

QuantorView

User Manual

DICOM workstation software

Doc No. : TM-706-KR

Rev 1.2.1 Nov 2014

Part No. : CR-FPM-04-003-EN

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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 system.

The following symbols will be used throughout this manual:



DANGER

General prohibition indication.

The functionality of the system 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 of the product in such a case.



DANGER

General mandatory action manual.

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

If unauthorized changes have been made to delivered system and accessories, 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.



WARNING

The functionality of the system 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 system.

Medical Device Security

Users must take steps to secure their networks and protect their Medical Information Systems which includes a risk assessment strategy, network defense in depth strategy, business continuity planning, etc.

- ✓ **User Authentication**
Only authorized users should log on 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's name, a relative's name or any dictionary word.
 - 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:
 - Viruses
 - Spyware
 - Trojans
 - Hostile CodesIt 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 key loggers

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Chapter 1. Introduction

QuantorView is an image viewing software dedicated DICOM images produced by imaging equipment (CR, DR, CT, MRI, Ultrasound and etc). **QuantorView** is a high quality viewing software responsible for displaying PACS image data. It enables physicians to provide medical services by accessing image data and patient information from remote locations. It also enables the images to be stored to the local database of your personal computer allowing database management to operate efficiently. Physicians can utilize the software tools for researching, teaching, teleconferencing and online collaboration.

This user manual provides detailed information about the operation of **QuantorView** 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 proper functioning of the product in such a case.

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

1.1. Main Features

DICOM File Support

- Read and display all DICOM files (mono-frame, multi-frame)
- Read and display non-DICOM file
- JPEG Lossy, JPEG Lossless, JPEG2000, RLE
- Read and write DICOM CD/DVD (DICOMDIR support)
- Export DICOM files to BMP, TIFF, JPEG
- Convert Non-DICOM images to DICOM
- Convert multi-frame image to AVI file.

DICOM Network Support

- DICOM Storage SCU/SCP
- DICOM Query/Retrieve SCU/ SCP
- DICOM Print SCU with 8, 12 bit support

Viewer Functions

- Customizable toolbars
- NN, linear, cubic, super sampling interpolation
- ROIs: polygons, circles, rectangles and etc.
- Custom LUT and curve
- CT/MR scout line view
- Thumbnail images support
- Support 1 ~ 4 monitor
- User defined hanging protocol, tool bar, overlay
- Local database support
- Local backup support

1.2. Shortcut Key

Shortcut Key	Name	Description
Ctrl+A	Select All Images	Select all images in selected series
Ctrl+C	Copy to Clipboard	Copy selected images to clipboard
Ctrl+E	Deselect	Deselect all selected images
Ctrl+F	Full Screen	Change to full screen mode
Ctrl+N	Next Exam	Open next exam
Ctrl+P	DICOM Print	Open DICOM print window
Ctrl+S	Save	Save all images in selected series
Ctrl+W	Work List	Open Work List window
Ctrl+0 ~ Ctrl+9	Window Preset	Apply window preset
Ctrl+F4	Close Series Window	Close selected series window
Alt+0 ~ Alt+9	Window Preset	Apply window preset
Alt+F4	Close QuantorView	Close QuantorView
M	Magnify	Set mouse mode to magnify glass
P	Pan	Set mouse mode to pan
R	Report	Open report window
W	Window Level	Set mouse mode to window level
Z	Zoon	Set mouse mode to zoom
Esc	Select	Set mouse mode to select
←	Previous Series	Display previous series
↑	Previous Page	Display previous page
→	Next Series	Display next series
↓	Next Page	Display next page

Chapter 2. Installation & Start

2.1. Environment

2.1.1. Recommended Computer Requirement

Operation System	Microsoft Windows 7, 8
CPU	Intel CORE i5
Memory	RAM 4GB or more
Hard Disk	300GB Free Hard Disk Space
Network	1Gbps Ethernet
Video	32 bit Color Display
Video Resolution	1600 x 1200

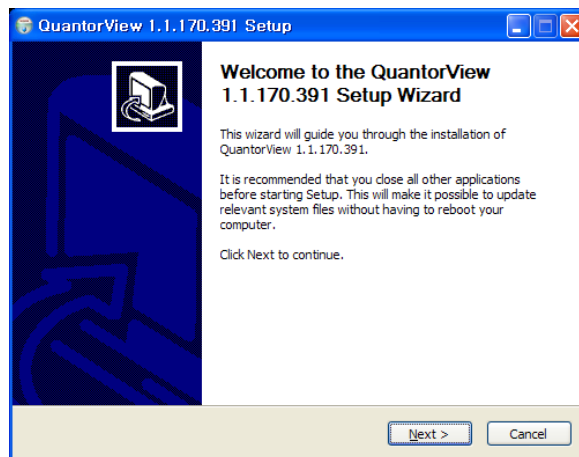
2.1.2. Minimum Computer Requirement

Operation System	Microsoft Windows 7
CPU	Intel Processor
Memory	RAM 2GB or more
Hard Disk	80GB Free Hard Disk Space
Network	1Gbps Ethernet
Video	32 bit Color Display
Video Resolution	1280 x 1024

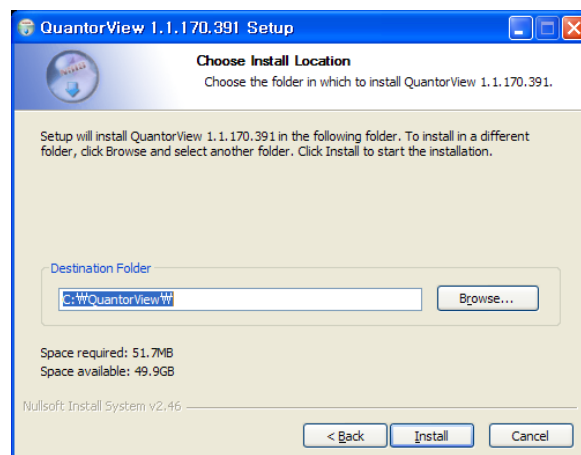
2.2. Installation

2.2.1. Software Installation

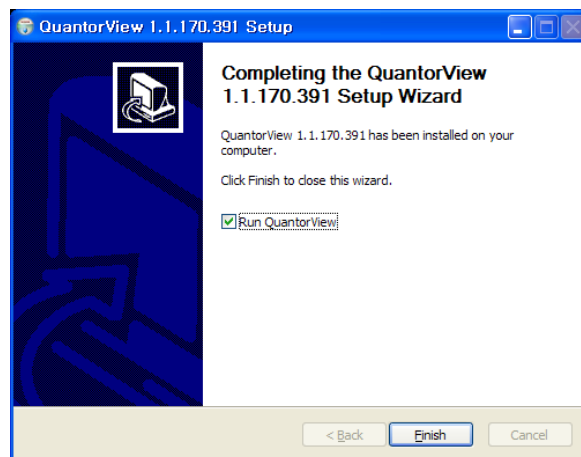
- Logon PC with administrator account.
 - Connect USB Dongle to USB port.
 - Insert Installation CD. Install program will automatically launched.
 - If install program is not being launched automatically, find and execute "**QuantorView_x.x.x.x_installer.exe**" file in CD.
-
- Click "Next" button



- Choose destination folder and click "Install" button
- Installation status will be displayed, and finished within 1 minute which depends on systems

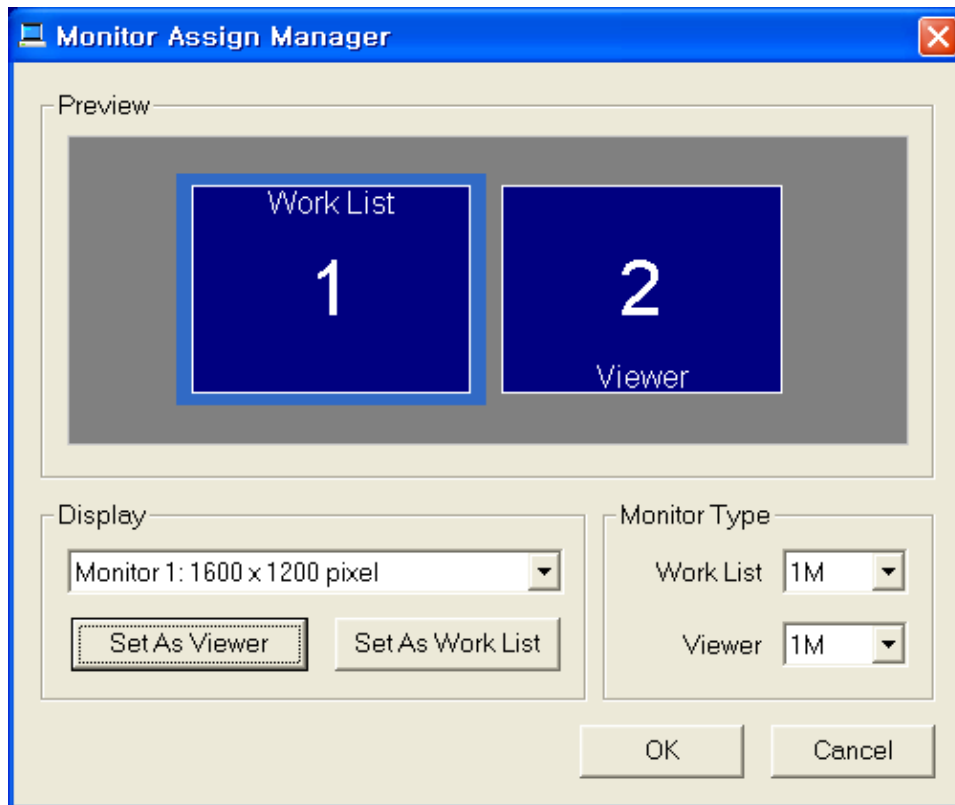


- If installation is successful, Following window will show up.
- Click “Finish” to finish installation.



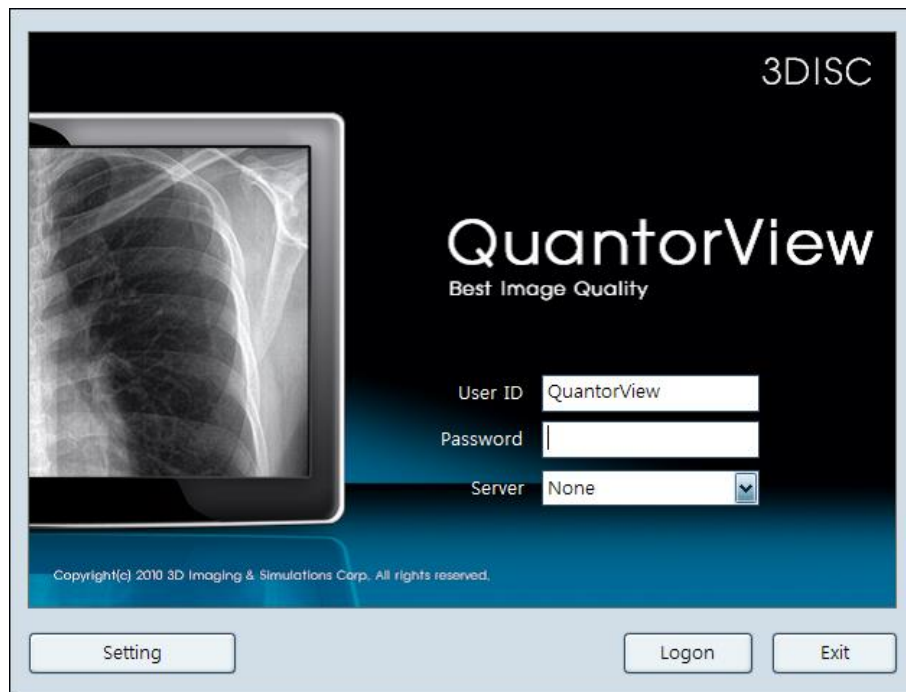
2.3. Start

2.3.1. Monitor Assign Manager



- Monitor Assign Manager pops up at first execution of **QuantorView** or when monitor display resolution is changed.
- Monitor Assign Manager shows all monitors connected to PC,
- User can set the monitor with the mouse click or using Display combo box.
- In order to set the monitor as an Image Viewer, select monitor and click Set As Viewer button, then selected monitor displays Viewer.
- In order to set monitor as Work List Viewer, select monitor and click Set As Work List button, then selected monitor displays Work List.
- User can set Work List and Viewer monitor using Display combo box. **QuantorView** supports 1M, 3M and 5M resolution monitors.
- User must assign the Work List monitor, and only one monitor can be set as a Work List monitor.
- User must assign the Viewer monitor, and more than 2 monitors can be set as Viewer monitors. For setting of multiple Viewer monitors, their monitor resolutions must be identical.

2.3.2. Logon Dialog Box



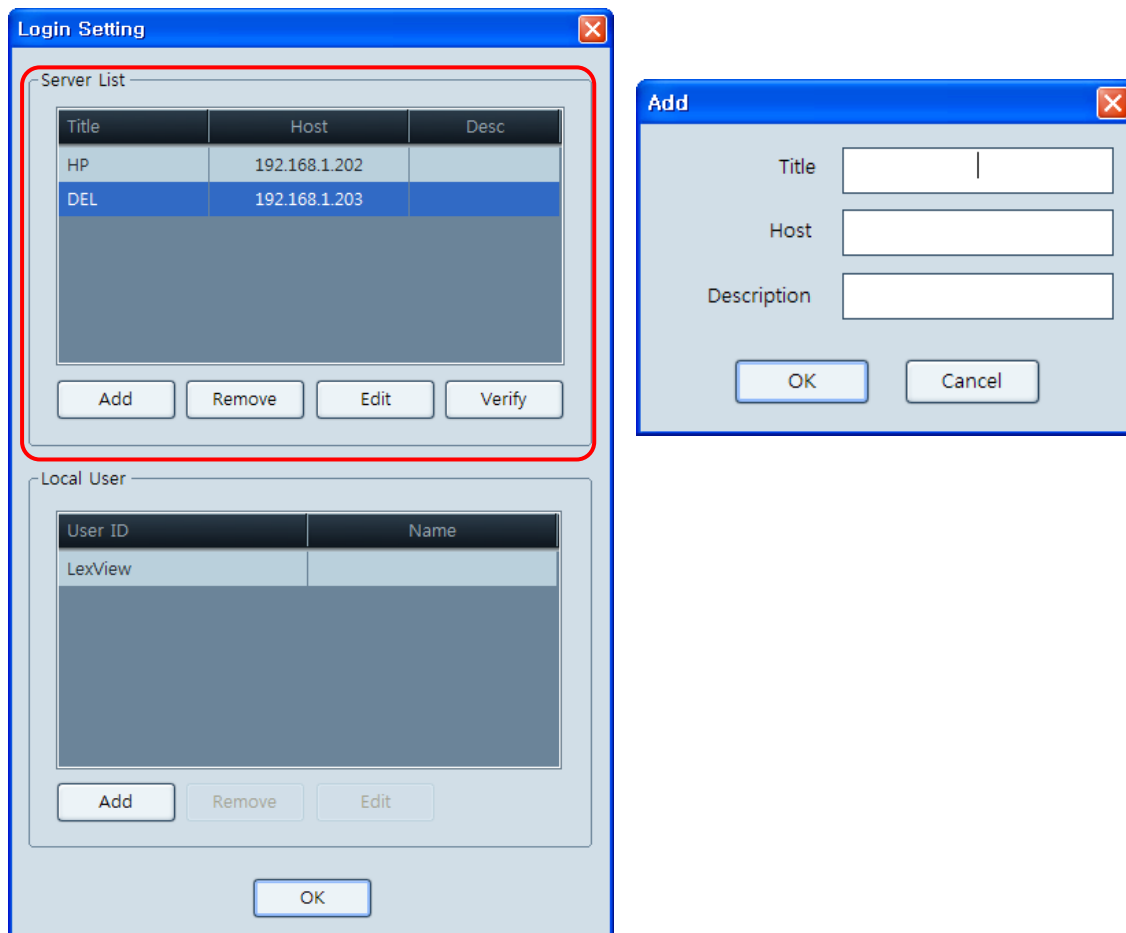
- After assigning of monitors, logon window pops up.
- In case the PC is not connected to PACS server, select None in Server combo box, and input user ID and password to start the **QuantorView**.
- In case the PC is connected to PACS server, select corresponding server in Server combo box, and input registered user ID and password to start the **QuantorView**.
- Default ID is **QuantorView** and default password is **QuantorView**.
- Click Exit button to close **QuantorView**.
- In the Setting, user can configure server information, ID, password and etc.



CAUTION

Default user ID and password are case sensitive.

2.3.3. Login Setting - Server



- Server can be added by clicking Add button.
- Input server name in Title field.
- Input IP address in Host field.
- Input server description in Description field.
- In order to remove server, select server and click Remove button.
- In order to edit server, select server and click Edit button.
- In order to check DICOM communication status, select server and click Verify button.

2.3.4. Login Setting – Local User

The screenshot displays two windows from the QuantorView software. The primary window, titled 'Login Setting', features a 'Server List' section with a table containing two entries: 'HP' at '192.168.1.202' and 'DEL' at '192.168.1.203'. Below this is a 'Local User' section, which is highlighted with a red rectangular border. This section includes a table with columns 'User ID' and 'Name', showing a single entry 'LexView'. At the bottom of the 'Local User' section are 'Add', 'Remove', and 'Edit' buttons. The main 'Login Setting' window also has 'Add', 'Remove', 'Edit', and 'Verify' buttons at its base. To the right, a 'Change Password' window is visible, containing input fields for 'User ID', 'New Password', 'Password (again)', and 'Name', along with 'OK' and 'Cancel' buttons.

