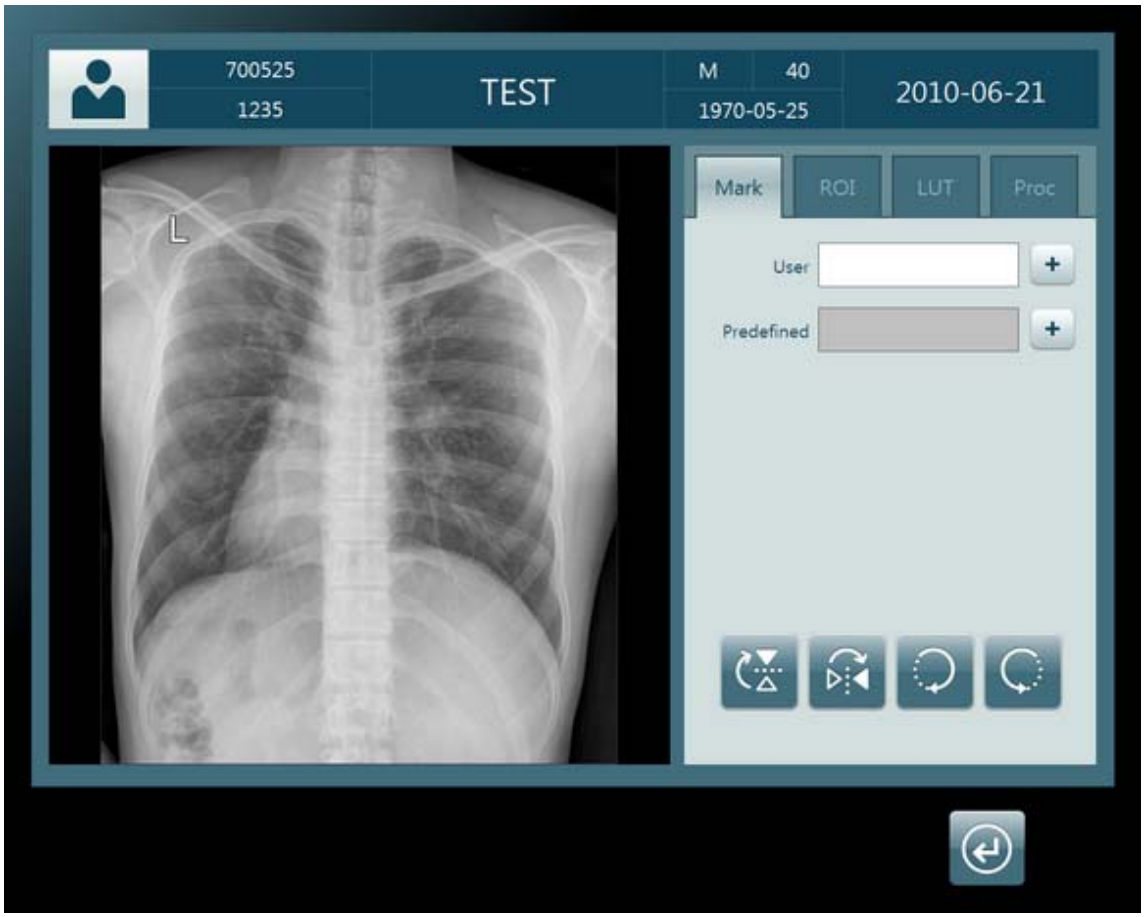


Figure 3.1. QA Window

3.1.2. *Marking*

- Write text to insert in the image. Enter string to input box and press “+” button and click at the position you want to insert on the image.
- Predefined: You can insert predefined Markings on the image. Select predefined marking and select “+” button and click at the position you want to insert on the image.
- Vertical Flip: Flip image vertically.
- Horizontal Flip: Flip image horizontally.
- Rotate Right: Rotate image to right.
- Rotate Left: Rotate image to left.

Figure 3.2. Marking

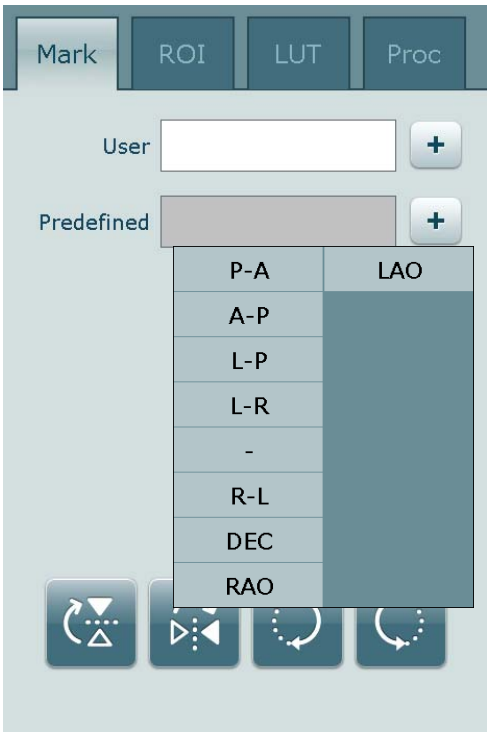


Figure 3.3. Predefined Marking

3.1.3. *ROI (Region of Interest)*

- ROI Show / Hide: Show or hide ROI rectangular box.
- ROI Size Setting: Set ROI Size. If you press this, all ROI sizes will be displayed.
- ROI Move Buttons: You can move the ROI by pressing ***Left, Top, Right and Bottom*** buttons.

