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XmaruView V1

User & Installation Manual

- English

rayence

This document should be used as a guide only to instruct on the XmaruView V1. For further assistance on this user's manual or XmaruView V1, contact your dealer.

The User Manual that comes with the product may not contain the most updated information on the product.

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R-USM-201

Version: v2.1.3.0

Date: 2020-11-20

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Preface

Please note that this information is for proper use and safety of the XmaruView V1. The following symbols may indicate a hazardous situation in which, if not heeded, may result in severe injury or even death to the user or others, or damage to the equipment.

	Used to emphasize essential information. **Be sure to read this information to avoid incorrect operation.**
 WARNING	**Indicates warning and safety instructions. If not adhered to, it could result in death or severe injury to the user or others.**
 CAUTION	**Indicates a hazardous situation which, if not heeded, may result in minor or moderate injury to the user or others, or damage to the equipment.**

Intended use:

XmaruView V1(Xmaru Chiroview or Xmaru Podview) software carries out the image processing and administration of medical X-ray data which includes adjustment of window leveling, rotation, zoom, and measurements. XmaruView V1(Xmaru Chiroview or Xmaru Podview) is not approved for mammography and is meant to be used by qualified medical personnel only. XmaruView V1(Xmaru Chiroview or Xmaru Podview) is complying with DICOM standards to assure optimum communications between network systems.

Security requirements

- The latest updates for anti-virus software and a firewall is recommended.

- It is recommended to install and operate SW within secure operating environment that allows only authorized users to access and the system network is equipped with Window firewall built-in Windows system, windows Defender antispyware tools and other commonly used 3rd party security tools and application systems.

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- The software can be updated by the manufacturer only. Unauthorized software update through a third party, not the manufacturer, is strictly prohibited. For cyber security issues related to the software and medical devices, please contact the manufacturer.

EC REP

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Symbols	Descriptions
	Refer to instruction manual / booklet
WARNING	**Warning**
CAUTION	**Caution**
	Read carefully
	Manufacturer
	Date of manufacture
CE	**CE marking**
SN	**Serial number**
EC REP	**Authorized representative in the European community.**

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Document Revision History

Document revision history information, and distributed a revised document, the revised date has been recorded.

Version	Date	Writer	Description
Rev.0	2010/5/19	Gilbert	XmaruView V1 1.0.0 First release
Rev.1	2011/9/16	K.S.Park	XmaruView V1 1.1.0 to reflect the content according to the update
Rev.2	2011/10/16	K.S.Park	XmaruView V1 1.1.1 to reflect the content according to the update
Rev.3	2011/10/28	K.S.Park	XmaruView V1 1.1.2 to reflect the content according to the update
Rev.4	2011/12/9	K.S.Park	XmaruView V1 1.1.3 to reflect the content according to the update
Rev.5	2012/2/9	K.S.Park	XmaruView V1 1.1.4 to reflect the content according to the update
Rev.6	2012/6/1	K.S.Park	XmaruView V1 1.1.8 to reflect the content according to the update
Rev.7	2012/6/20	K.S.Park	XmaruView V1 1.1.9 to reflect the content according to the update
Rev.8	2012/8/24	K.S.Park	XmaruView V1 1.1.10 to reflect the content according to the update
Rev.9	2013/2/22	D.K.Park	XmaruView V1 1.1.11 to reflect the content according to the update
Rev.10	2013/8/28	K.S.Park	XmaruView V1 1.1.11.0830 Hotfix to reflect the content according to the update
Rev.11	2014/6/5	K.S.Park	XmaruView V1 1.1.13 to reflect the content according to the update
Rev.12	2015/2/4	K.S.Park	XmaruView V1 1.1.14 to reflect the content according to the update
Rev.13	2015/4/24	K.S.Park	XmaruView V1 2.0.0 to reflect the content according to the update

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Rev.14	2015/8/3	K.S.Park	XmaruView V1 2.0.1 to reflect the content according to the update
Rev.15	2016/7/7	K.S.Park	XmaruView V1 2.0.2 to reflect the content according to the update
Rev.16	2017/7/31	D.J.Kim	5. 10 Image Processing UI to reflect the content according to the update
Rev.17	2017/11/1	D.K.Park	XmaruView V1 2.0.3 to reflect the content according to the update
Rev.18	2018/2/14	Gilbert	Appendix - OS Settings, Folders of Xmaruview V1, Mobile Mode
Rev. 19	2018/5/24	Simon	Reflect the content according to the overview
Rev. 20	2018/8/28	Danny	Reflect the content according to the overview
v2.0.4.0	2018/12/5	Danny	Content has been updated as a new feature has been added.
V2.1.0.0	2019/02/21	H.B.Kim	XmaruView V1 2.1.0.0 to reflect the content according to the update
V2.1.2.0	2019/09/30	D.J.Kim	XmaruView V1 2.1.2.0 to reflect the content according to the update
V2.1.2.0_rev.1	2020/02/14	Y.J.Son	Update by Authorized representative in the European community address change due to Brexit
V2.1.3.0	2020/11/20	Danny	Updated to v2.1.3.0 to create functional improvements and additional feature descriptions.

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User Manual

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1. Introduction to XmaruView V1

1.1 What is XmaruView V1?

XmaruView V1 is a software program designed to provide image acquisition, processing and operational management functions for Digital Radiography.

XmaruView V1 performs connects with Flat-Panel Detectors and Generator to acquire digital images. The software also manages information on patients, tests and images through an internal database.

It also supports DICOM which allows excellent compatibility with other Radiography equipment and network programs.

XmaruView V1 provides a streamlined process of multiple workflows. This optimizes any hospital environment for digital radiography.

1.2 Major Functions of XmaruView V1

XmaruView V1 facilitates the acquisition of DR images conveniently through an intuitive user interface.
The major functions of XmaruView V1 are as follows.

- Automatic acquisition of patient information and photo-taking when taking a shot through the DICOM Worklist.
- Auto Query that searches the Worklist server at every designated interval, facilitating to handle newly added works rapidly and efficiently.
- Display an acquired image within a very short period after taking an image.
- Reduce input time for patient information by automatically applying the preset Image Processing Parameter, ROI, Marker, LUT etc. according to different body parts.
- Enable a user to take images simultaneously while conducting a variety of functions, including DICOM image transmission, printing, and Worklist search.
- Provide a variety of image editing functions, including Contrast, Invert, Flip, Rotate, ROI, and Windowing.
- Enable a user to edit images upon acquisition
- Image management functions: test creation, modify and delete of information, move and delete of image, and image storage management.
- Support DICOM 3.0 and image transmission to the PACS server, print and Worklist

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jobs.

- GridON function is related to Virtual grid. The Virtual Grid Software was originally designed to improve image contrast in general radiographic images by reducing the effects of scatter radiation, primarily for exams acquired without a grid. Benefit of using the Virtual Grid Software involves X-ray radiation dose. Virtual grid is using to reduce the scatter noise in and environment where cannot user real grid. It is possible to use real grid in an environment where can use real grid. Virtual grid cannot be applied to images that were acquired prior to the virtual grid software installation. Virtual grid should not be used for images acquired with additional beam filtration.

1.3 Copyrights

All software programs, files, data, manuals and other documents that are included in XmaruView V1 are protected by the Copyrights Act and the Computer Program Protection Act of Republic of Korea. More details on copyrights are included in product CD or in End User License Agreement that appears when installing the product. Make sure to read it before using the product.

DICOM is the standard network protocol about the digital medical image communication issued in ACR/NEMA.

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2. Structure of XmaruView V1

2.1 System Requirements of XmaruView V1

- The minimum system requirements for a proper execution of XmaruView V1 are as follows.
  - CPU: Intel® Core™ i3(4th Gen) or higher
  - Main memory (RAM): 8GB or higher
  - Monitor Resolution: 1366 x 768 or higher

- The recommended system requirements for a proper execution of XmaruView V1 are as follows.
  - CPU: Intel® Core™ i5(4th Gen) or higher
  - Main memory (RAM): 8GB or higher
  - Monitor Resolution: 1920 x 1080

- Surface Pro4
  - XmaruView V1 can run on the Surface, and the recommended specifications are the same as above
  - It is recommended to purchase a keyboard for convenient typing.

- The recommended hard disk capacity requirements are as follows.
  - Memory occupancy of XmaruView V1: approx. 1GB
  - Additional hard disk space may be needed depending on the type of detector and the number of X-ray exposing attempts

    1717 Model: Occupies approximately 60MB for single image.
    500 GB can store 8,000 images.

    1417 Model: Occupies approximately 45MB for single image
    500 GB can store 10,000 images.

    1012 Model: Occupies approximately 30MB for single image
    500 GB can store 16,000 images.

- The operating systems supported by XmaruView V1 are as follows.
  - Microsoft Windows 10(64 bit) Professional or higher

- The programs required to execute XmaruView V1 are as follows.

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- Microsoft .Net Framework 4.5.1 or higher
- VC++ redistribution package 2010
- VC++ redistribution package 2013
- Java 1.8 or higher

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2.2 Start / Terminate XmaruView V1

2.2.1 Start the XmaruView V1

- Before running XmaruView V1, check device or system if it works correctly.
- Double-click the Launch XmaruView V1 icon on the desktop and the Log-in window will pop up.
- Administrator and User ID are pre-registered by default on first execution following installation.
- The default password is 1234 and you can add or modify user ID and password at Setting > Account.

< Figure 1 Login >

	You can start XmaruView V1 in the "Start>All Programs>Rayence>XmaruView V1>XmaruView V1 Console" menu.

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< Figure 2 Input Password>

- If you push the Enter key or click the button on the right, then login will get started.

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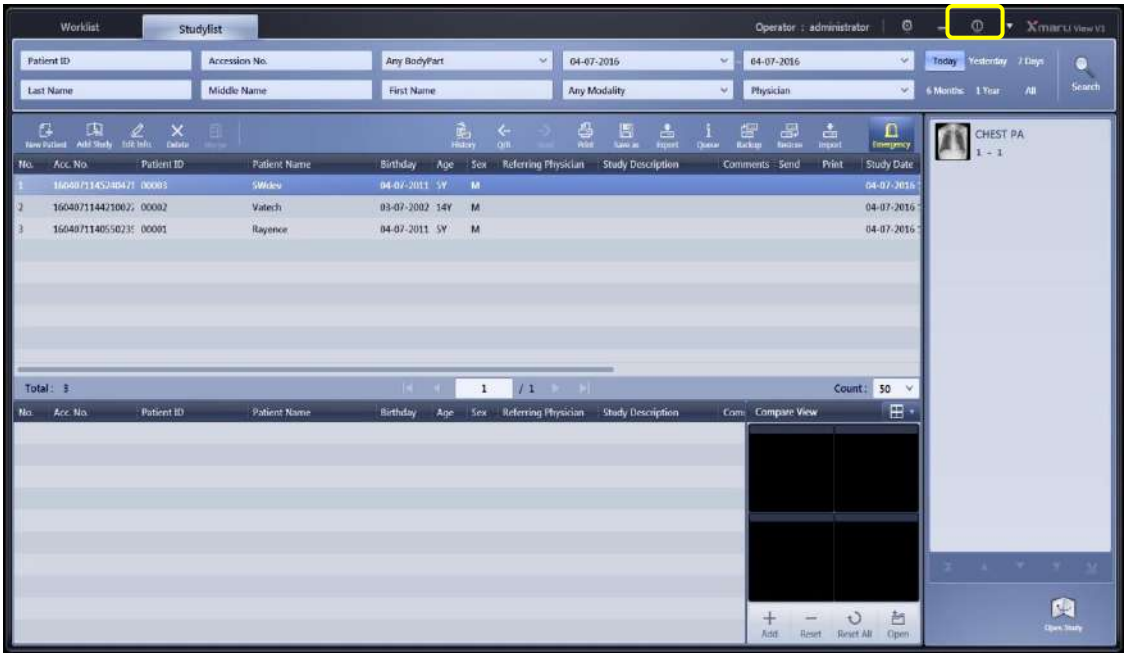
2.2.2 Terminate the XmaruView V1

- Go to the top of the main screen and click the Exit button.



< Figure 3 System Menu >

- Click YES and the program will be terminated.

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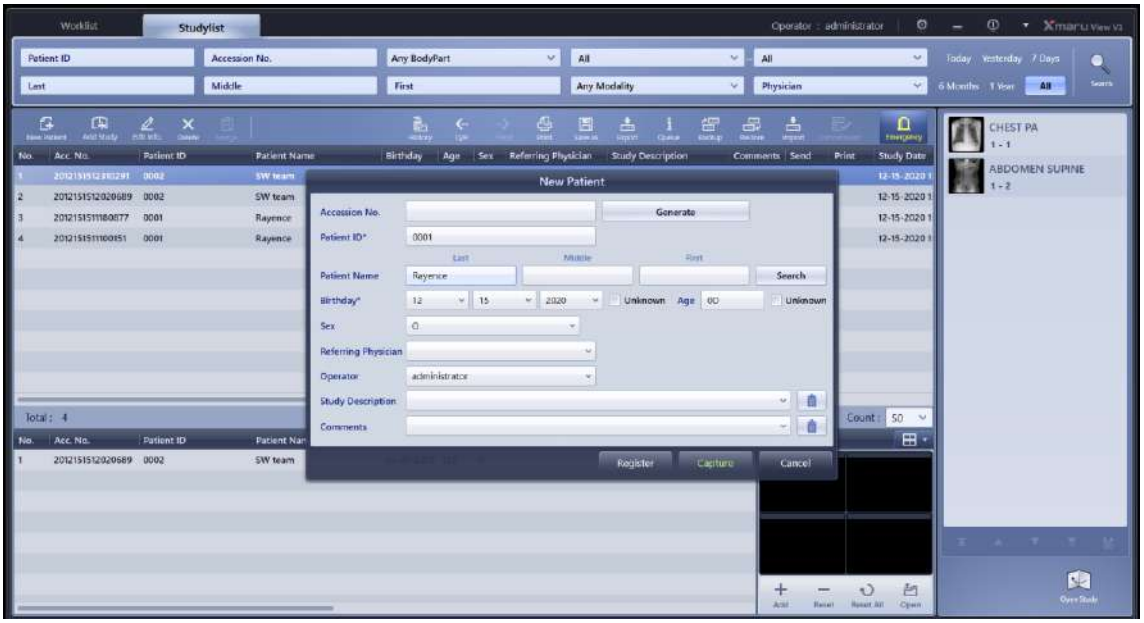
3. Basic Workflow

3.1 Worklist Registration



< Figure 4 Registration >

① Click the "New Patient" button.

② Input the patient information.

③ Click the "Capture" button.

	Patient ID and Patient Name are required.

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3.2 Procedure Step Registration

< Figure 5 Procedure >

① Select Bodypart.

② Select Procedure Step (Exposure Menu).

③ Click the "Capture" button.

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3.3 Start Capture Mode

< Figure 6 Capture >

① Select Procedure Step.

② Select Patient Size.

③ X-ray expose.

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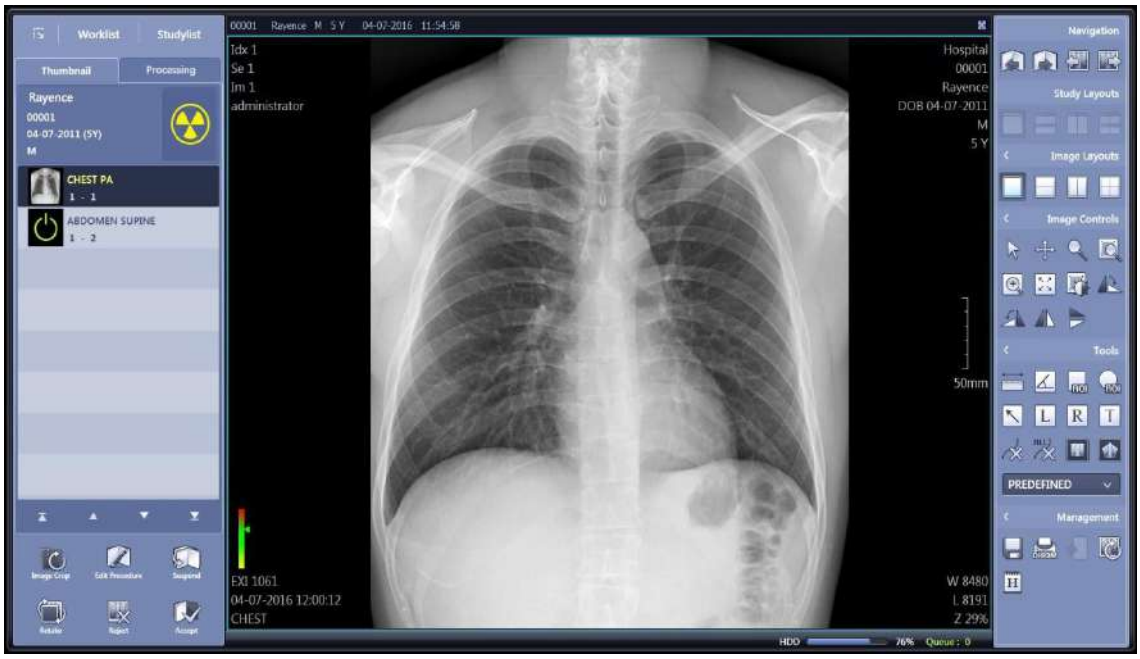
3.4 Acquire Image



< Figure 7 Acquire Image >

	Retake and Reject of Acquired image See the 5.6 Retake & Recycle, 5.7 Reject Image In Chapter 5 Capture.

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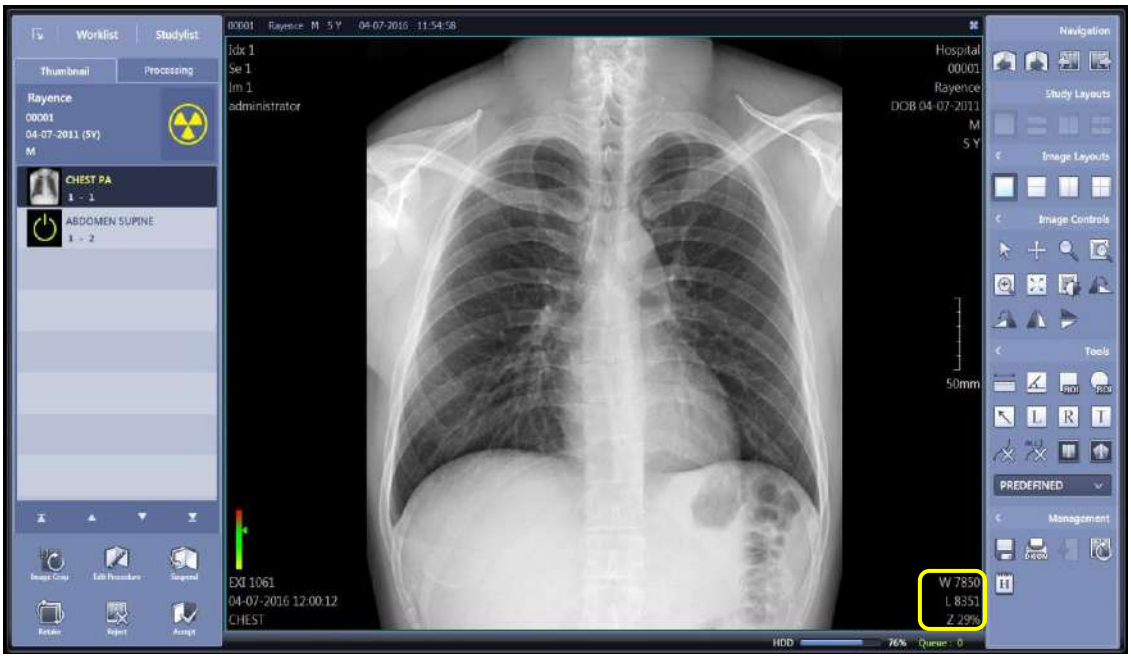
3.5 Adjustment



< Figure 8 Adjustment >

- Cropping & Processing

  ① Crop region is fit on the main screen when you acquire the image.

  ② Click the Image Crop button to adjust the desired ROI size and location.

  ③ Adjustment Window Width & Window Level

  Hold down right-click on the mouse and move the cursor up, down, left, and right to adjust window level & width. (Hold down CTRL to use "Fast Mode")

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3.6 Accept

< Figure 9 Accept >

① When finished, click the Accept button.

Use the send to Server or Printer features.

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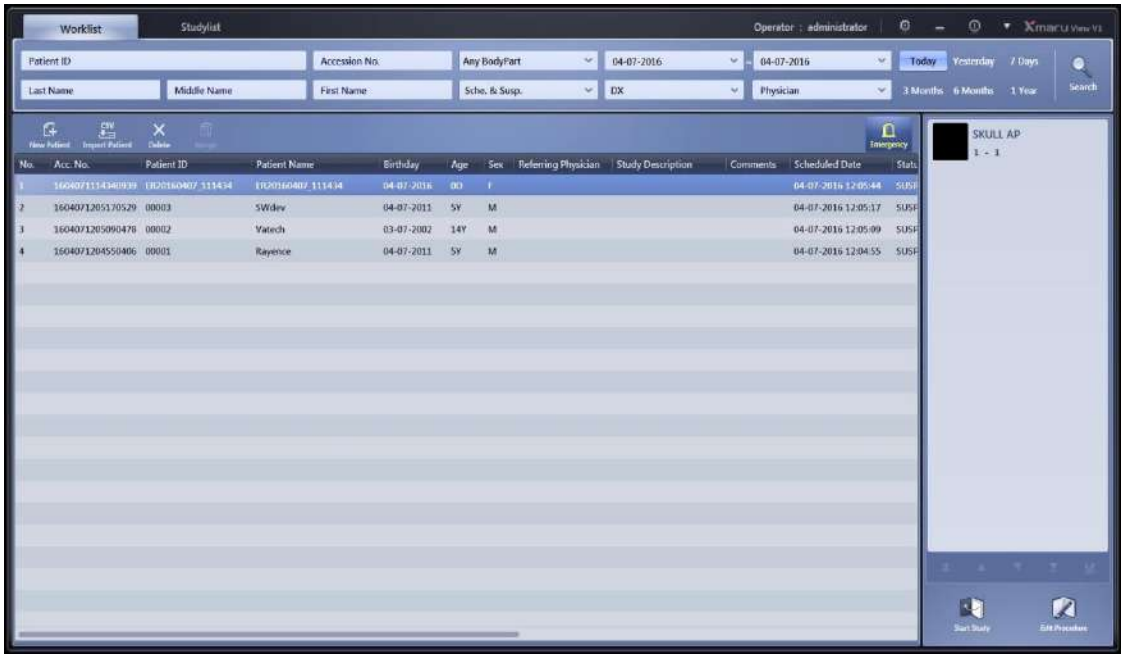
4. Worklist

4.1 Worklist Screen Configuration

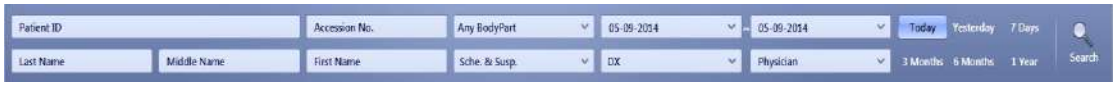


< Figure 10 Worklist >

① Main window toggle button and logo.

② Search

- Search by a variety of search conditions : Patient ID, Accession No., Body Part, Date, Patient Name, Status, Modality, Refer. Physician.
- Search by period : today, Yesterday, 7 Days, 3 Months, 6 Months, 1 Year.



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③ Main Tools

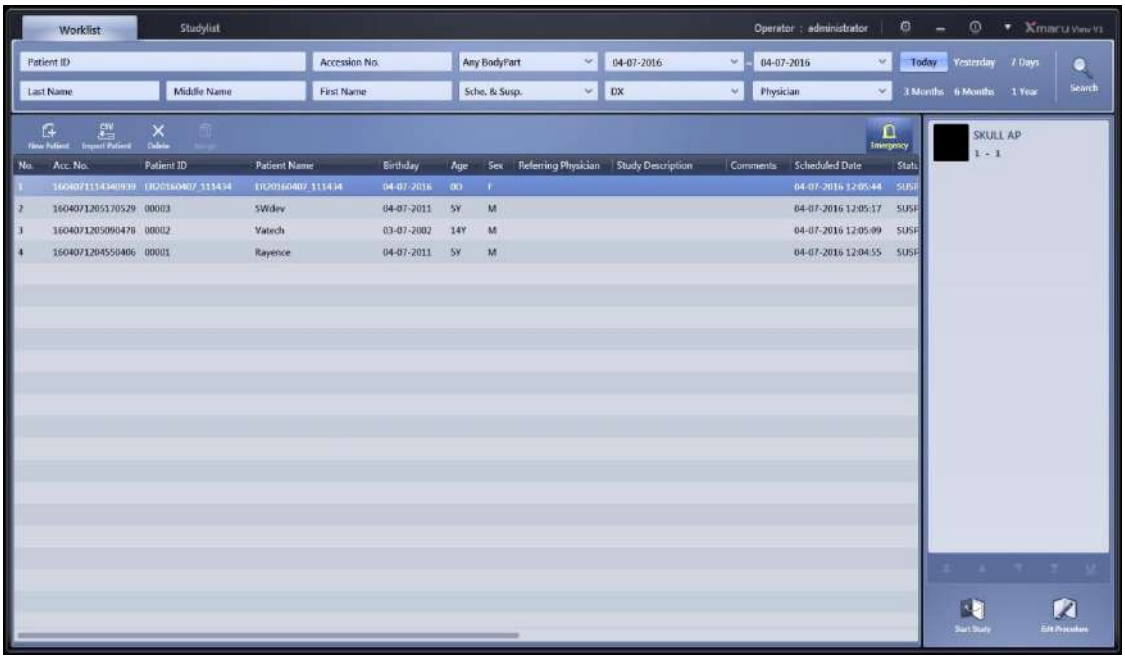
- Tools include: New Patient, CSV Import, Delete, Merge, Emergency image acquisition.

④ Main List

- Displays the list of patients to be inspected.

⑤ Thumbnail List

- Displays the list of study thumbnails selected from the Main list.



< Figure 11 Search >

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- The following statuses will be displayed if the Worklist Server is registered.

a) Preparing to connect with the server and receive the Worklist.
b) Searching and receiving Worklist information registered in the connected server.
c) Connecting with the server or searching for information has failed.
d) Receiving information for the searched Worklist has been completed.

	Please refer to the Technical Manual to learn how to setup the Worklist Server.

	You must delete the existing order twice before you can update the order because the order has been modified. First delete - Changes the state of the Order to Discontinue. - Second delete : Delete order.

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4.2 Study Registration

- To start acquiring images, it is required to start a study.
- There are two different modes: manual registration and automatic registration (to be used for emergency image acquisition).
- When connected to the Worklist server, the Worklist test information is automatically registered.

Search the studies from worklist server, install the DICOM worklist server and the server setting should be correct.