Title	Host	Desc
HP	192.168.1.202	
DEL	192.168.1.203	

User ID	Name
LexView	

- Add
- Remove
- Edit
- Verify

OK

User ID

New Password

Password (again)

Name

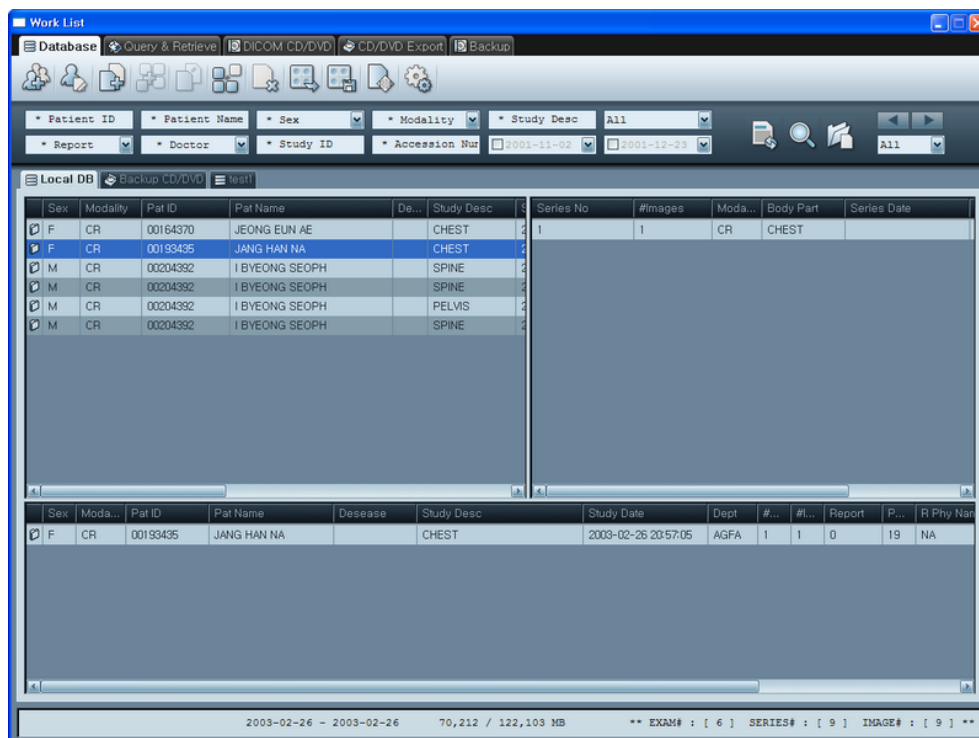
OK Cancel

- User can be added by clicking Add button.
- Input user ID in User ID field.
- Input password in New Password and Password (again) fields.
- Input user name in Name field.

Chapter 3. Work List

3.1. Work List Window

Work List provides functions of managing studies and images.



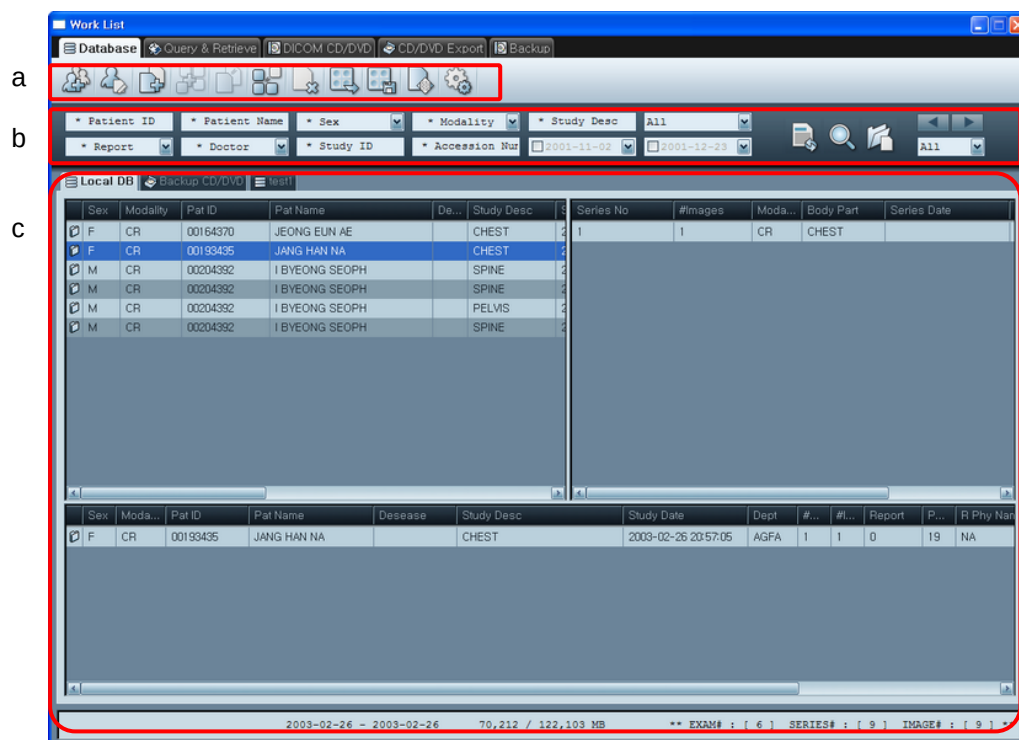
User can move to sub pages by clicking tabs. And sub pages consist of followings.

- Database
- Query & Retrieve
- DICOM CD / DVD
- CD / DVD Export
- Backup

3.2. Database

3.2.1. Overview

- User can search database with various conditions.
- User can edit and delete data.
- User can transfer data.
- User can generate output in different layouts.
- Database window consists of followings.
 - a. Tool Bar
 - b. Search Condition
 - c. Search Result



3.2.2. Toolbar



- a. Merge Patient : Change patient information of selected study to other patient information
- b. Exam Edit : Edit selected exam information
- c. Merge Exam : Change exam information of selected exam to other exam information
- d. Merge to One Series : Change series information of selected exam to other series information
- e. Split Exam : Split the exam which has more than 2 series into 2 exams
- f. Split Series : Split the series which has more than 2 images into 2 series
- g. Delete Exam : Delete selected exams
- h. DICOM Send : Send selected exams to DICOM server
- i. Local Send : Send selected exams to conference folder
- j. Report : Generate the report of selected exam
- k. Setting : Configure layout and list column in search result window

3.2.3. Search Condition

a	b	c	d	e	
* Patient ID	* Patient Name	* Sex	* Modality	* Study Desc	All
* Report	* Doctor	* Study ID	* Accession Num	☐ 2001-11-02	☐ 2001-12-23
f	g	h	i	j	k

- a. Patient ID : Input patient ID in whole or partial
- b. Patient Name : Input patient name in whole or partial
- c. Sex : Select patient sex. M for male, F for female and O for others
- d. Modality : Select modality / Only modalities in database are registered automatically
- e. Study Desc : Input study description related information
- f. Report : Select report status
- g. Doctor : Select the doctor / Only doctors in database are registered automatically
- h. Study ID : Input Study ID
- i. Accession Number : Input Accession Number
- j. Starting Date : Select starting date of search / Tick the box to use
- k. Ending Date : Select ending date of search / Tick the box to use



- a. Delete Search Condition : Delete all search conditions
- b. Search : Search database with the set condition
- c. Open : Open selected item to review images
- d. Display Period : User can set the period of result to be displayed / 1 day, 1 week, 1 month and all

3.2.4. Merge Patient

- Change patient information of selected study to other patient information

Merge Patient

Source Patient

Patient ID: 99118822 Sex: M

Name: Kodak goro Birth Date: 2007-08-01

Destination Patient

Patient ID: Name: Search

Pat ID	Name	Sex	Birth Date
00204392	I BYEONG SEOPH	M	1957-12-07
4443	OHOYA KAZUHIKO	M	1970-11-01
98-33062	LEE HYE SOON	F	0000-00-00
102-2058	AN WE CHAN	M	0000-00-00
129143	KIM JAE SU M/66	M	0000-00-00
145266	KIM EUNG HWAN .M/73	M	0000-00-00

Merge Patient Close

- In the search result, select patient information what user wishes to merge to other patient.
- Click Merge Patient button to open Merge Patient window.
- Search destination patient to be merged.
- Select destination patient and click Merge Patient button.
- Click Close button to close the window.

3.2.5. Edit Exam

Exam Information Edit

Patient Information

* Patient ID: 99118822 * Sex: M
 * Name: Kodak goro * Birth Date: 2007-08-01

Study Information

Study ID: Accession Number: Description: Physician Name:

Series Information

Series Number: Body Part Examined: Description:

OK Cancel

- Select exam in the search result.
- Click Edit Exam button to open the Edit Exam window.
- Edit the information and click OK button.

3.2.6. Merge Exam

- Change exam information of selected exam to other exam information

Merge Exam

Source Exam

Patient ID: 99118822 Name: Kodak goro
 Study Date: 2007-08-01 Modality: CR
 Description: Dept.: Series #: 1 Images #: 1

Destination Exam

Patient ID: Name: Search

Pat ID	Pat Name	Mdl	Study Desc	Study Date	Dept	#S...	#I...
145266	KIM EUNG H...	CT		2001-08-04 10:59...		5	117
129143	KIM JAE SU ...	CT		2001-08-03 15:57...		2	20
102-2058	AN WE CHAN	CT	FACIAL	2002-01-31 11:45...		2	2
98-33062	LEE HYE SO...	CT	C-SPINE	2002-01-31 10:52...		2	36
4443	OHOYA KAZ...	CR		2007-11-19 10:17...		1	1
4443	OHOYA KAZ...	CR		2007-11-19 11:51...		2	2
4443	OHOYA KAZ...	CR		2007-11-19 13:36...		2	2
00204392	IBYEONG S...	CR	SPINE	2003-02-26 09:09...		2	2

Merge Exam Close

- Select exam in the search result.
- Click Merge Exam button to open Merge Exam window.

- Search destination exam to be merged.
- Select destination exam and click Merge Exam button.
- Click Close button to close the window.

3.2.7. Merge to One Series

- Change series information of selected exam to other series information.

Merge Series

Exam Information

Patient ID: 129143 Name: KIM JAE SU M/66

Study Date: 0000-00-00 Modality: CT

Description: Series #: 2 Images #: 20

Dept:

Series

Series List

Seri...	Series Desc	BodyPart	#Ima...
3	BRAIN...		19
2	HEAD L...		1

Key Series

Seri...	Series Desc	BodyPart	#Ima...
---------	-------------	----------	---------

Merge Series

Seri...	Series Desc	BodyPart	#Ima...
---------	-------------	----------	---------

Merge Series Close

- In the search result, select the series (B) what user wished to merge to other series (A).
- Click Merge to One Series button to open Merge to One Series window.
- Information of a selected series is displayed in Exam Information.
- Series List displays all series which belong to the same exam.
- Select series (B) in the Series List and add to Merge Series list.
- Select series (A) in the Series List and add to Key Series list.
- Click Merge Series button to merge.

3.2.8. Split Exam

- Split the exam which has more than 2 series into 2 exams

Split Exam

Exam Information

Patient ID: 129143 Name: KIM JAE SU M/66

Study Date: 0000-00-00 Modality: CT

Description:

Dept.: Series #: 2 Images #: 20

Series List

Series of Current Exam

Seri...	Series Desc	BodyPart	#Ima...
2	HEAD L...		1
3	BRAIN...		19

Series of New Exam

Seri...	Series Desc	BodyPart	#Ima...
---------	-------------	----------	---------

> < >> <<

Split Exam Close

- Select exam user wishes to split.
- Click Split Exam button to open Split Exam window.
- Exam Information displays exam information which selected series belongs to.
- Series of Current Exam List displays all series which belong to selected exam.
- Select series which user wishes to split in Series of Current Exam and move to Series of New Exam.
- Click Split Exam button to split.

3.2.9. Split Series

- Split the series which has more than 2 images into 2 series

Split Series

Exam Information

Patient ID: 129143 Name: KIM JAE SU M/66
 Study Date: 0000-00-00 Modality: CT
 Description:
 Dept: Series #: 2 Images #: 20

Series List

Series	Series Desc	BodyPart	#Ima...
2	HEAD L...		1
3	BRAIN...		19

Image List

Images of Current Series

Ima...	Image Path
2	C:\Ensemble\Database\2001-08-03\129143\CT...
3	C:\Ensemble\Database\2001-08-03\129143\CT...
4	C:\Ensemble\Database\2001-08-03\129143\CT...
5	C:\Ensemble\Database\2001-08-03\129143\CT...
6	C:\Ensemble\Database\2001-08-03\129143\CT...
7	C:\Ensemble\Database\2001-08-03\129143\CT...
8	C:\Ensemble\Database\2001-08-03\129143\CT...

Images of New Series

Ima...	Image Path
--------	------------

Split Series Close

- Select exam or series user wishes to split.
- Click Split Series button to open Split Series window.
- Exam information displays exam information which selected series belong to.
- Series List displays all series which belong to selected exam. Select series.
- Select images which user wishes to split in Image of Current Series and move to Images of New Series.
- Click Split Series button to split.

3.2.10. DICOM Send

- Send selected exams to DICOM server.

DICOM Send

Setting

Local IP Address: 192.168.1.101 ☐ Auto Start ☒ Send Original

Compress: Keep Original Quality: Mid ☒ Selected Images Only

Destination Remote DICOM AE

AE Title	Host	Port	Desc
PIVIEW	192.168.1.111	104	
BUNNY	192.168.1.101	3000	
TEST	192.168.1.100	1004	

Static

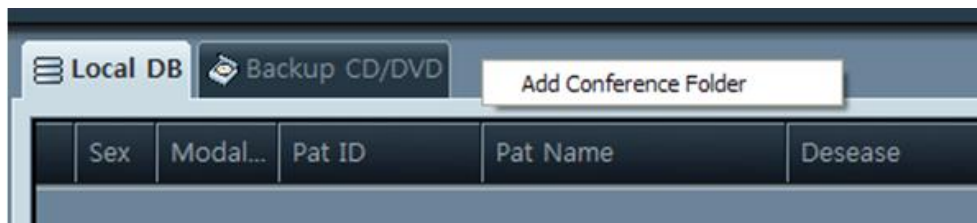
Status:

Pat. Name: Pat. ID:

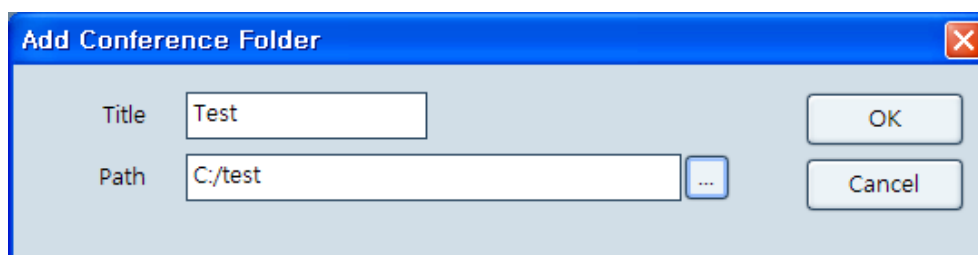
- Select local IP using Local IP Address combo box.
- Select compress codec using Compress combo box. In case JPEG is selected, Quality combo box is activated, and compression quality can be selected.
- Auto Start enables to send image simultaneously with clicking of DICOM Send button in tool bar.
- Send Original enables to send original image. Otherwise, image is sent as it is being displayed on the window.
- Select server to be sent in Destination Remote DICOM AE list.
- Send button sends image.
- Verify button checks the DICOM communication status with the server.
- Stop button stops sending of image.
- Status shows sending status in progress bar, and in a form of "number of sent image / number of total image".

3.2.11. Local Send

- Send selected exams to conference folder.
- Conference folder can be added to Database tab in Work List window.
- Place mouse next to Backup CD / DVD space, and click right mouse button, and select Add Conference Folder.



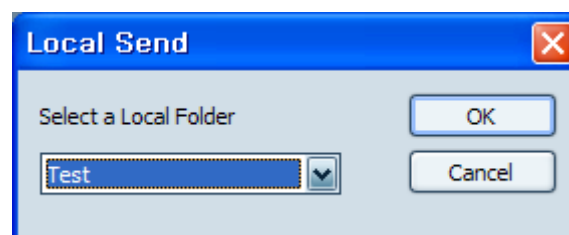
- By selecting Add Conference Folder, following window pops up. Input Title and designate path, and click OK button.



- Below shows the successful creation of conference folder.



- Following dialog box pops up after selecting exams and clicking Local Send button. Select a local folder, and click OK then selected image with database are copied to selected folder.

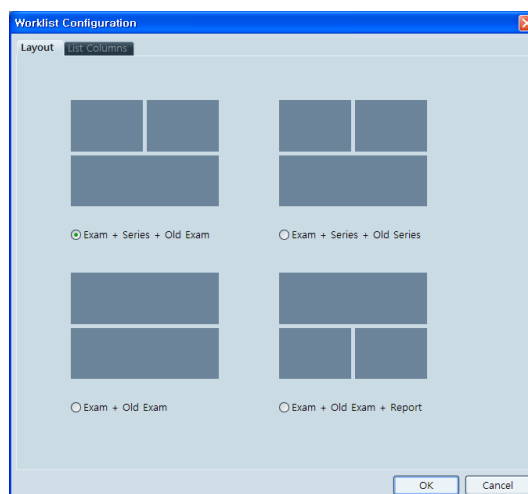


3.2.12. Report

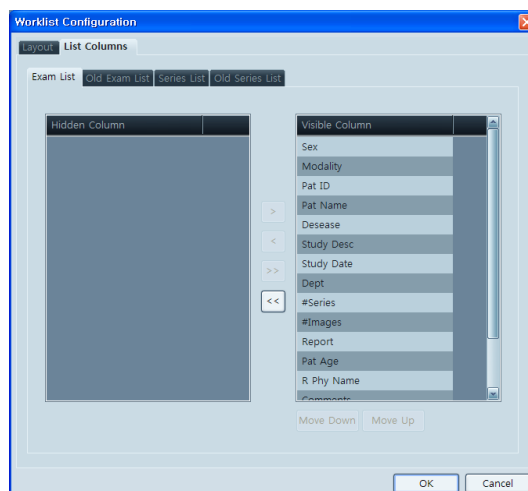
- Generate the report of selected exam. Refer to Chapter 5. Tool – Report.

3.2.13. Setting

- Configure layout and list column in search result window.
- Click Layout tab, and select layout format.



- Click List Columns tab, and select sub tab user wishes to edit.
- Hidden Column shows the list which are not displayed, and Visible Column shows the list which are displayed.
- Select item and click < or > to move it to Hidden Column or Visible Column.
- Click << or >> to move all items to Hidden Column or Visible Column.
- Click Move Down or Move Up button to move items up or down.