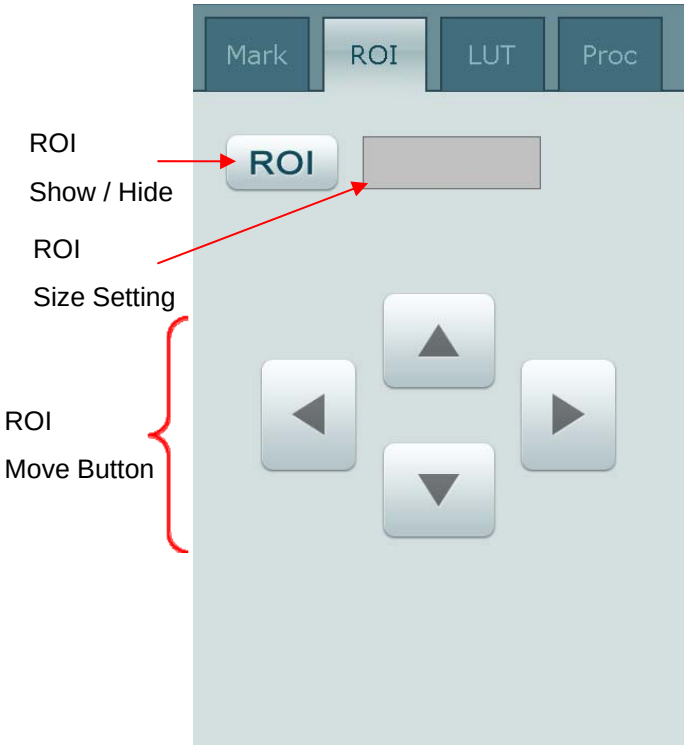


Figure 3.4. ROI Control Buttons

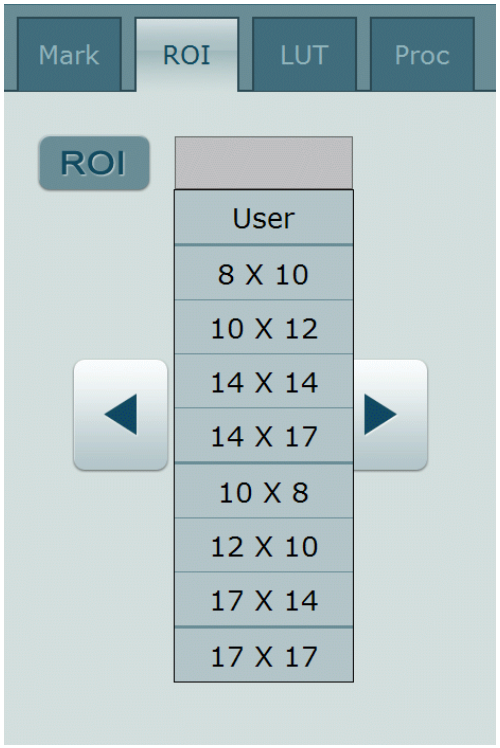


Figure 3.5. ROI Size Setting

3.1.4. *LUT (Look Up Table)*

- Curve: You can define the curve by click and drag the control point. You can add control point by click on the line. You can remove a control point by clicking and dragging it to the outside of the curve box.
- Set: Save current curve as default value of current exam.
- Load: Load default curve of the exam.
- Reset: Remove all control points.
- Histogram: Shows histogram of the image.
- Window Center: You can adjust window center using slide control.
- Window Width: You can adjust Window width using slide control.

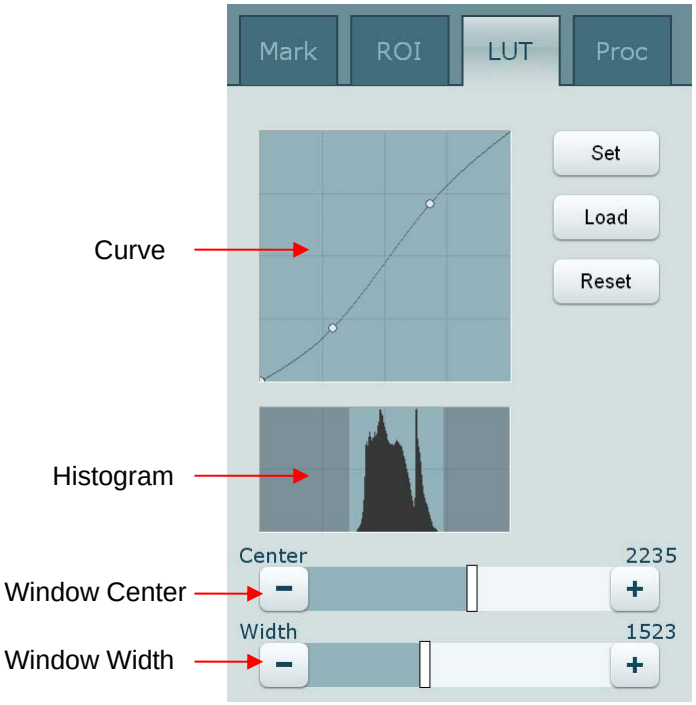


Figure 3.6. LUT

3.1.5. *Processing*

- Contrast: Control the level of contrast enhancement.
- Detail Contrast: Control the level of detail contrast enhancement.
- Edge Enhancement: Control the level of edge enhancement.
- Edge Frequency: Control the frequency of edge.
- Dynamic Range Comp.: Control the level dynamic range compress ratio.
- Noise Reduction Level: Control the level of noise reduction.
- Set: Save current curve as default value of current exam.
- Load: Load default curve of the exam.
- Reset: Remove all control points.

Figure 3.7. Processing

3.2. *Multi View*

3.2.1. *Multi View Window*

You can change the order of images or delete images easily in the multi view window.

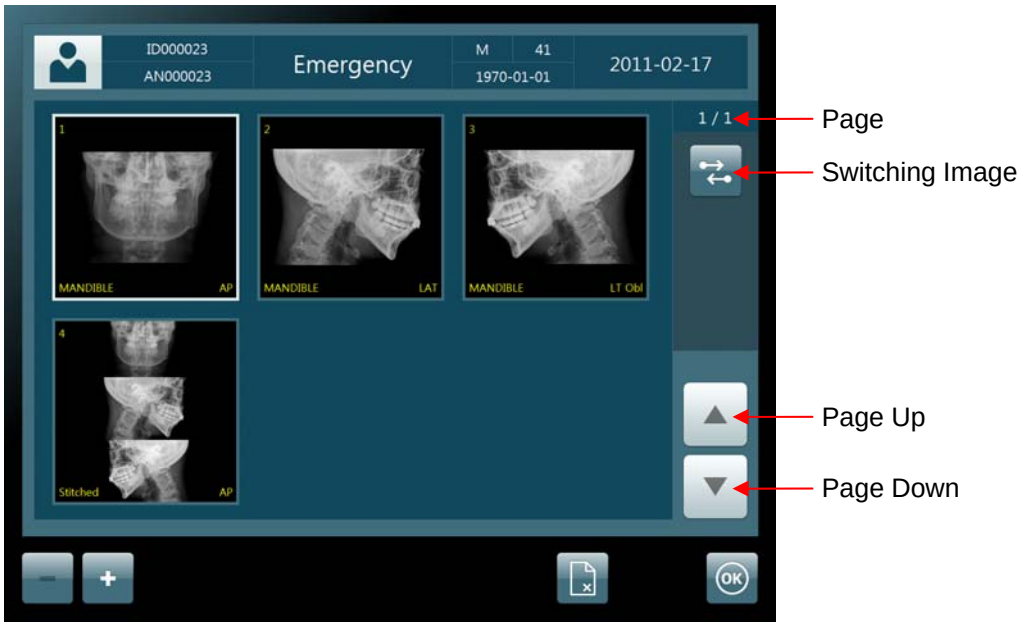


Figure 3.8. Multi View Window

- ***Switching Image*** button is a toggle button (on / off). In order to switch images, click ***Switching Image*** button and select the image you wish to switch.