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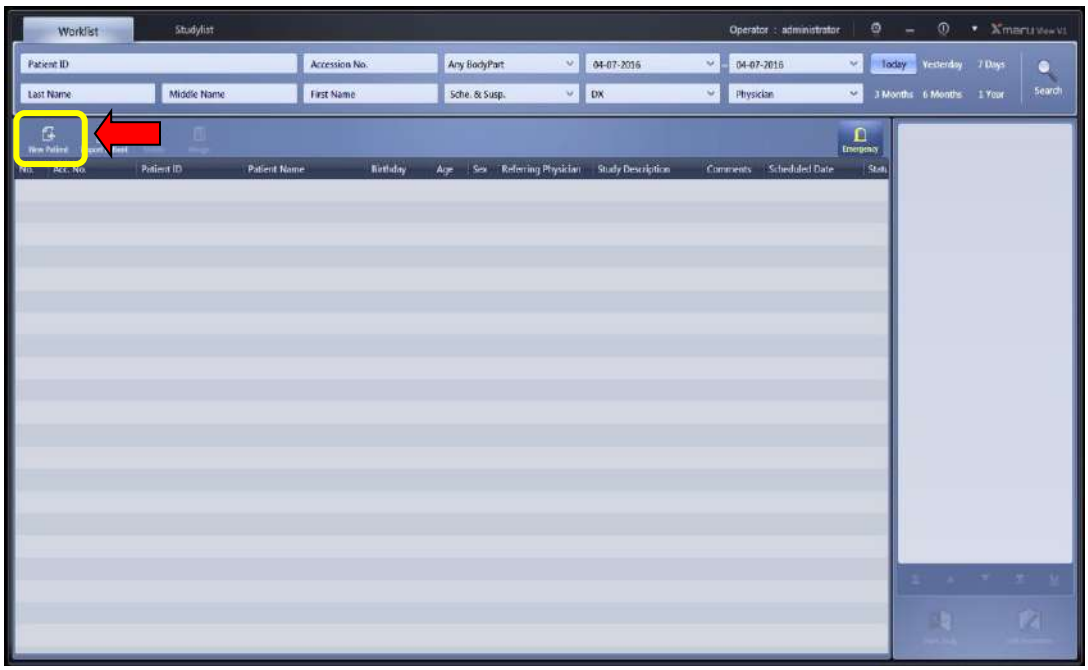
4.3 Register Study in Manual Mode

- Click the "New Patient" button and enter the details on the Study.



< Figure 12 New Patient >

< Figure 13 New Patient >

① Accession No. : Enter the patient's accession number.

② Patient ID : Enter the patient ID (required).

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③ Patient Name : Enter the patient name.

④ Birthday : Enter the patient's date of birth (required).

- Unknown : It is used if you do not know the date of birth.

⑤ Age : It is automatically calculated based on the date of birth. Input the age and press the <Enter> key on the keyboard. The birth year will be changed accordingly.

- Unknown : It is used if you do not know the date of birth.

⑥ Sex : Select the patient's gender.

⑦ Referring Physician : Enter the physician information.

⑧ Operator : Select the operator.

⑨ Study Description : Enter the study item.

⑩ Comment : Enter additional information about the patient.

⑪ Register : Save and apply registration.

Capture : Register the information on study and switch to the capture Mode.

Cancel : Cancel the operation of entering study information.

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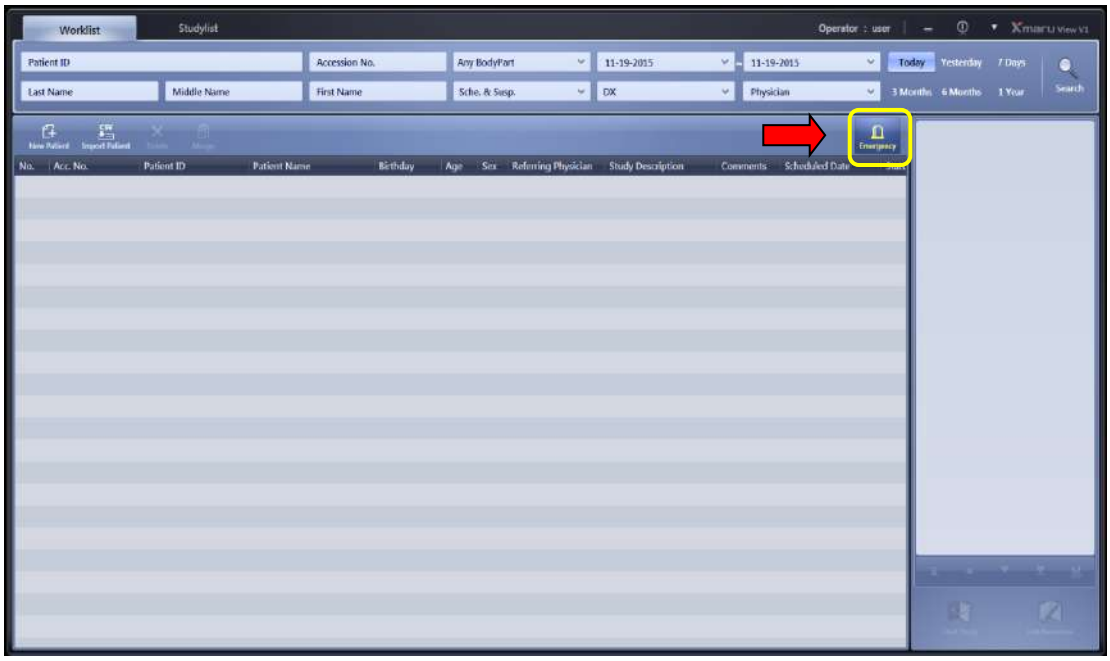
4.4 Register Study in Emergency Mode



< Figure 14 Emergency >

- Click the "Emergency" button.
- The study details are automatically generated as an emergency acquisition.

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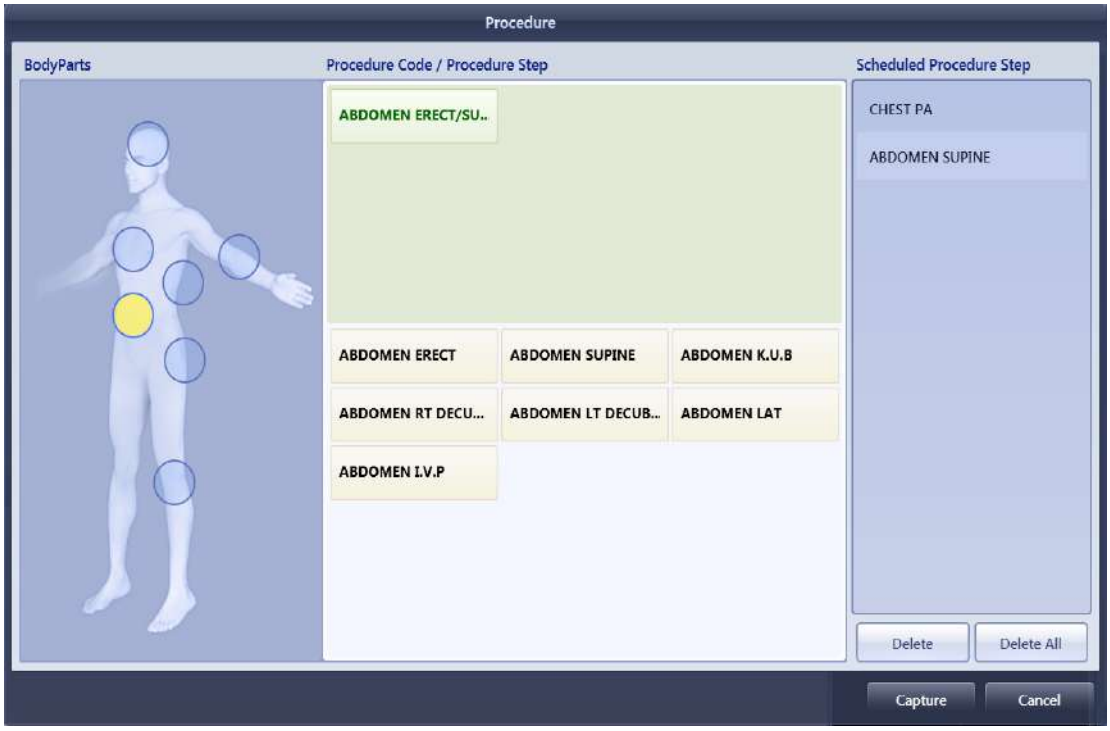

< Figure 15 Procedure >

① Body Part : Select a body part to be photographed.

② Procedure Code : Select the Procedure Code of a photographed body part.

③ Procedure Step : Select the Procedure Step of a photographed body part.

④ Scheduled Procedure Step : Display the selected Procedure Step.

⑤ Delete & Delete All : Delete either the selected or all Procedure Steps.

⑥ Capture : Start capturing the image through the registered Procedure Step.

Cancel : Cancel registration.

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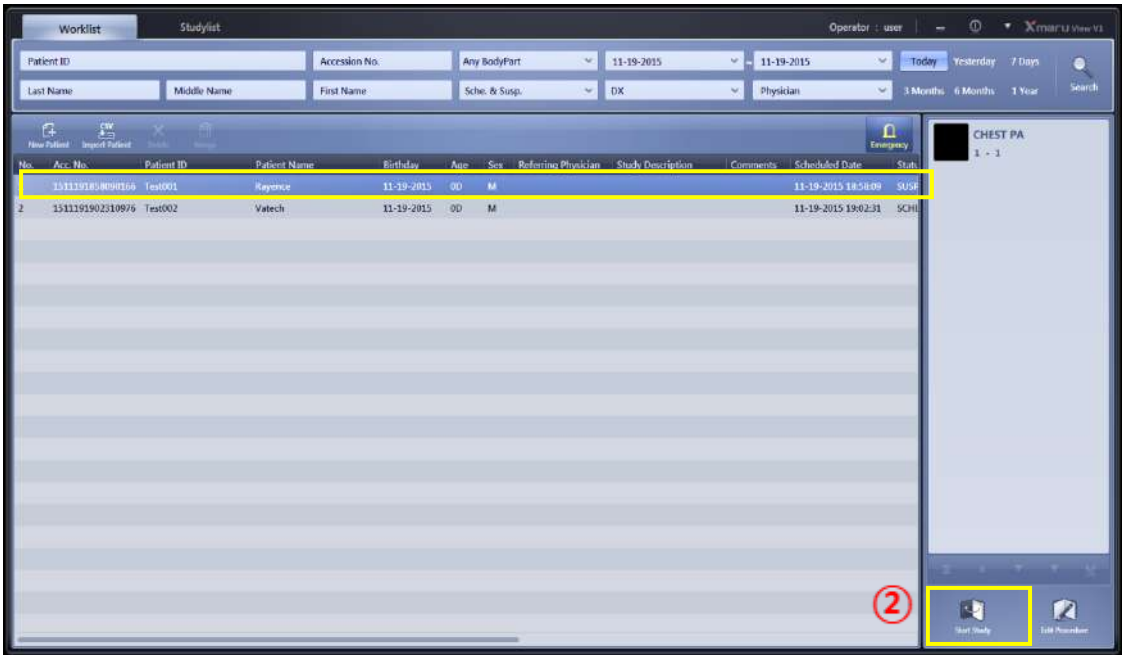
5. Capture

5.1 Take Images



< Figure 16 Start Study >

① Select the study information to begin image acquisition in Worklist.

② Click the "Start Study" button.

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5.2 Capture Screen

< Figure 17 Generator Non-interconnection >

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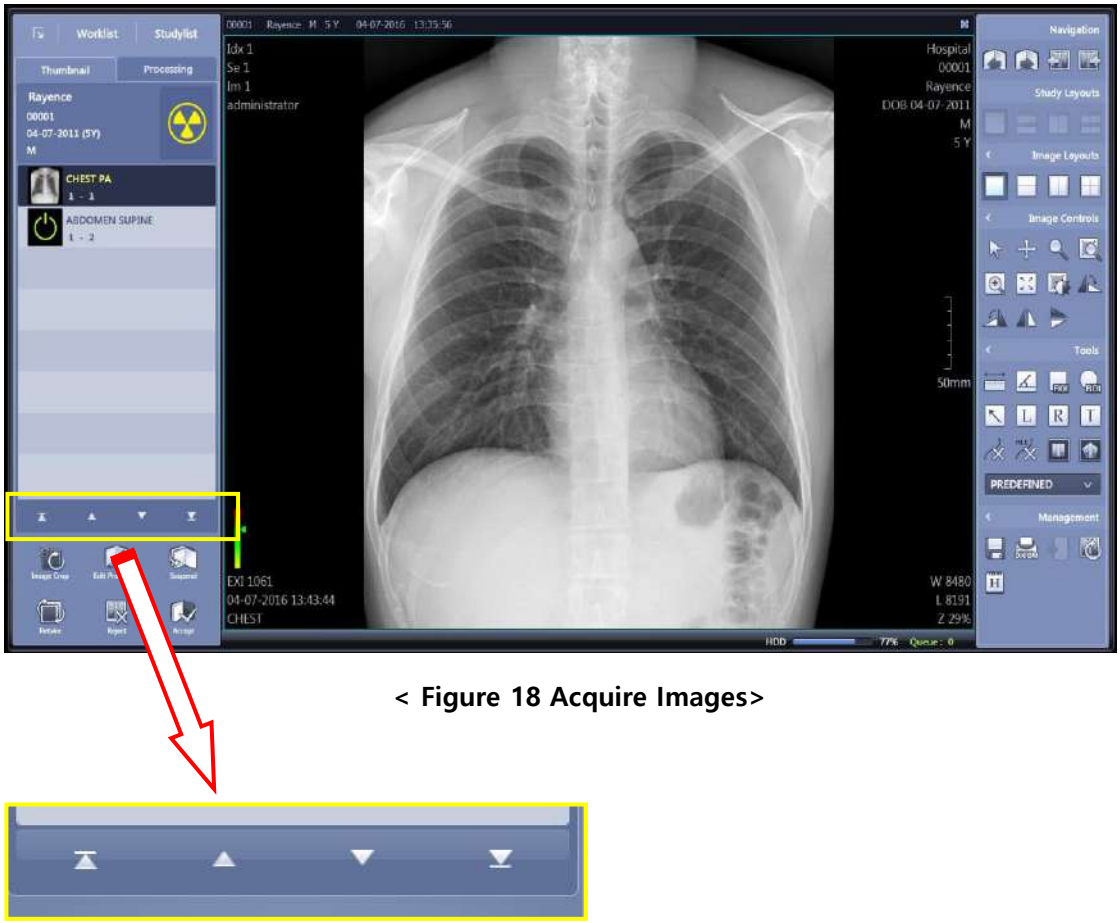
5.3 Acquire images

① Begin study to acquire images.



< Figure 18 Acquire Images>

※ You can edit the image acquisition order by selecting the Procedure Step.

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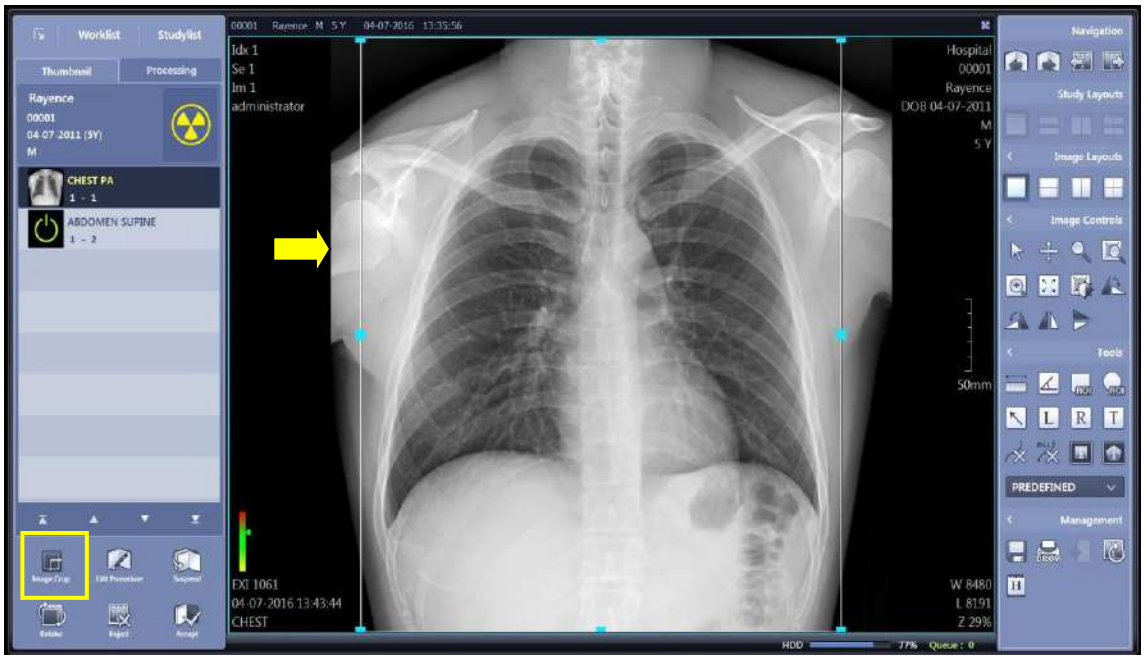
5.4 Adjustment



< Figure 19 Cropping >

- Cropping

- Click the Image Crop button to adjust the desired ROI size and location.
- The image included in ROI area is sent.
- Automatic mode can be set in the Procedure Manager Tool by the Procedure Step

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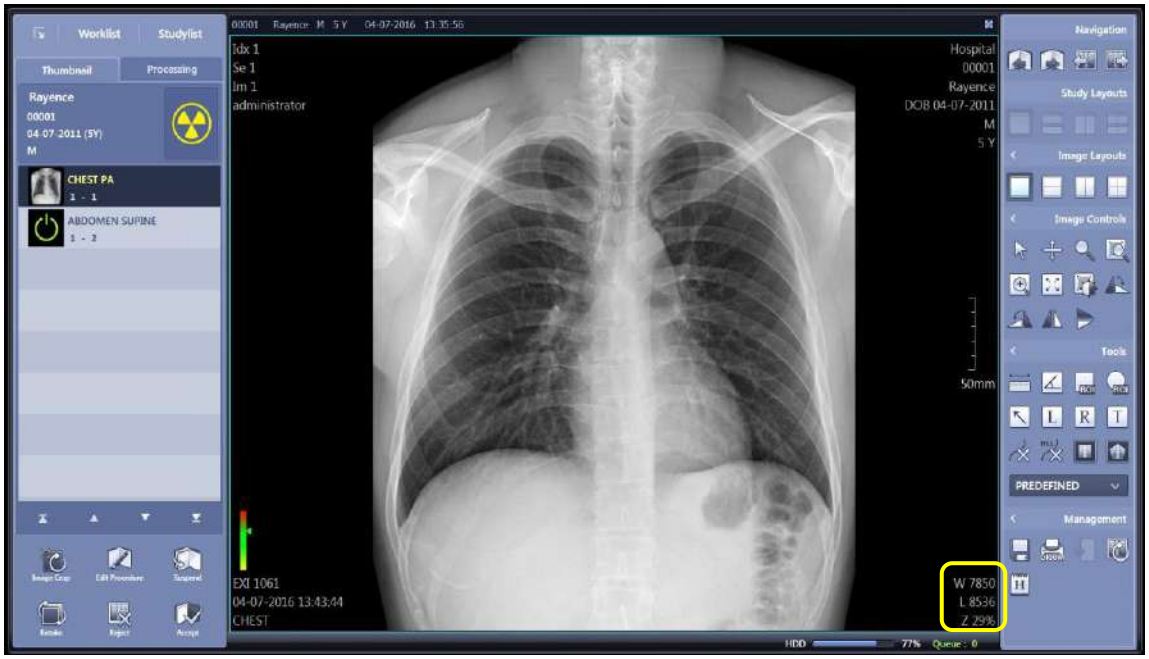

< Figure 20 Windowing >

- Windowing

- Adjust the Window Level / Window Width.
- Adjust the Window Level by right-clicking the mouse and moving vertically.
- Adjust the Window Width by right-clicking the mouse and moving horizontally.
- Adjust the brightness and contract by adjusting the Window Level / Window Width.

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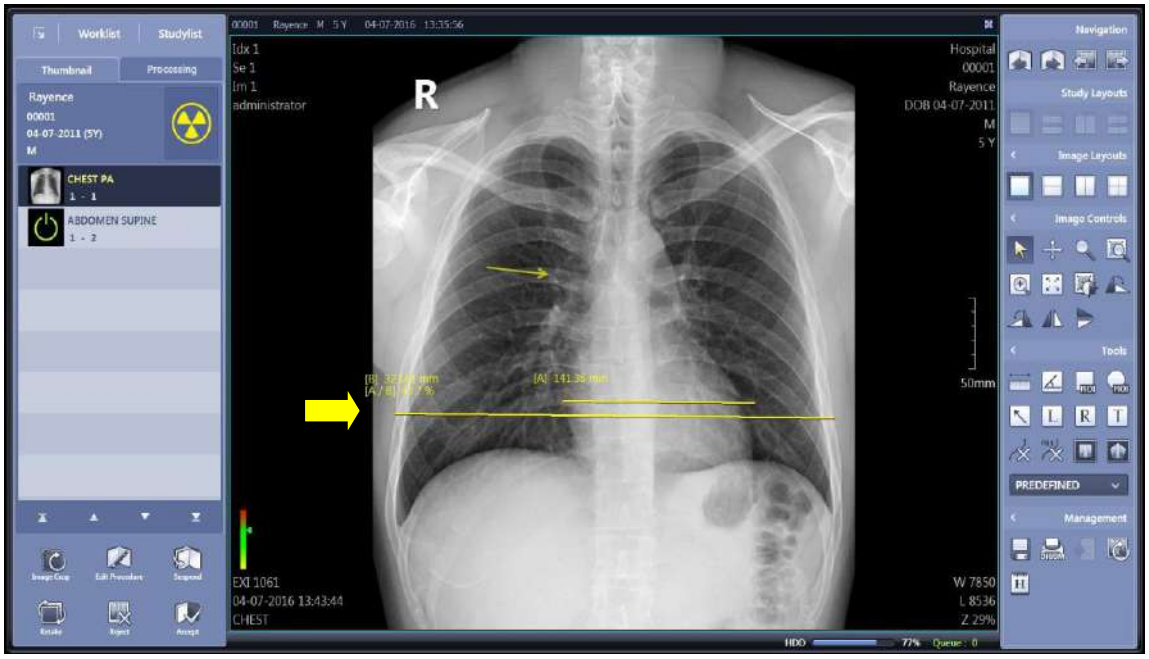

< Figure 21 Annotation >

- Annotation

- Insert markers, text, and measurements on an x-ray image.

- You can automatically set the Marker and Text in the Procedure Manager Tool by the Procedure

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5.5 Accept

< Figure 22 Accept >

- Upon completion of study, click the "Accept" button on the bottom left corner of the screen.
- Terminating a study brings you back to the Worklist screen.
- You can set images to be sent to a designated storage device automatically depending on the study termination option settings.
- Go to System Menu > Setting to set the automatic transmission mode.

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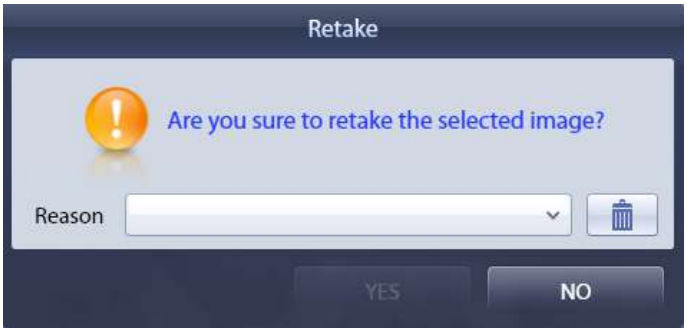
5.6 Retake & Recycle

< Figure 23 Retake >

- Retake
  - Click the "Retake"button on the bottom left corner if an image needs to be retaken.
  - Send the selected image to the garbage bin and retake the image.



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< Figure 24 Recycle >

- Recycle

  - Steps to restore the images temporarily kept in the garbage bin

    ① Click the "Recycle" button on the right to open the list.

    ② Select the image for restore.

    ③ Click the Restore button on the left.

    ④ The currently displayed image is swapped with the image selected by clicking the Restore button.

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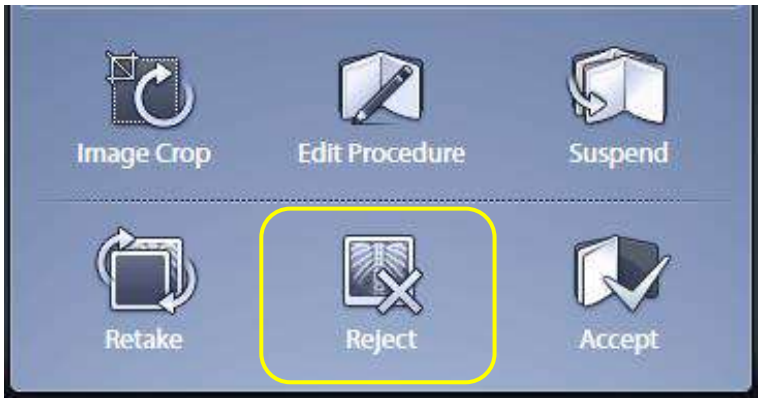
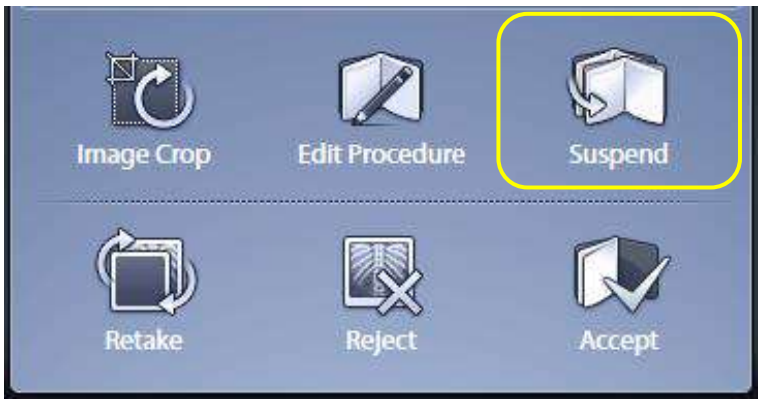
5.7 Reject



- Delete the selected Image Acquisition procedure.
- Warning! Take extra caution when executing Reject Image as the image is deleted upon completion of image acquisition.

5.8 Suspend Study



- Suspend image acquisition and return to the Worklist window.
- If you redo the suspended study, it will be resumed from the last saved point.