3.2.14. Popup Menu

- Following popup menu is displayed by clicking right mouse button on search result window.

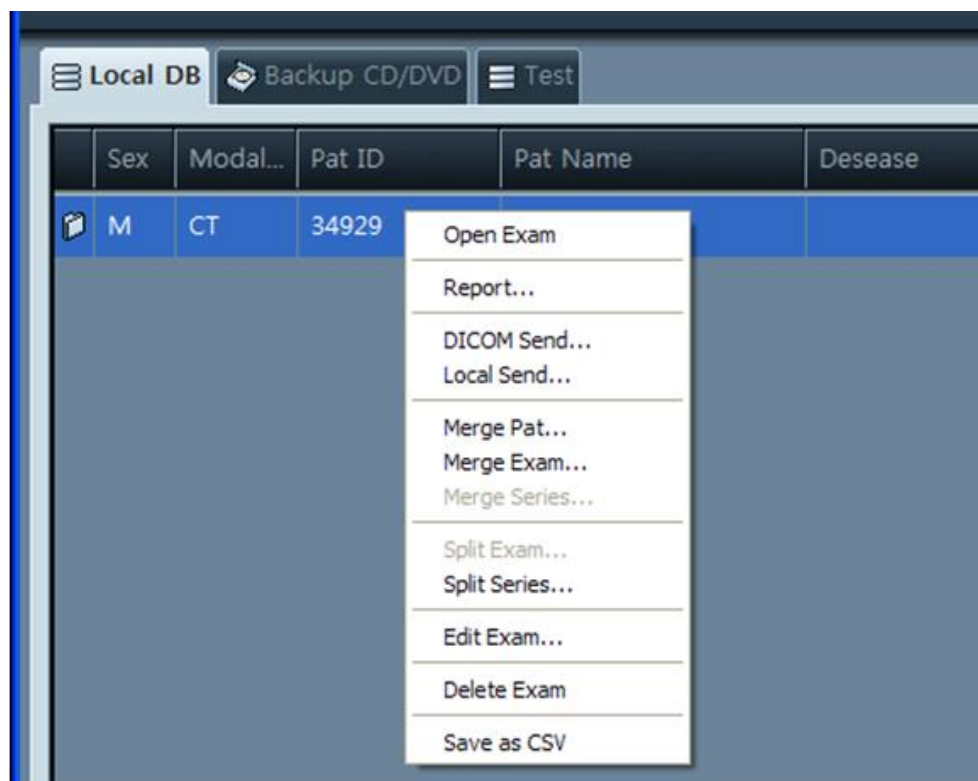


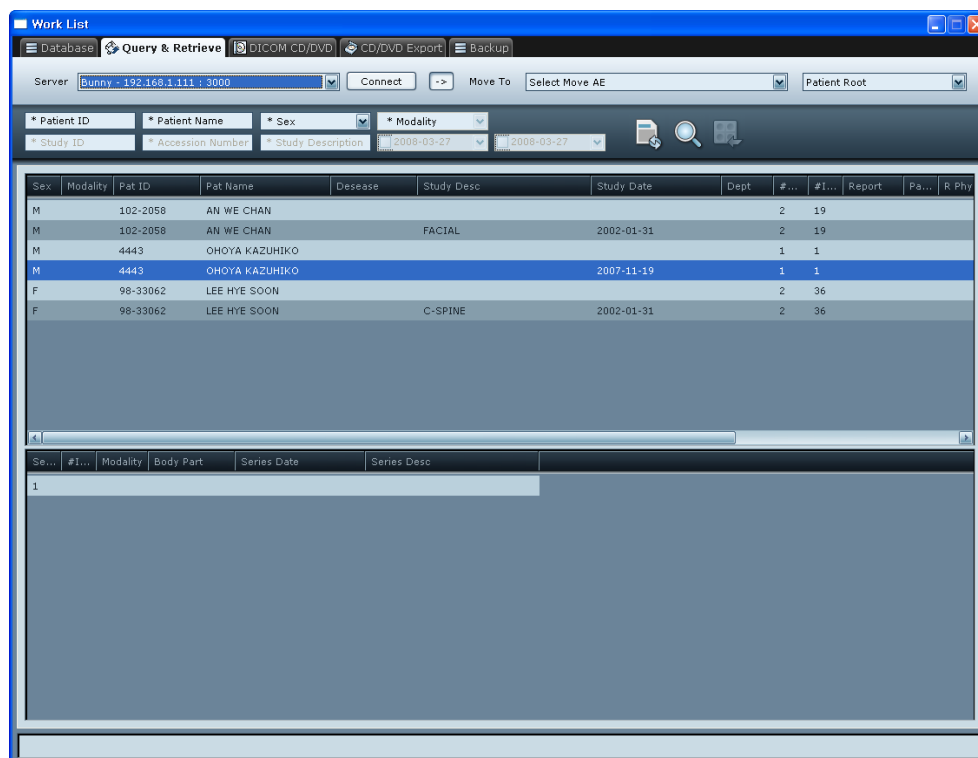
Figure 3.19. Popup Menu

- Open Exam : Open selected exam
- Report : Refer to Chapter 3.2.12.
- DICOM Send : Refer to Chapter 3.2.10.
- Local Send : Refer to Chapter 3.2.11.
- Merge Patient : Refer to Chapter 3.2.4.
- Merge Exam : Refer to Chapter 3.2.6.
- Merge Series : Refer to Chapter 3.2.7.
- Split Exam : Refer to Chapter 3.2.8.
- Split Series : Refer to Chapter 3.2.9.
- Edit Exam : Refer to Chapter 3.2.5.
- Delete Exam : Delete selected exam
- Save as CSV : Save all results in save window in CSV file format

3.3. Query & Retrieve

3.3.1. Overview

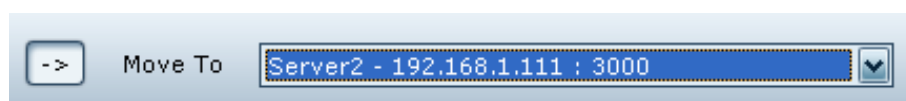
- User can access DICOM server to query patient / exam / series / image or move them to other position or retrieve to QuantorView.
- DICOM server should support one of the below services, at least.
 - Patient Root Query : Query in sequence of patient – exam – series – image.
 - Patient Root Move : Move query result in sequence of patient – exam – series – image.
 - Patient Root Get : Retrieve query result in sequence of patient – exam – series – image.
 - Study Root Query : Query in sequence of exam – series – image.
 - Study Root Move : Move query result in sequence of exam – series – image.
 - Study Root Get : Retrieve query result in sequence of exam – series – image.
 - Patient Study Only Query : Query by patient and exam information.
 - Patient Study Move : Move result queried by patient and exam.
 - Patient Study Get : Retrieve result queried by patient and exam.



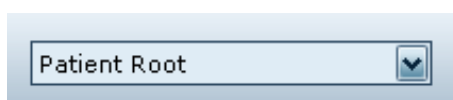
3.3.2. Tools



- Select sever in Server combo box. Server can be added in Network in Preference menu.
- Connecting status can be tested by clicking Connect button.



- Move To combo box becomes activated when the arrow button is clicked.
- Select the destination in the combo box where selected item moves to.
- In case that Move To combo box is not activated or destination is not selected, **QuantorView** becomes the destination.

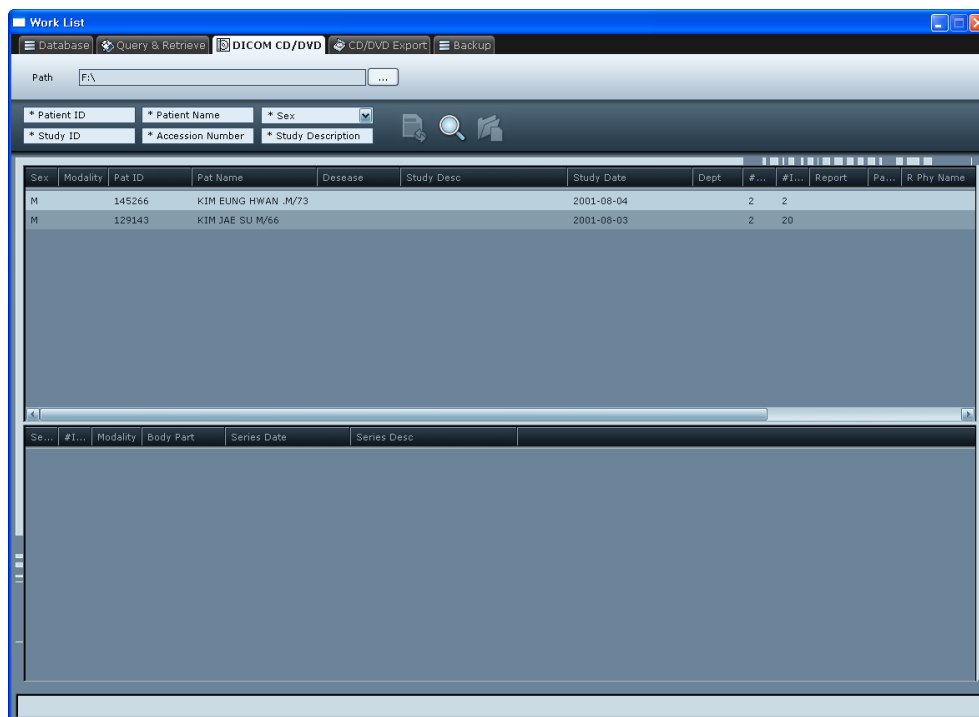


- Select query and move method.
 - Patient Root : Query and move in sequence of patient – exam – series – image.
 - Study Root : Query and move in sequence of exam – series – image.
 - Patient Study Only Root : Query and move by patient and exam information.

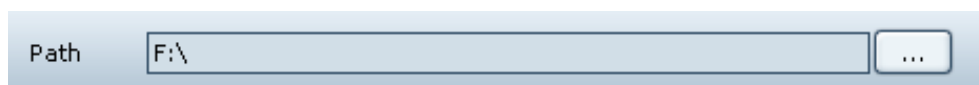
3.4. DICOM CD / DVD

3.4.1. Overview

- Information in DICOM CD / DVD can be searched, and it supports DICOM CD / DVD which has DICOMDIR file.



3.4.2. Tools

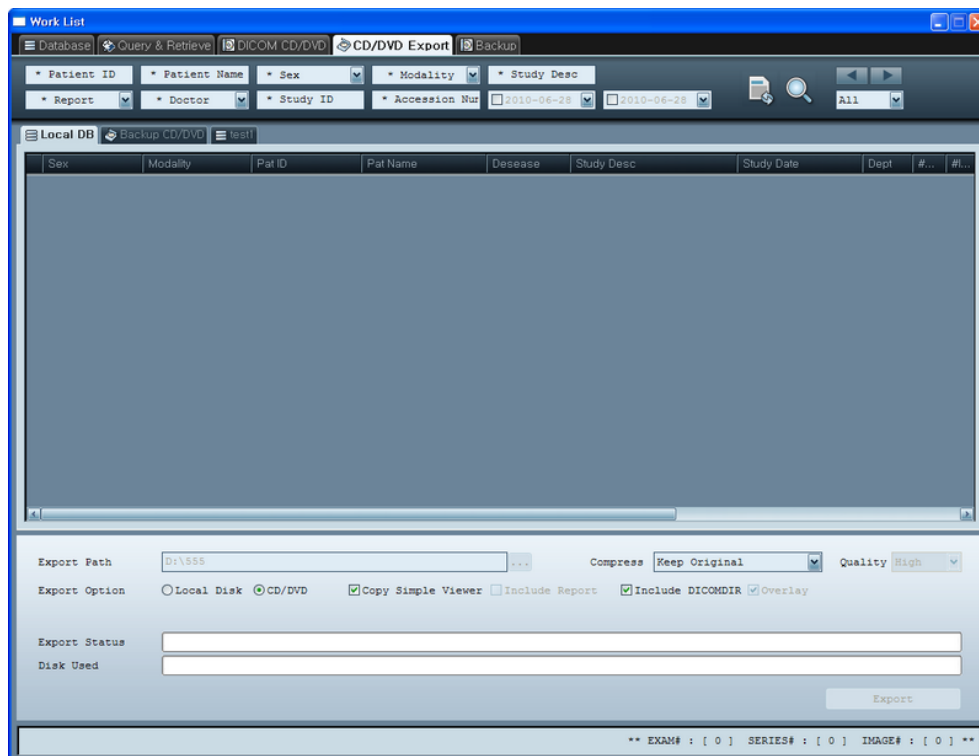


- Select the media path. All other usage is the same as Database tab.

3.5. CD / DVD Export

3.5.1. Overview

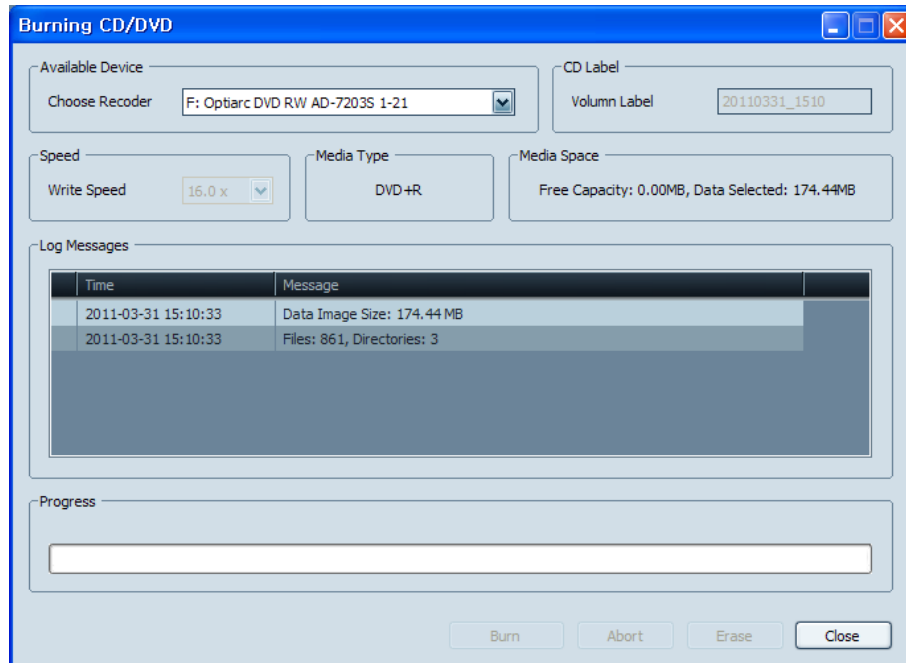
- Burn selected images to DICOM CD / DVD or save them in selected folder.



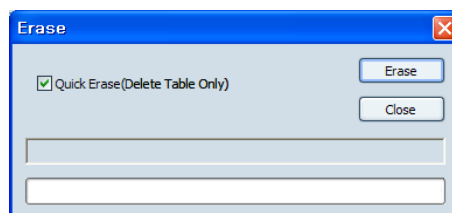
- Query and select exam same method as Database tab.
- Select the path in Export Path.
- Select compression method in Compress. Quality combo box becomes activated if lossy compression is selected. Select compression quality.
- Select Export Option
 - Local : Save in local drive
 - CD / DVD : Record in CD / DVD
 - Copy Simple Viewer : Copy simple image viewer
 - Include Report : Include report
 - Include DICOMDIR : Include DICOMDIR file
 - Overlay : Burn overlay on the image when it is saved in JPEG
 - Disk Used shows the usable space of the media
 - Process starts by clicking of Export button

3.5.2. CD / DVD Recording Window

- Below CD / DVD recording window pops up when CD / DVD is selected.



- Available Device : All available devices are listed, select the recorder.
- DC Label : Record media label. Default values are today's date and serial number.
- Speed : Available recording speeds are listed. Select the speed.
- Media Type : Current media type is displayed.
- Media Space : Available space in the current media and size of selected images are displayed.
- Log Message : Media recording information is displayed.
- Progress : Recording progress is displayed.
- Burn : Start recording to the media.
- Abort : Abort recording to the media.
- Erase : It is enabled when the media is RW, and erased the contents of the media. Following box pops up when the Erase button is clicked. Quick Erase erases tables only. Clicking of Erase button erases the contents, and erasing information and status are displayed.

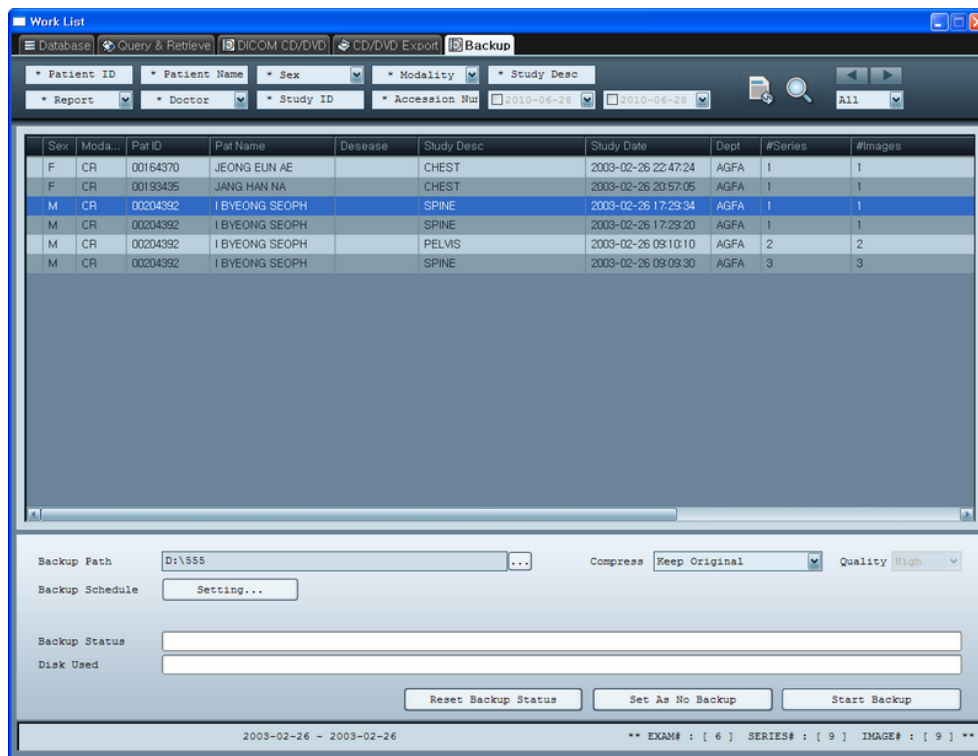


- Close : Close the window.