3.3. *Image Stitching (Option)*

Stitching function supports 2 or 3 image stitching. Stitch button is enabled when there are 2 more images in single study. If there are stitched images in the study, stitch button will be disabled. You have to delete stitched image to make new stitch image.

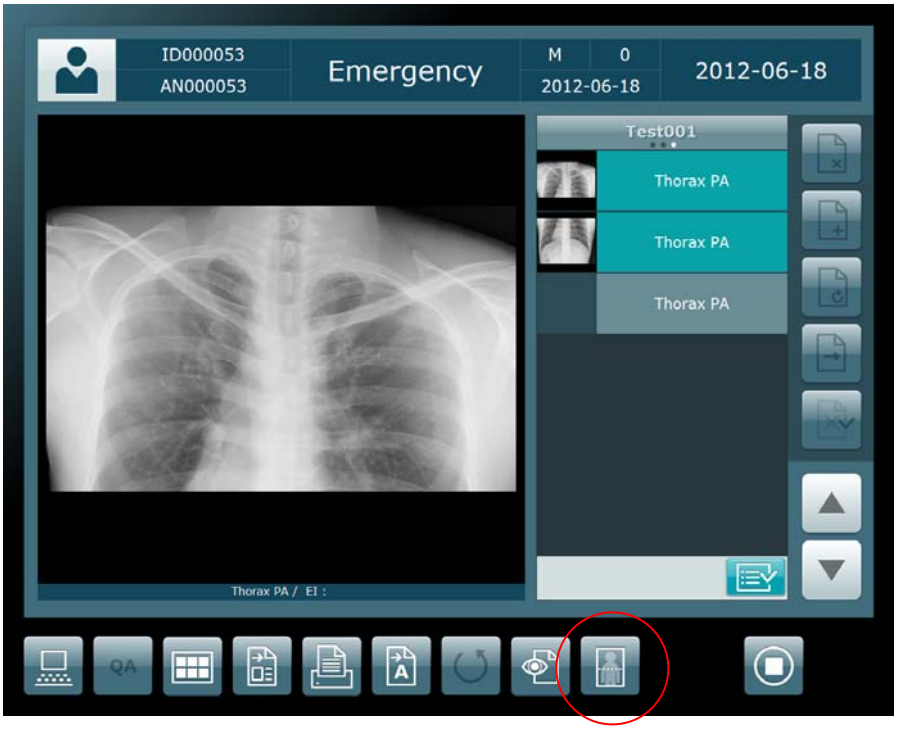


Figure 3.9. Stitch Button

3.3.1. *Screen Layout*

- Stitching window consists of image window and toolbar.
- Image window displays images from top to bottom by order of image number.

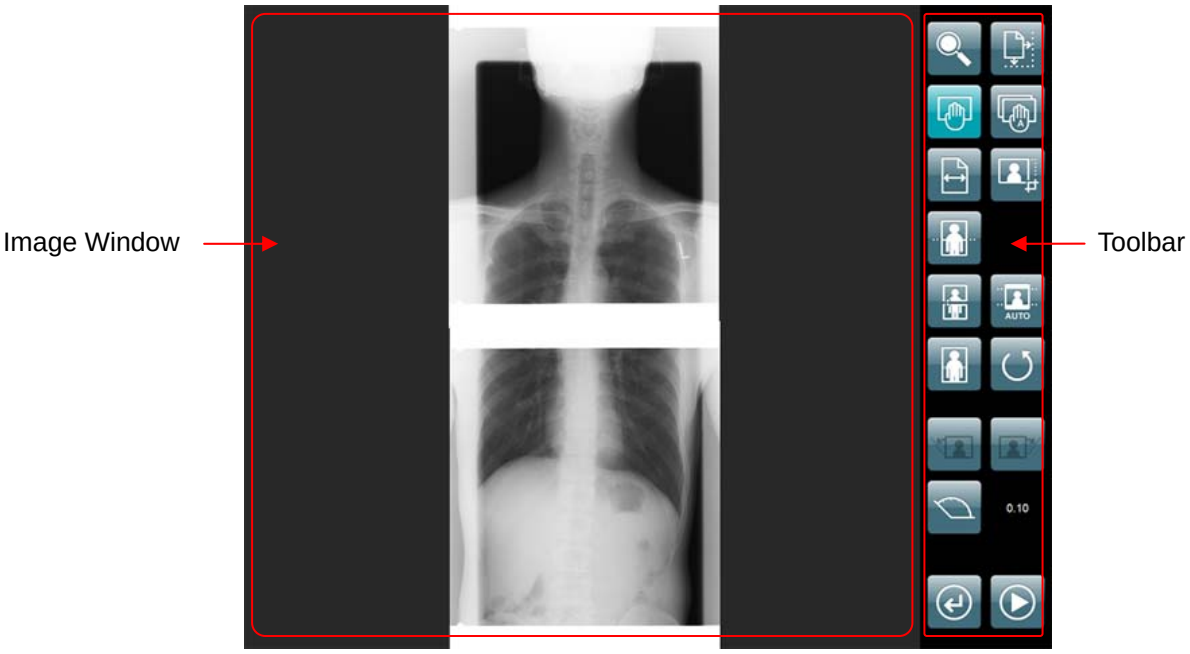
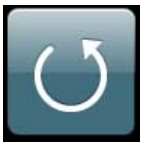


Figure 3.10. Stitch Window

3.3.2. *Buttons of Stitching Window*

Icon	Name	Hot Key	Description
	Zoom In / Out		Zoom in / out image
	Fit to Page Size		Fit images to page size
	Pan Single		Pan selected single image
	Pan All		Pan all images
	Fit to Page Width		Fit images to page width and align to next stitching region.
	Clipping		Show or hide clipping lines. Clipping is used for removal of boundary area.
	Guide Line		Show or hide guide line
	2 Point Auto		Move images using 2 intersection points
	Auto Remove		Detect and remove non-exposure area automatically.