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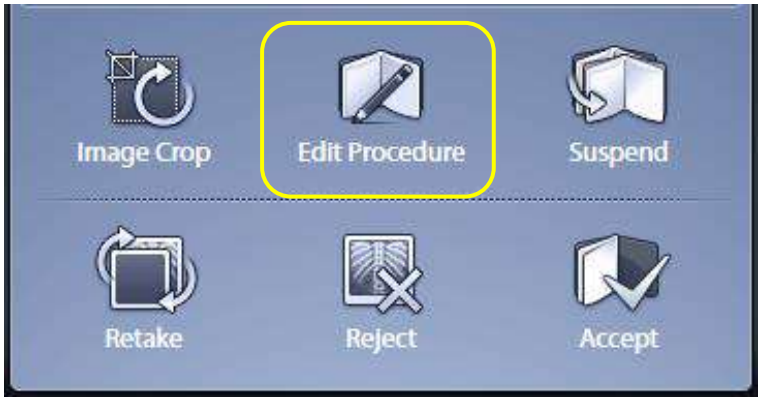
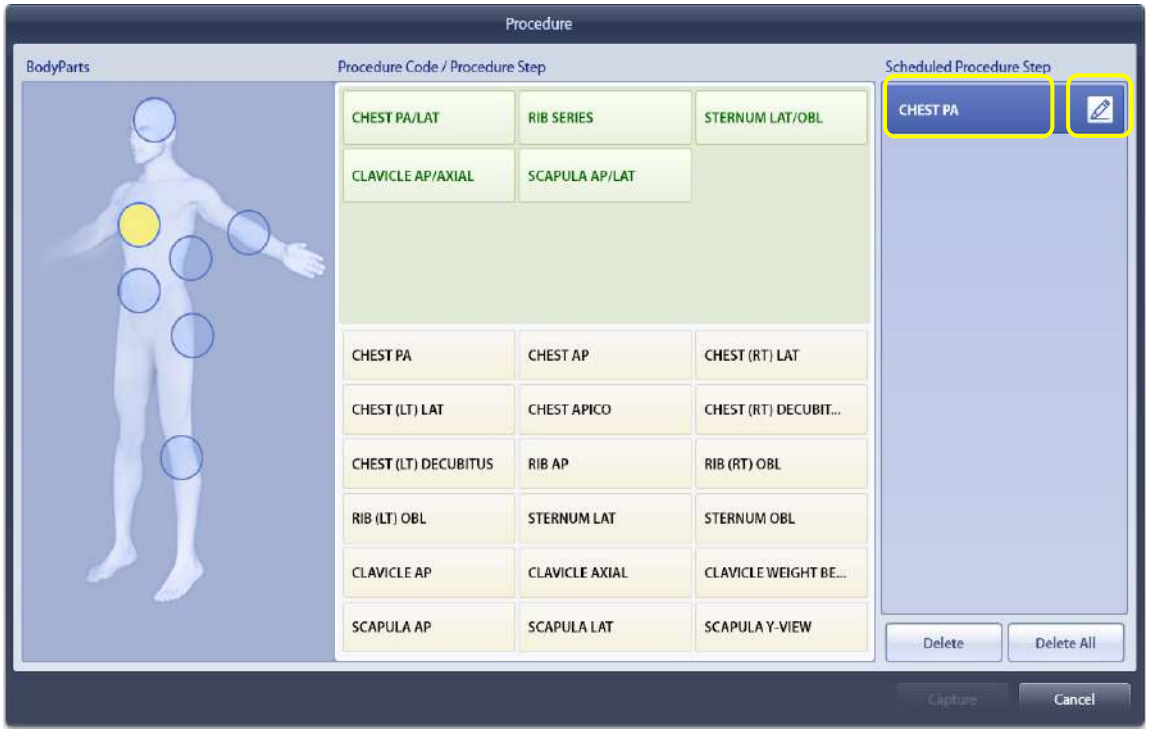
5.9 Edit Procedure

5.9.1 Edit Procedure



- Display the Procedure registration window.
- Add or delete a Procedure Step.

5.9.2 Change Procedure Step



< Figure 25 Change Procedure Step >

- It is possible to change the images of a body part/ view position that already captured.

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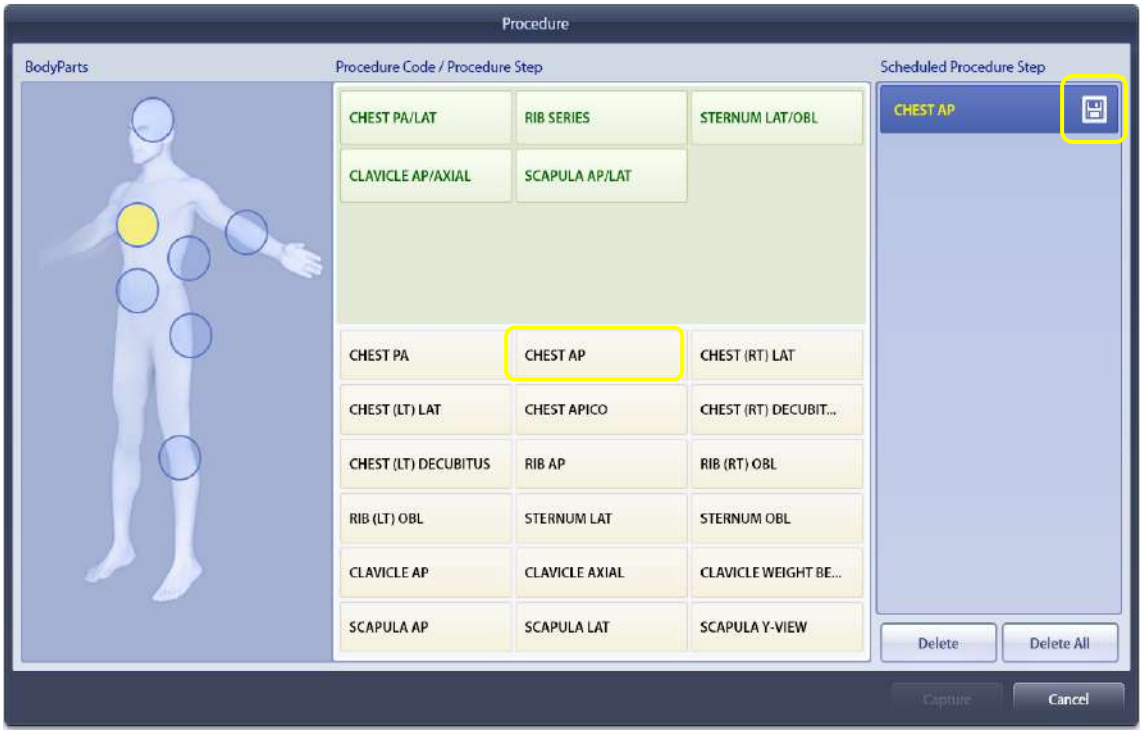
① Select the Procedure Step to change

② At the Scheduled Procedure Step, click the pen icon.

③ At the Procedure Code/Procedure Step, click the Procedure Step what you want to change.

④ Click the save icon.



< Figure 26 Change Procedure Step >

⑤ Click "Yes" to complete the change.

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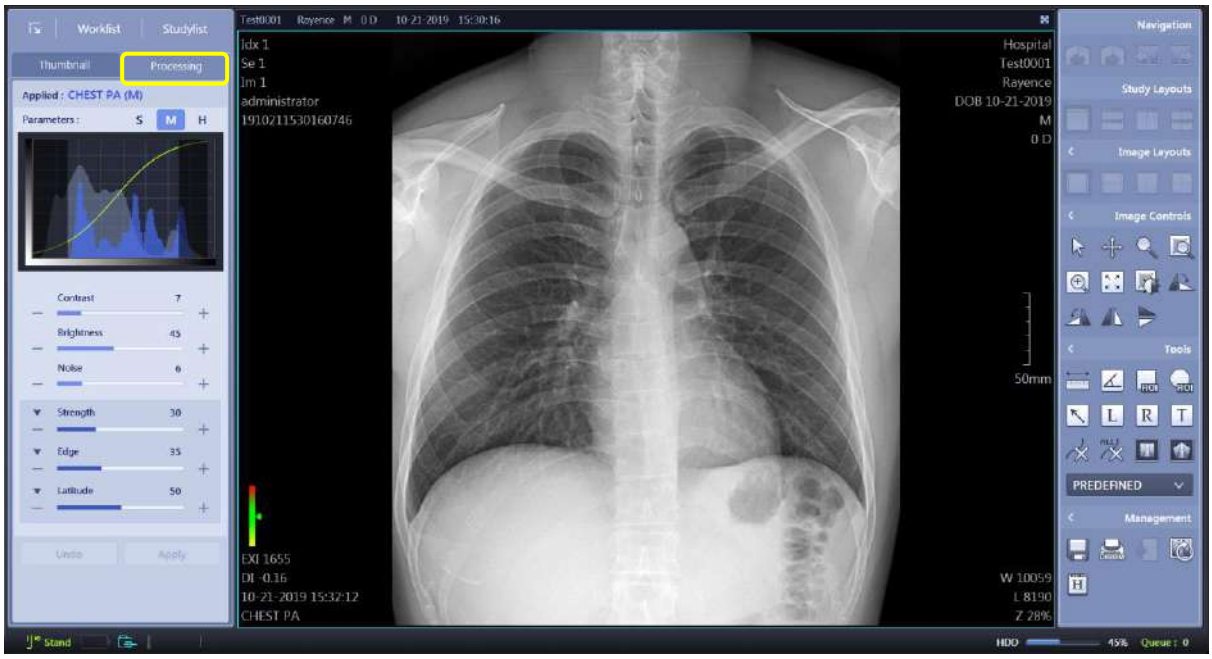
5.10 Image Processing



< Figure 27 Image Processing >

- Change Image Processing Parameter.
- Applying the changed display parameters to the image in real-time, as adjusting the slider control.

  (It is possible to adjust the Image Processing by clicking the 'Apply' button, when you want to change parameter value through the '-. +' button.)

- Applied : Displays parameters applied to the current image.
- Parameter Type

- S : Soft image processing
- M: Normal image processing
- H: High-definition image processing

- Histogram & LUT: Displays the Histogram and Lookup table (LUT) graph of an image.

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< Figure 28 Histogram & LUT >

① Grayscale Bar: Double-click either the X-axis or the Y-axis to change the display direction of the histogram and LUT graph.

② Histogram 1: Displays a histogram of the previous image before LUT was applied

③ LUT Graph: Displays an LUT graph of applied to the image

④ Histogram 2: Displays a histogram of an image with LUT applied

⑤ Display Area: Displays the Window Width and Window Level areas of the image

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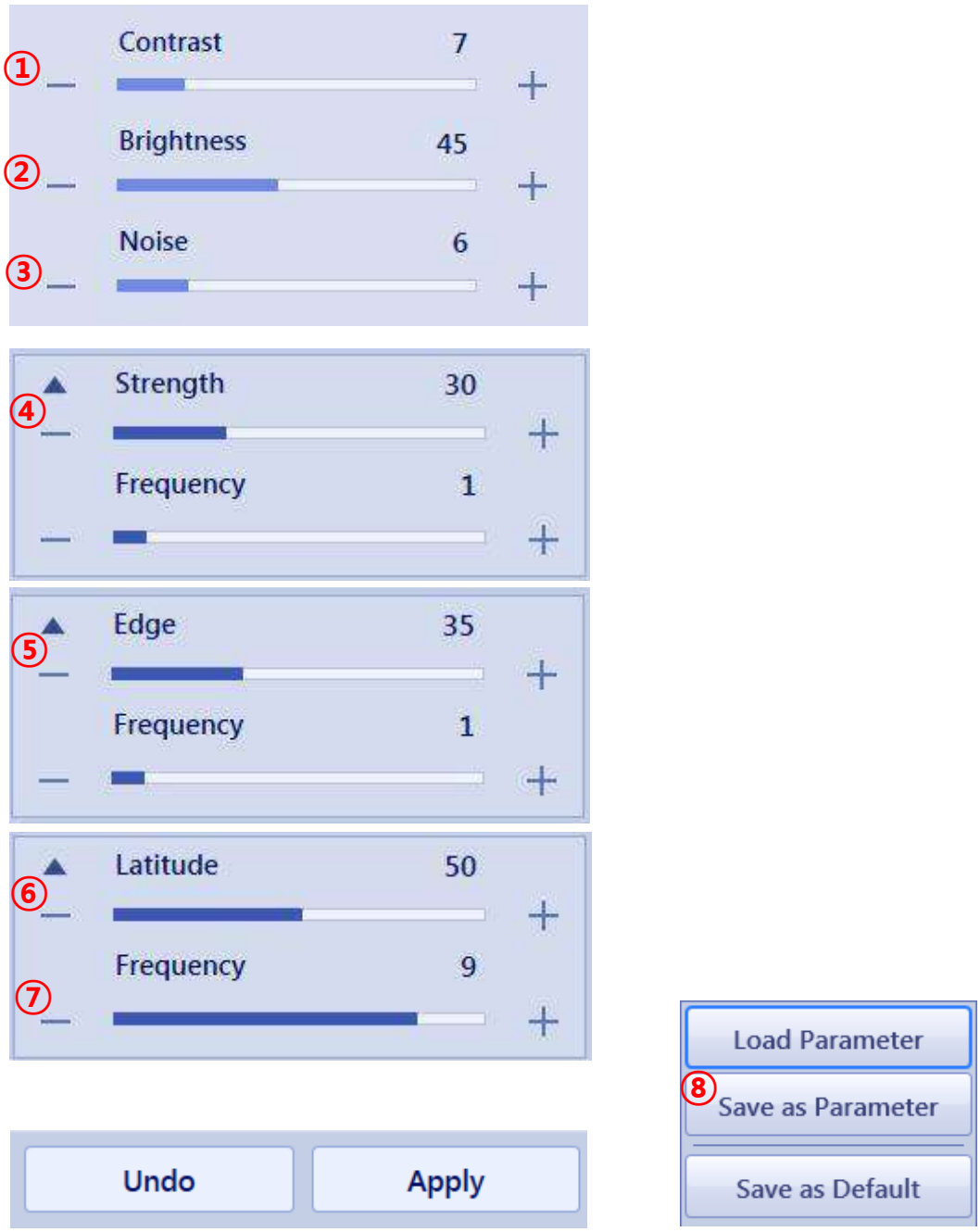
- Parameter Control



< Figure 29 Parameter Control (Pop-up Menu) >

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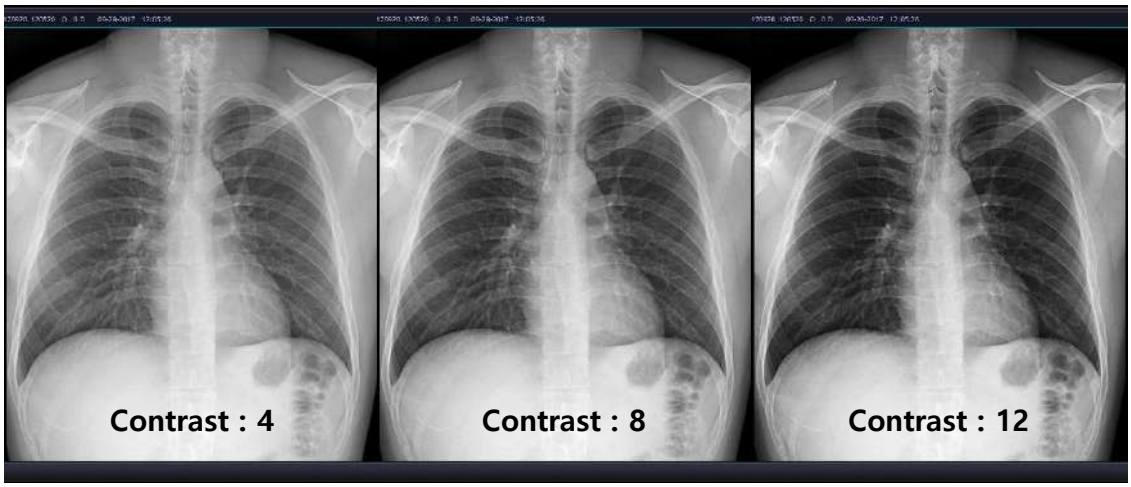
① Contrast : Adjusts the contrast of an image

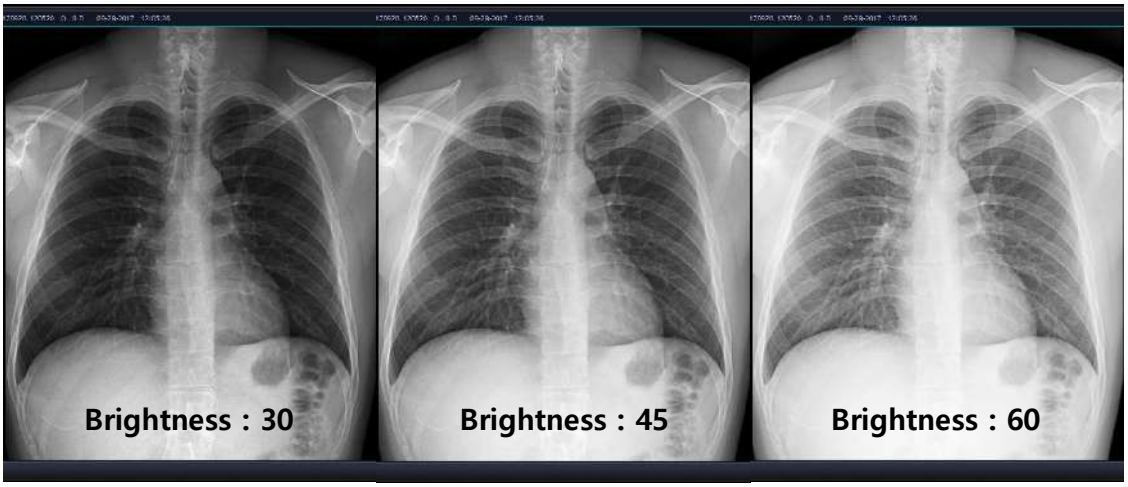
The black-to-white contrast increases as the adjusted value increases.



< Figure 30 Contrast Adjustment >

② Brightness : Adjusts the brightness of an image

The image becomes brighter as the adjusted value increases.



< Figure 31 Brightness Adjustment >

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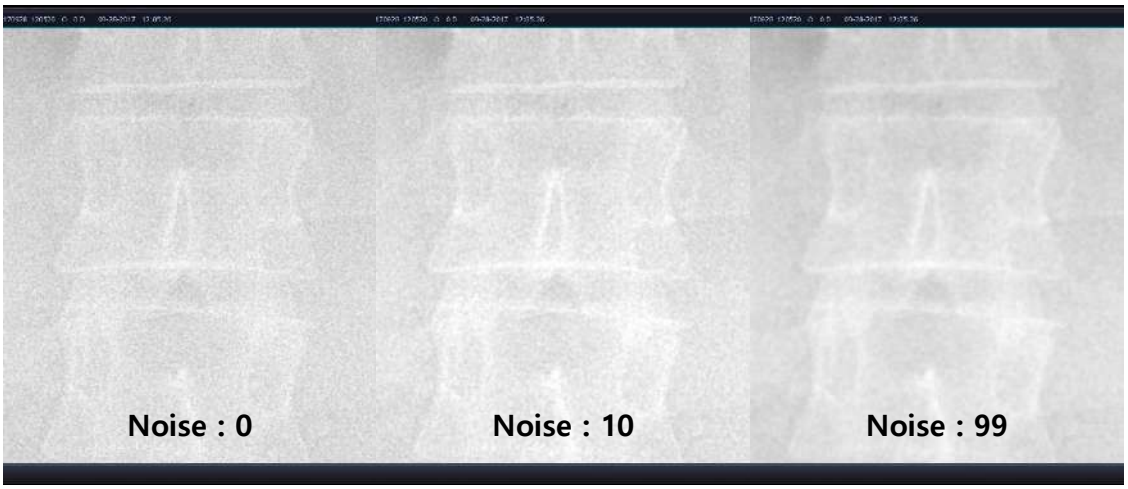
③ Noise : Adjusts the noise of an image.

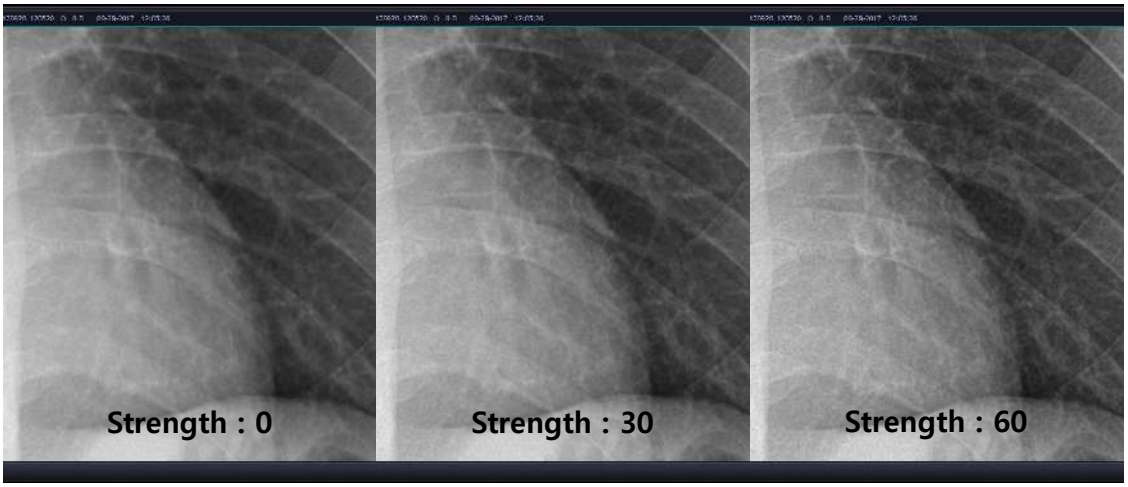
As you increase the value of adjustment, you can remove more noise.



< Figure 32 Noise Adjustment >

④ Strength : Adjusts the signal strength of an image.

As you increase the value of adjustment, you can highlight the selected frequency component more.



< Figure 33 Strength Adjustment >

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⑤ Edge : Adjusts the sharpness of an image.

As you increase the value of adjustment, the edge of selected frequency component becomes sharper.

< Figure 34 Edge Adjustment >

⑥ Latitude : Adjusts the latitude of an image.

As you increase the value of adjustment, image's latitude according to the depth difference decreases.

< Figure 35 Latitude Adjustment >

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	Since sharpness adjustment leads to changing image quality, you should perform sharpness adjustment earliest when adjusting an image. * If you adjust latitude, sharpness of the image changes accordingly.

⑦ Frequency : Selects the image components to adjust.

Low frequency modifies detail components and high frequency modifies thick components.

	Since the adjustment of strength and edge modifies detail components area (0~3), thick components area (4~11) may not be modified a lot. Since the adjustment of latitude group modifies thick components area (7~11), detail components area (0~6) may not be modified a lot.

⑧ Pop-up Menu : The pop-up window appears with a right-click of the mouse.

- Load Parameter: Loads the image-processing parameters

- Save as Parameter: Saves the current image parameters to another procedure step and size (Enabled when Apply is clicked)

- Save as Default: Saves the current image parameters to the current procedure step and size. (Enabled when Apply is clicked).

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5.11 Apply Cropping Margin

a) b) c)

- The set Cropping Margin value will be applied to the ROI area of the Auto Crop.
  a) If Cropping Margin value is -200,
  b) If Cropping Margin value is 0,
  c) If Cropping Margin value is +200,

	The Cropping Margin value must be preset to be applied in the ROI area. Please refer to the "Settings" section in the Manual.

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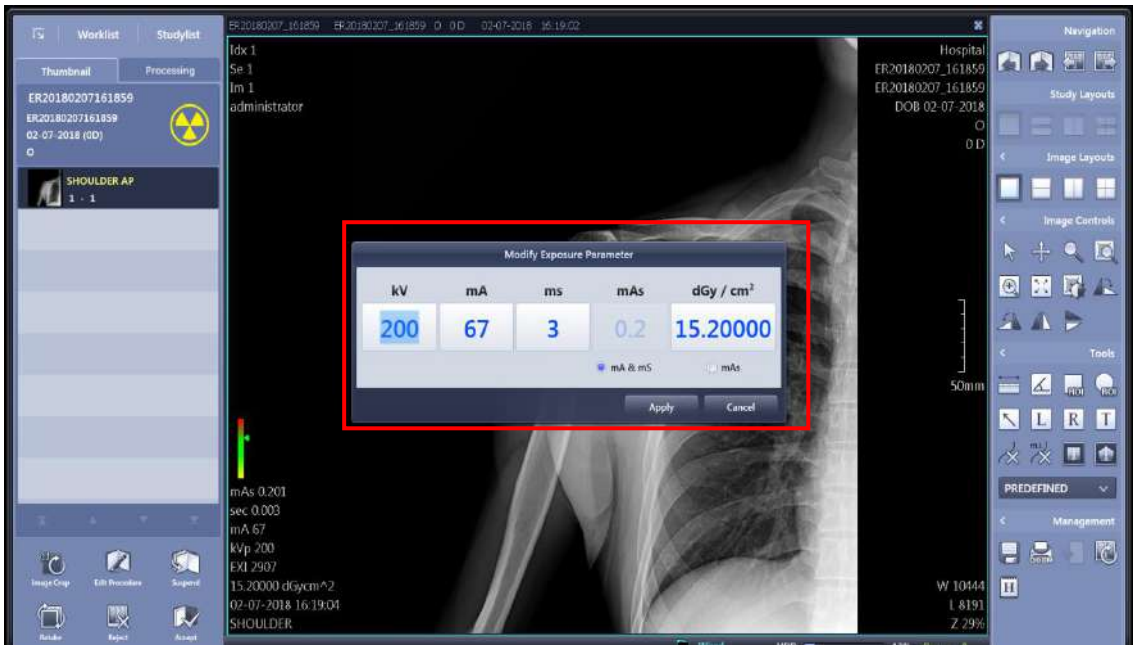
5.12 Activation of the Auto Popup Exposure Information



- The "Modify Exposure Parameter" window will appear automatically to help modify the "Exposure Parameter" value after the image is acquired.
- The user can change the kV, mA, ms, mAs, dgy/㎠ values.

	Please refer to the "Settings" section in the Manual to setup the "Auto Popup Exposure Information" command.