3.6. Backup

3.6.1. Overview

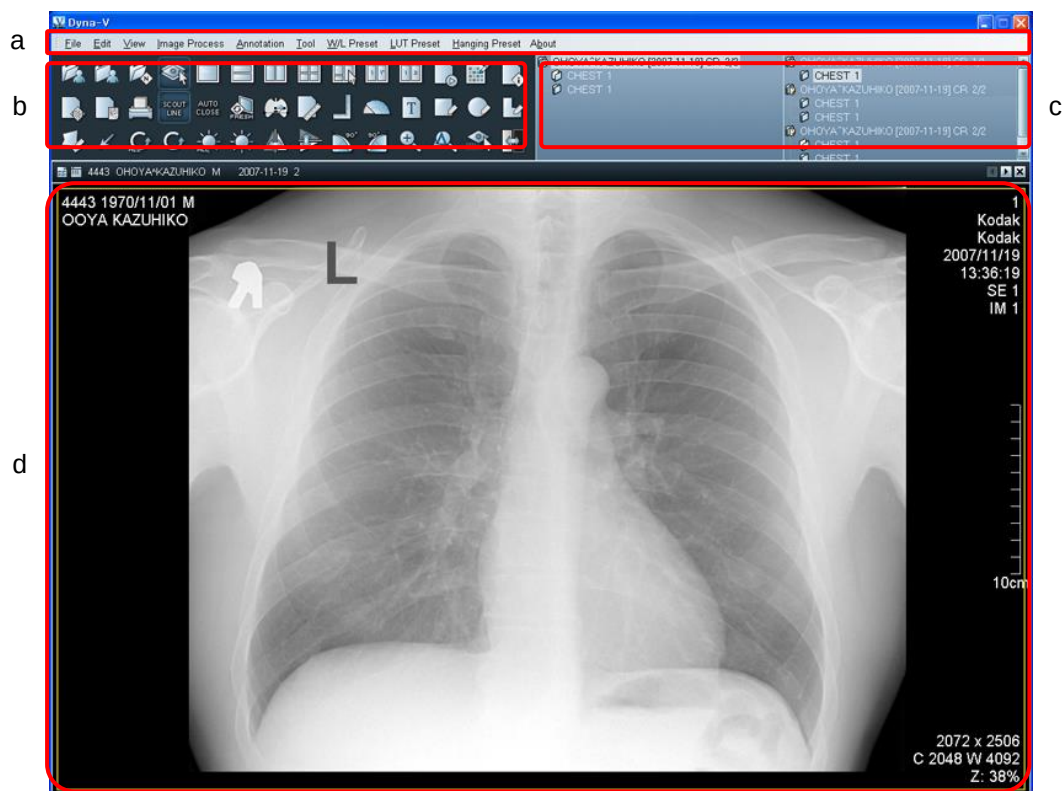
- It provides auto and manual backup functions.



- Backup Path : Select the backup path.
- Select compression method in Compress. Quality combo box becomes activated if lossy compression is selected. Select compression quality.
- Backup Schedule : Set backup schedule.
- Backup Status : Display backup status.
- Disk Used : Display available disk space.
- Reset Backup Status : Restore selected exams to un-backup status.
- Set As No Backup : Set selected exams not to backup.
- Backup Now : Start backup now.

Chapter 4. Viewing Window

4.1. Overview



- Viewing window provides functions related to image viewing, and it consists of following main menus.
 - a : Menu
 - b : Toolbar
 - c : Exam list
 - d : Image display window

4.2. Toolbar

Icon	Name	Hotkey	Description
	Work List	Ctrl+W	Open Work List window
	Close Exam		Close selected exam in the exam list
	Open next exam	Ctrl+N	Open next exam
	Mouse Mode	Esc	Change to mouse mode
	1 Series		Change to 1 series display mode
	2 Series (2 x 1)		Change to 2 series display mode (2 x 1)
	2 Series (1 x 2)		Change to 2 series display mode (1 x 2)
	4 Series (2 x 2)		Change to 4 series display mode (2 x 2)
	Series Layout		Change series mode using layout tool
	Same Image Comparison		Compare the same image
	Exam Comparison		Compare exams
	Stack/Tile View		View selected series images as movie
	Pixel Information		Display pixel information
	DICOM Information		Display DICOM information of selected image

	Report	R	Make report for current exam
	Comment		Record comment for current exam
	DICOM Print	Ctrl+P	Open DICOM Print window
	Scout Line		Toggle button which shows / hide scout line in image
	Auto Close		Toggle button which closes current image when the next image opens
	Fresh		Fresh current exam
	CTR		Measure CTR in the image
	Distance Measurement		Measure the distance in the image
	Compare Distance		Compare two distances in the image
	Angle Measurement		Measure the angle in the image
	Text		Add text in the image
	Rectangle		Add rectangular ROI in the image
	Circle		Add circular ROI in the image
	Polygon		Add polygonal ROI in the image
	Freehand Draw		Add freehand draw ROI in the image
	Arrow		Add arrow mark in the image

	All Image Reset		Reset all images
	Selected Image Reset		Reset selected image
	All Image Window Level		Apply window level to all images
	Selected Image Window Level	W	Apply window level to selected image
	Vertical Flip		Vertical flip the image
	Horizontal Flip		Horizontal flip the image
	Rotate to Clockwise		Rotate the image to clockwise by 90 degree
	Rotate to Counterclockwise		Rotate the image to counterclockwise
	Zoom	Z	Change mouse to zoom mode
	Magnify Glass	G	Change mouse to magnifier mode
	Pan	P	Change mouse to pan mode
	Inverse		Inverse the image
	Send		Save and transfer the current image

Chapter 5. Menu

5.1. File

5.1.1. Open

- Work List [Ctrl + W] : Convert to Work List window.
- DICOM File : Open and display DICOM file.
- Image File : Open and display JPEG, BITMAP and TIFF files.

5.1.2. Save [Ctrl + S]

- Save selected exams. Following parameters are saved together.
 - LUT
 - Window Center / Width
 - Annotation
 - Rotation / Flip information

5.1.3. Close

- Close selected exam in the exam list. Close selected image if the image is open.

5.1.4. Close All

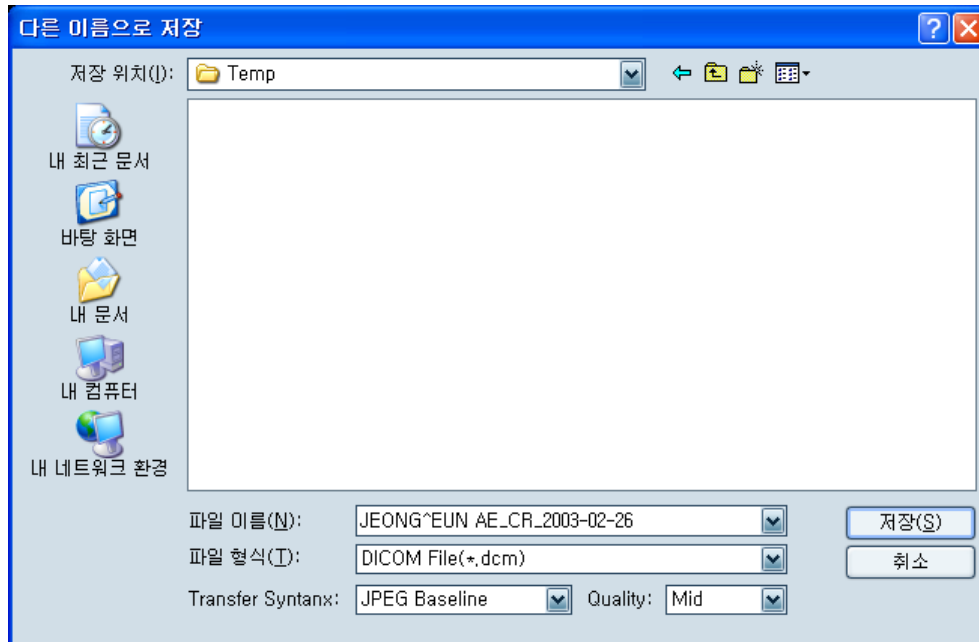
- Close all exams in the exam list. Close all images if images are open.

5.1.5. Next Exam [Ctrl + N]

- Add the next exam which is latter than the current exam to the exam list and display on the window.

5.1.6. Export – File...

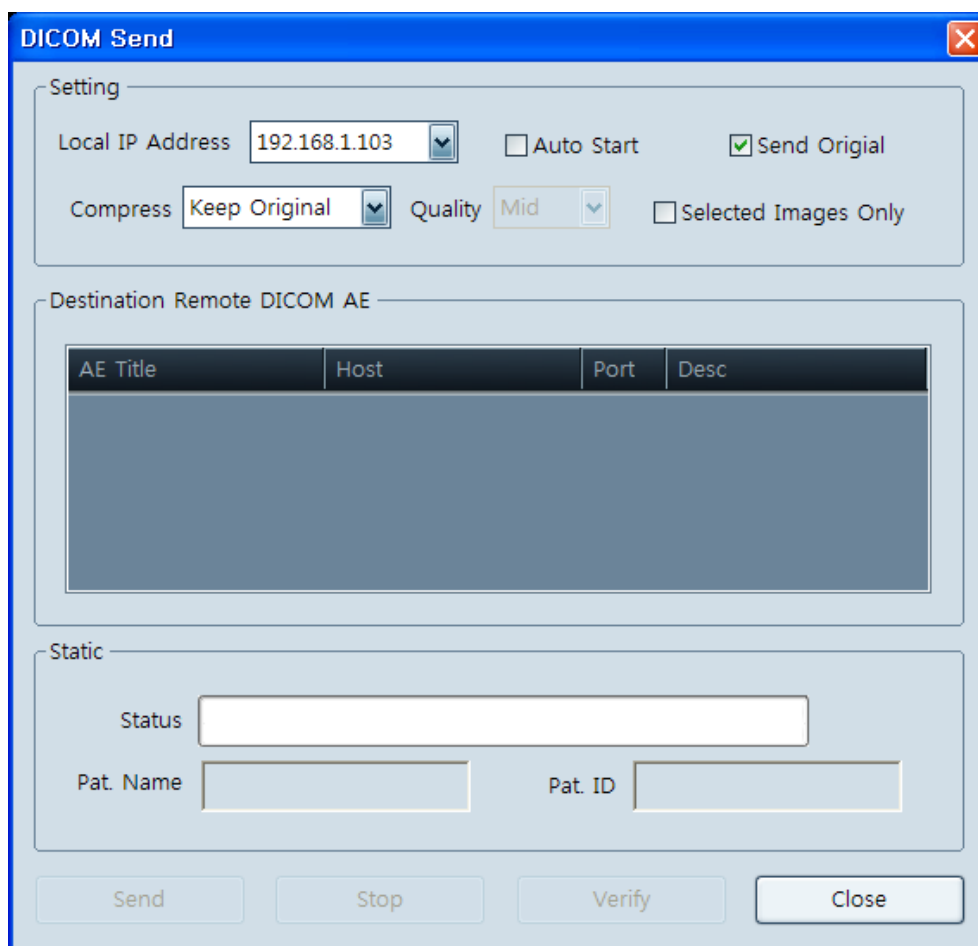
- Save images more than one.



- Input file name in File Name combo box.
- Click File Type combo box, and select one of below types.
 - DICOM File : Save in DICOM file format.
 - JPEG File : Save in JPEG file format.
 - BITMAP File : Save in BITMAP file format.
 - TIFF File : Save in TIFF file format.
 - AVI File : Save in AVI file format. To save in movie form, select more than two images in the same series, and select AVI file format.
- Transfer Syntax becomes activated when DICOM file format is selected, and select one of below types.
 - Keep Original : Save as original transfer syntax.
 - Uncompressed : Save without compression. If the selected image is compressed, it is uncompressed and saved.
 - JPEG Baseline : Save using JPEG 8 bit lossy codec.
 - JPEG 12 bit Lossy : Save using JPEG 12 bit lossy codec.
 - JPEG 16 bit Lossless : Save using JPEG 16 bit lossless codec.
- Quality Combo box becomes activated when lossy JPEG codec is selected, and select one of below types.
 - 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

5.1.7. Export – DICOM Server

- Send more than one selected images to DICOM server.



The image shows a 'DICOM Send' dialog box with a blue title bar and a close button. It is divided into three main sections: 'Setting', 'Destination Remote DICOM AE', and 'Static'. The 'Setting' section contains fields for 'Local IP Address' (192.168.1.103), 'Auto Start' (unchecked), 'Send Original' (checked), 'Compress' (Keep Original), 'Quality' (Mid), and 'Selected Images Only' (unchecked). The 'Destination Remote DICOM AE' section contains a table with columns 'AE Title', 'Host', 'Port', and 'Desc'. The 'Static' section contains fields for 'Status', 'Pat. Name', and 'Pat. ID'. At the bottom are buttons for 'Send', 'Stop', 'Verify', and 'Close'.

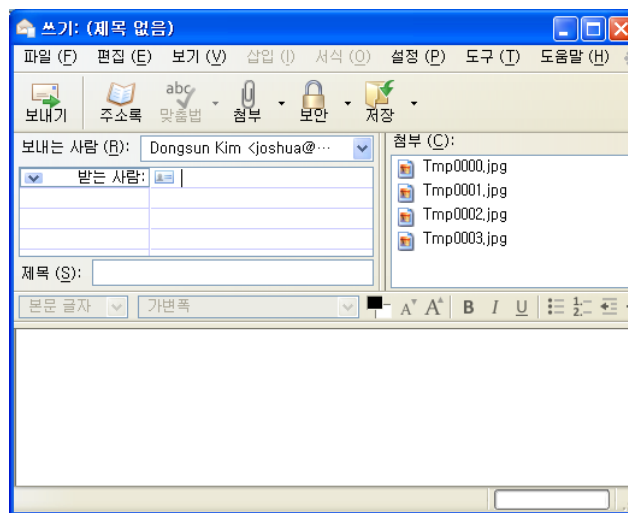
AE Title	Host	Port	Desc

- Local IP Address : Select local IP address
- Auto Start : Automatically send the image when DICOM send window opens if it is ticked.
- Send Original : Send original file if it is ticked.
- Compress : Select compression codec.
- Quality : Select compression quality. It is activated when JPEG is selected in compress.
- Selected Images Only : Send selected images only if it is ticked. Send all images if it is not ticked.
- Destination Remote DICOM AE : Select the DICOM server.
- Static : Display sending status in progress bar and in a form of “number of sent images / number of total images”
- Pat. Name : Display patient name of the sending image.
- Pat. ID : Display patient ID of the sending image.

- Send : Send image
- Stop : Stop sending image
- Verify : Test communication status between DICOM server.
- Close : Close the window

5.1.8. Export – E-Mail

- Attach more than one selected images to e-mail and send.



- User's default e-mail client is launching automatically when Export – E-mail is selected.
- Selected DICOM files are automatically converted to image file and attached to the e-mail.
- File format of converted image file can be set in Preference.

5.1.9. Export - Folder

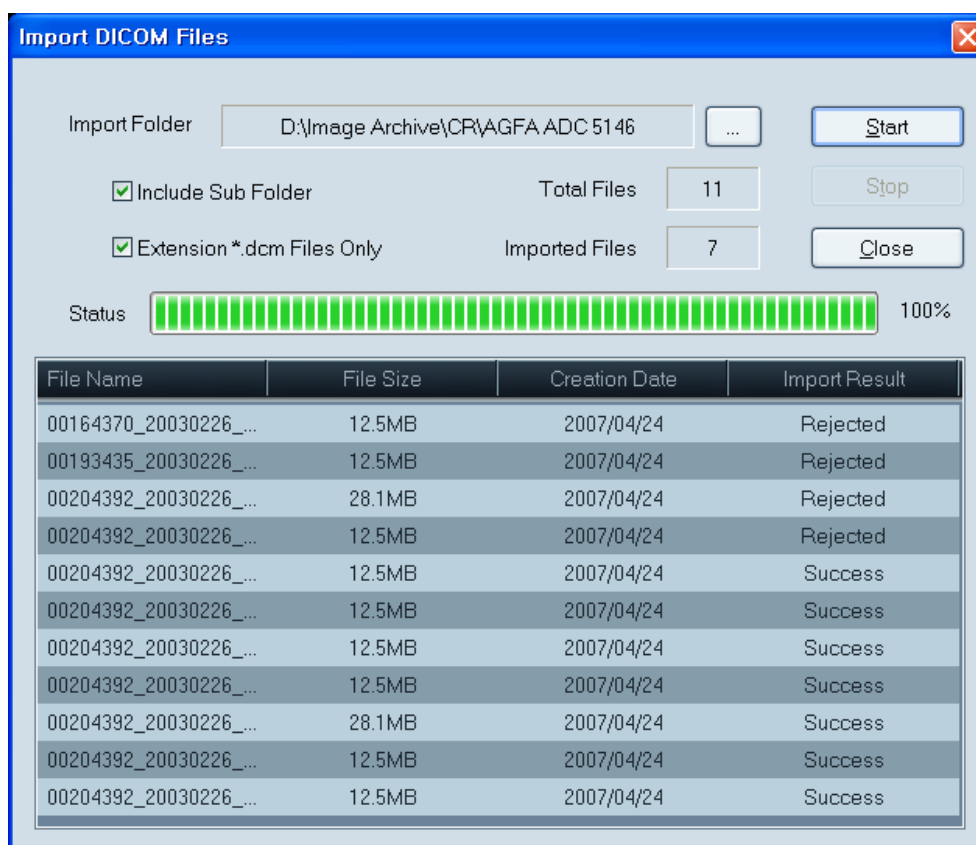
- Add more than one selected images to conference folder.