	Mix		On / Off mix intersection function. Mix function makes overlapping area look natural and smooth by fade in / out effects.
	Reset		Reset all images to initial state.
	Rotate Left		Rotate selected image to left side.
	Rotate Right		Rotate selected image to right side.
	Angle		Change the rotating angle. Click this button will show combo box of 5 angles (0.01, 0.05, 0.1, 0.5, 1). Select new angle.
	Cancel		Cancel stitching and return to previous screen.
	Stitch		Stitch images and return to previous screen.

3.3.3. *Clip Images*

- Turn on Clipping button.
- Dotted line will be displayed around the images.
- Selected image has green line and the others have yellow line.
- Moving mouse on to the line will change the cursor style to arrow.
- Click mouse left button and move the line to requested position.
- Turn off clipping button will make clipping line invisible.

Figure 3.11. Clipping Lines

3.3.4. *Removal of Non-Exposure Area Automatically*

- Non-exposure area is where X-ray is not exposed.
- Selection of Auto Remove button will detect and remove non-exposure area.

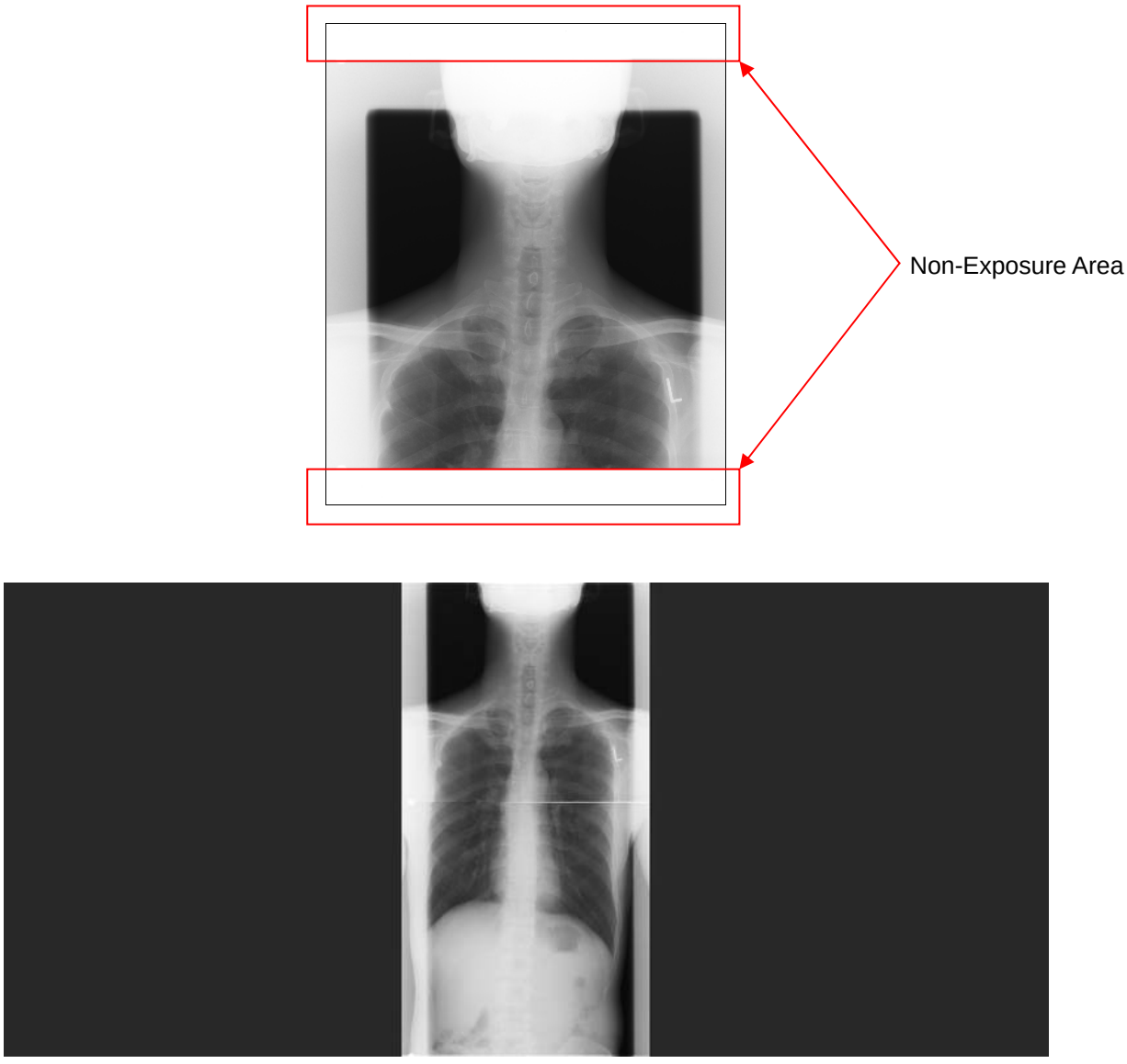


Figure 3.12. Removing Non-Exposure Area

3.3.5. *2 Point Automatic Function*

- 2 Point Auto function uses 2 images. Upper image is the first image and lower image is the second image.
- Select 2 Point Auto button.
- Click intersection point on the first image. Red cross mark will be displayed.
- Click intersection point on the second image.
- Second image will move to the first image so that the intersection point of the second image matches the intersection point of the first image.