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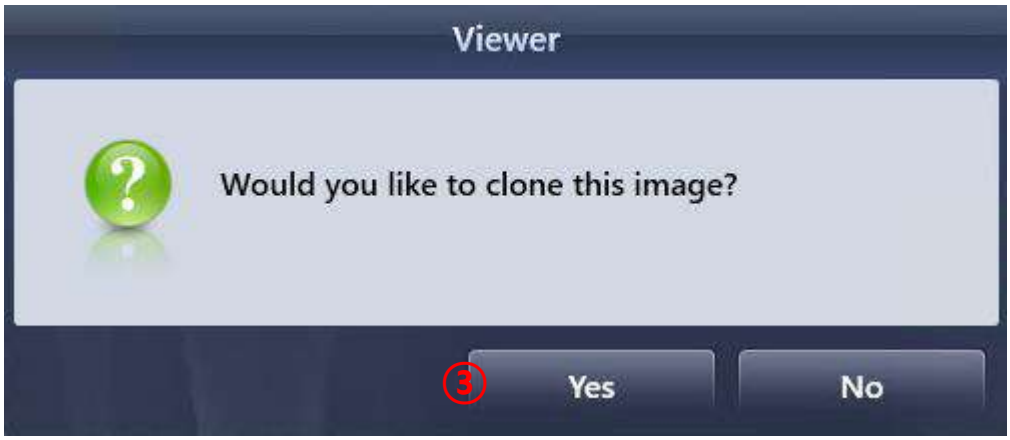
5.13 Operation of the Clone Image

① After acquiring the image, right click the thumbnail of the acquired image and open the "Side Menu."

② Select "Clone Image."



③ Select "Yes" to create a Clone Image.

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④ A Clone Image will be created.

	Please refer to the "Settings" section of the Manual to learn how to setup the Clone Image.

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6. Studylist

6.1 Studylist Screen Configurations

< Figure 36 Studylist >

① Main screen toggle button and logo

② Search

- Search by a variety of search conditions : Patient ID, Accession No., Body Part, Date, Patient Name, Modality, Refer, Physician.
- Search by period : today, Yesterday, 7 Days, 6 Month, 1 Year & All.

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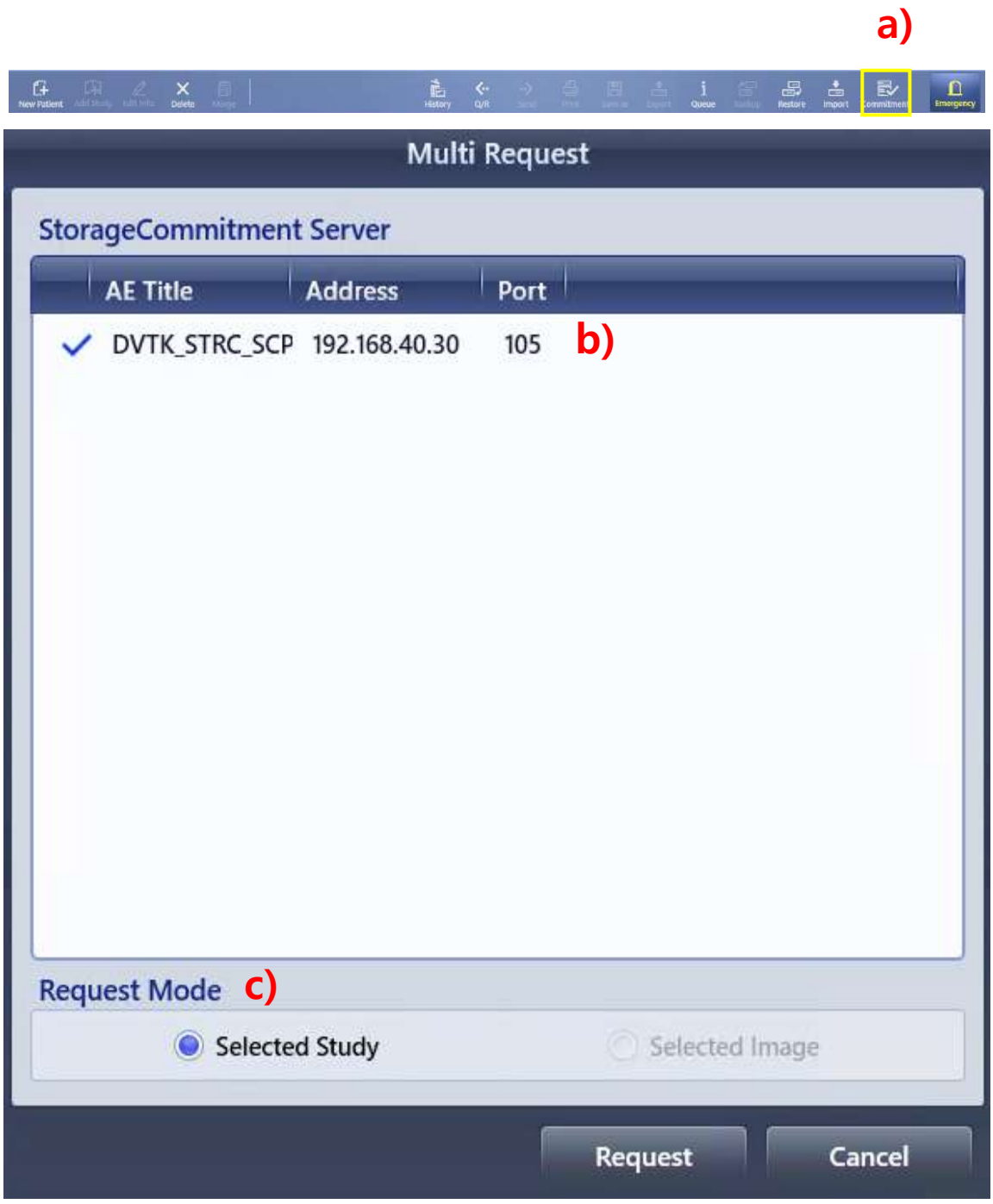
③ Main Tools

- New patient, add study, modify study information, Delete study, Merge study, History Manager.
- DICOM Query / Retrieve, DICOM send, DICOM Print, Save as, Export, Queue.
- Backup, Restore, Import, Storage Commitment, Emergency acquisition, Extend List.



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a) Select the corresponding Study to execute the "Storage Commitment" command and press the "Commitment" button.

b) Select the "Commitment Server."

c) Select "Request Mode," then execute Request.

1. Select "Selected Study" to execute the "Commitment" command for all images in the Study.
2. Select "Selected Image" to execute the "Commitment" command for a specific image in the Study.

3. Commitment progress can be monitored from the thumbnail.
4. No information shall appear if the program is unable to confirm the "Commitment" command.

	Please refer to the Technical Manual to learn how to setup the Storage Commitment Server.

④ Main List

- Displays the list of completed studies.
- Change the header column location.

- Select column and mouse "Drag & Drop".

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⑤ Thumbnail List

- Display the list of thumbnails of studies selected from the Main list.

⑥ Reference List

- Display the list of patient's past study selected from the Main list.

⑦ Hanging Protocol Wizard

- Compare several studies simultaneously

⑧ Status bar

- Displays the capacity of hard disk and the number of queue.
- Displays the bucky type, signal strength, battery, temperature, etc. in case you use mobile detector.

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6.2 Main Tools

6.2.1 New Patient

- Start the new patient study.

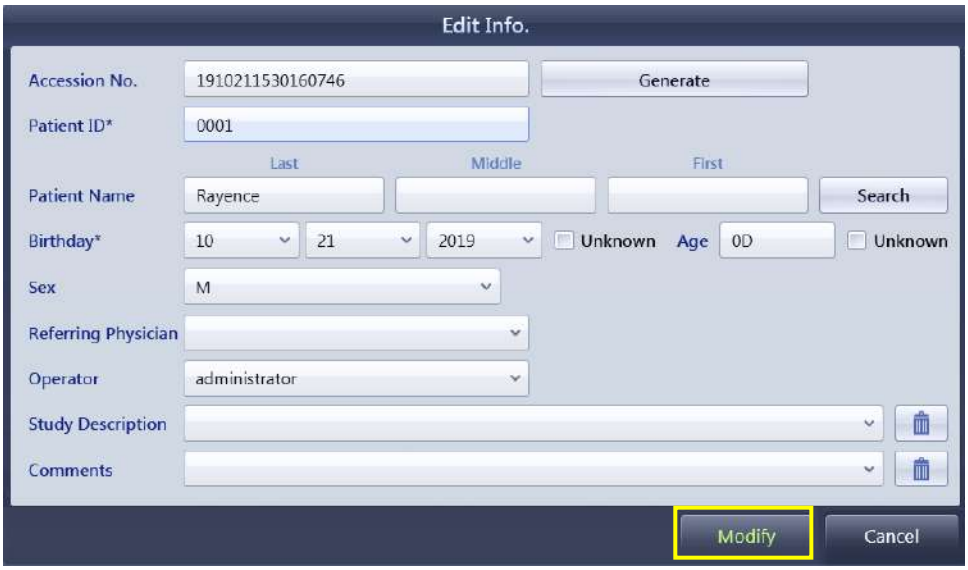
6.2.2 Add Study

- Click the Add Study button after selecting patient for capture on Study List.

6.2.3 Edit Info

- Select a study you want to modify and click "Edit Info.".

① Modify study details.



< Figure 37 Edit Information >

② After editing, press the "Modify" button.

③ The modification and updating process will proceed.

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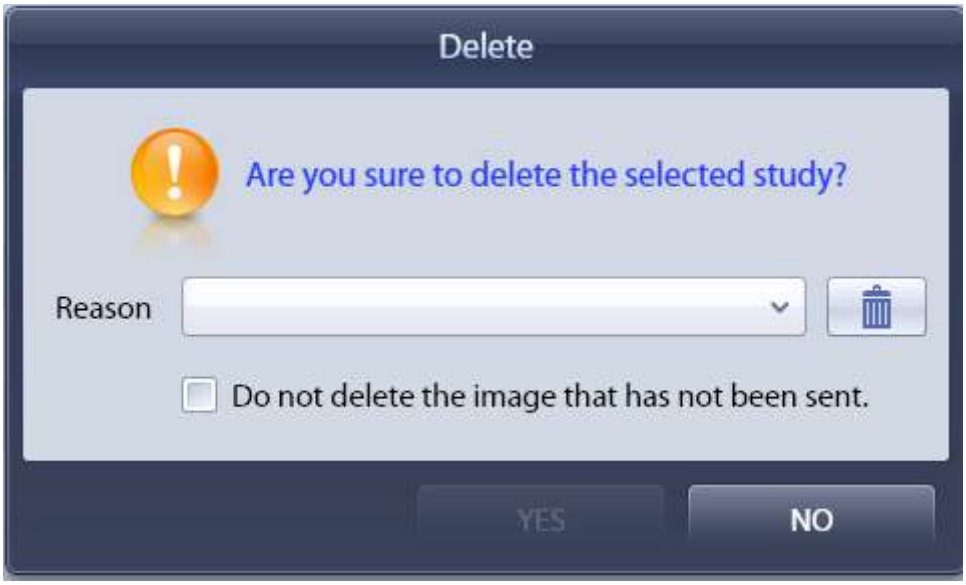
6.2.4 Delete

① Select a patient you want to delete from the Study List and click "Delete".

② The Delete Confirmation Dialog Box will be popped up.



< Figure 38 Delete >

- YES : Delete the selected study.
- NO : Cancel to delete.
- Check Box : Unsent images are not deleted

	You should log in Administrator account for Study delete.

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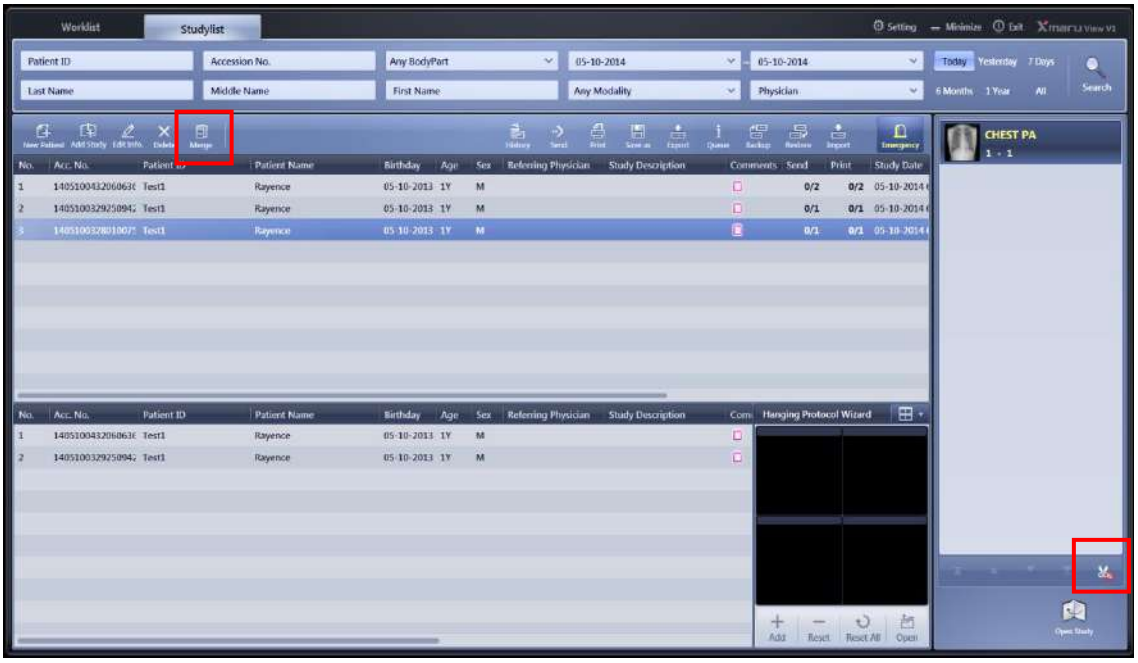
6.2.5 Merge (Cut &Merge)



< Figure 39 Cut &Merge >

- Select the image you want to move from the Thumbnail List.
- Click the "Cut" button.

  ※ Click the Cut button again if you want to cancel the Cut operation.
- Select the Study List you want to move the image to and click "Merge" button.

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< Figure 40 Merge >

- Existing Series

- Add it to the existing series.

- New Series

- Create a new series.

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6.2.6 History Manager : Administrator Only

- Search the study history.

< Figure 41 History Manager >

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- Study Manager : Reject or Retake images are performed to restore or delete.

< Figure 42 Study Manager >

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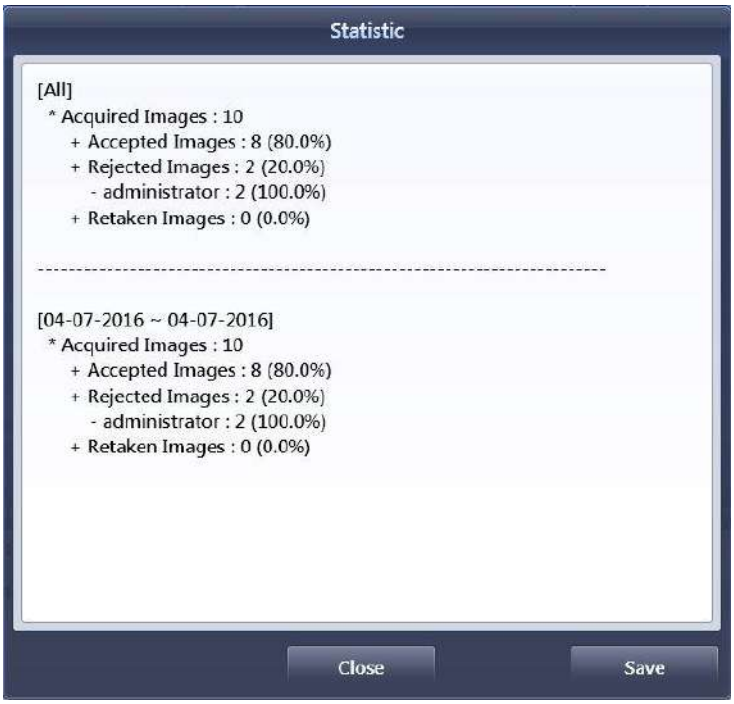
- Statistic : Display the statistics.

  The statistical results can be output as a CSV files.

  (The results consist of Patient's ID, Patient's Name, Acquisition Date/Time, Status, Operator and Reasons)



< Figure 43 statistics >

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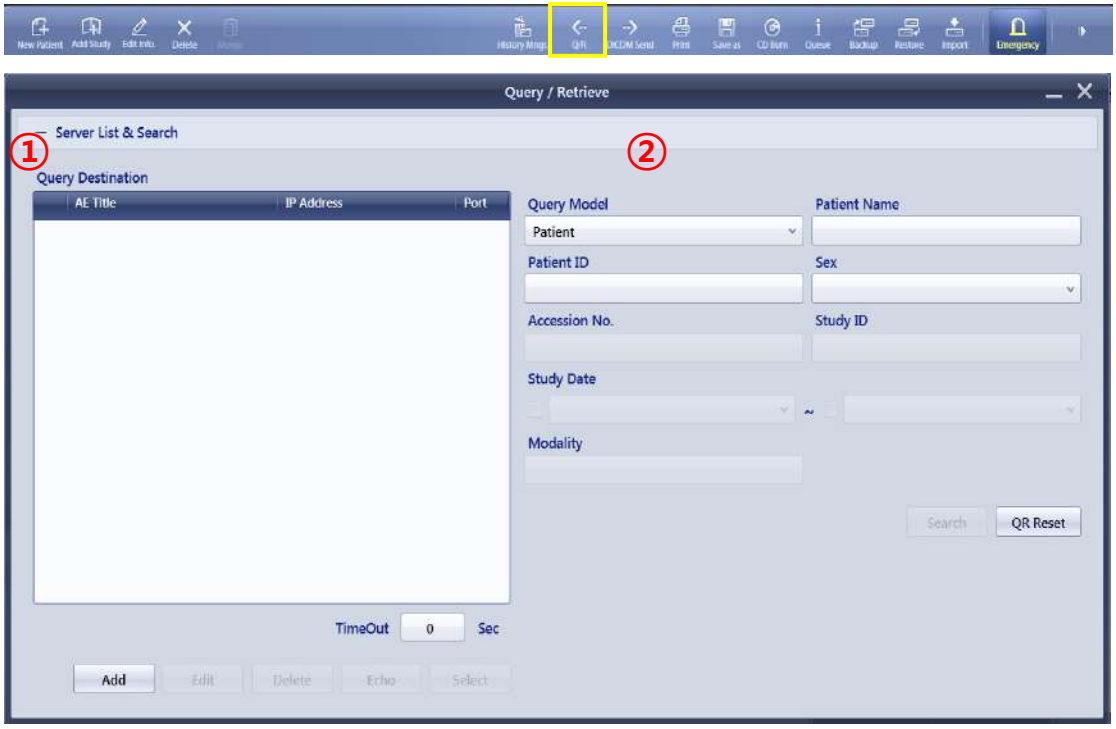
6.2.7 Q / R (DICOM Query / Retrieve)



< Figure 44 Query / Retrieve >

① Query Destination List.

② Study Search.

< Figure 45 Query / Retrieve >

③ Display the result.

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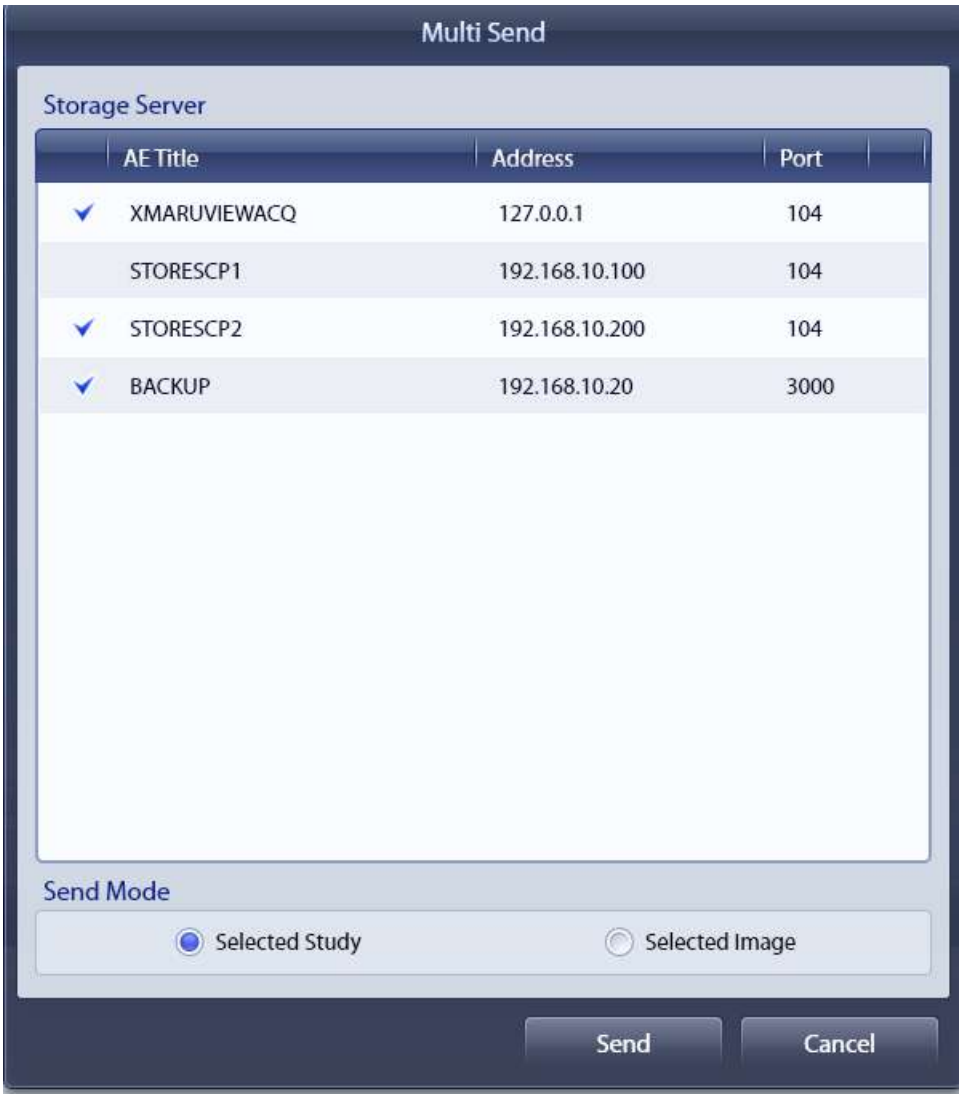
6.2.8 DICOM Send

- Send the selected study.



< Figure 46 Multi Send >

- Storage Server

- Select a Server to send in the registered Storaged Server list. (Multi selectable)

- Send Mode

- Selected Study : Send all images in selected study.

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- Selected Image : Send the selected images.

< Figure 47 DICOM Send >

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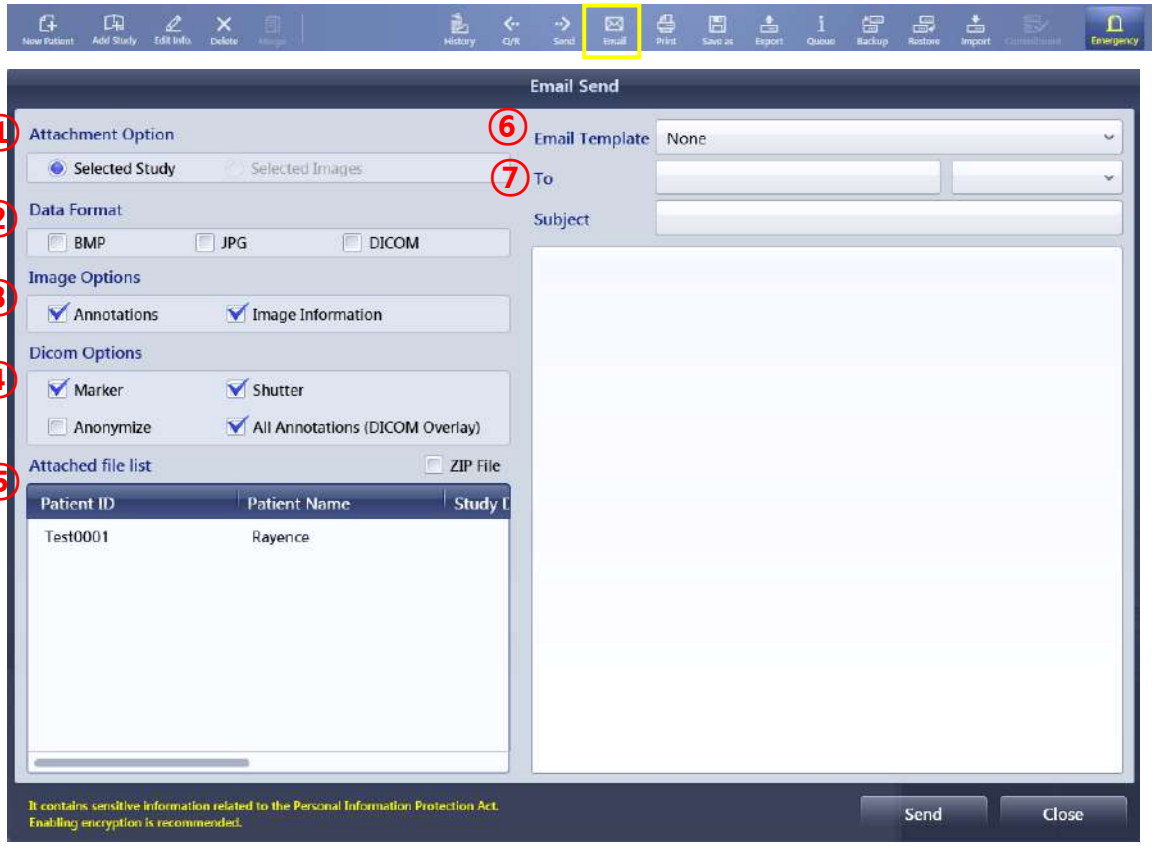
6.2.9 Email

- Send selected study or selected images.



① Attachment Option : Select all or one of the images in Study

② Data Format : Select Data format

③ Image Options : Add annotations and image information

A. Annotations : Include all annotations applied to the image

B. Image Information : Include image information

④ DICOM Options : Add marker, shutter, anonymize and all annotations(DICOM overlay)

A. Marker : Include marker("L", "R", Text)

B. Shutter : Include shutter(Makes it dark except for the selected area)

C. Anonymize : Exclude patient information

D. All annotations : Include all annotations applied to the image

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⑤ Attached file list : The list of files to send Email

A. Choose whether to send them as ZIP

⑥ Email Template : Select Email template

⑦ Recipient List : Select Recipient

	However, size of attachement files can be limited by SMTP (Simple Mail Transfer Protocol) provider. Before you send image files using XmaruView V1, please check file size limit with email service provider about SMTP file size limit.