5.1.10. Export – EMR Folder

- Save more than one selected images to EMR folder. EMR folder can be set in Preference.

5.1.11. Import – DICOM File

- Import DICOM files to DB.



- Click Import Folder button, and select the folder.
- Click Start button to start importing.
- Include Sub Folder enables to search all sub folders.
- Extension *.dcm Files Only enables to search dcm file format only.
- Total Files displays the total number of files to be imported.
- Imported Files displays the number of files imported.
- Status displays importing status in progress bar.
- Click Stop button to stop importing.

5.1.12. Import – Non-DICOM File

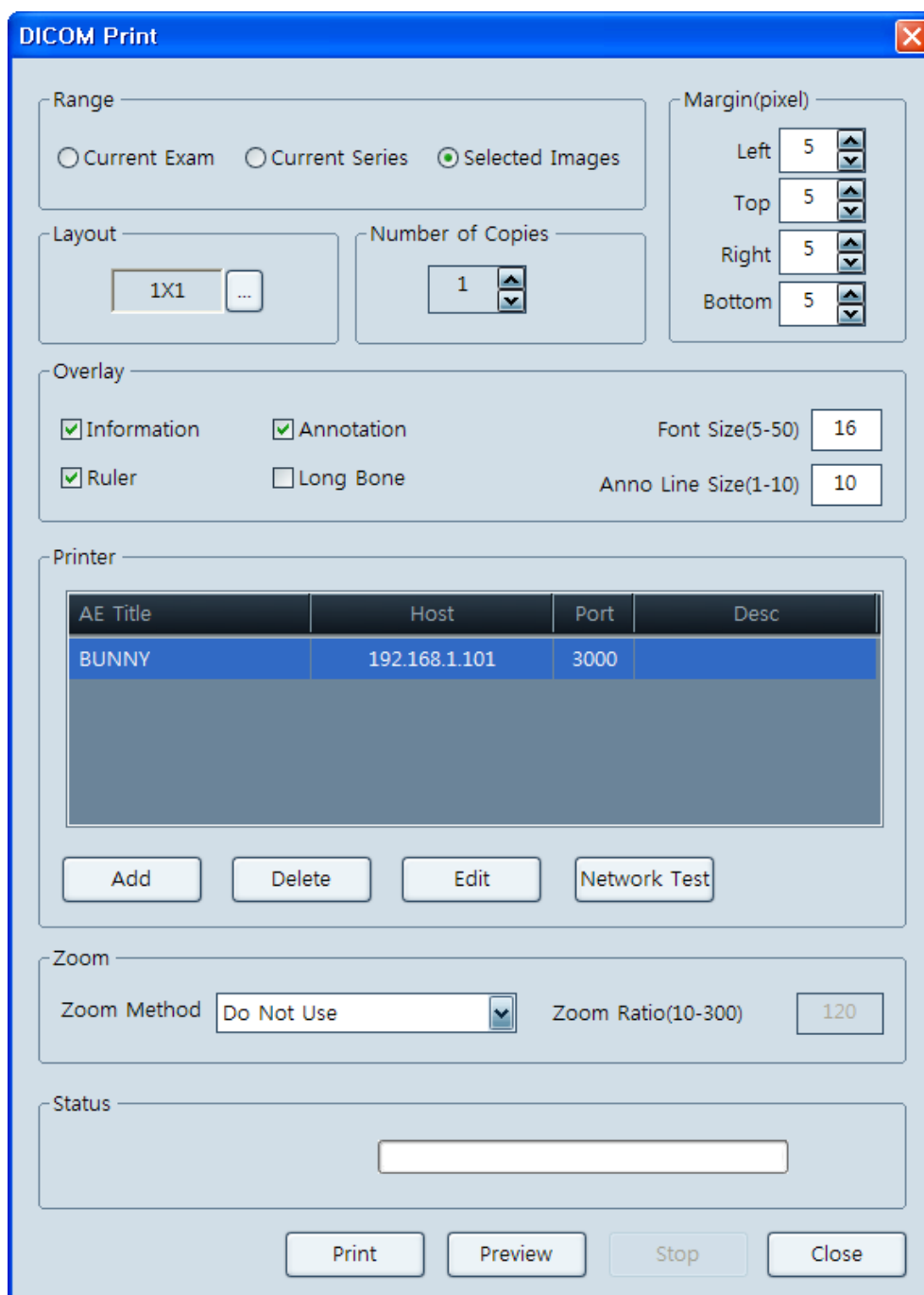
- Import image files to DB.

Import Selected Images								
Patient Information								
Patient ID		Patient Name						
Birth Date	2008-02-25	Sex ☐ M ☐ F ☒ O						
Study Information								
Study ID		Study Date 2008-02-25						
Accession Number		Study Time 오후 4:14:48						
Description								
Series Information								
Series Number		Modality OT						
Description								
Select Folder								
Import Folder	D:\Image Archive\CR\AGFA ADC 5146	...						
☒ Include Sub Folder	☒ JPEG	☒ BMP ☒ TIFF						
Status								
Total Files		Imported Files						
<table border="1"> <thead> <tr> <th>File Name</th> <th>File Size</th> <th>Import Result</th> </tr> </thead> <tbody> <tr><td colspan="3" style="height: 100px;"></td></tr> </tbody> </table>			File Name	File Size	Import Result			
File Name	File Size	Import Result						
Start Stop Close								

- Input all patient information.
- Input all study information.
- Input all series information.
- Click Import Folder button, and select the folder.
- Include Sub Folder enables to search all sub folders.
- JPEG, BMP and TIFF enable to search selected file format only.
- Total Files displays the total number of files to be imported.
- Imported Files displays the number of files imported.
- Click Start button to start importing.
- Click Stop button to stop importing.

5.1.13. DICOM Print

- Print images by DICOM printer.



The DICOM Print dialog box is divided into several sections for configuring the print job.

Range: Radio buttons for ☐ Current Exam, ☐ Current Series, and ☒ Selected Images.

Layout: A dropdown menu showing '1X1' and a button to open the layout selection dialog.

Number of Copies: A numeric input field set to '1' with up and down arrows.

Margin(pixel): Four numeric input fields for Left, Top, Right, and Bottom, all set to '5'.

Overlay: Checkboxes for ☒ Information, ☒ Annotation, ☒ Ruler, and ☐ Long Bone. To the right are **Font Size(5-50)** (set to 16) and **Anno Line Size(1-10)** (set to 10).

Printer: A table with columns AE Title, Host, Port, and Desc.

AE Title	Host	Port	Desc
BUNNY	192.168.1.101	3000	

Below the table are buttons for **Add**, **Delete**, **Edit**, and **Network Test**.

Zoom: **Zoom Method** is a dropdown menu set to 'Do Not Use'. **Zoom Ratio(10-300)** is a numeric input field set to '120'.

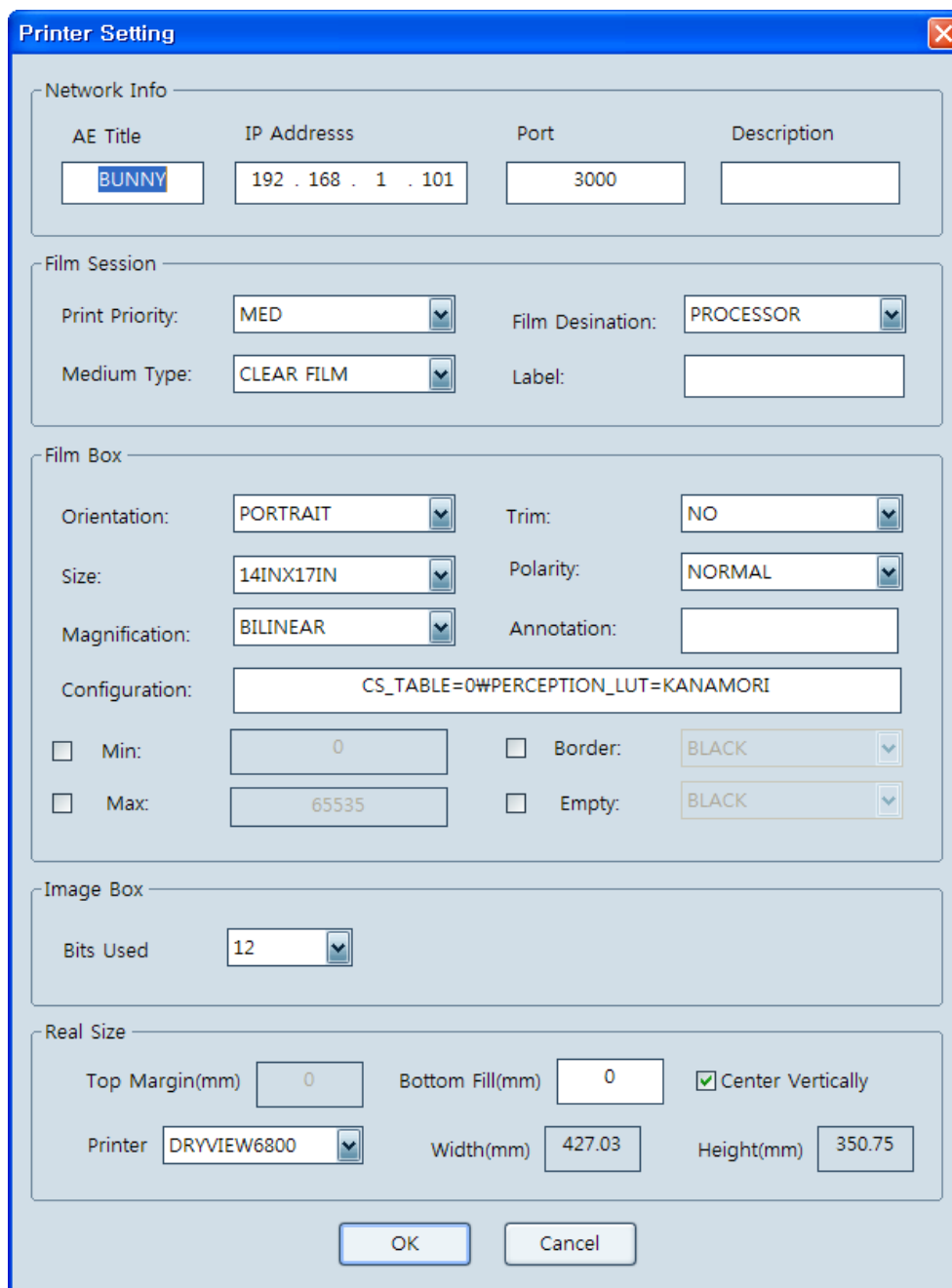
Status: A large empty text area for status messages.

At the bottom are buttons for **Print**, **Preview**, **Stop**, and **Close**.

- **Range :** Select the range of images to be printed.
 - Current Exam : Selected exam
 - Current Series : Selected series

- Selected Images : Selected images
- Layout : Set print layout of the image. Click the layout button and select the layout by mouse.
- Number of Copies : Select the number of print copies.
- Overlay : Select the overlay information to be included in print.
- Information : Image information
- Annotation : Annotation on image
- Ruler : Ruler on image
- Long Bone : Adjustment of text overlay position for the image which has long length in vertical direction, eg> Long bone image
- Font Size : Set font size
- Anno Line Size : Set thickness of annotation line
- Printer : Select the printer.
- Add : Add printer
- Delete : Delete printer
- Edit : Edit printer information
- Network Test : Test communication status between DICOM printer.
- Zoom
- Zoom Method : Select zoom method
- Zoom Ratio : Set zoom ratio
- Status : Display zoom status.
- Preview : Show preview of print
- Print : Start printing
- Stop : Stops printing
- Close : Close print window.

5.1.14. DICOM Printer Setting



Printer Setting

Network Info

AE Title	IP Address	Port	Description
BUNNY	192 . 168 . 1 . 101	3000	

Film Session

Print Priority: MED Film Desination: PROCESSOR

Medium Type: CLEAR FILM Label:

Film Box

Orientation: PORTRAIT Trim: NO

Size: 14INX17IN Polarity: NORMAL

Magnification: BILINEAR Annotation:

Configuration: CS_TABLE=0WPERCEPTION_LUT=KANAMORI

☐ Min: 0 ☐ Border: BLACK

☐ Max: 65535 ☐ Empty: BLACK

Image Box

Bits Used: 12

Real Size

Top Margin(mm) 0 Bottom Fill(mm) 0 ☒ Center Vertically

Printer DRYVIEW6800 Width(mm) 427.03 Height(mm) 350.75

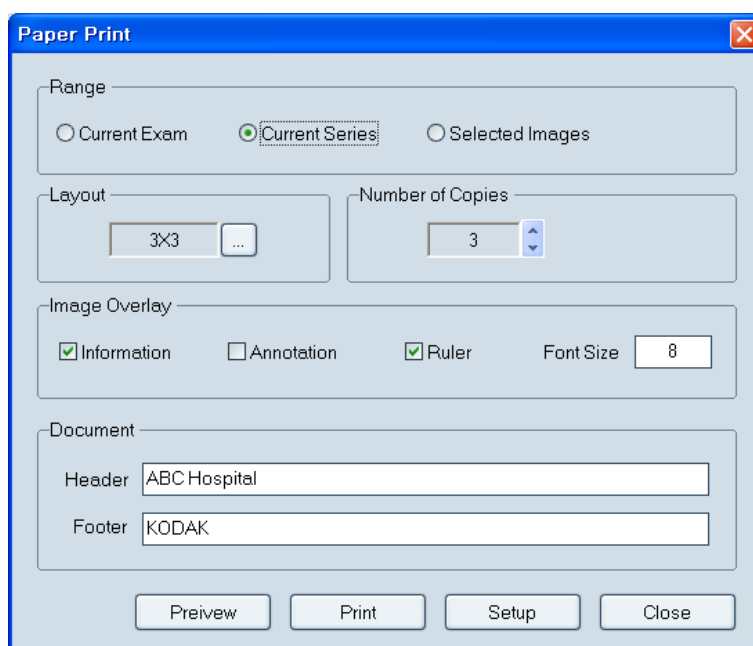
OK Cancel

- Network Info : Input printer network information.
 - AE Title : Input printer AE title.
 - IP Address : Input printer IP address.
 - Port : Input printer port.
 - Description : Input description of printer.
- Film Session : Input film session information which is supported by DICOM printer. If the selected functions are not supported by DICOM printer, printing may not be done.

- Film Box : Input film box information which is supported by DICOM printer. If the selected functions are not supported by DICOM printer, printing may not be done.
- Image Box : Input image box information which is supported by DICOM printer. If the selected function is not supported by DICOM printer, printing may not be done.
- Real Size : Print the image in real size.
- Top Margin : Set margin on top of the film. If the image is aligned center vertically, this function becomes disabled.
- Bottom Fill : Set black filled are on bottom of the film.
- Center Vertically : Align the image center vertically.
- Printer : Select the printer model.
- Width : Input film width.
- Height : Input film height.

5.1.15. Windows Print

- Print images by Windows printer.



- Range : Select the range of images to be printed.
 - Current Exam : Selected exam
 - Current Series : Selected series
 - Selected Images : Selected images
- Layout : Set print layout of the image. Click the layout button and select the layout by mouse.
- Number of Copies : Select the number of print copies.
- Overlay : Select the overlay information to be included in print.
 - Information : Image information
 - Annotation : Annotation on image

- Ruler : Ruler on image
- Font Size : Set font size
- Documentation
- Header : Input letters to be printed in header.
- Footer : Input letters to be printed in footer.

5.1.16. *Preference*

- Refer to Chapter 6. Preference.

5.1.17. *DICOM Overlay*

- Refer to Chapter 6. Preference.

5.1.18. *Conference Folder*

- Add conference folder.

5.1.19. *Log Off*

- Quit current job and open log on window.

5.1.20. *Exit*

- Exit **QuantorView**.

5.2. *Edit*

5.2.1. *Selecting Image by Mouse*

- To select images it has to be turned to mouse mode by selecting [Image Process – Pointer] or pressing Esc key.
- In the mouse mode, image can be selected by clicking left mouse button. Yellow border line is seen for selected image.
- Select multiple images, press CTRL key and select multi image by mouse.
- Select multiple images at once, select the first image and press SHIFT key and select the last image by mouse.

5.2.2. *Delete Selected Images*

- Delete selected images.

5.2.3. *Delete Unselected Images*

- Delete unselected images.

5.2.4. *Hide Selected Images*

- Hide selected images.

5.2.5. *Show Hidden Images*

- Show hidden images.

5.2.6. *Copy to Clipboard [Ctrl + C]*

- Copy selected image to Windows clipboard, and all overlays are included. For the multi frame image copy, only current image is copied.

5.2.7. *Overlay Delete All*

- Delete all overlays

5.2.8. *Select All [Ctrl + A]*

- Select all images in current series.

5.2.9. *Deselect All [Ctrl + E]*

- Deselect all images in current series.

5.2.10. *DICOM Dataset*

- Display DICOM dataset of selected image.

5.3. View

5.3.1. Auto Close

- Close previous exam automatically when the new exam opens. Only one exam is displayed when auto close function is activated.

5.3.2. Refresh

- Refresh the exam to initial status.

5.3.3. Same Image Compare

- Display the same image on window to compare.

5.3.4. Stack / Tile View

- Observe CT or MR series images as a movie.



- a. Movement : Drag the slide by mouse to move
- b. Move to first image
- c. Move to previous image
- d. Play
- e. Play backward direction
- f. Stop
- g. Move to next image
- h. Move to last image
- i. Repeat
- j. Play forward and backward
- k. Play speed : Default is 15 FPS, minimum speed is 0 FPS and maximum speed is 30 FPS.

5.3.5. DICOM Overlay Show / Hide

- Show or hide DICOM information on the image.

5.3.6. ROI / Annotation Show / Hide

- Show or hide ROI and annotation on the image.