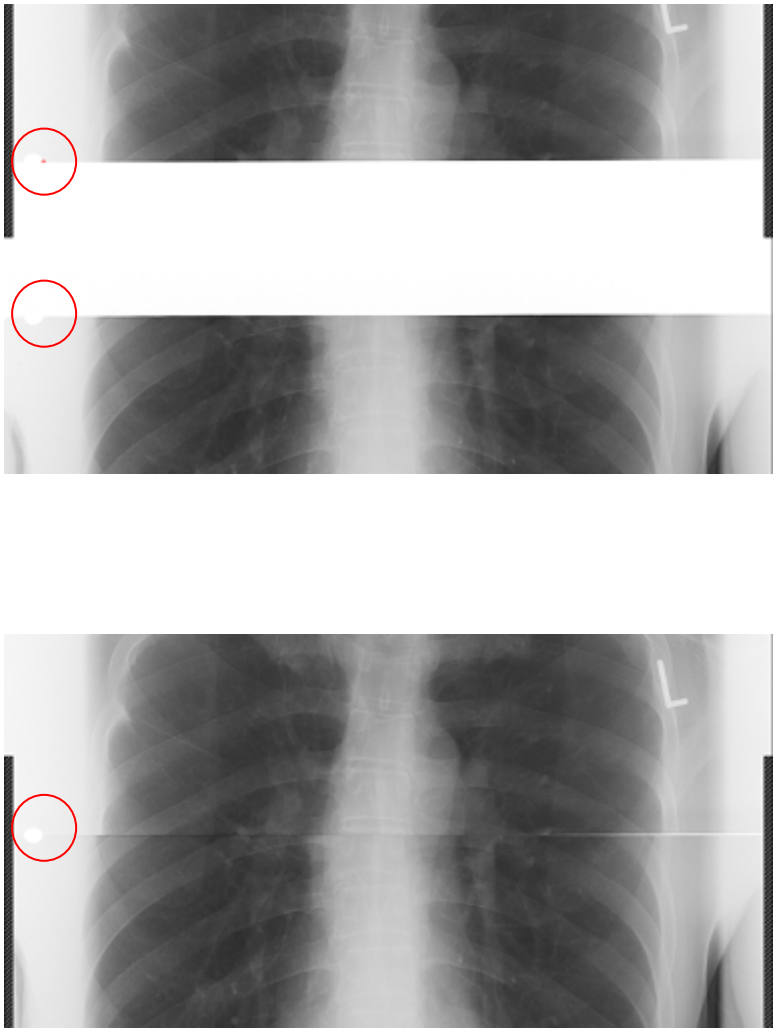


Figure 3.13. 2 Point Auto

Chapter 4. QuantorView Express

4.1. Screen Layout

4.1.1. Screen Layout and Name of Parts

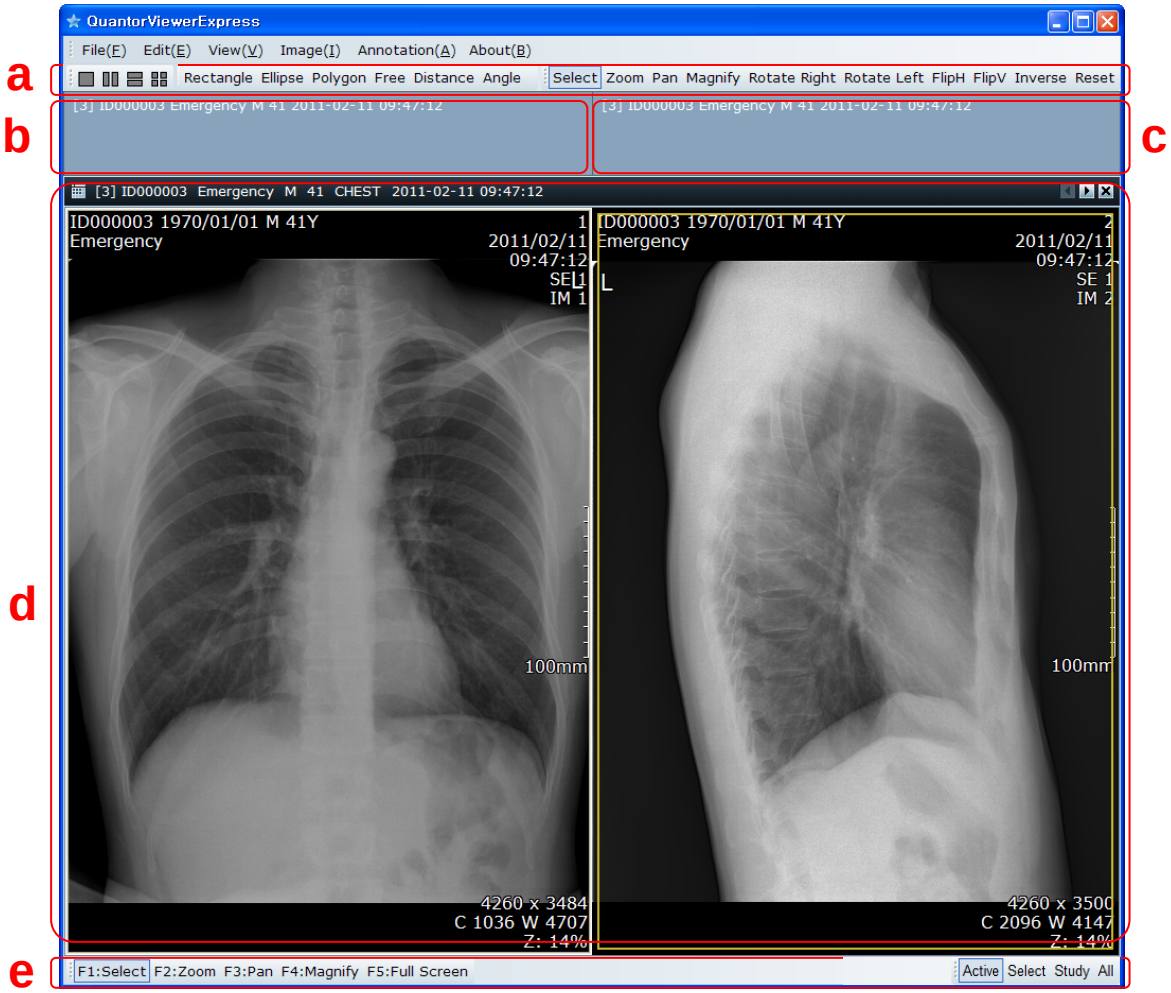
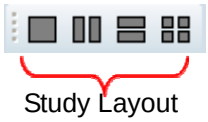


Figure 4.1. Screen Layout

- Viewer screen is composed of following parts
  a. Upper Toolbar
  b. Study List
  c. Patient Study List
  d. Image Window
  e. Lower Toolbar

4.1.2. *Change Study Layout at Image Window*

- You can see multiple studies at Image window.
- Use study layout toolbar to change study layout.
  - Study Layout 1x1
  - Study Layout 1x2
  - Study Layout 2x1
  - Study Layout 2x2