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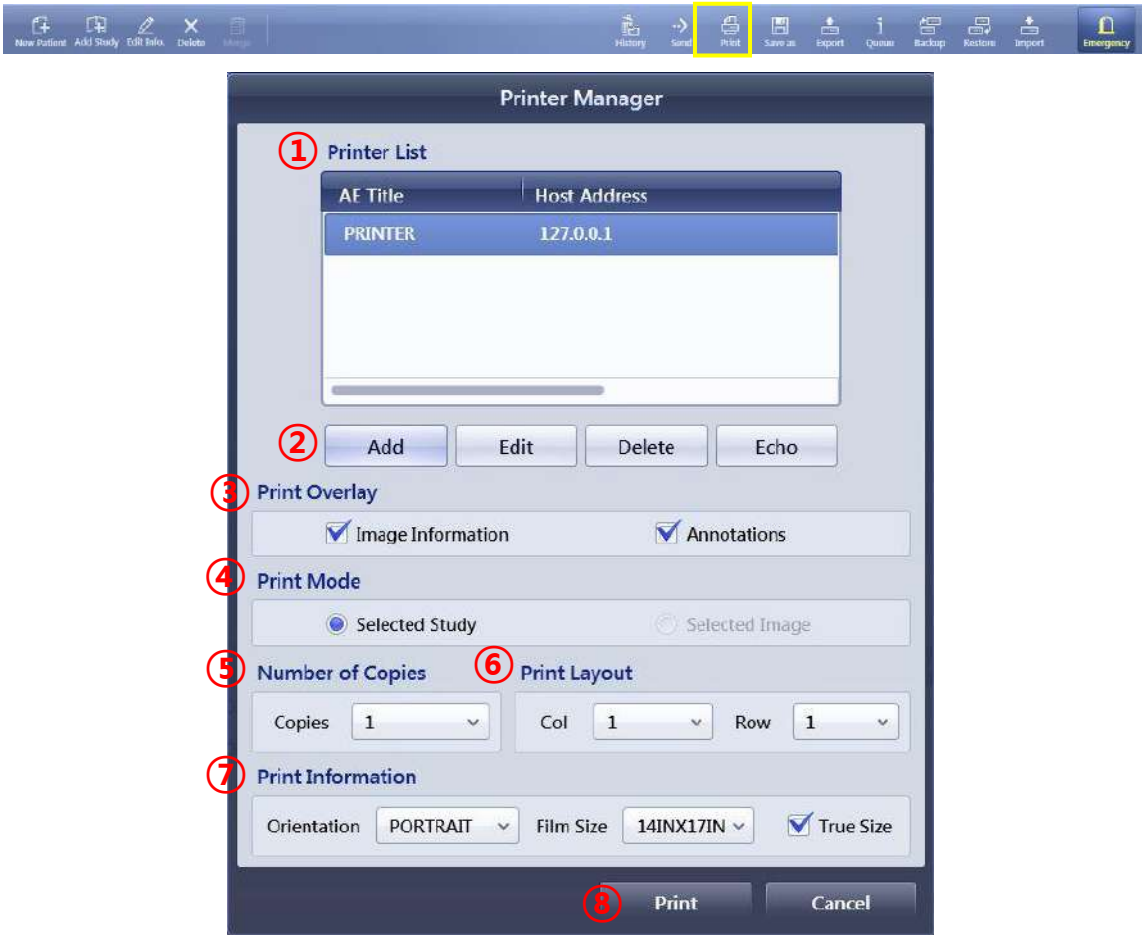
6.2.10 Print

- DICOM Print

- Print the selected study with the DICOM Printer.



< Figure 48 Printer Manager >

① Printer List : List of connected printers.

② Add : Add a printer.

Edit : Edit the printer information.

Delete : Delete the printer information.

Echo : Check the connection with the printer.

③ Print Overlay

Image Information : Include image information is printed.

Annotation : Include Annotation data is printed.

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④ Print Mode

Selected Study : Print all images in selected study.

Selected Image : Print the selected image.

⑤ Number of Copies : Select the number of printed pages

⑥ Print Layout : Select the layout.

⑦ Print Information

Orientation : Select the image orientation. (landscape, portrait)

Film Size : Select the size of the film.

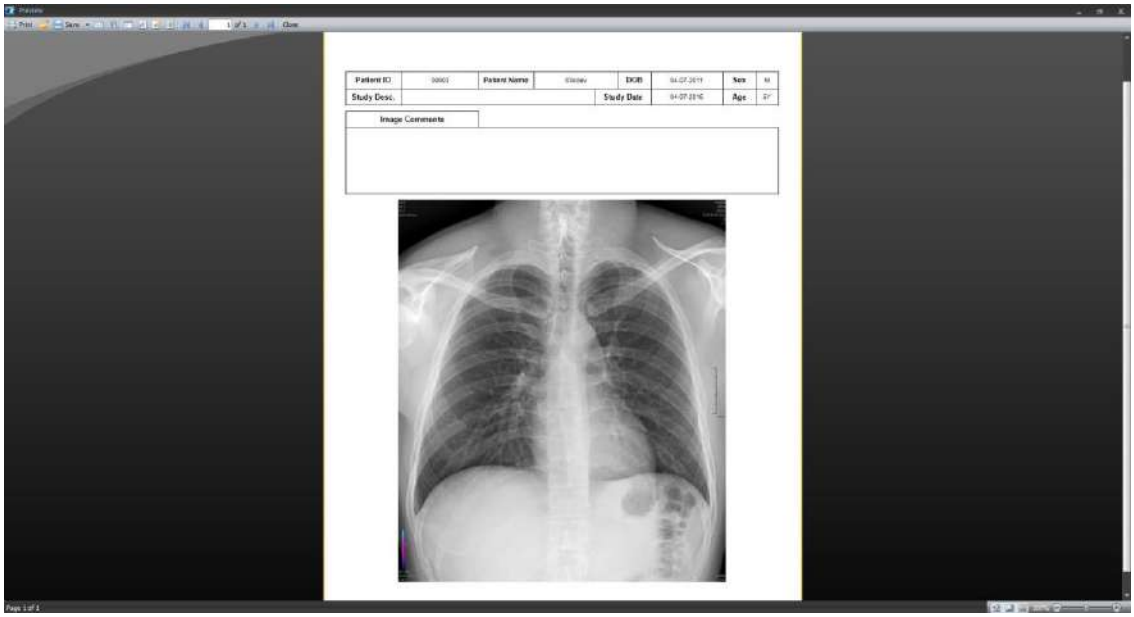
True Size : Actual size printing option.

⑧ Print & Cancel : Print or cancel

	Printer registration is available up to 20 items.

- Paper Print

  - Selected item will be printed by Paper Print.



<Figure 49 Paper Print >

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6.2.11 Save As

- Save the selected study as another image file.

< Figure 50 Save As >

- Annotations : Include annotations.
- Image Information : Include image information.
- Current Display : Save as currently displayed (Image zoom, etc.)
- Encryption file : Encryption the output file.

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6.2.12 Export

- List (CSV) : Export the studylist file. (CSV format)
- CD Burn : Burn the selected study in a CD-ROM.(Viewer software included)
- Disk (Folder) : Export the selected study in a disk.(Viewer software included)
- Option
  - Encryption file : Encryption the output file.

< Figure 51 Data Export >

	CD Viewer See the Chapter 9 CD Viewer.

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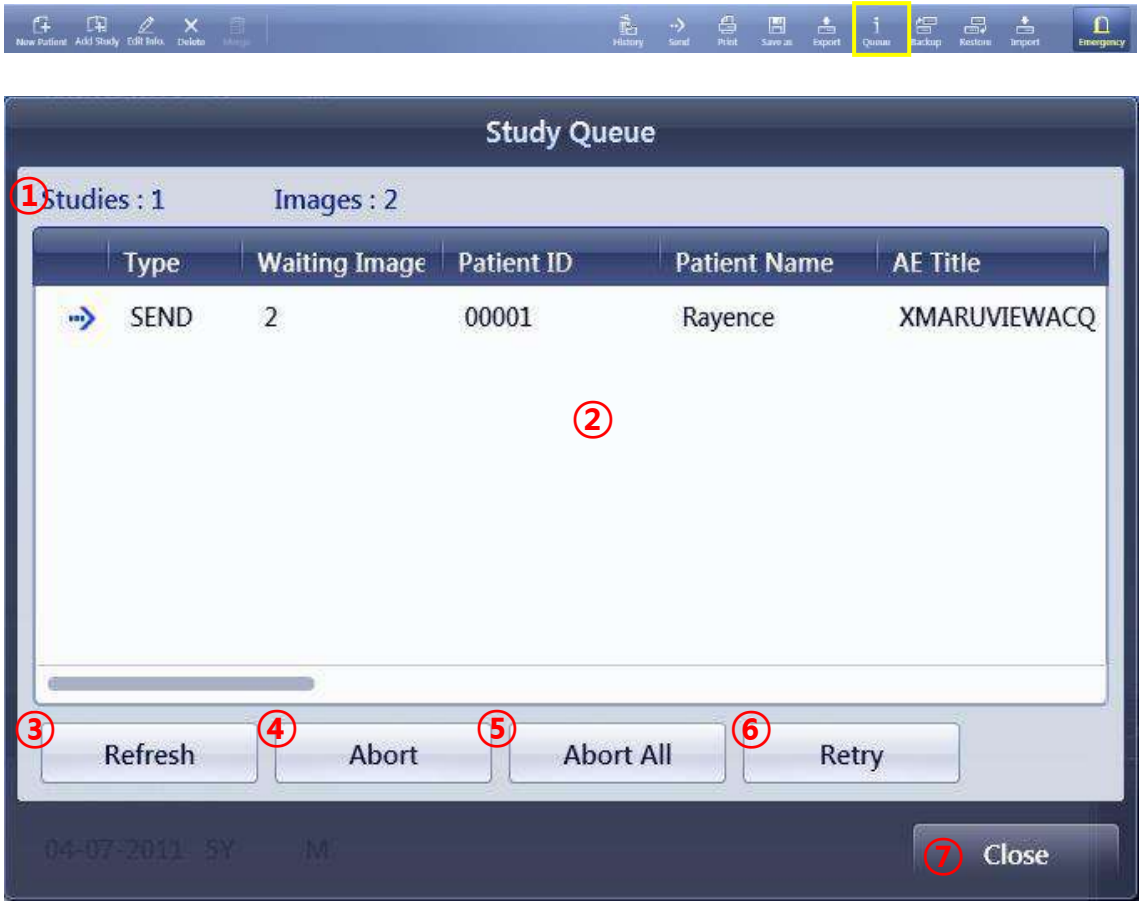
6.2.13 Queue

- Show the transmission status of study.



< Figure 52 Queue >

① It shows the number of all studies and images that are currently being transmitted.

② It shows the list currently being transmitted.

③ Refresh : Refresh and update the list.

④ Abort : Abort transmission of the selected study. (The study whose transmission has already been started may not be canceled even if it is deleted from the list.)

⑤ Abort All : Abort all operations that are currently registered. (The study whose transmission has already been started may not be canceled although it is deleted from the list.)

⑥ Retry : Retry transmission.

⑦ Close : Close the Study Queue window.

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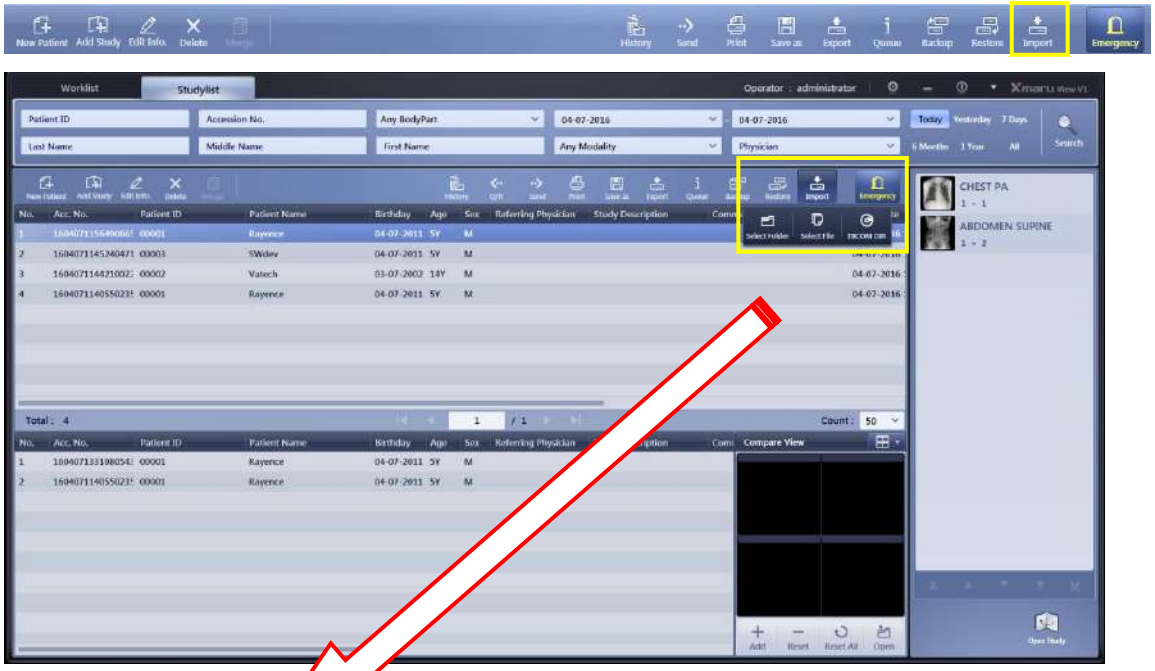
6.2.14 Backup & Restore

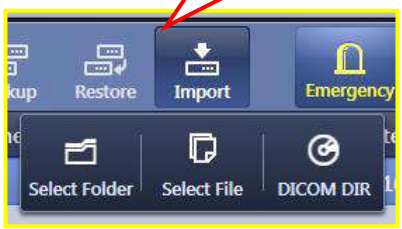
- Back up or restore the selected study into the user-defined path.

6.2.15 Import

- Import external images.



< Figure 53 Import >



- Select Folder : Retrieve images from the selected folder.
- Select File : Retrieve the selected image.
- DICOM DIR : Retrieve images from DICOM DIR.

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6.2.16 Emergency

- Start Emergency Study.

6.2.17 GDPR Notification

- Features(Save As, Export, Email) that contain sensitive information related to the Privacy Act output the following messages:

- Message outout period : Select the message output period.

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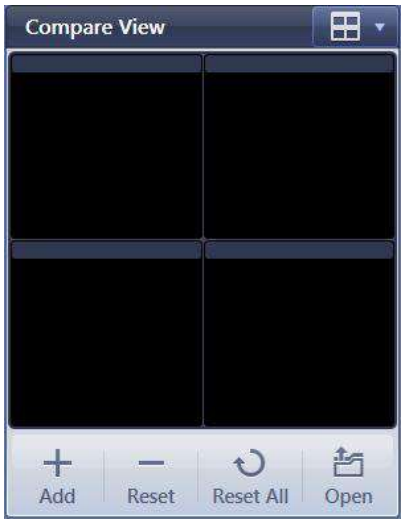
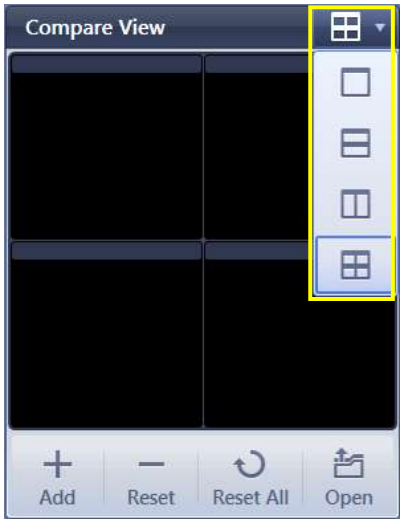
6.3 Compare View



< Figure 54 Compare View >

- Compare all selected studies on a single screen.

6.3.1 Layout



< Figure 55 Layout >

- Determine the layout of the Hanging Protocol Wizard.
- 1 x 1, 2 x 1, 1 x 2, 2 x 2 Format supported.

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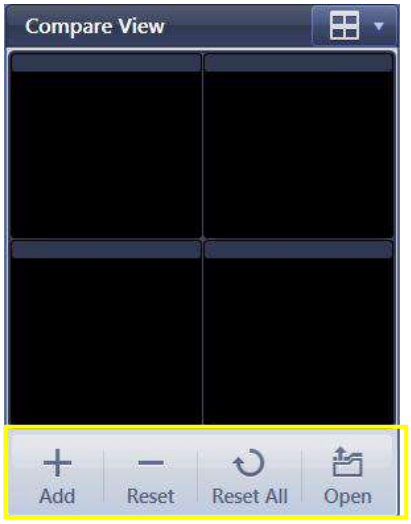
6.3.2 Register and Cancel Compare View



< Figure 56 Compare View >

- Add : Move the selected study from the main list into the Hanging Protocol Wizard.
- Reset : Cancel the operation of selected study.
- Reset All : Cancel the operation on all studies.
- Open : Open and execute the Hanging Protocol Wizard.

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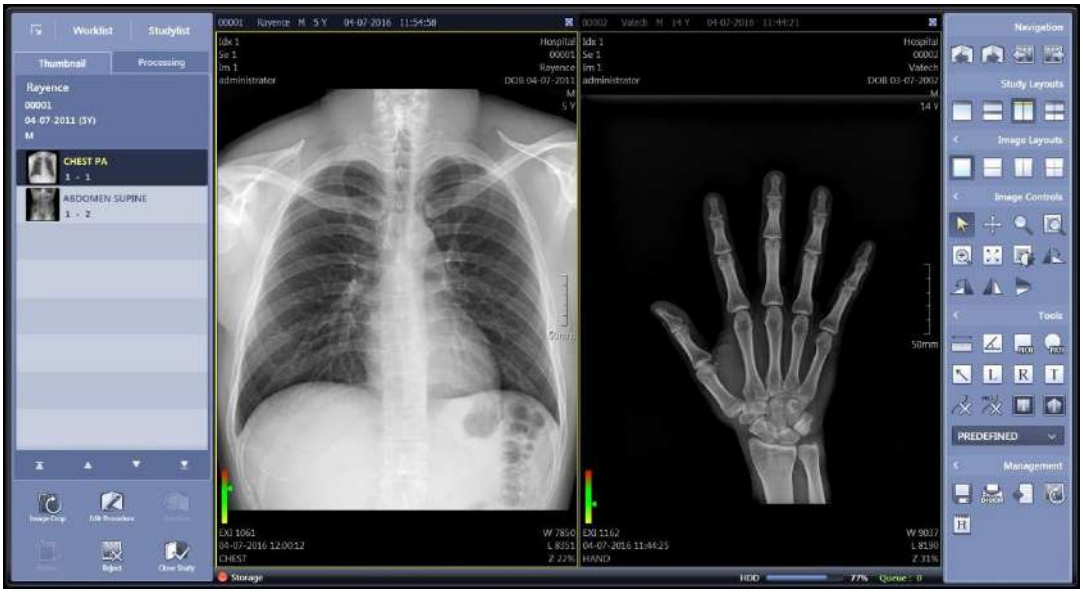
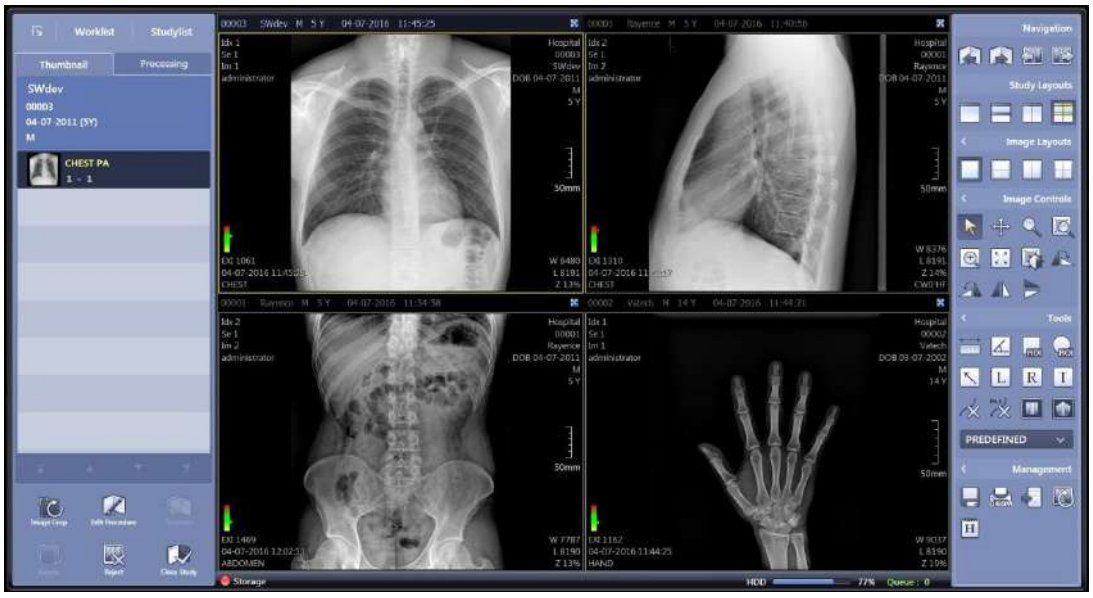


< Figure 57 Compare View 2X1 Layout >



< Figure 58 Compare View 2X2 Layout >

	Double-click the top Title bar to switch back to 1x1 layout.

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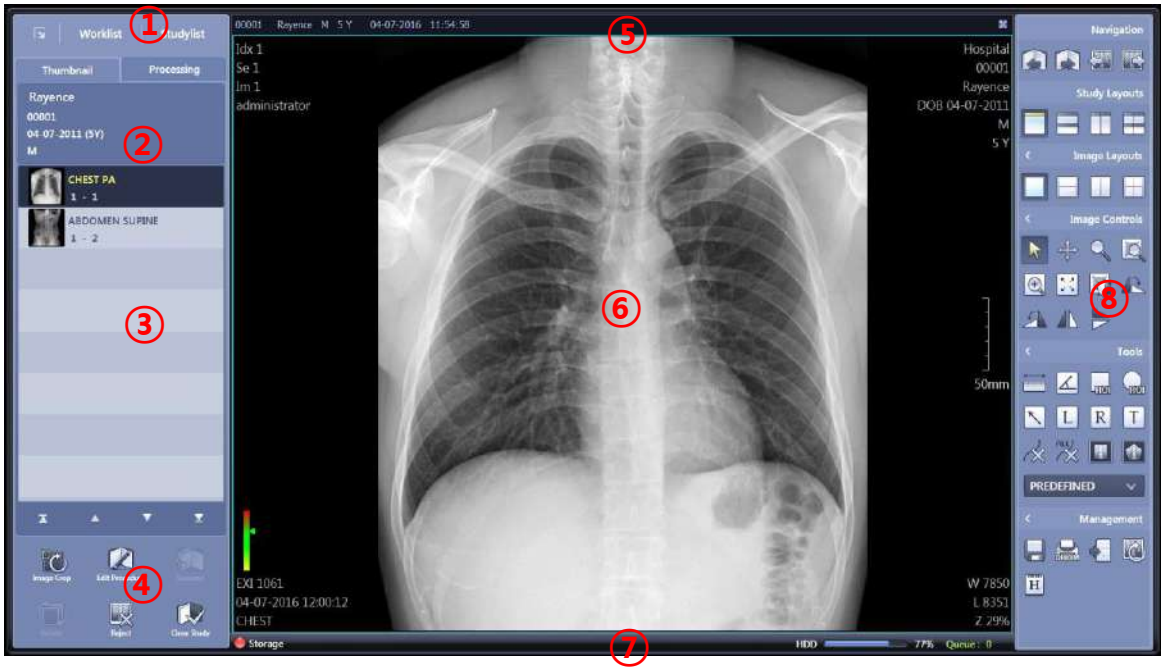
7. Viewer

7.1 Viewer Screen Configuration



< Figure 59 Viewer Screen >

① Main screen toggle button

② Patient Information

- Show the patient information.
- If you click it, edit window about patient information is displayed.

③ Thumbnail List

④ Main Tools

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⑤ Title Bar

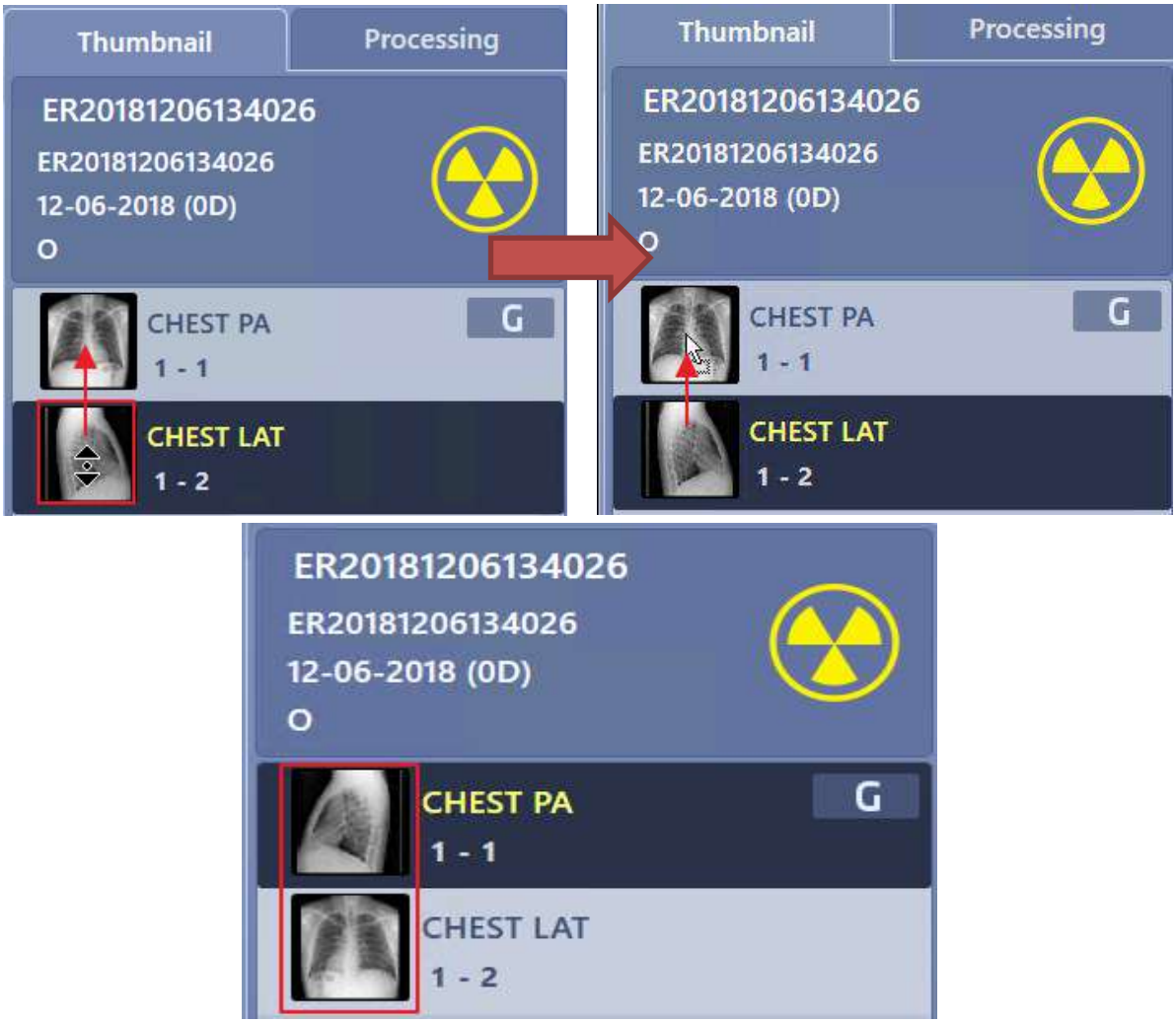
⑥ Main Screen

⑦ Status Bar

- Storage status, HDD capacity, Queue count
- Wi-Fi signal and battery status.(Wireless Detector)

⑧ Side Tool Bar

7.1.1 Thumbnail Drag & Drop



- This function allows you to drag the acquired image and replace it with images from other procedure steps.
- After drag&drop, only the images are changed and the image information is retained.