5.3.7. Ruler Show / Hide

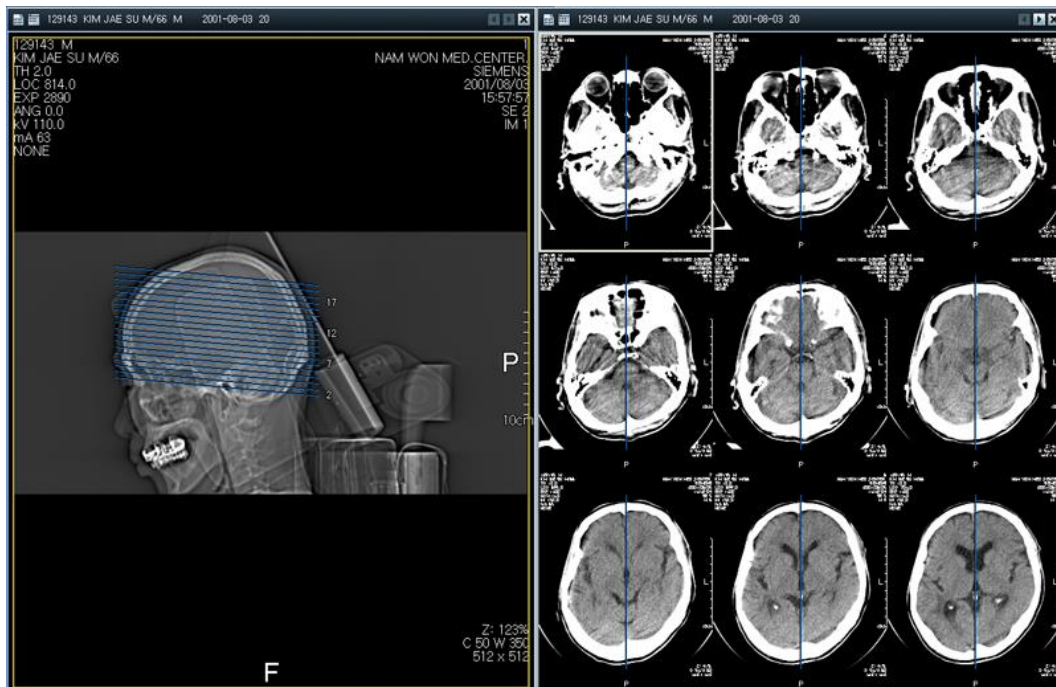
- Show or hide ruler on the image.

5.3.8. Shutter Show / Hide

- Show or hide the shutter.

5.3.9. Set Scout Image

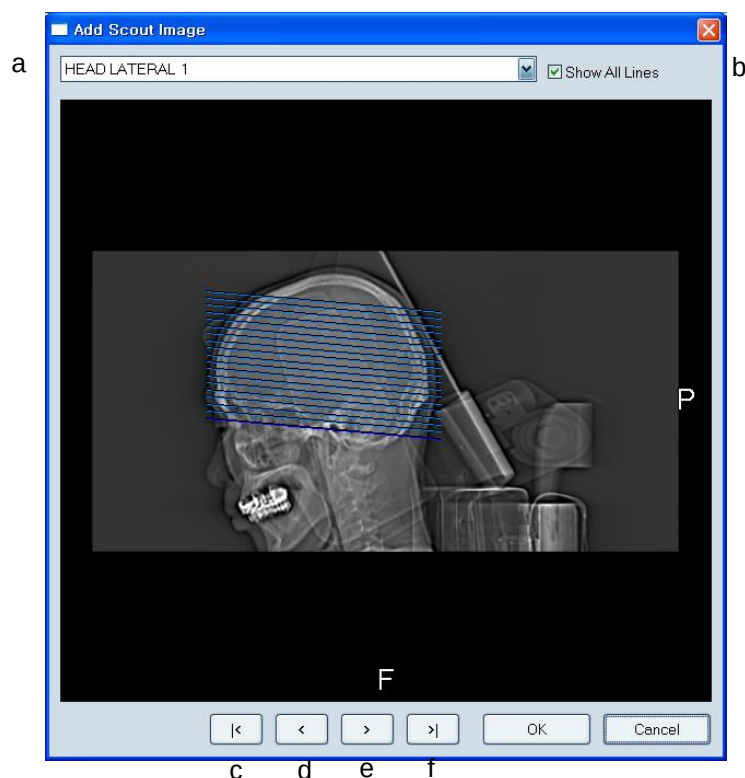
- Set selected image as a scout image, and display scout lines.



- Corresponding image is displayed when the scout line is selected in scout image.
- Corresponding scout line color is changed when the image in series is selected.

5.3.10. Add Scout Image

- Add scout image to selected series.



- Select the series which contains the image to be added.
 - Display scout lines in all images in the series if it is ticked.
 - Move to the first image.
 - Move to the previous image.
 - Move to the next image,
 - Move to the last image.
- Click OK to add scout image to current series
 - Corresponding image in current series is selected when scout line in the image is selected.

5.3.11. Display Scout Line On / Off

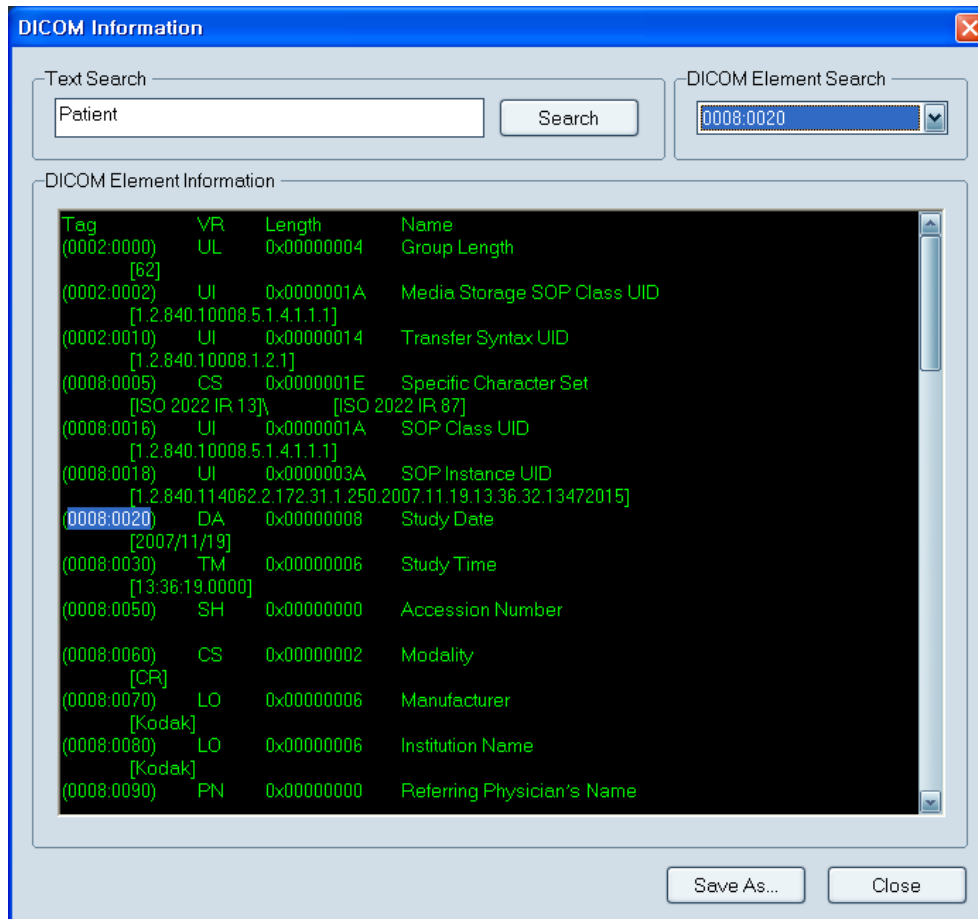
- Show or hide scout line on the image.

5.3.12. Popup Scout Image

- Display scout image in popup window.

5.3.13. DICOM Header

- Display DICOM image of the active image



- DICOM Element Information : All DICOM Element information are displayed
- Text Search : Insert text string and click "search" button will find matched string at DICOM Element Information.
- DICOM Element Search : Selecting DICOM Element Tag will find matched tag at DICOM Element Information.
- Save As : Saves DICOM Element Information as text file.

5.3.14. Toolbar

- Show or hide toolbar.

5.3.15. Caption

- Show or hide caption bar.

5.3.16. Study List

- Show or hide study list.

5.3.17. Old Study

- Show or hide old study.

5.3.18. Full Screen [Ctrl + F]

- Convert to full screen mode.

5.3.19. Reset Window Position

- Restore window layout to default mode.

5.4. Image Process

5.4.1. Pointer [Esc]

- Set as mouse mode. Image or annotation can be selected in mouse mode.

5.4.2. Zoom [Z]

- Set as zoom mode. Press Ctrl key to accelerate zooming speed.

5.4.3. Pan [P]

- Set as pan mode.

5.4.4. Magnify Glass [M]

- Set as magnify glass mode. Press Ctrl key to adjust zooming ratio, and SHIFT key to adjust magnify glass size.

5.4.5. Window Level

- Click right mouse button and drag to change window level. Press Ctrl key to accelerate window leveling speed.

5.4.6. All Window Level

- Apply widow level change to all images in series.

5.4.7. Rotate CW

- Rotate selected image to clockwise by 90 degree.

5.4.8. Rotate CCW

- Rotate selected image to counterclockwise by 90 degree.

5.4.9. Flip Horizontal

- Flip selected image to horizontal direction.

5.4.10. Flip Vertical

- Flip selected image to vertical direction.

5.4.11. Inverse

- Inverse selected image.

5.4.12. Real Size

- Adjust image to real size. Real size has to be set in Preference.

5.4.13. Real Size Mode

- Display image in real size when it is opened.

5.4.14. Display Original

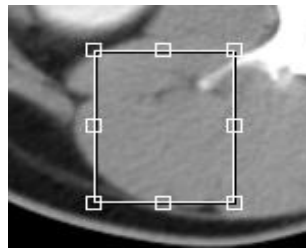
- Restore selected image to original status.

5.4.15. Display All Original

- Restore all images in selected series to original status.

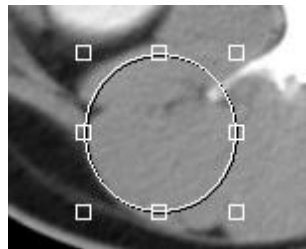
5.5. Annotation

5.5.1. ROI - Rectangle



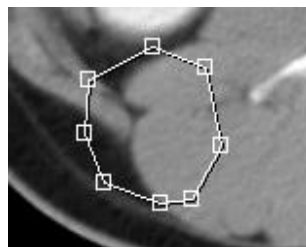
- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging control point.

5.5.2. ROI - Circle



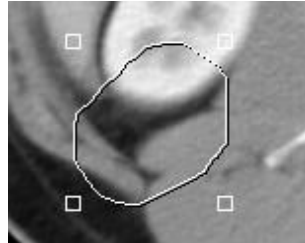
- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging control point.

5.5.3. ROI - Polygon



- Whenever you clicking 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.

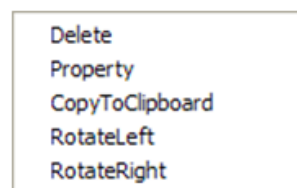
5.5.4. ROI – Freehand Draw



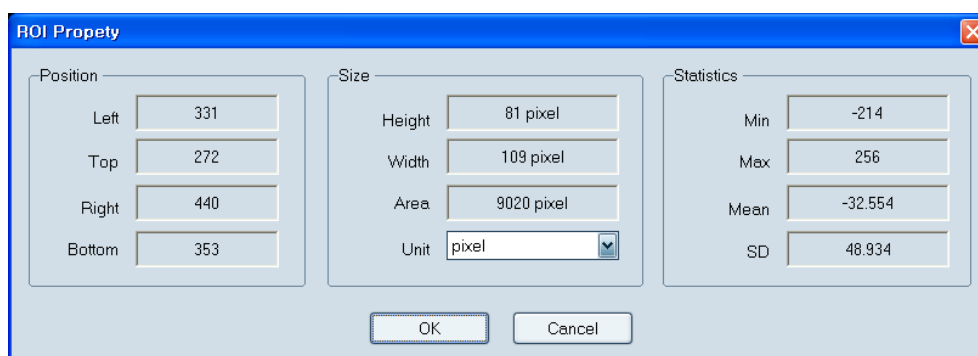
- Click mouse left button and drag.
- You can modify the position of the object by clicking and dragging the object
- You can modify the shape of the object by clicking and dragging control point.

5.5.5. ROI Property

- Following shortcut menu is displayed if mouse right button is clicked on ROI.

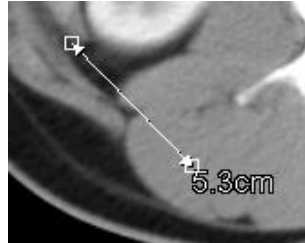


- Delete : Delete ROI
- Property : Display ROI property window.
- Copy to Clipboard : Copy ROI region only
- Rotate Left : Rotate ROI to counterclockwise by 90 degree
- Rotate Right : Rotate ROI to clockwise by 90 degree



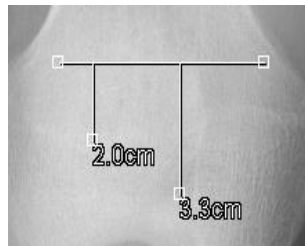
- Position : Display rectangular coordinate of the ROI.
- Size : Display height, width and area of the ROI.
- Statistics : Display minimum, maximum, mean and standard deviation values.

5.5.6. Measure



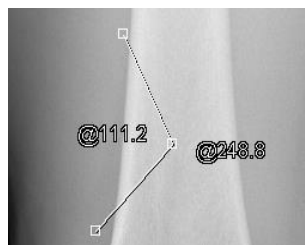
- Click mouse left button and drag.
- You can modify the position and length of the object by clicking and dragging the object.
- If there is pixel spacing information on image, distance is displayed in cm, otherwise in pixel.

5.5.7. Compare Measures



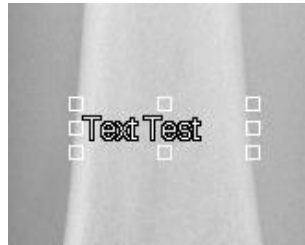
- Click mouse left button and drag.
- You can modify the position and length of the object by clicking and dragging the object.
- If there is pixel spacing information on image, distance is displayed in cm, otherwise in pixel.

5.5.8. Angle



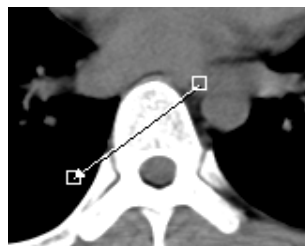
- Click mouse left button three times at center, left, right of the angle.
- Inner angle and outer angle are displayed.
- You can modify the position of the object by clicking and dragging the object
- You can modify the angle of the object by clicking and dragging control point.

5.5.9. Annotation



- Click mouse left button or draw rectangle by click and drag.
- Edit box will come up. Add your text.
- Click mouse left button at 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 control point.

5.5.10. Arrow Line



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

5.5.11. Profile

- Click mouse left button and drag.
- Release mouse left 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 control point.
- Click right mouse button on the line will show up short cut menu which enables you to show profile dialog box.

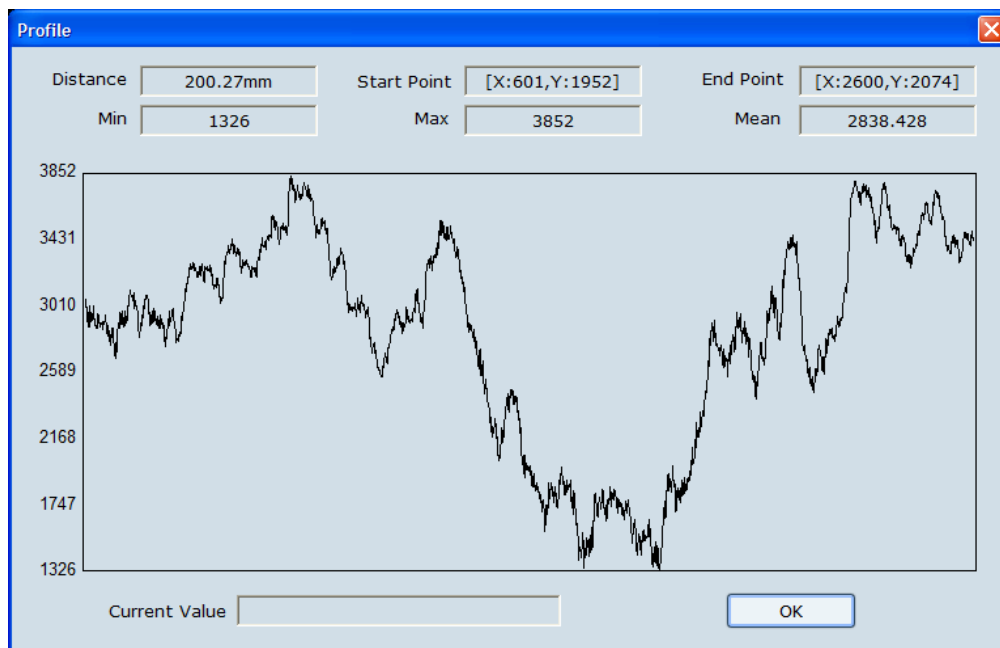


Figure 5.7. Profile

- Profile dialog displays followings.
 - 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

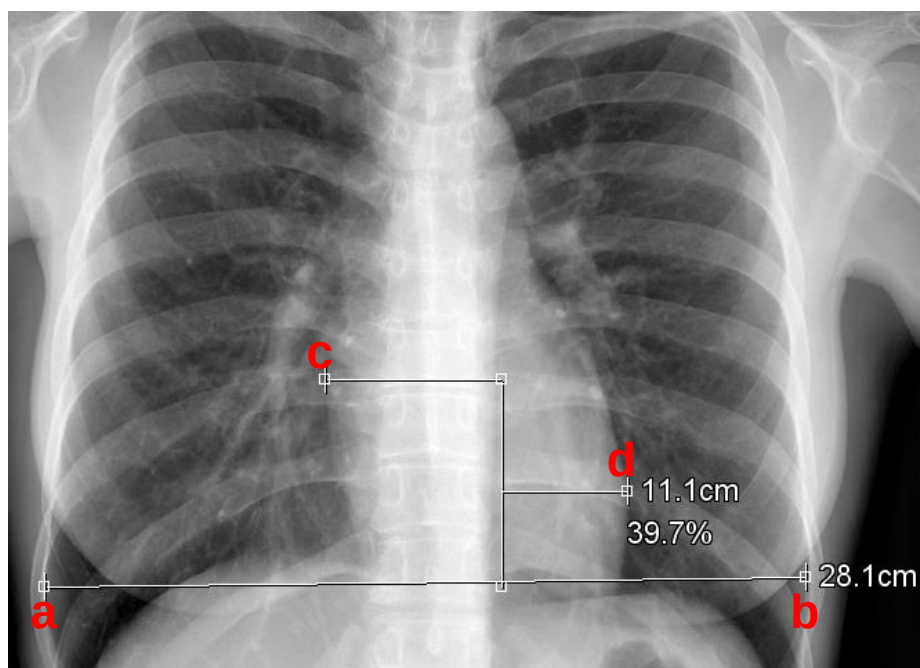
5.5.12. Pixel View

- Click mouse left button.
- Small white box will show pixel coordinate and value.