First Study Second Study

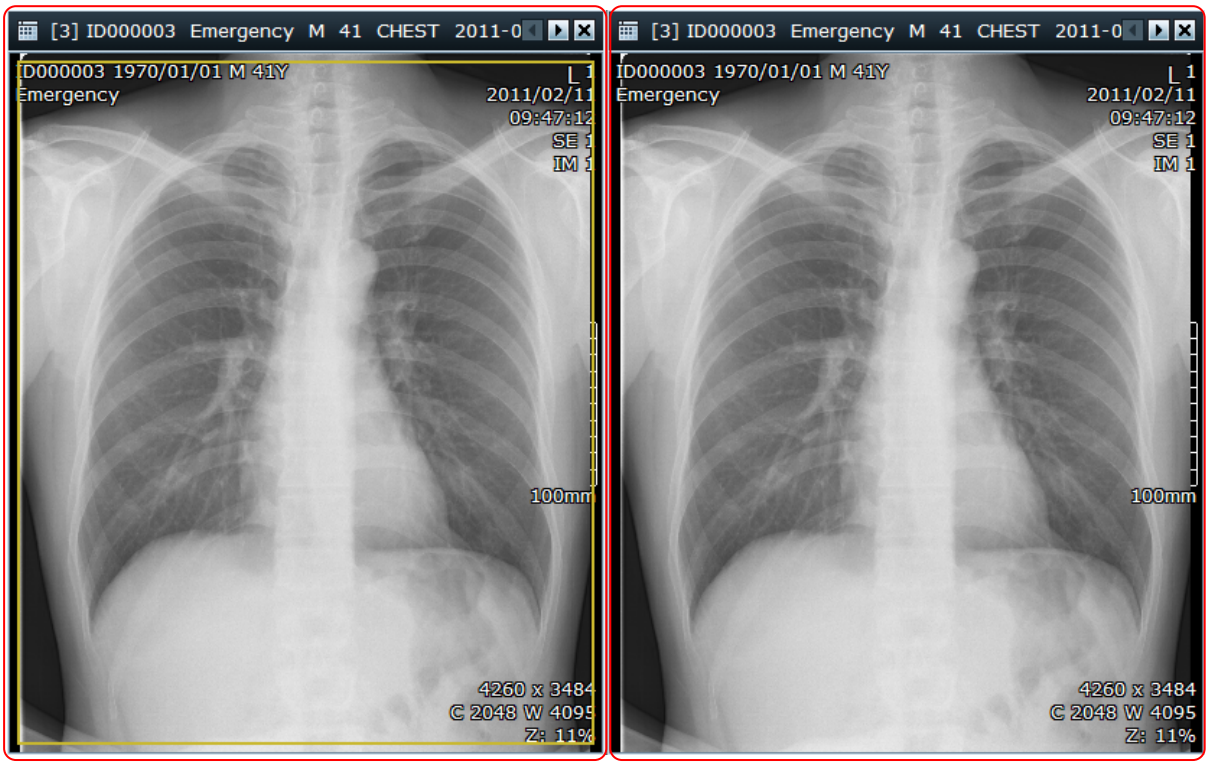


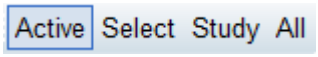
Figure 4.2. Change Layout

4.1.3. *Study List, Patient Study List*

- ***Study List*** Window displays all open studies.
- If you select study at ***study list, Patient Study List*** Window will display all studies of the same patient.
- You can open study by select and dragging study on the ***Study List*** Window or ***Patient Study List*** Window

4.1.4. *Set Image Manipulation Apply Range*

- There are 4 application ranges

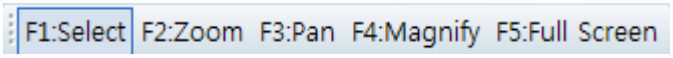


  - Active: Current Image
  - Select: All selected Images
  - Study: All images of current study
  - Apply All: All opened images

- Following image manipulations works for apply range.
  - Export
  - Zoom, Pan
  - Rotate, Flip, Invert
  - Window Level

4.1.5. *Short Cut Key*

- There are 5 short cut keys



  - F1: Select
  - F2: Zoom
  - F3: Pan
  - F4: Magnify
  - F5: Full Screen

4.2. *File Menu*

4.2.1. *Open DICOM Files*

- Open DICOM files and display image.
- You can select multiple images at Open File Dialog Box.

4.2.2. *Open Non-DICOM Files*

- Open non DICOM files (JPEG, Bitmap, Tiff)
- You can select multiple images at Open File Dialog Box.

4.2.3. *Export*

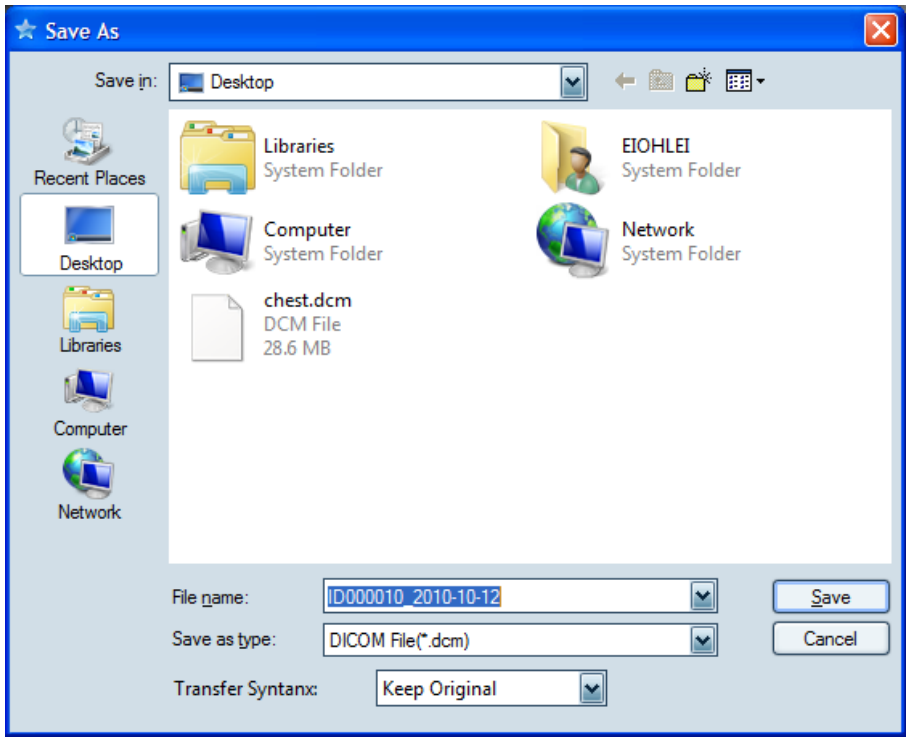


Figure 4.3. Export

- Export selected DICOM image as different image file format.
- File Name: Insert new file name.
- File Type: Select one of following formats.
  - DICOM Files: DICOM type
  - JPEG Files: JPEG type
  - Bitmap Files: Windows bitmap type

  - TIFF Files: TIFF type
  - AVI File: Windows AVI type. You have to select more than 2 images with same series.
- Transfer Syntax: Enabled when you select DICOM type
  - Keep Original: Keep the original Transfer Syntax
  - Uncompressed: Do not use compressing. If selected image is compressed, it will be saved as uncompressed.
  - JPEG Baseline: JPEG 8bit.
  - JPEG 12bit Lossy: JPEG 12bit.
  - JPEG 16bit Lossless: JPEG 16bit lossless.
- Quality: Enabled when you use lossy JPEG codec
  - Low: JPEG Q Value = 10
  - Low-Mid: JPEG Q Value = 25
  - Mid: JPEG Q Value = 50
  - Mid-High: JPEG Q Value = 75
  - High: JPEG Q Value = 90

4.2.4. *Close*

- Close selected study and related images

4.2.5. *Close All*

- Close all studies and related images

4.2.6. *Previous Study*

- Add previous study to study list and open related images.