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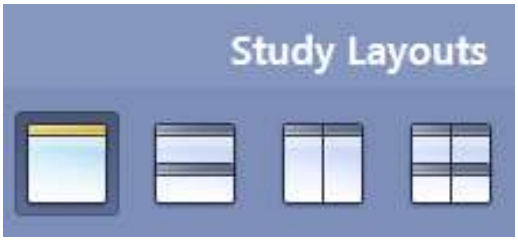
7.2 Side Tool Bar

7.2.1 Navigation

- Previous Page
  - Move to the previous page.
- Next Page
  - Move to the next page.
- Previous Image
  - Move to the previous image.
- Next Image
  - Move to the next image.

7.2.2 Study Layouts



- 1 x 1
- 2 x 1
- 1 x 2
- 2 x 2

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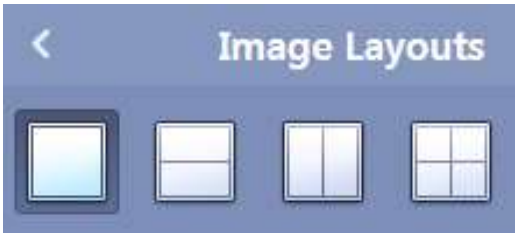
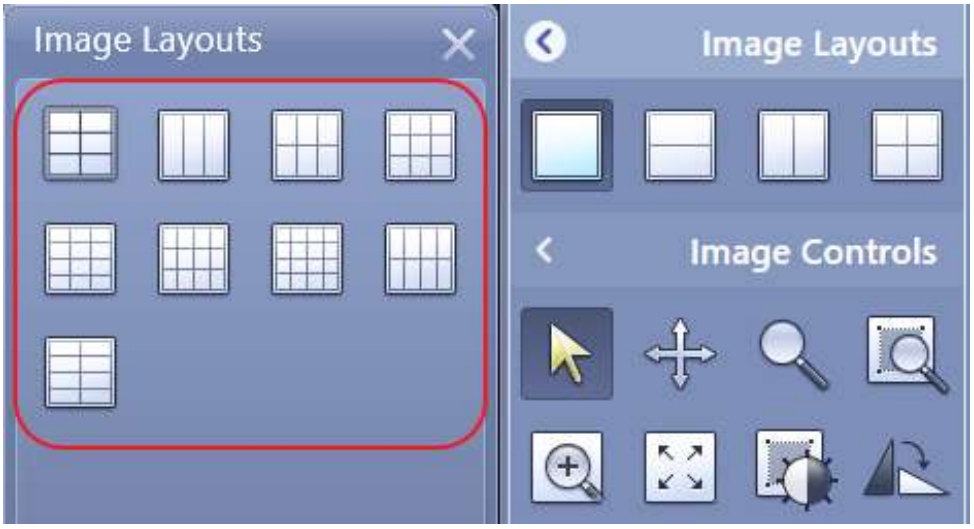
7.2.3 Image Layouts



- 1 x 1
- 1 x 2
- 2 x 1
- 2 x 2

※ Extend Button : Extension Tool bar



- 2 x 3
- 3 x 1
- 3 x 2
- 3 x 3
- 3 x 4
- 4 x 3
- 4 x 4
- 4 x 2
- 2 x 4

※ Tool Bar Edit

① Click the Edit button on Extension Tool Bar.

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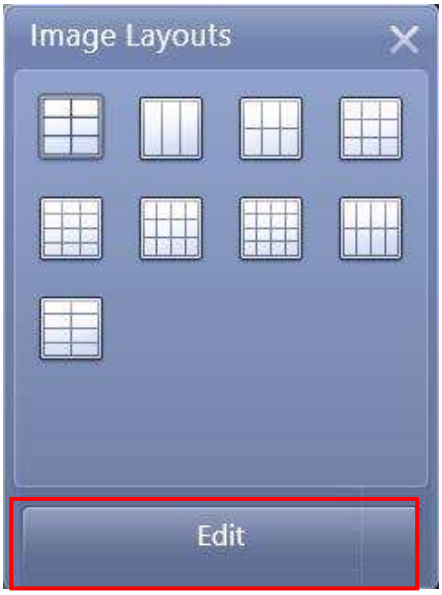
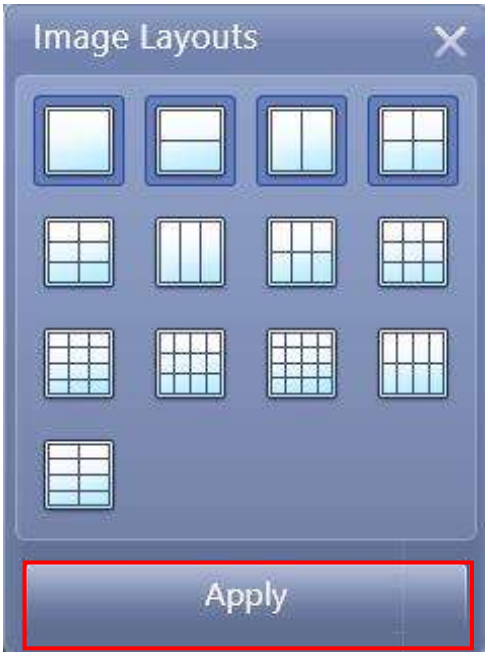


② The currently selected button is marked in blue.



③ Select the desired layout.

④ Click the Apply button.

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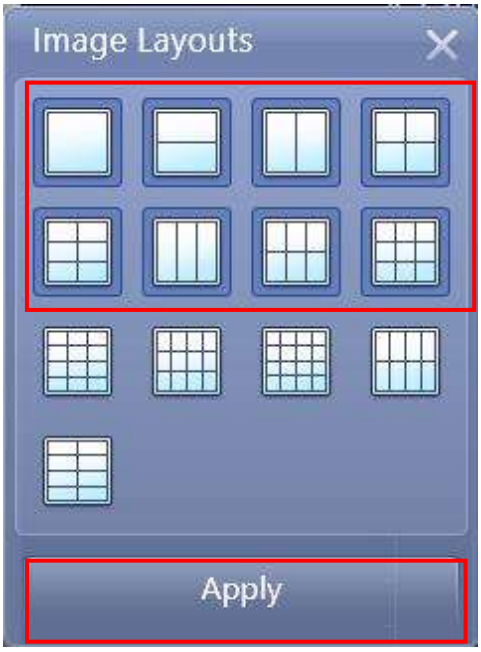
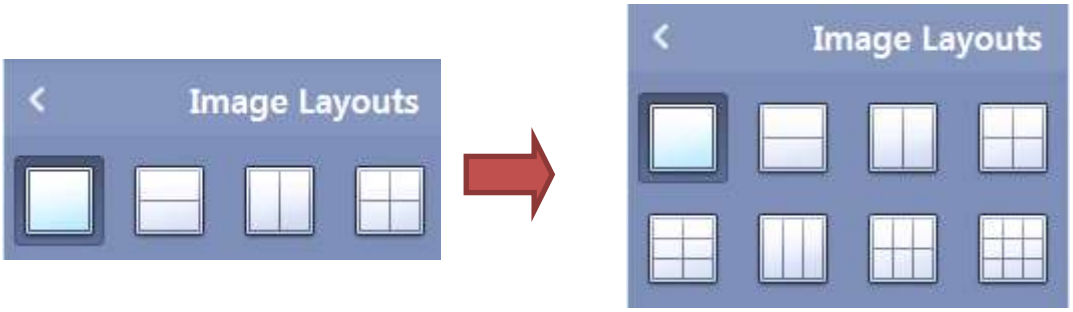


⑤ The selected layouts are now in the toolbar.



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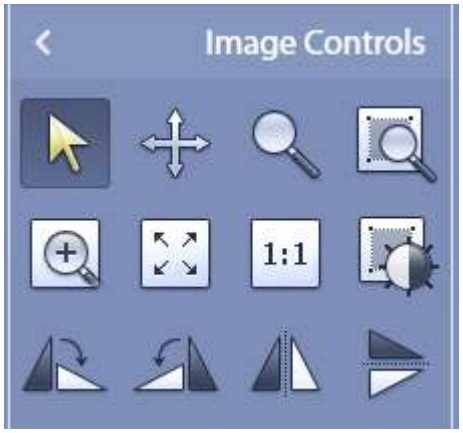
7.2.4 Image Controls



- Select
  - Default Cursor
  - Select Functional button, Maker, Annotation, Cropping area etc.
- Panning
  - Move the center of the selected image.
- Zoom
  - Resize the image.
- Magnify
  - Display the Magnify Glass.
  - Hold the “Shift” key and move the mouse to adjust magnification.
  - Hold the “Ctrl” key and move the mouse to adjust the size of the magnifying area.
- ROI Zoom
  - The selected ROI region is displayed as size of Main Screen.
- Auto Fit
  - Resize an image according to the size of the Main Screen.

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- CCW 90º
  - Rotate an image by 90 degrees counterclockwise.
- CW 90º
  - Rotate an image by 90 degrees clockwise.
- Horizontal Flip
  - Flip an image horizontally.
- Vertical Flip
  - Flip an image vertically.
- ROI Windowing
  - The window value in ROI region is applied to whole screen.

※ Extend Button : Extension Tool Bar

- Real Size
  - Display images on actual size.
- Invert
  - Invert an image between black and white.
- Compare Image

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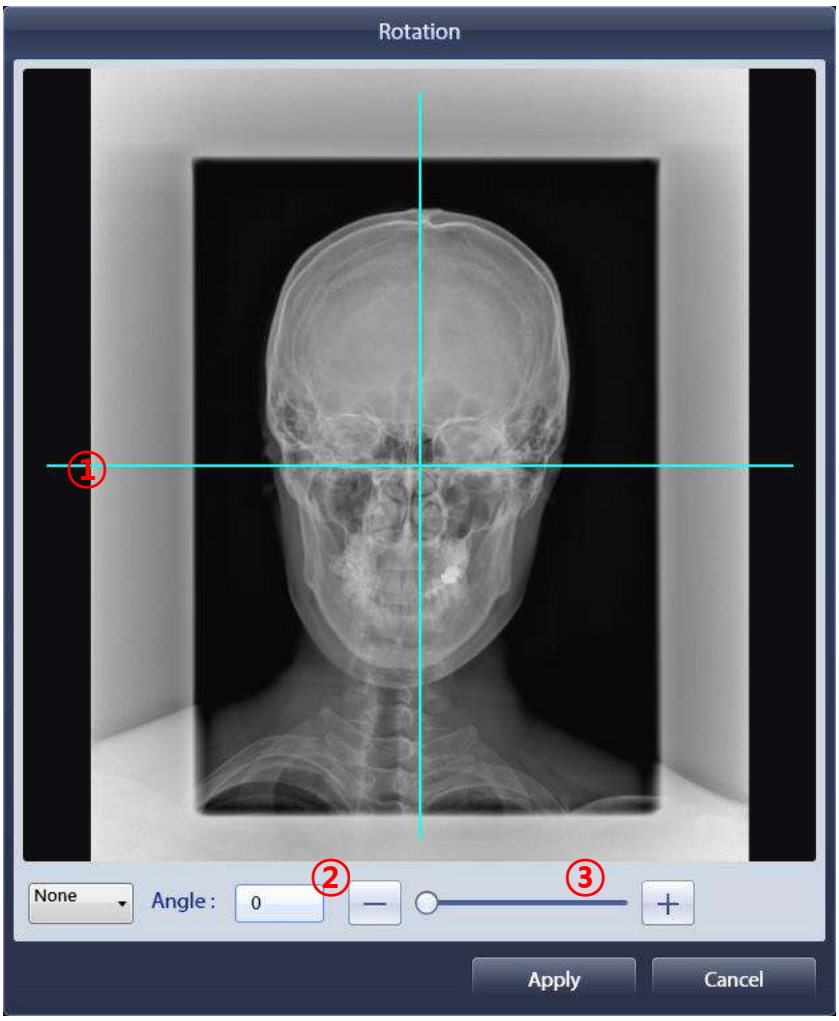
- Dysplay the image compare view.

- Angle Rotate

  - Rotate the image to any angle.



< Figure 60 Angle Rotate >

① You can rotate the image by dragging.

② The Image can be rotated by inputting the angle value.

③ Move the slide bar to rotate the image.

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7.2.5 Tools

- Length
  - Measure the distance between two points.
- Angle
  - Measure the angle.
- ROI – Rectangle
  - Set the rectangular ROI.
- ROI – Circle
  - Set the circular ROI.
- Arrow
  - Enter the arrow.
- Marker –L
  - Enter the Marker – Left
- Marker –R
  - Enter the Marker – Right
- Marker –Text
  - Enter the user-specific text.

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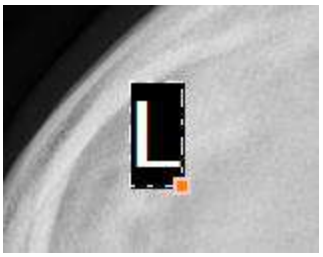
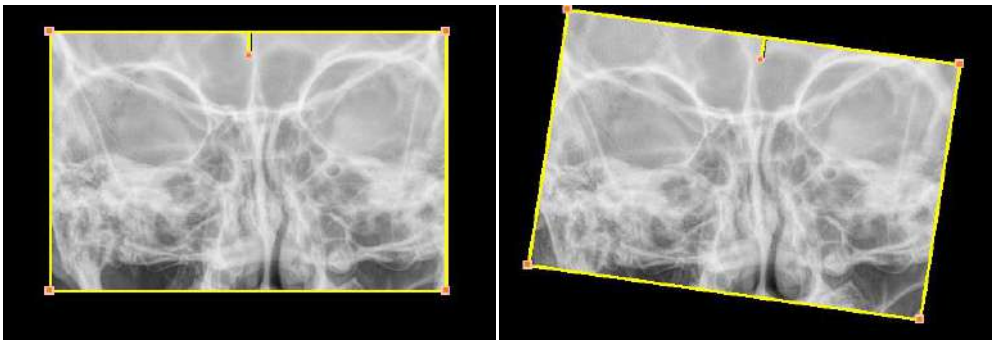
	Marker is resizable by drag the point at the right-bottom corner. 

- Delete Annotation
  - The selected Annotation is deleted.
- Delete All Annotation
  - All annotations of the image which displayed on the screen are deleted.
- Rectal Shutter
  - Using the rectangle shutter.
  - The shutter can be rotate by drag the point at the middle of top side.



- Polygon Shutter
  - Using the polygon shutter.
  - If you double-click the mouse, then complete the polygon shutter.

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- Predefine Text

- The predefined text is entered.
- Go to System Menu > Setting > General > Annotations > Predefined Text if you want to edit the predefine text.

	Some features of the Tools category Chiropractic, Podiatry, and the others are active only in Special Mode.

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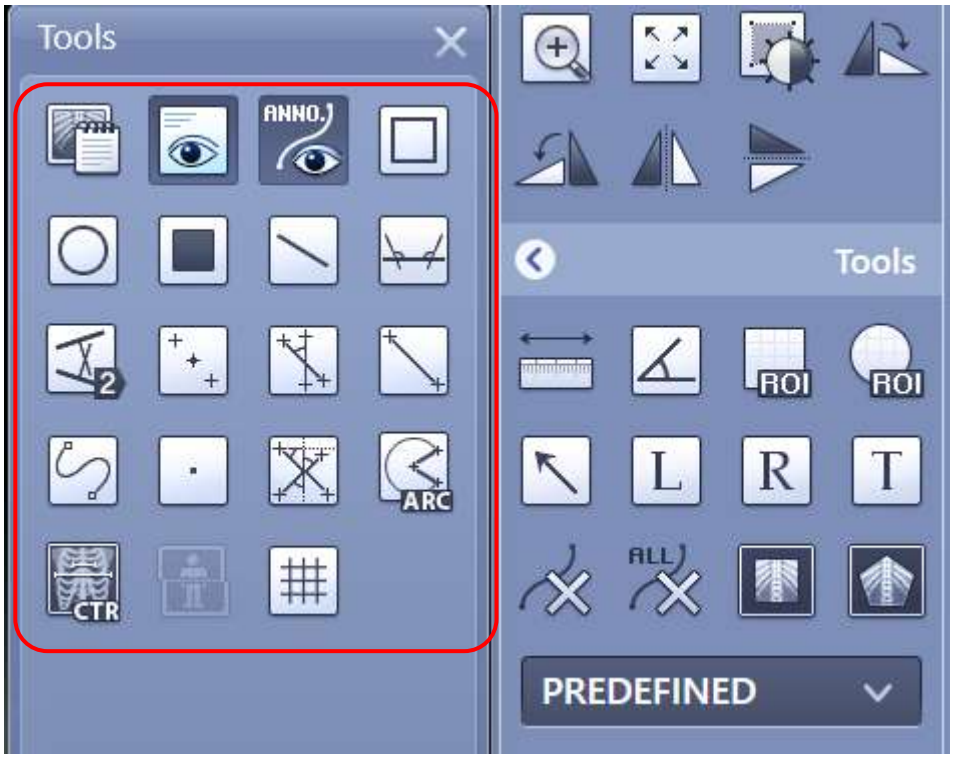
※ Extend Button : Extension Tool Bar



- Note
  - Writing comments.
- Overlay (Show & Hide)
  - Select either show or hide for main screen overlay text.
- Center Mass Line
  - Input the Center Mass Line.
- Acetabular Angle
  - Measure the acetabular angle on both sides.
- Extended Cobb's 2 Line
  - Measure the Cobb's angle of two lines.
- Cross Angle

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- Measure the Cross Angle.

- Line Segment

  - Input the Segment Line.

- Free Draw

  - Drawing the free line.

- Stitching

  - Combine the selected images.

- Annotation (Show / Hide)

  - Hide / Unhide of all annotation.

- Rectangle

  - Draw a rectangle.

- Circle

  - Draw a circle.

- Black Rectangle

  - Draw a black rectangle.

- Line

  - Draw a line and display angle at intersection of lines.

- Point

  - Put dot on screen.

- Atlas-orthogonal angle

  - Measure angle between C1 and C2.

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- Arc

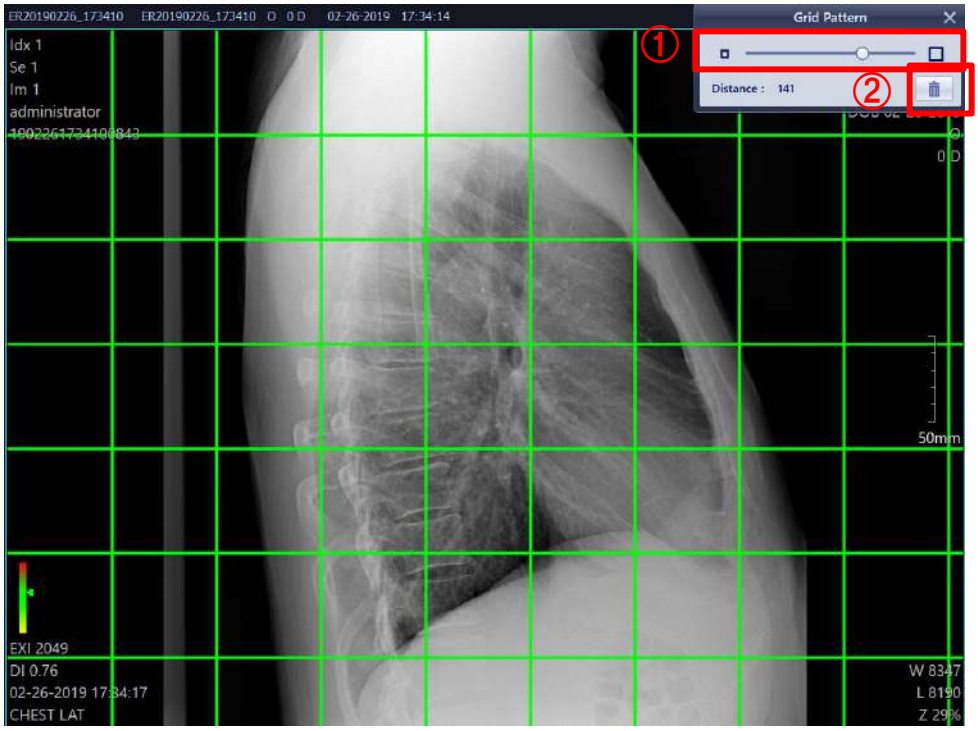
  - Draw arc based on pre-drew line and display angle of arc.

- CTR

  - Display ratio of heart and thorax.

- Grid Pattern

  - Display Grid pattern on image



1. You can adjust the size of the square of the grid pattern.

2. You can cancel the applied Grid Pattern.

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7.2.6 Management

- Save As
  - Save the selected images..
- Print
  - Print the selected image to the DICOM Printer.
- Send
  - Send the selected image or current study.
- Reset All
  - The image is restored to state of primary processed image.
  - Rotation, Flip, Window Width, Window Center and All annotations reset.

- DICOM Header View
  - Display the DICOM header information for the selected image.

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※ Extend Button : Extension Tool Bar

- Advance Print
  - Execute the advance print function.
- Modify Exposure Parameter
  - Modify exposure parameters of selected image.
- Paper Print
  - Execute the Paper print function. .
- Non-DICOM Import
  - Import non-DICOM image files.
- Image Comments
  - Write image comments.
- Change Room Number
  - Change the X-ray room number.

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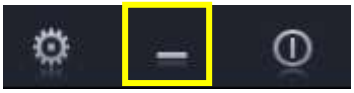
8. System Menu

8.1 Setting

	Setting is active in an Administrator account. Detail function of setting is refer to the CHAPTER of XmaruView V1 Technical Manual.

8.2 Minimize



- Minimize : Minimize the XmaruView V1 window.

8.3 Exit

- Exit : Show the exit confirmation dialog box of XmaruView V1.

- Yes : Terminate the XmaruView V1 program.
- No : Cancel terminating the XmaruView V1 program.

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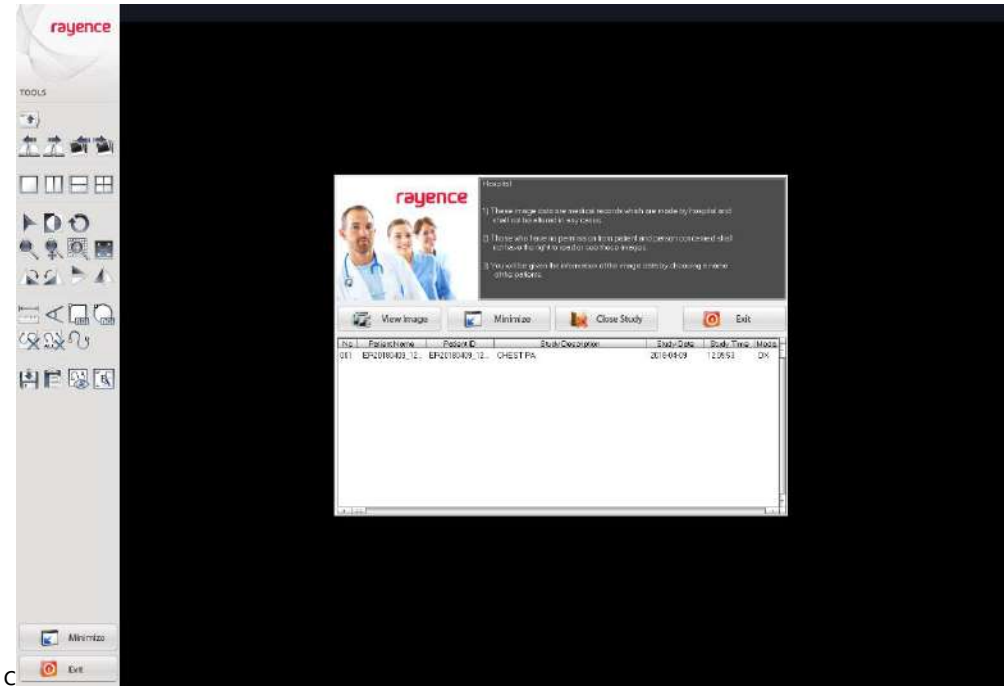
9. CD Viewer

- Automatically runs viewer when you insert the CD.
  (If you do not automatically, click the CDViewer shortcut icon.)



C

< Figure 61 CD Viewer >

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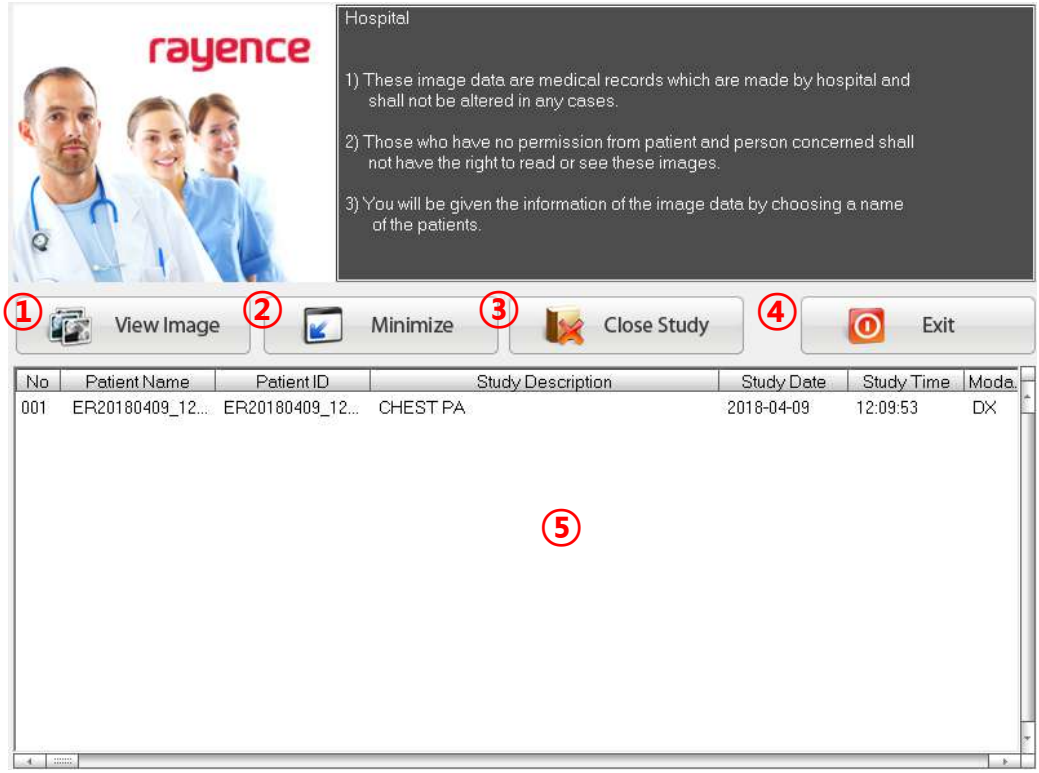

< Figure 62 CD Viewer >

① View Image : Image review.