5.5.13. Measure - CTR

- Click mouse left 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.



5.5.14. Masking

- Mask improper marking by black color.

5.6. Tool

5.6.1. Report

- Make report for current exam.

Patient Info

ID: 4443
Name: OHOYA*KAZUHIKO
Birth: 1970-11-01
Sex: M

Exam Info

Date	Modality	Description	Reading Date
2007-11-19	CR		Not Read
2007-11-19	CR		Not Read
2007-11-19	CR		Not Read

Reading

Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1
Report Code Test 1Report Code Test 1Report Code Test 1

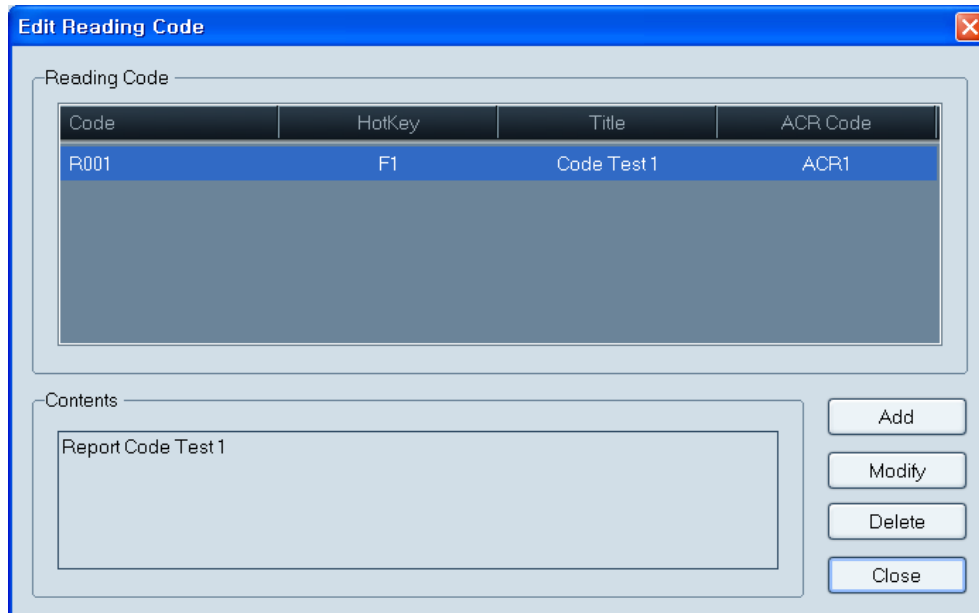
Code List

Code	Title	HotKey
R001	Code Test 1	F1

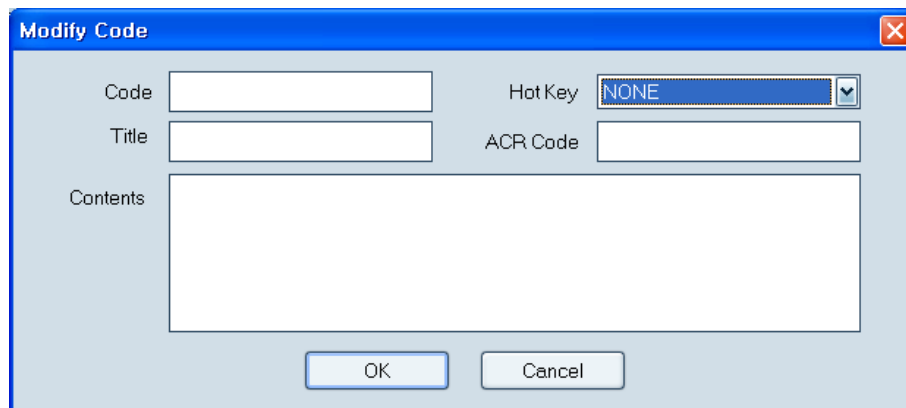
Print Print Preview Save Save & Close Edit Code Close

- Patient Info displays patient information.
- Exam Info displays exams of selected patient.
- Select the exam in Exam Info, and add comments in Reading.
- Select and double click the item in Code List to add to Reading.
- Click Print button to print the report.
- Click Print Preview to preview the report.
- Click Save button to save the report.
- Click Save & Close to save and close the report.
- Click Edit Code button to edit the report.

5.6.1.1. Edit Reading Code



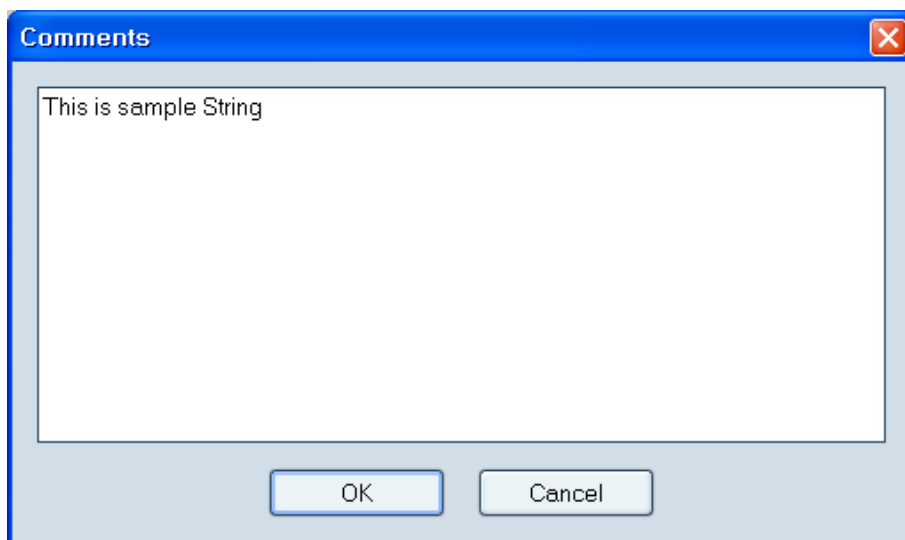
- Selected item in Reading Code is displayed in Contents.
- To add Reading Code, click Add button, then below window pops up.
- To modify, select the code and click Modify button.
- To delete, select the code and click Delete button.



- Code : Input code number.
- HotKey : Assign hot key, F1 ~ F12
- Title : Input title.
- ACR Code : Input ACR code.
- Contents : Input contents.

5.6.2. *Comments*

- Make comments for the current exam.



5.6.3. *Merge Patient*

- Refer to Chapter 3.4. Merge Patient.

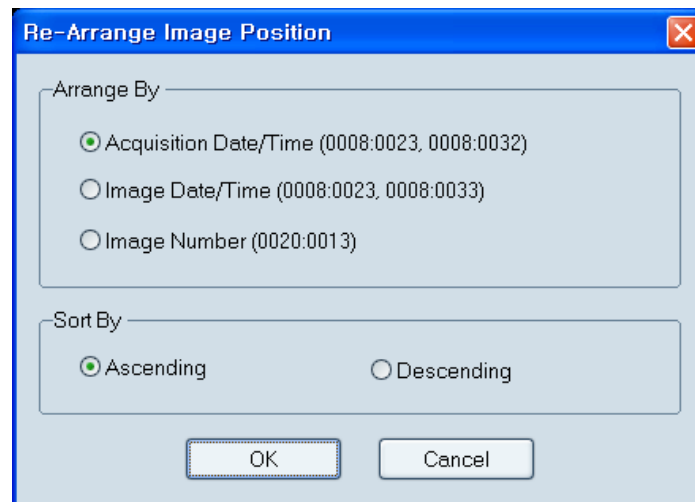
5.6.4. *Merge Exam*

- Refer to Chapter 3.6. Merge Exam.

5.6.5. *Merge to One Series*

- Refer to Chapter 3.7. Merge to One Series.

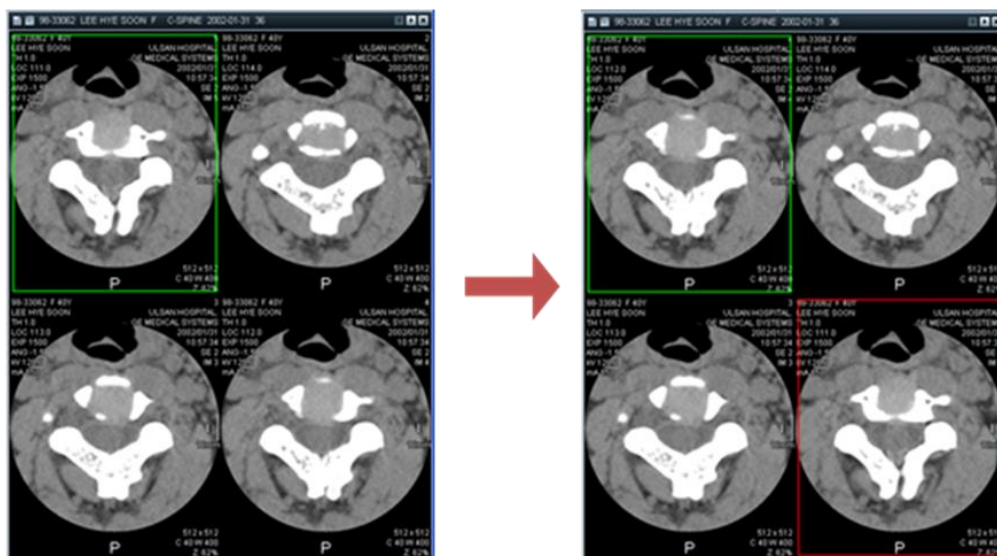
5.6.6. Rearrange Image



- Select arrange condition in Arrange By.
- Select sorting method in Sort By.

5.6.7. Rearrange Image (Manual)

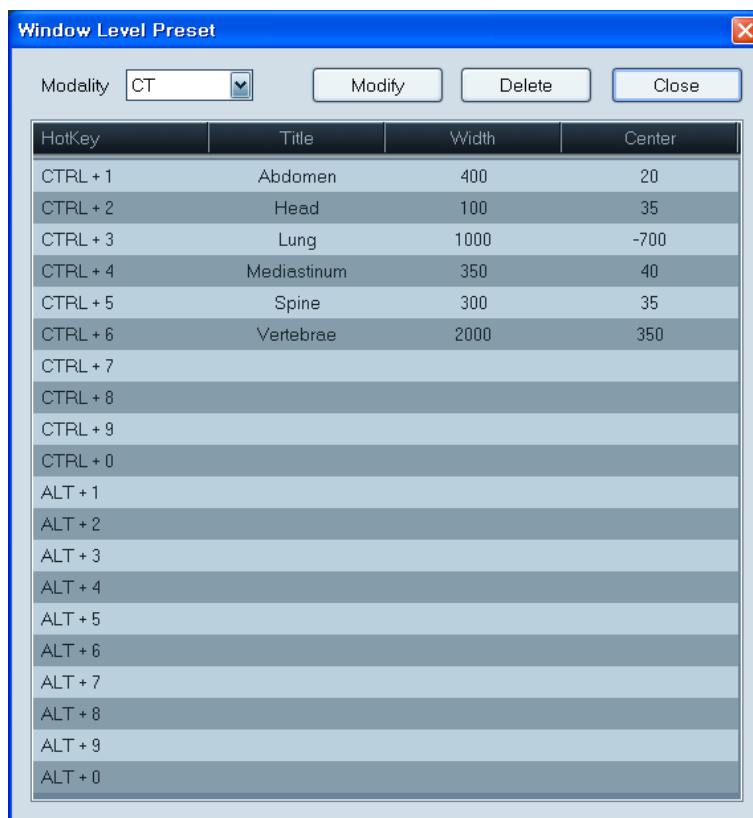
- Rearrange image manually.
- Select the first image user wishes to change order. Green border is seen in selected image.
- Red border is seen in the image where mouse is placed on.
- Click second image to change the order with the first image.
- Deselect Rearrange Image button to release the function.



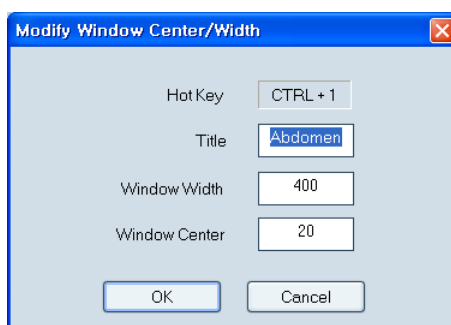
5.7. Window Width / Level Preset

5.7.1. Menu

- Modify : Display Window Level Preset window. Up to 20 presets can be configured per each modality.



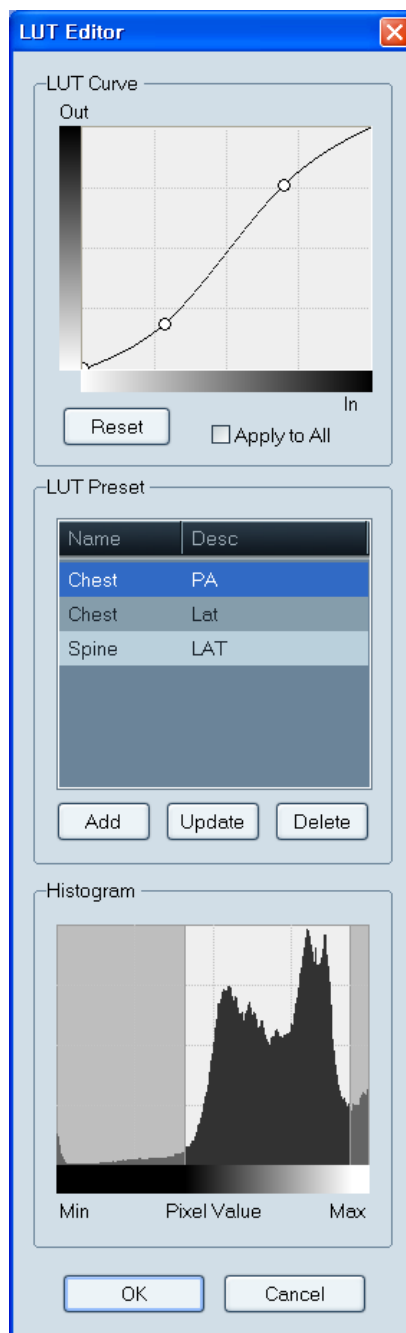
- Select modality in Modality combo box.
- Select Hot Key and click Modify button to open Modify Window Center/Width window.
- Input Title, Width and Center in Modify Window Center/Width window.
- Select and click Delete button to delete the item.



5.8. LUT Preset

5.8.1. Menu

- Modify : Display LUT Editor window. This function is available for the image which has more than 9 bit grayscale.



- LUT Curve shows the curve for selected image.
- User can adjust curve in real time.
- Add Control Point : Click the curve by mouse.
- Adjust Control Point : Click control point and drag it by mouse.
- Delete Control Point : Click control point and move it by mouse to out of graph area.
- Reset : Delete all control points, and make curve flat in diagonal direction.
- Apply to All : Apply the curve to all selected images.
- To save the curve, click Add button and input name and information.
- Select preset in LUT Preset and click Update button to apply the preset to image.
- Select preset in LUT Preset and click Delete button to delete the preset.
- Histogram shows histogram and window width of selected image.

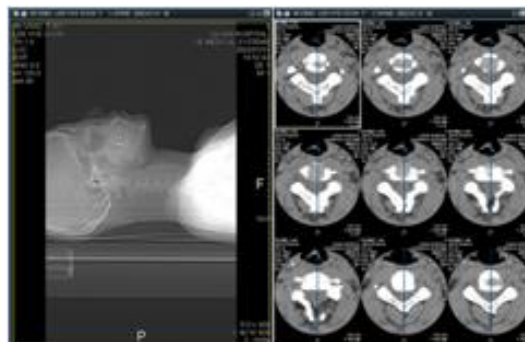
5.9. Hanging Protocol

5.9.1. Menu

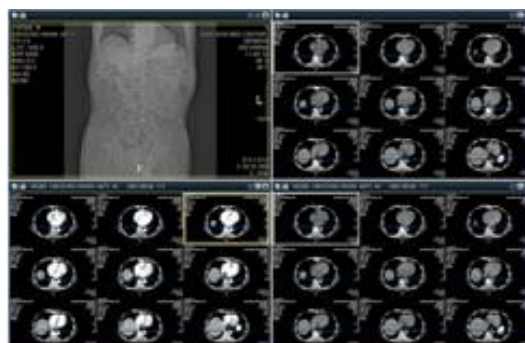
- 1 Series : Display 1 series on 1 image window.



- 2 Series : Display 2 series on 2 image windows.



- 4 Series : Display 4 series on 4 image windows.