4.2.7. *Next Study*

- Add next study to study list and open related images.

4.3. *Edit Menu*

4.3.1. *Select Image*

- Select [Image – Select] in the menu or press F1 key to select the image.
- Image is selected when the image is clicked by left mouse button. Yellow box is displayed for the selected image.
- You can select multiple images by using the CTRL key and clicking each image using the left mouse button.
- You can select a row of images by using the SHIFT key and clicking the first and the last image.

4.3.2. *Copy to Clipboard*

- Copy active image to clipboard

4.3.3. *Overlay Delete All*

- Delete all annotations from selected images.

4.3.4. *Select All*

- Select all images in current series.

4.4. *View Menu*

4.4.1. *Text Overlay*

- Show or hide text overlay

4.4.2. *Annotation*

- Show or hide annotation

4.4.3. *Ruler*

- Show or hide ruler

4.4.4. *Toolbar*

- Show or hide toolbar.

4.4.5. *Caption*

- Show or hide caption.

4.4.6. *Study List*

- Show or hide study list.

4.4.7. *Full Screen*

- Hide caption, toolbar, study list and maximize the image window

4.4.8. *Reset View*

- Show toolbar, caption and study list.

4.5. *Image Menu*

4.5.1. *Select*

- Set mouse mode to select. At select mode you can select image and annotation.

4.5.2. *Zoom*

- Set mouse mode to zoom. You can zoom in and out by clicking the left mouse button and moving it in any direction. North and east directions zoom in the image. South and west directions zoom out the image.

4.5.3. *Pan*

- Set mouse mode to pan. You can move the image by mouse left button click and dragging.

4.5.4. *Magnify*

- Set mouse mode to magnify glass. You can magnify small parts of the image by mouse left button click and moving. Default zoom ratio is x2. Use with CTRL key to change zoom ratio. Use with SHIFT key to change the size of the glass box.

4.5.5. *Rotate Right*

- Rotate selected images 90° right

4.5.6. *Rotate Left*

- Rotate selected images 90° left

4.5.7. *Flip Horizontally*

- Flip selected images horizontally.

4.5.8. *Flip Vertically*

- Flip selected images vertically.

4.5.9. *Inverse*

- Invert selected images

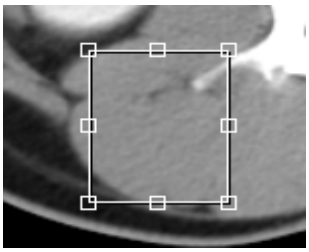
4.5.10. *Display Original*

- Return selected images to original state

4.6. *Annotation Menu*

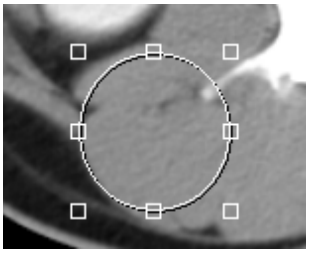
4.6.1. *ROI - Rectangle*

- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging a control point.



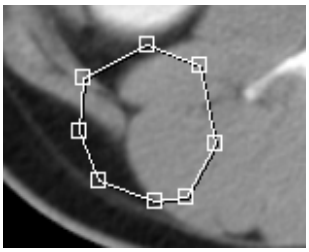
4.6.2. *ROI -Ellipse*

- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging control point.



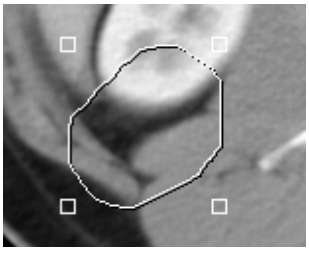
4.6.3. *ROI - Polygon*

- Whenever you click the mouse left button, new point is added.
- Double click mouse left button to finish drawing.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging control point.

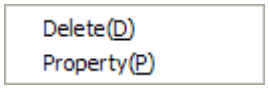


4.6.4. *ROI - Free*

- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging control point.



4.6.5. *ROI Property*



- If you click the right mouse button on the ROI, a short cut menu will be displayed.
- ***Delete*** deletes ROI.
- ***Property*** shows the property dialog box.

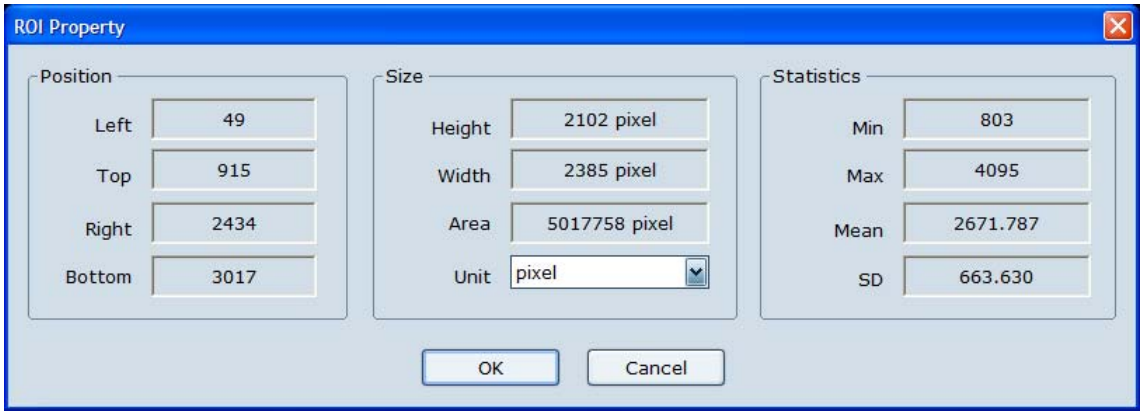
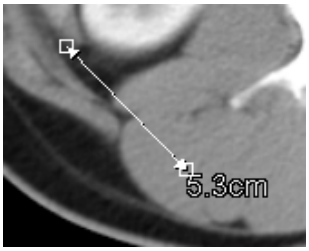


Figure 4.5. ROI Property

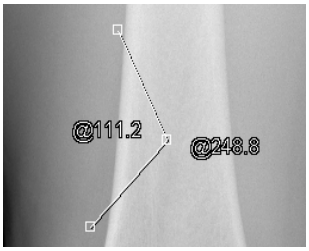
- Position: Display rectangular coordinate of the ROI.
- Size: Display height, width and area of the ROI.
- Statistics: Display minimum, maximum, mean and standard deviation values.