② Minimize : Window minimized.

③ Close Study : Close the study list.

④ Exit : Exit the CD Viewer.

⑤ Study List : Displays studylist included on the CD.

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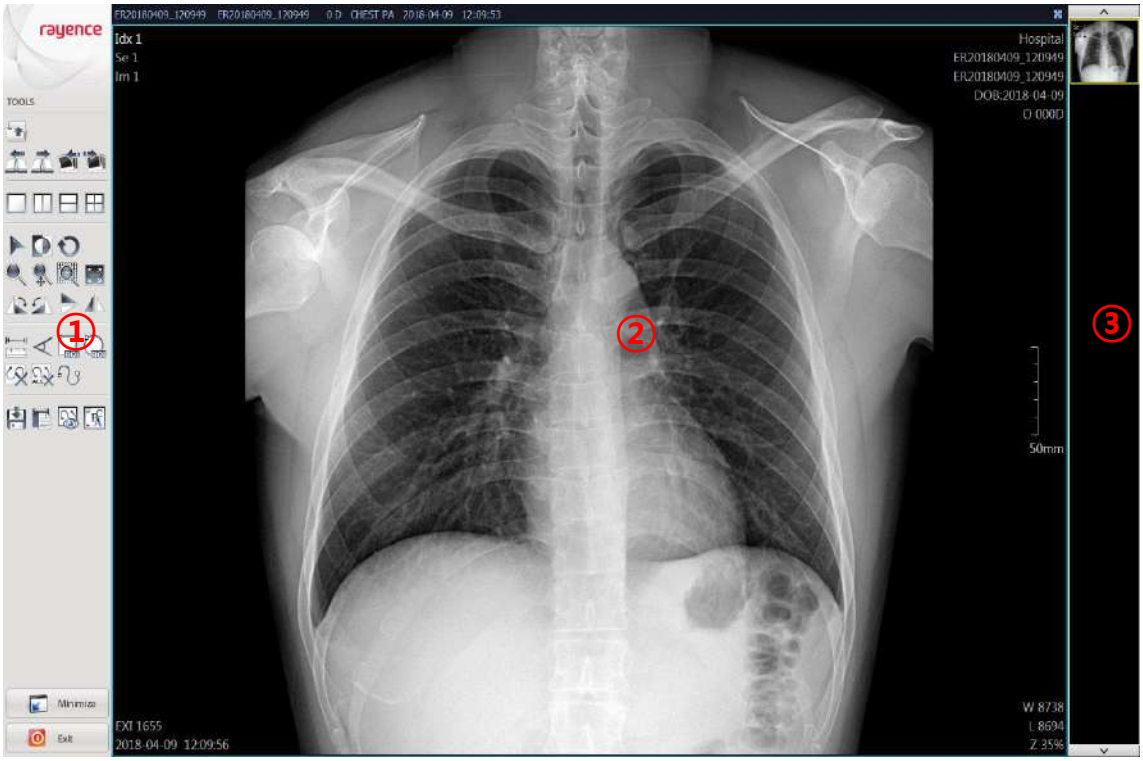

< Figure 63 CD Viewer >

① Main Tool Bar

- Open Study List
- Next / Previous Study Open
- Image Layout
- Select, Invert Image, Reset
- Zoom Image, Panning, Magnify, Fit
- Rotate / Flip Image

- Length, Angle, Rectangle / Circle ROI

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- Delete Annotation, Delete All Annotation

- Export Image, Copy Clipboard

② Main Screen

③ Thumbnail List

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PART II. Appendix

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1. Xmaru Chiroview

1.1 What is Xmaru Chiroview?

Xmaru Chiroview is specialized software in obtaining, measuring, and analyzing the image of Digital Radiography

Xmaru Chiroview provides multiple ways of technical Chiropractic measurement and helps users to learn and use the measuring functions easily by the guide mode.

Furthermore, Xmaru Chiroview supports DICOM, which is compatible with other equipment and programs through network.

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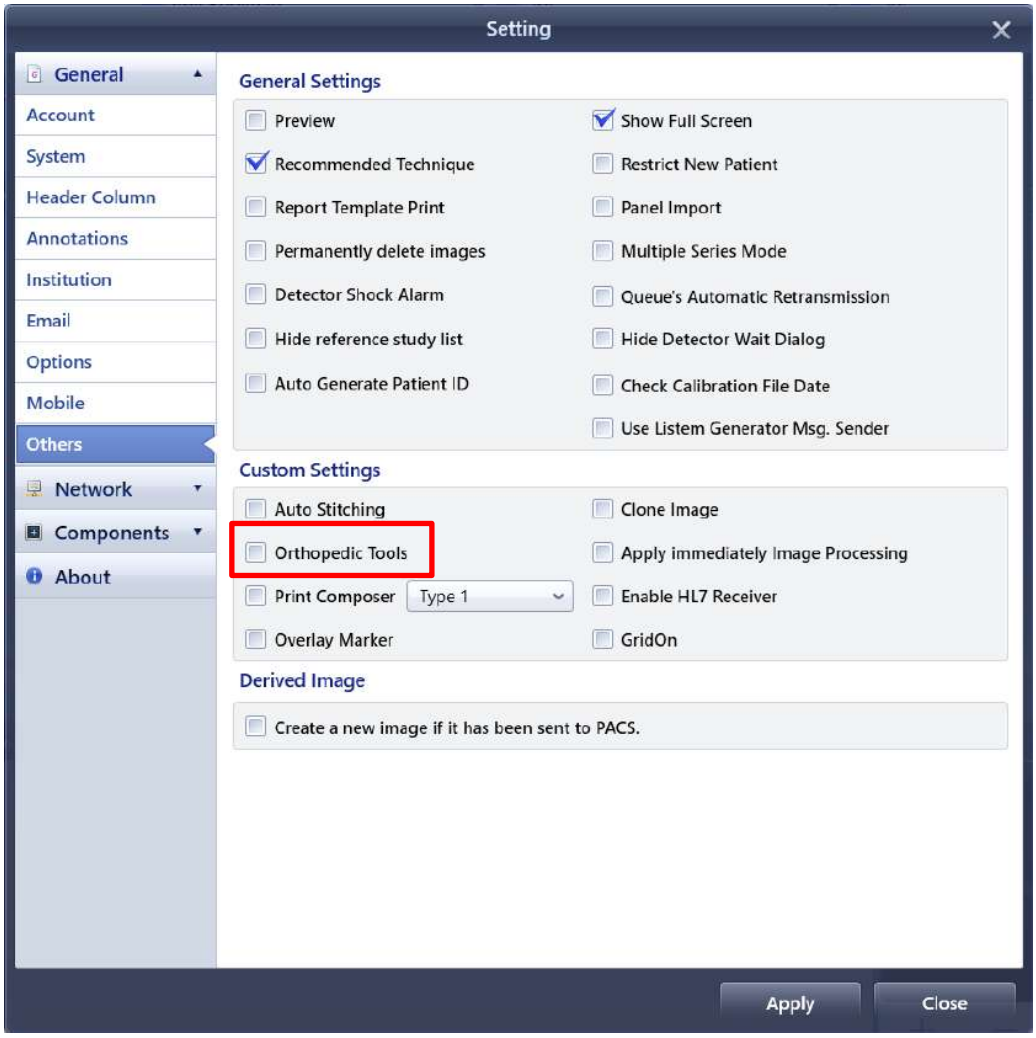
1.1.1 Chiroview Activation

- To activate Chiroview function, check the chiro tool button in the setting window.



< Figure 64 Chiroview Activate>

	There is no difference in function and Chiro Tool function is provided on Viewer screen after setting options.

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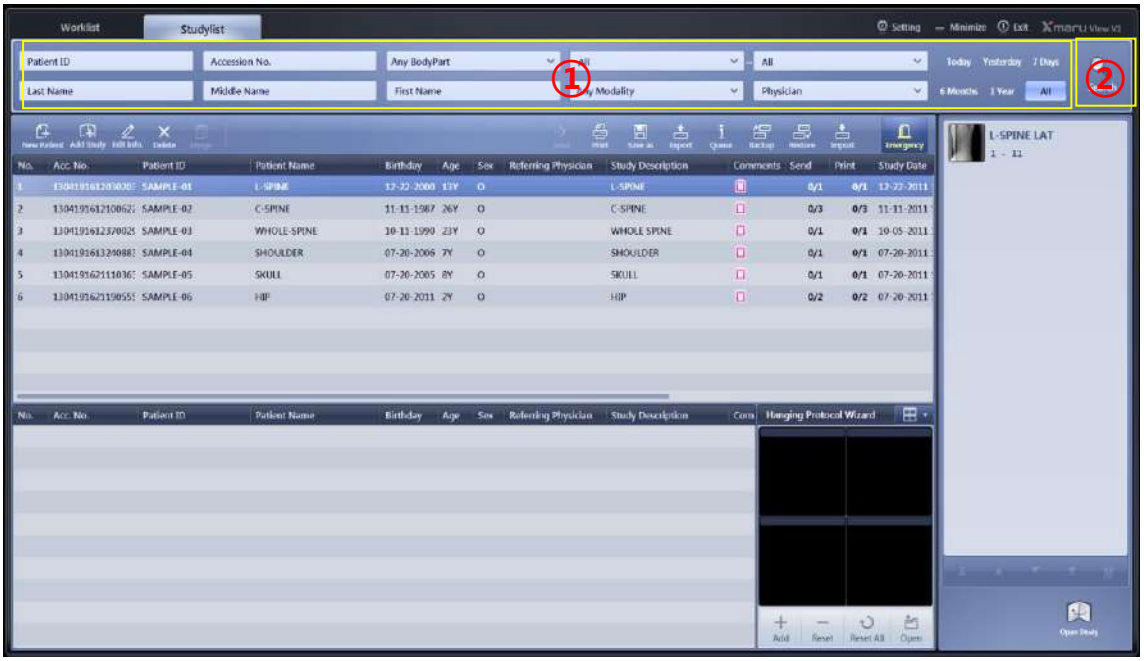
1.2 Basic Workflow

1.2.1 Search Study



< Figure 65 Search Study >

① Enter the search criteria, click the button or search term.

② Click the Search button.

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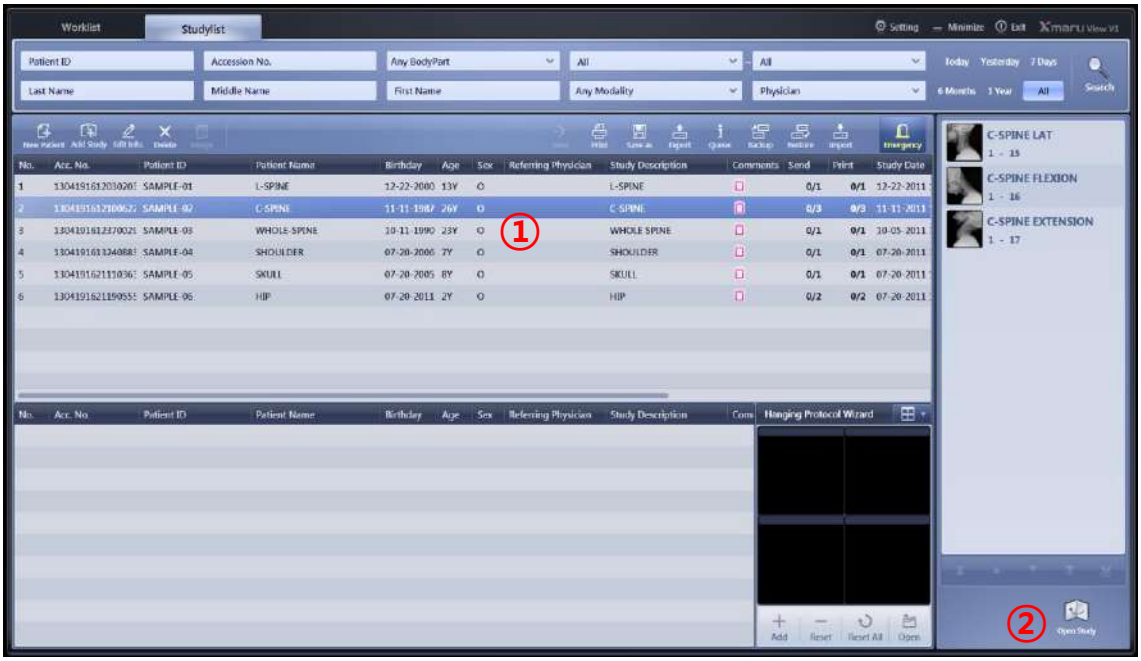
1.2.2 Open Study



< Figure 66 Studylist >

① Select the exam to measure.

② Double-click the selected exam, or Open Study button.

1.2.3 Measurement

< Figure 67 Viewer >

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① Select an Image to measure.

② Select a category related to checks.

③ Select the measurement function.

< Figure 68 Select Measurement Tools >

④ Follow the instructions on the window to guide measurement run.

< Figure 69 Measurement >

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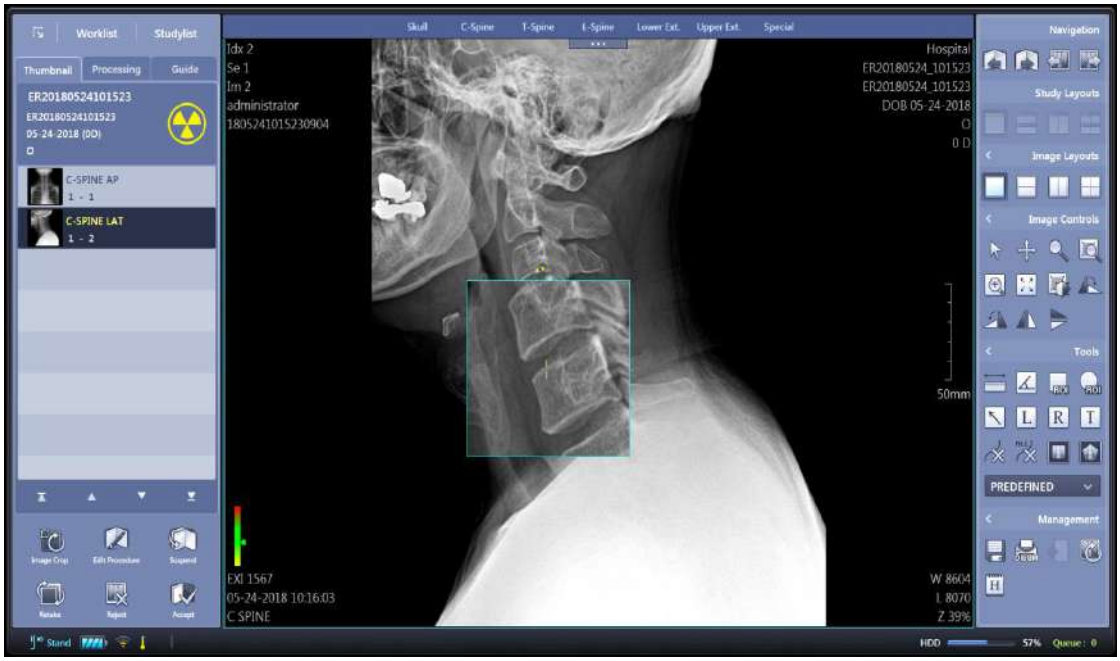

< Figure 70 Using keyboard shortcuts>

	If a user pushes the Alt key and click the left mouse button at the same time, the area around the mouse button is enlarged. Using this function, customers can select the points which should be measured easily.

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1.3 Reference & Result

< Figure 71 Result >

① Upon completion of the reference measurement and displays the results.

② Click Close Study button, then save the results and measures to end.

	Measurements are stored in the initial state if you click the Close Study Button while the process is unfinished.

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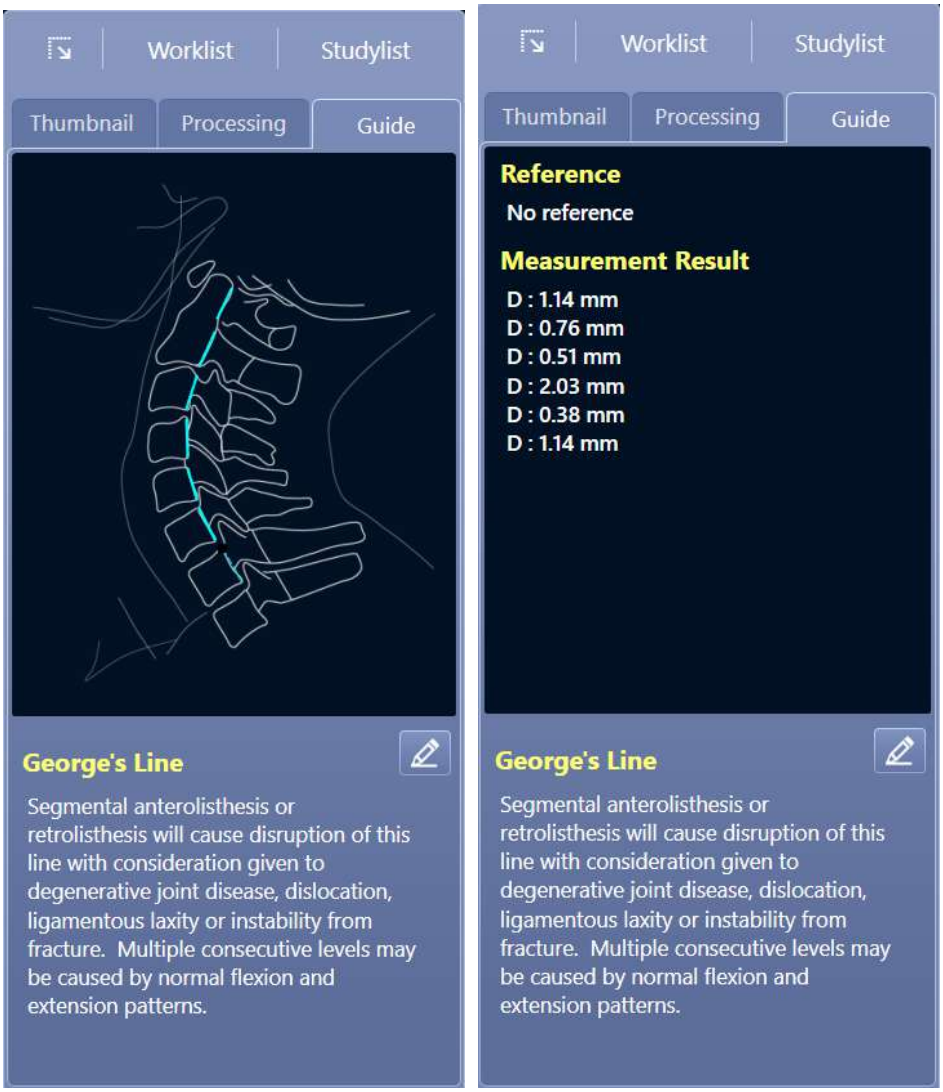

< Figure 72 Guide Image & Result >

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1.4 Viewer Screen Configuration

< Figure 73 Viewer Screen >

① Screen minimize and Change button Studylist window.

② Thumbnail List button and change the Reference Window.

③ Patient Information

- Patient information displayed.
- You can edit the patient information by clicking here.

④ Thumbnail List

⑤ Main Tools

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- Image Crop : Cropping the selected region.
- Edit Procedure : Add or Edit Procedure Step.
- Suspend : Suspend study and return to worklist or studylist screen.
- Retake : Retake the selected image.
- Reject : Reject the selected image.
- Accept &Close Study

⑥ Measurement Tool Bar & Study Title Bar

⑦ Main Screen

⑧ Side Tool Bar

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2. Stitching

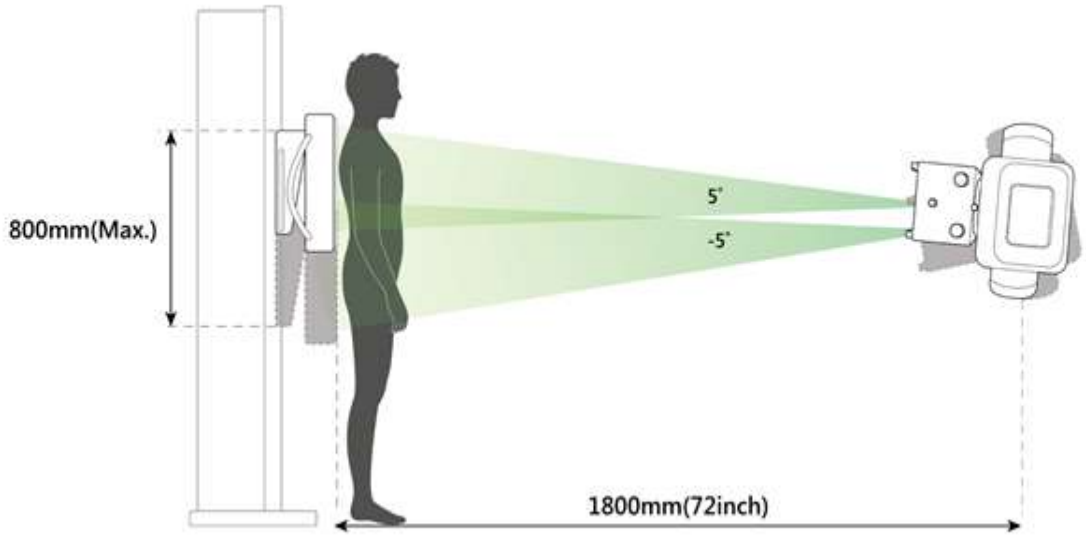
The stitching function is image merging option. This function automatically merges up to four images. The combining image is added to an existing or new series.

2.1 Stitching Expose Technique

	The suitable technique is required in order to automatically. Stitching images. In general, Rayence recommends using the tilting technique.

2.1.1 Tilting Technique

- Whole spine 2shot



< Figure 74 Tilting Technique 2 Shot >

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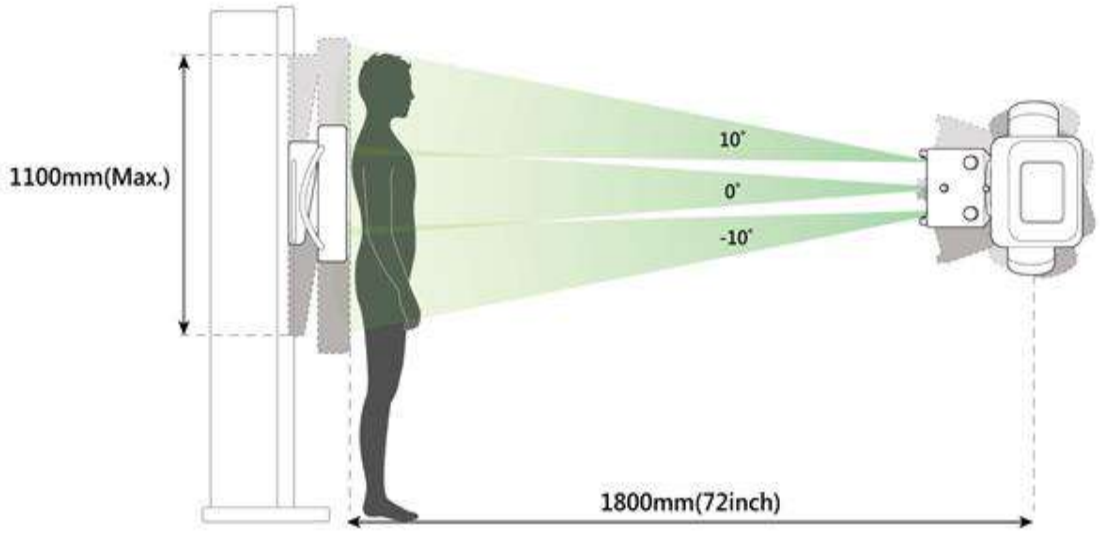
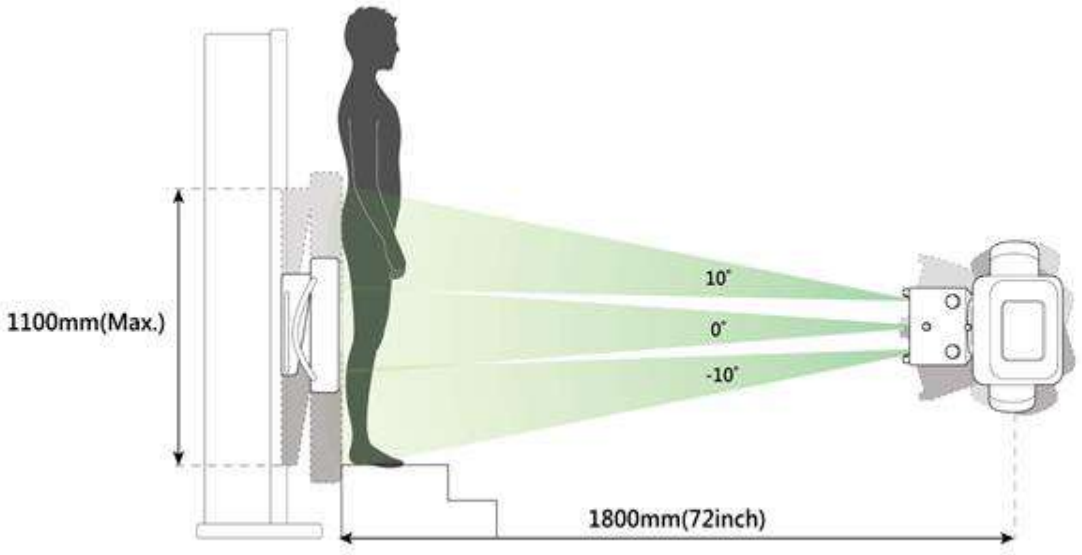
- Whole spine 3 shot



< Figure 75 Tilting Technique 3 Shot(1) >

- Whole Leg 3 shot



< Figure 76 Tilting Technique 3 Shot(2) >

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	If you want to merge two images, acquire +5°& -5° images. If you want to merge three images, acquire +10°, 0°, -10° Images.