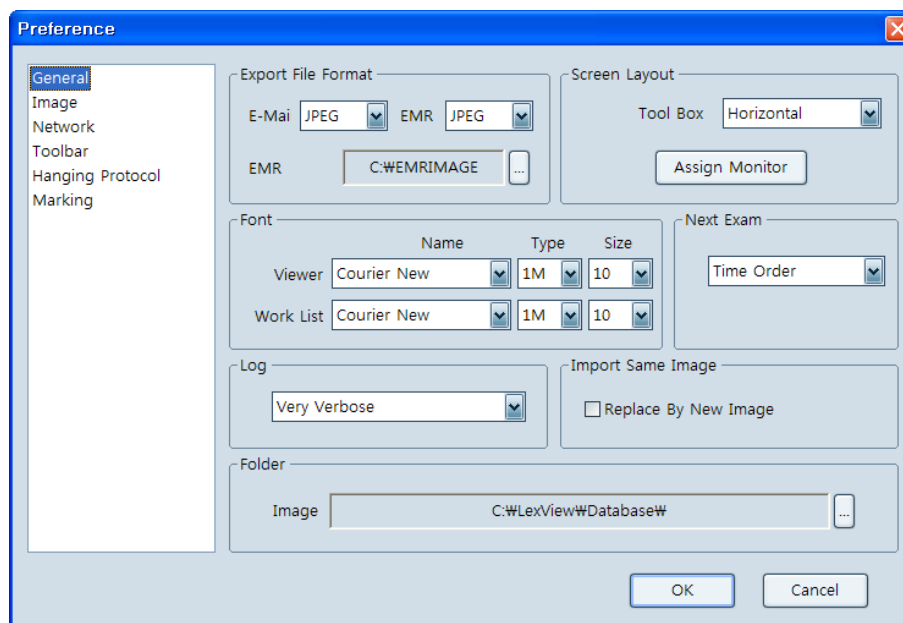
- 2 Exam : Display 2 exams on 2 image windows.



6. Preference

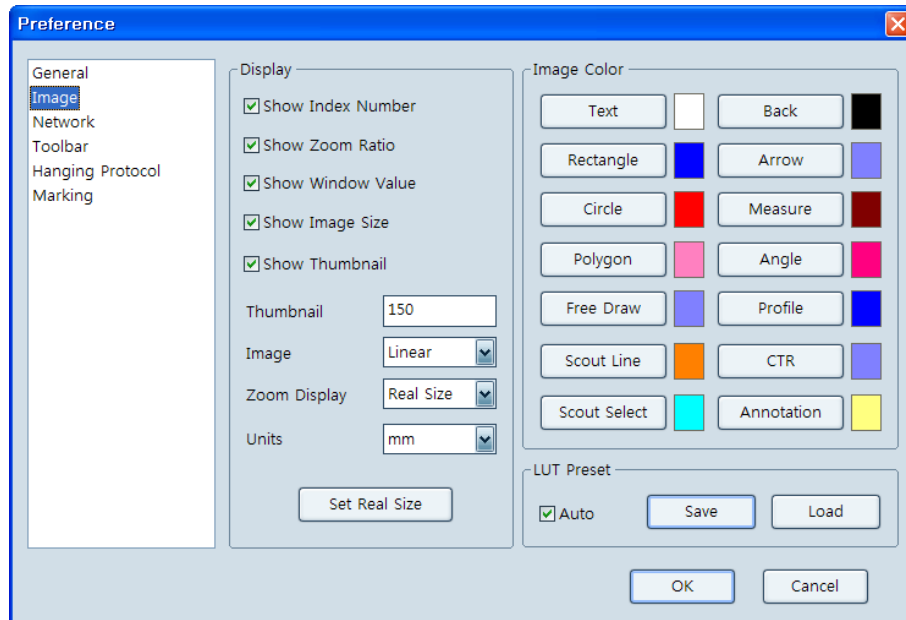
6.1. Preference

6.1.1. General



- Export File Format
 - E-Mail : Set image file format attached to e-mail.
 - EMR : Set image file format saved in EMR folder.
 - EMR Folder : Select EMR folder position.
- Screen Layout
 - Tool Box : Set tool box position.
 - Assign Monitor : Display monitor assign window.
- Font
 - Viewer : Set font name and size using in viewer for each monitor type.
 - Work List : Set font name and size using in work list for each monitor type.
- Next Exam : Set order for calling next exam.
- Log : Set log file saving method.
- Folder : Set folder which images are saving.

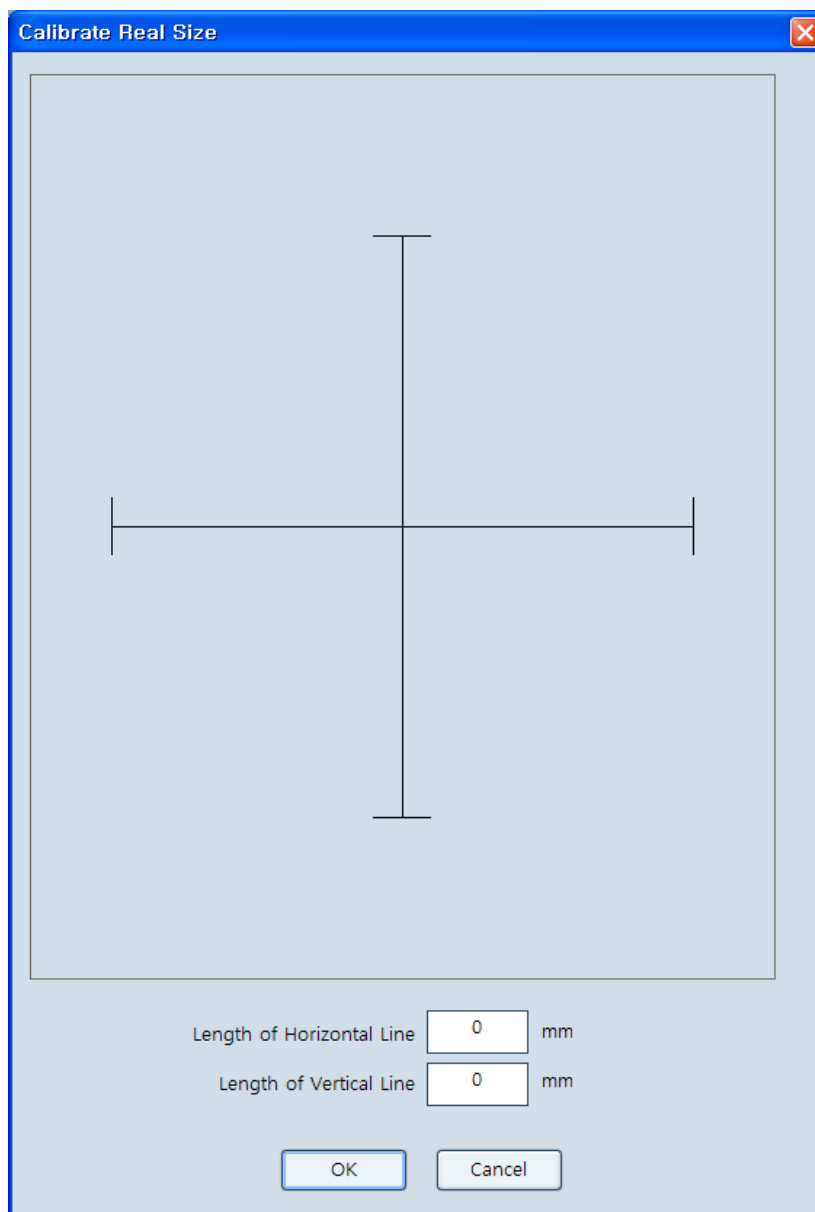
6.1.2. Image



- Display
 - Show Index Number : Display image serial number on top right side.
 - Show Zoom Ratio : Display zoom ration on bottom right side.
 - Show Window Value : Display window value on bottom right side.
 - Show Image Size : Display image size on bottom right side.
 - Show Thumbnail : Use thumbnail.
 - Thumbnail : Set height of thumbnail.
 - Image : Set image compensation method when it is displayed.
 - Zoom Display : Set zooming method
 - Units : Set unit of distance measurement.
 - Set Real Size : Open real size calibration window.
- Image Color : Set colors for overlays.
- LUT Preset
 - Auto : Apply LUT automatically when the image is opened.
 - Save : Save current LUT.
 - Load : Load LUT.

6.1.2.1. Calibration Real Size

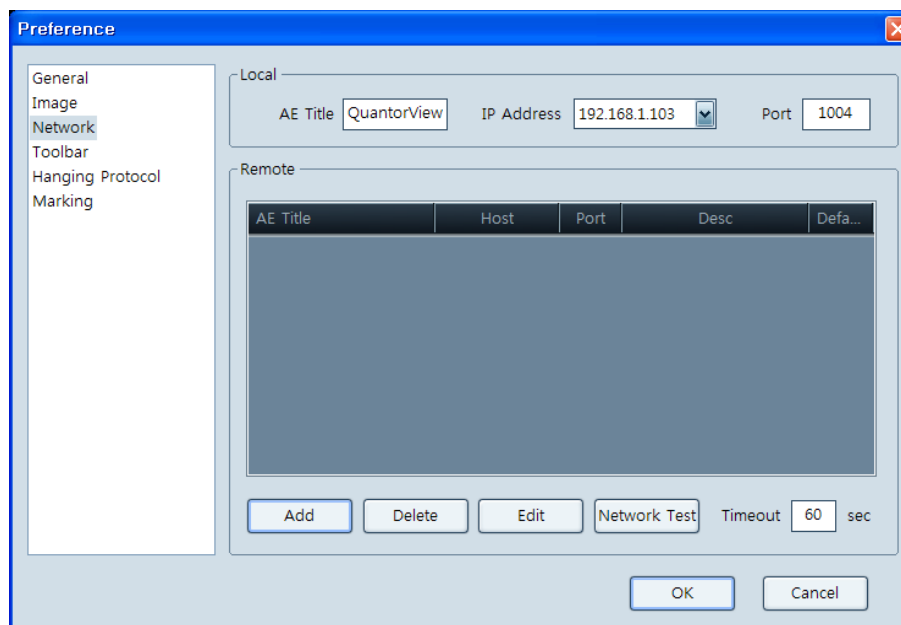
- Real size calibration has to be performed to use Real Size function.



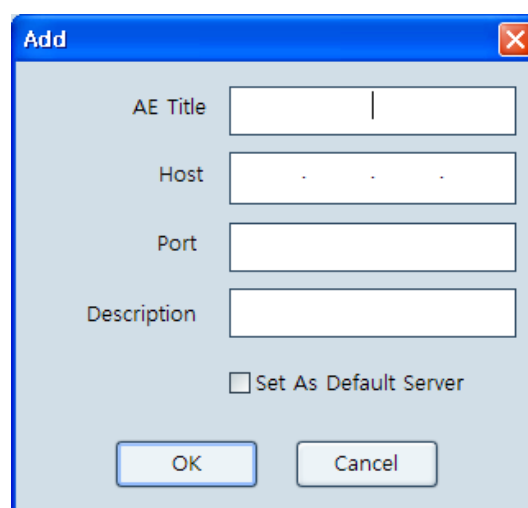
- Prepare the ruler which can measure the real length.
- Measure the length of horizontal and vertical line on monitor and input them.

6.1.3. Network

- Configure setting for DICOM network.



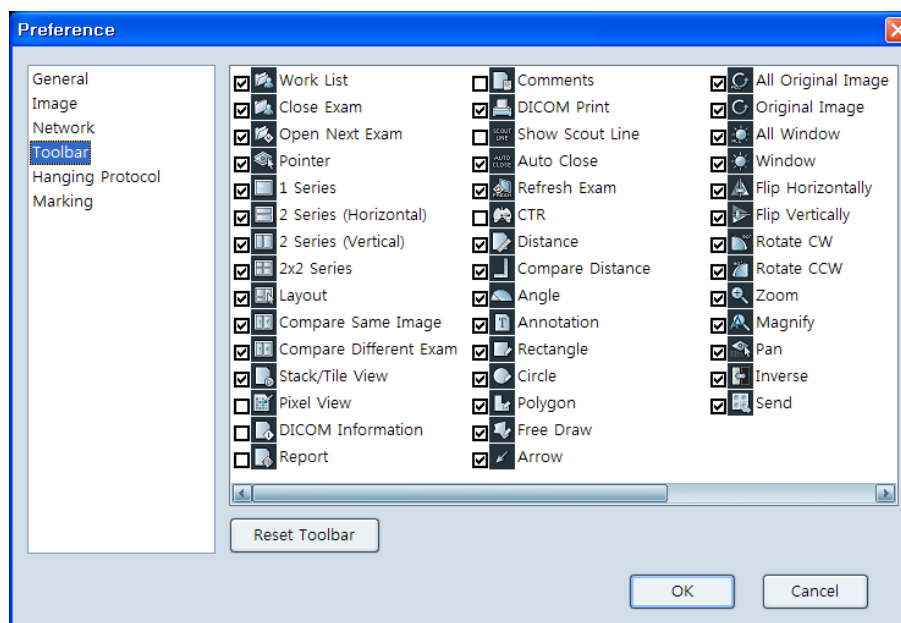
- Local
 - Input AE Title, IP Address and Port.
- Remote : All DICOM servers are listed.
- Click Add to open add window.
 - Input AE Title, Host IP address, Port and Description to add the server.
 - Set As Default Server : Tick it to set the server as a default.



- Select the server and click Delete button to delete the server in the list.
- Select the server and click Edit button to edit the server in the list.

- Click Network Test button to test communication between server.
- Time Out : Set the network timeouts as seconds.

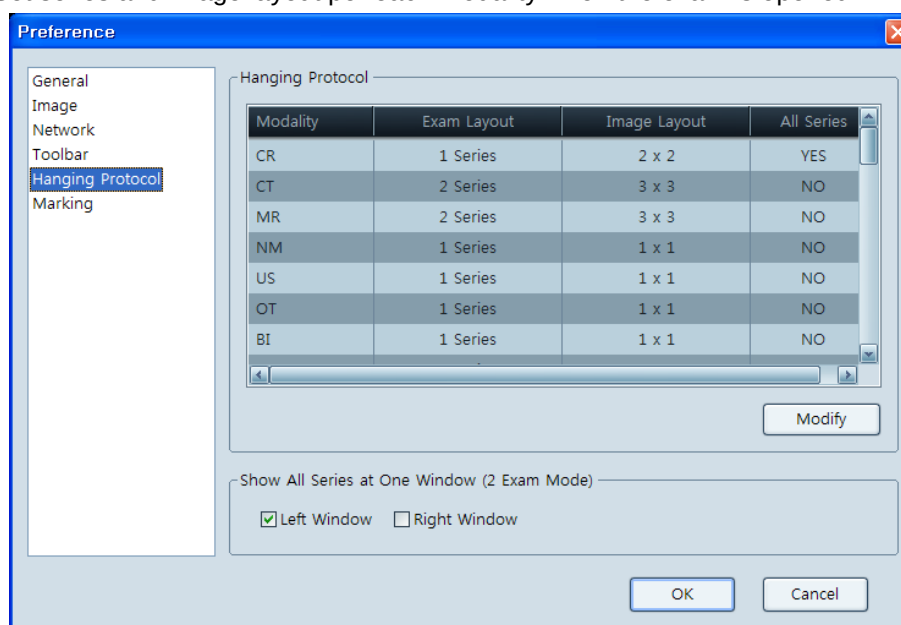
6.1.4. Toolbar



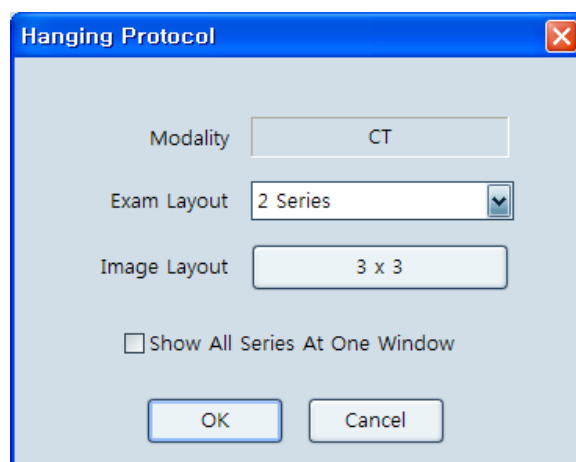
- Only ticked tools are shown in toolbar.

6.1.5. Hanging Protocol

- Set series and image layout per each modality when the exam is opened.

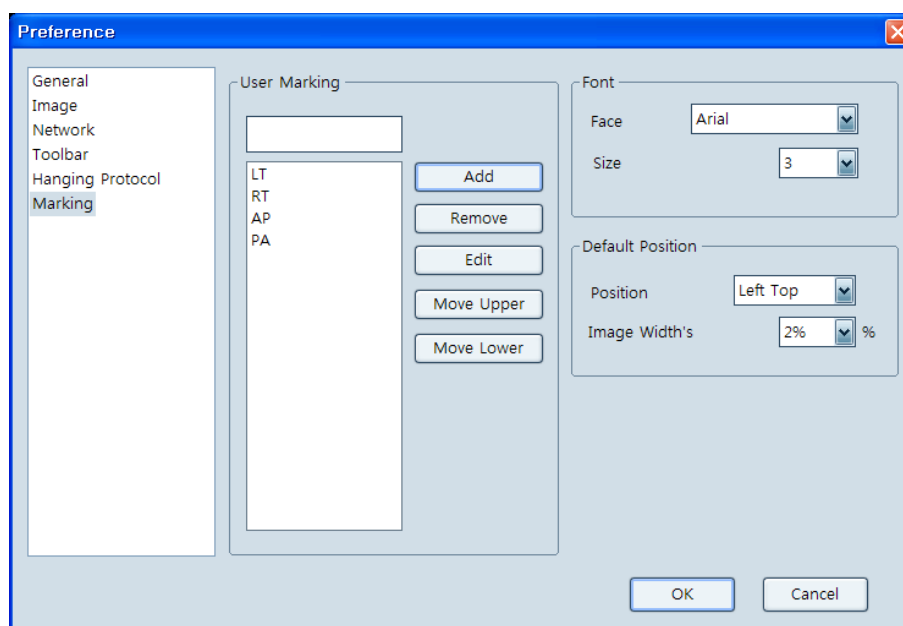


- Select modality in Hanging Protocol and click Modify button to open modify window.



- Select exam layout format in Exam Layout combo box.
- Click Image Layout button to select image layout format by dragging mouse.
- Show All Series At One Window : It displays all series in one series window.

6.1.6. Marking



- User Marking : Marking can be added, removed and edited.
- Font : Font type and size can be set.
- Default Position
 - Position : Marking position can be set.
 - Image Width's : Marking size is the % of the image width.