4.6.6. *Measure - Distance*



- Click mouse left button and drag.
- Distance is displayed at the end of the line.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging a control point.

4.6.7. *Measure - Angle*



- Click mouse left button three times at center, left, right of the angle.
- Inner angle and outer angle are displayed.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging a control point.

4.6.8. *Measure - CTR*

- Click the left mouse button at the left end of the chest. (a)
- Drag mouse to the right end of the chest. (b)
- Release mouse button.
- Click control point (c) and move to the left end of the heart
- Click control point (d) and move to the right end of the heart
- Width of the heart will be displayed at (d)
- Width of the chest will be displayed at (b)
- CTR will be displayed as %.
- You can modify the position of each line by clicking and dragging the line.
- You can modify the shape of the object by clicking and dragging control point.

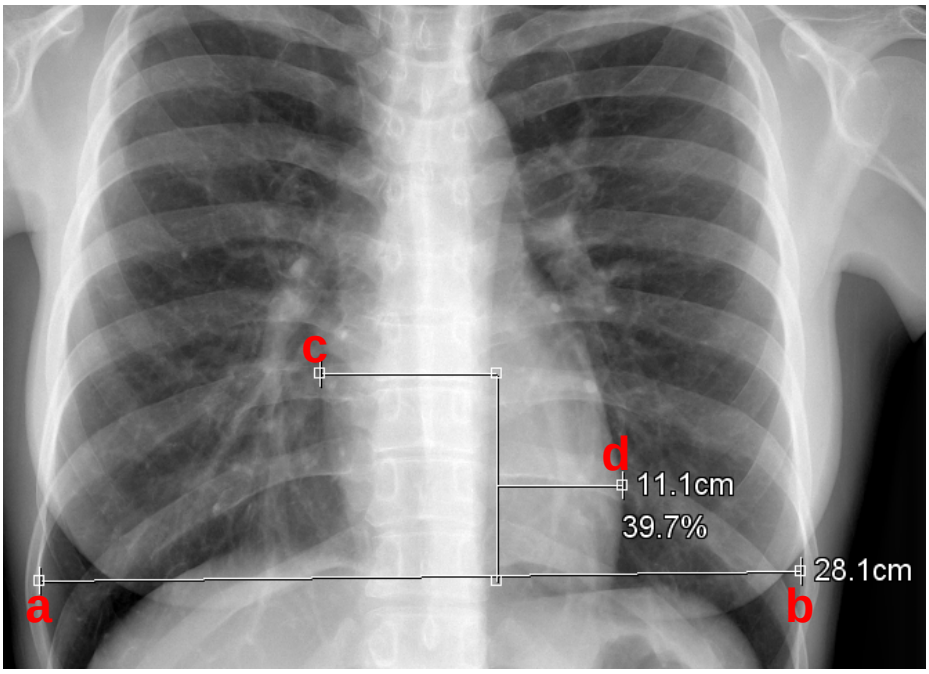
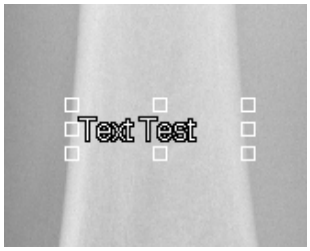


Figure 4.6. CTR

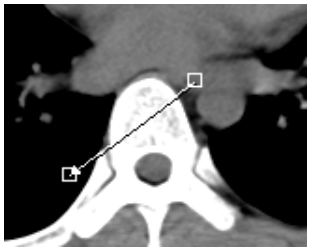
4.6.9. *Text*

- Click the left mouse button or draw a rectangle by clicking and dragging.
- ***Edit*** box will come up. Add your text.
- Click the left mouse button on the outside of the edit box.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging a control point.



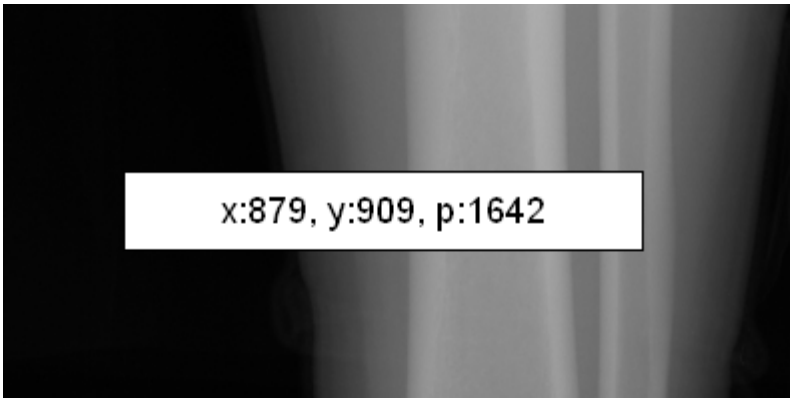
4.6.10. *Arrow*

- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging a control point.



4.6.11. *Pixel View*

- Click mouse left button and drag.
- A small white box will show pixel coordinate and value.



4.6.12. *Profile*

- Click mouse left button and drag.
- Releasing the left mouse button will show profile dialog box.
- If you click and drag left mouse button on the profile graph, red point will be displayed on the image which indicates current position on the graph.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging a control point.
- Right clicking the line will show a short cut menu which enables you to show the profile dialog box.

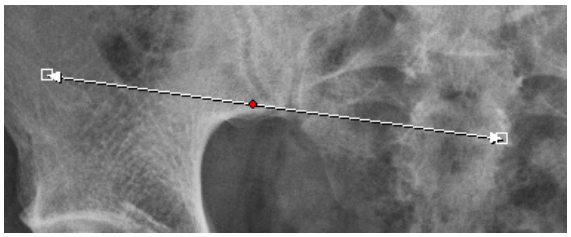


Figure 4.7. Profile

- The profile dialog displays the following.
  - Distance: distance between two points
  - Start Point: start point coordinate
  - End Point: end point coordinate
  - Min: minimum value
  - Max: maximum value
  - Mean: mean value
  - Pixel Value: value of mouse clicked point