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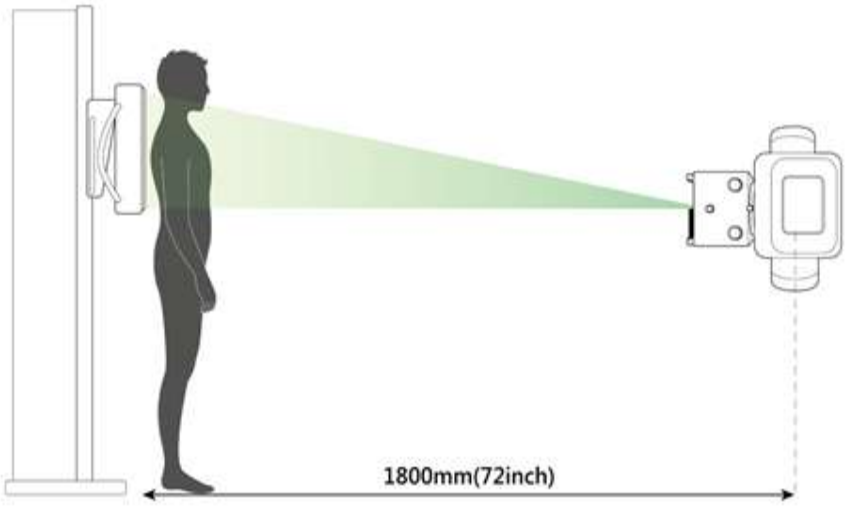
2.1.2 Stationary Technique (Slit technique)

- Stationary technique (Top)



< Figure 77 Stationary Technique (Top) >

	Stationary technique requires the additional accessories like separate collimator or Slit.

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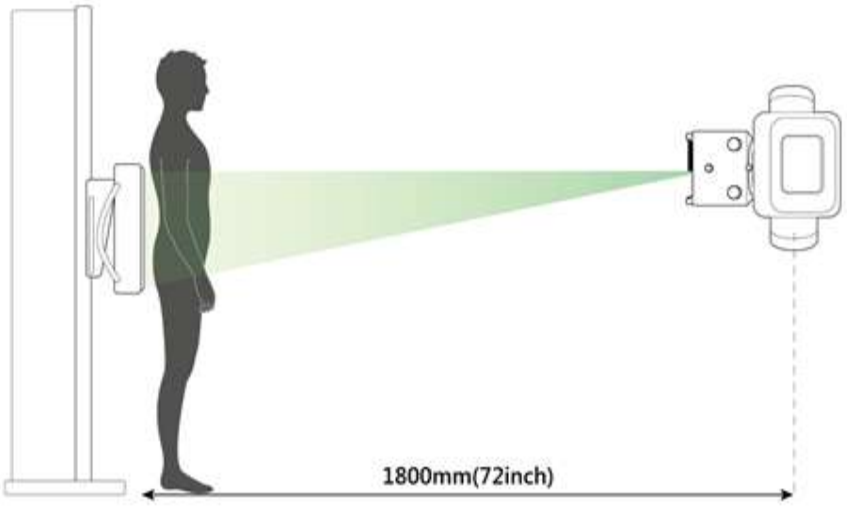
- Stationary technique (Bottom)



< Figure 78 Stationary Technique (Bottom) >

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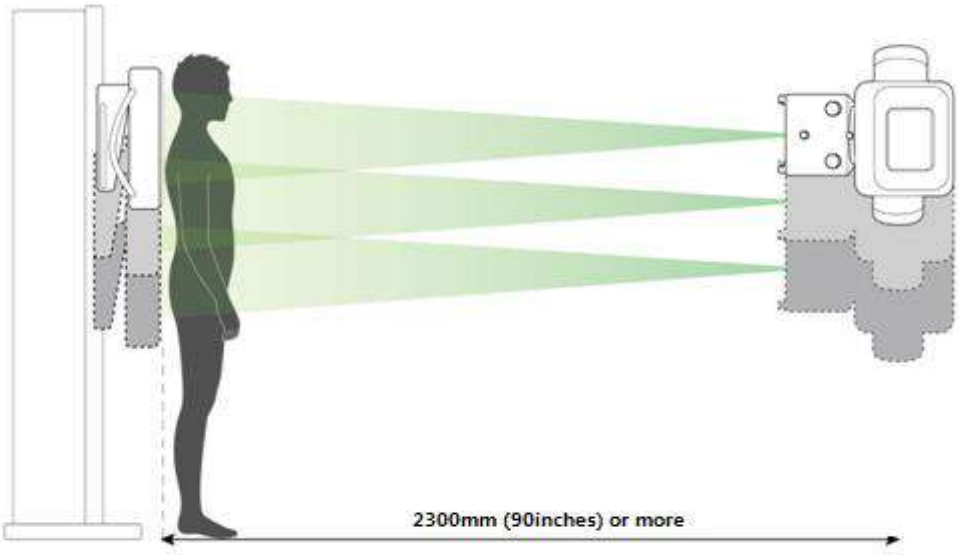
2.1.3 Stepping Technique

CAUTION	Stepping technique can be difficult to find the merge point by image distortion. It can be used than SID 2300mm.



< Figure 79 Stepping Technique >

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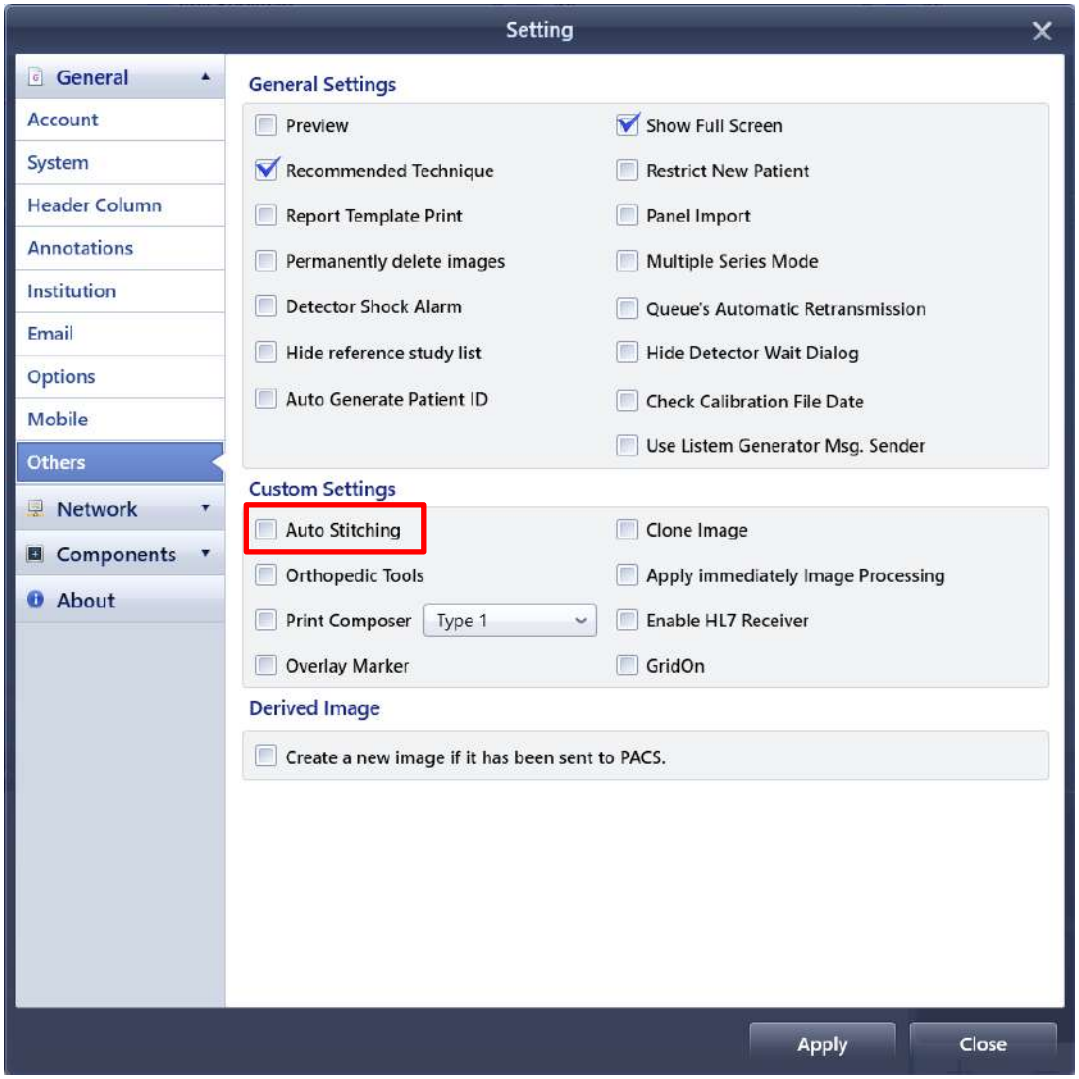
2.2 Stitching Workflow

2.2.1 Auto Stitching

- To activate Auto Stitching Function, customers need to click Auto stitching function in the setting window.



< Figure 80 Auto Stitching Activation>

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- The auto stitching function acquires the combining image automatically by the procedure set in advance.

< Figure 81 Auto Stitching Procedure Selection>

① Select the auto Stitching Procedure

	Auto Stitching Procedure is shown in green.

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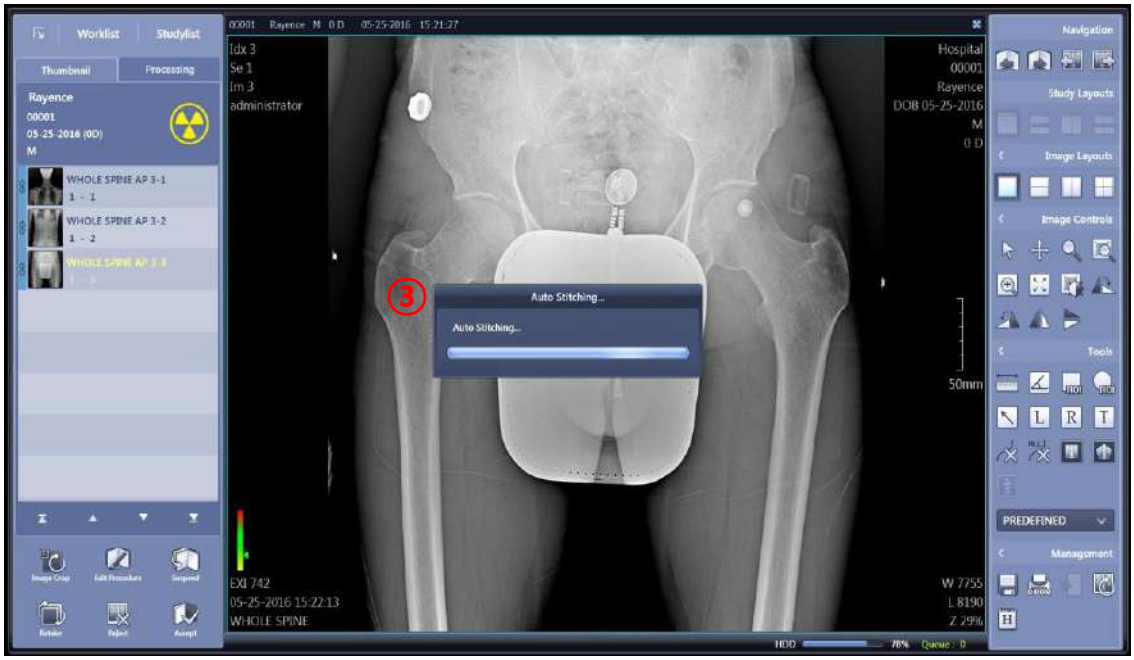
< Figure 82 Auto Stitching Procedure >

② Auto Stitching Procedure



< Figure 83 Auto Stitching Procedure >

③ When shooting the last procedure step, start the auto stitching function.

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< Figure 84 Auto Stitching Complete >

④ Auto stitching complete.

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2.2.2 Semi-Auto Stitching

- Automatically merging the selected images.

< Figure 85 Semi-Auto Stitching >

① Select the images

	Left Control key + mouse left button to select multi images.

② Stitching Icon click on side tool bar.

③ Select the procedure step.

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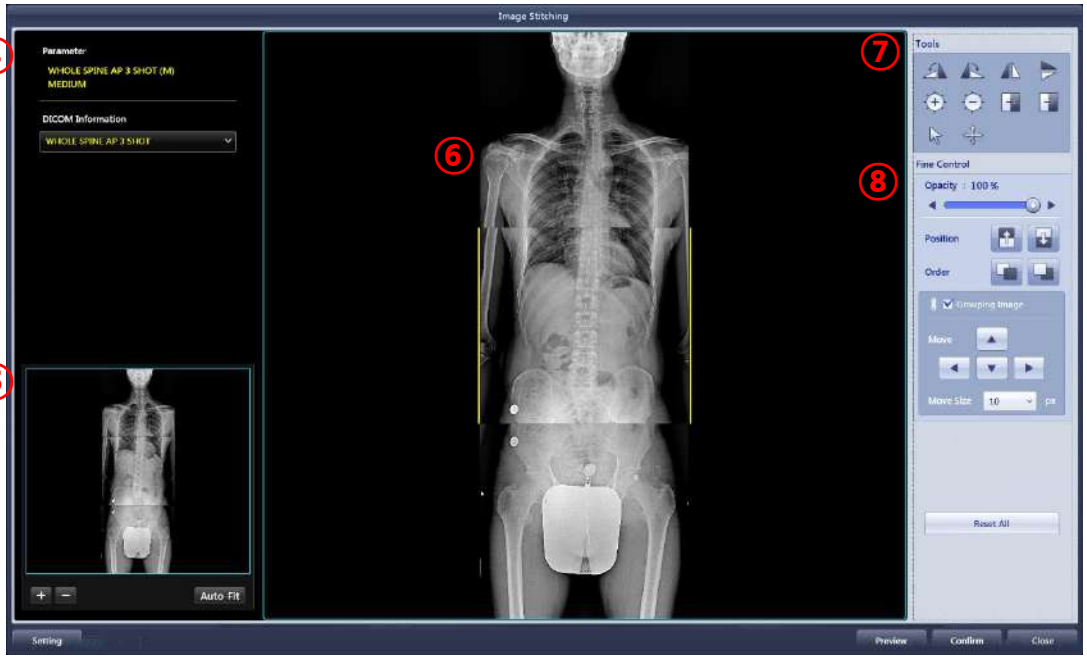

< Figure 86 Semi-Auto Stitching Window >

④ Parameter : Edit the image processing parameter.

DICOM Information : Select the DICOM information.

⑤ Navigation

- Images magnify, Reduce, Move, Fit on screen.

⑥ Main Screen

- Display the images.

- The selected image is display with a yellow border..

⑦ Tools

- CCW 90º : Rotate images by 90 degrees counterclockwise.
- CW 90º : Rotate images by 90 degrees clockwise.
- Horizontal Flip : Flip images horizontally.
- Vertical Flip : Flip images vertically.
- Contrast + : Increase the contrast.
- Contrast - : Decrease the contrast.
- Brightness + : Increase the brightness.

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- Brightness - : Decrease the brightness.

- Select

- Panning : Move the center of the selected image.

- Windowing : Adjust the windowing value..

⑧ Fine Control

- Opacity : Adjust the opacity of the image.
- Position : Change the sort order of the selected image.
- Order : Place the selected image to the front or back.
- Grouping Image : Grouping the selected image and below images.
- Move : Moves the selected image up, down, left or right.
- Move Size : Select the move range of pixels..

< Figure 87 Point Control >

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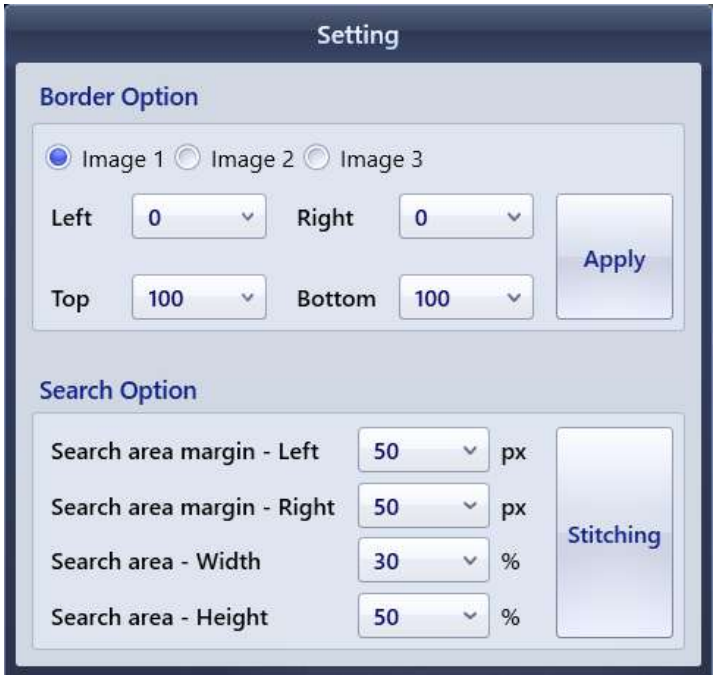

< Figure 88 Stitching Setting >

⑨ Setting

- Border Option : If you have two images, you will see two Radio buttons; if you have three, you will see three Radio buttons. And select the image you want to modify and enter a value to crop.
- Search Option : Set the range to search for stitching point.

⑩ Preview : Display the preview window.

Confirm : Create a combining image.

Close : Cancel the stitching and close the preview window.

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< Figure 89 Semi-Auto Stitching Preview >

⑪ Display the preview window.

⑫ Tools

- Contrast + : Increase the contrast
- Contrast - : Decrease the contrast
- Brightness + : Increase the brightness
- Brightness - : Decrease the brightness
- Select
- Windowing : Adjust the windowing value
- Magnify Glass

⑬ Gradation

- Strength : Control the gradation processing strength
- Range : Control the gradating processing area
- Undo : Repeat the value
- Set : Set the value.
- The gradation value set also applies to the next stitching.

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⑭ Confirm : Create a stitching image

Manual : Display the manual stitching window.

Close : Cancel the stitching and close the preview window.

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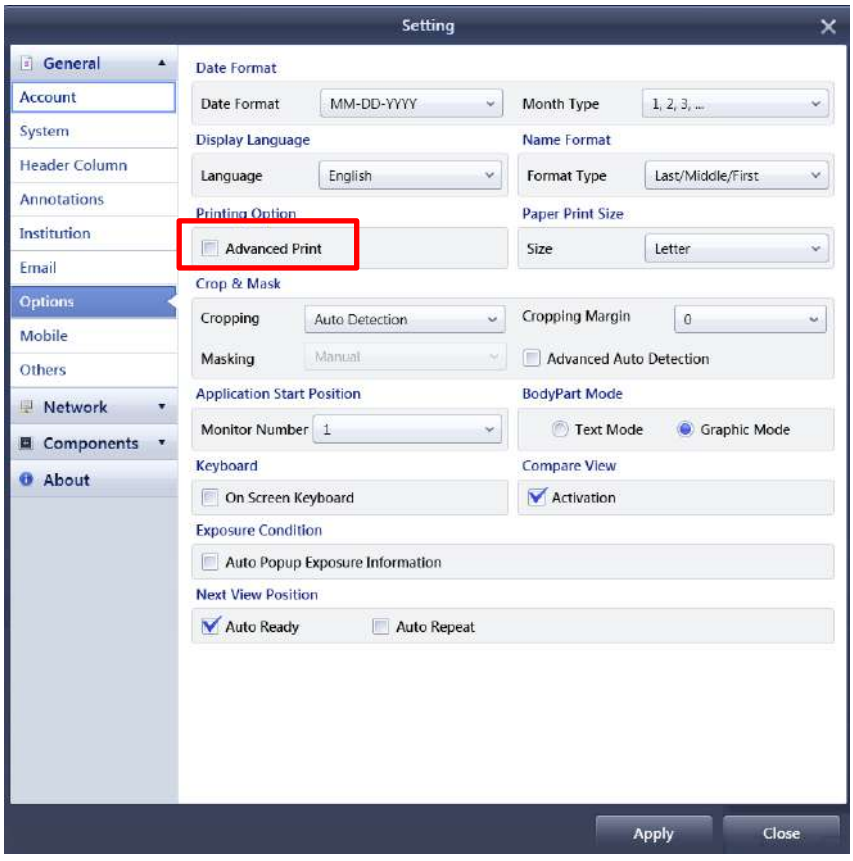
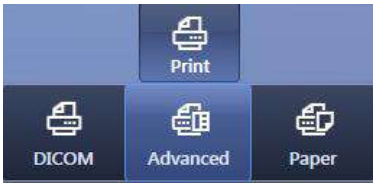
3. Advanced Printing (Print Composer lisence applied)

- The Advanced Printing is more intuitive and it helps to use a DICOM printer.
- It supports multi-printing layouts and user can put an image in any place before printing.
- To activate the Advanced Printing Function, user needs to open the setting window and go to General > Options. Then click the 'Advanced Print' button below



< Figure 90 Advanced Print Enable>

- To run the Advance Printing function, click the 'Print' > 'Advanced' button in the Studylist. Or click the 'ADV' icon button in the Viewer.



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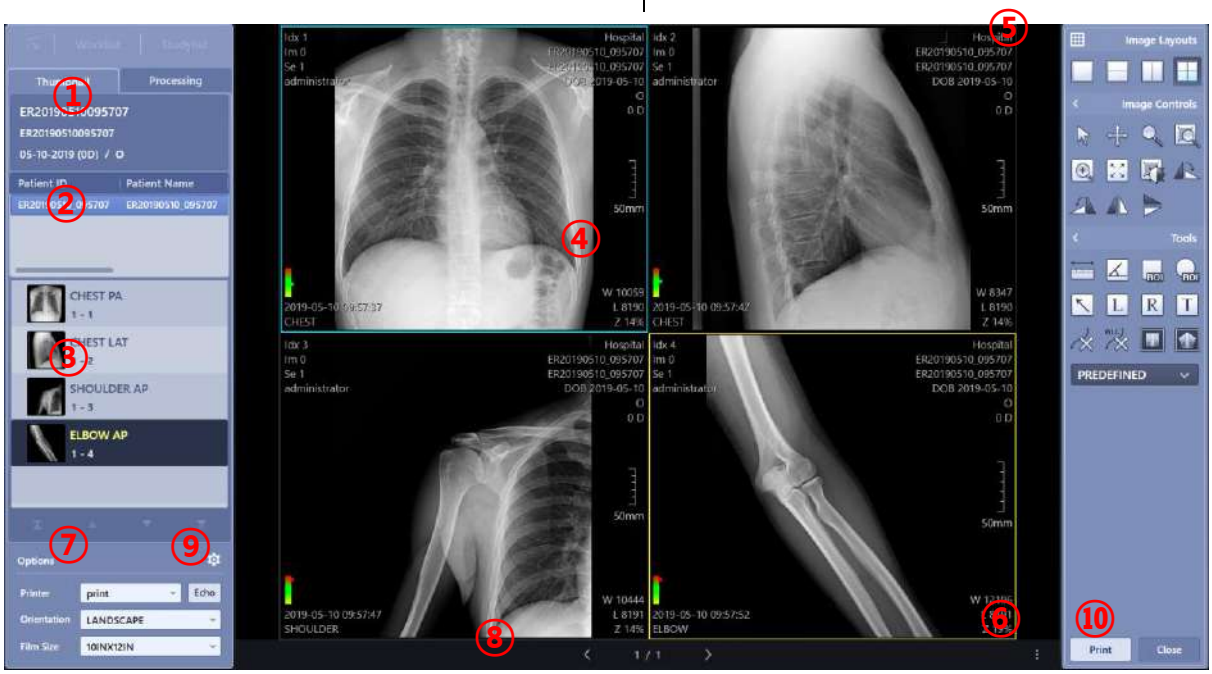
<Studylist>	<Viewer side tool bar>



< Figure 91 Advanced Print>

① Patient Information

② Study List

③ Image List (Thumbnail List)

④ Main Screen

⑤ Film Layout Settings

⑥ More Menu - Additional menu to add, delete, or reset a page, etc.

⑦ Option

- Select a printer, film size, and film printing orientation.

⑧ Previous Image, Next Image

⑨ Settings

- Call printer settings window – printer list management and detail settings

⑩ Launch / Close Print

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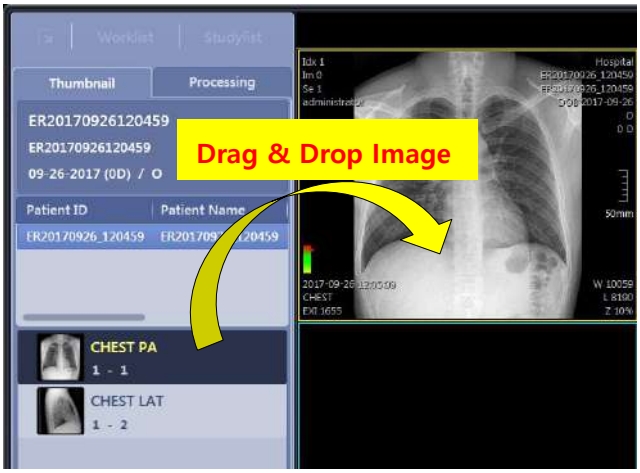
3.1 Allocate Image in Printing Layout

- Drag & drop your desired image to display from the left thumbnail list to the layout you want.



	If you put an image which had been placed in a specific layout into a new layout, previous layout will be deleted in advance.

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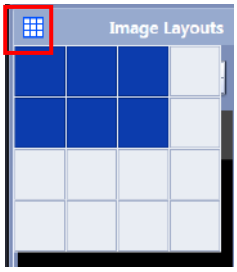
3.2 Change Printing Layout

- Click your desired layout button in the Image Layout to change printing layout.

- Click the NxN Layout to change printing layout by dividing the layout into your desired one.



	In case you change layout, those image that are currently placed in the layout will be initialized.

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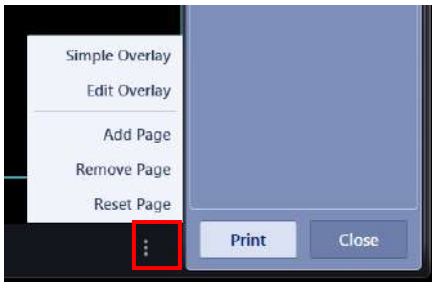
3.3 More Menu



< Figure 92 More Menu>

- Simple Overlay

  When Simple Overlay is activated, the patient information for each image placed in printing layout is not displayed respectively but displayed on left/right top of the printing layout.

  The Simple Overlay mode is available only if the images of one patient, which are located in current printing page.

  Specific overlay is displayed without regard to Edit Overlay settings.

- Edit Overlay

  Sets each overlay to be displayed on screen or designates overlay location and size.

- Add Page :

  Adds a printing layout page.

- Remove Page :

  Remove the selected printing layout page.

- Reset Page :

  Deletes all the images in selected printing layout page.

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3.4 Print & Close

- Print :

  Print out currently organized page.

  You can select whether to print out current page only or all the page.

- Close :

  Close the Advanced Print window.

  The window is closed after confirming if you want to save the change or not.

CAUTION	The above function is only available when the Print composer option is enabled.(License required)

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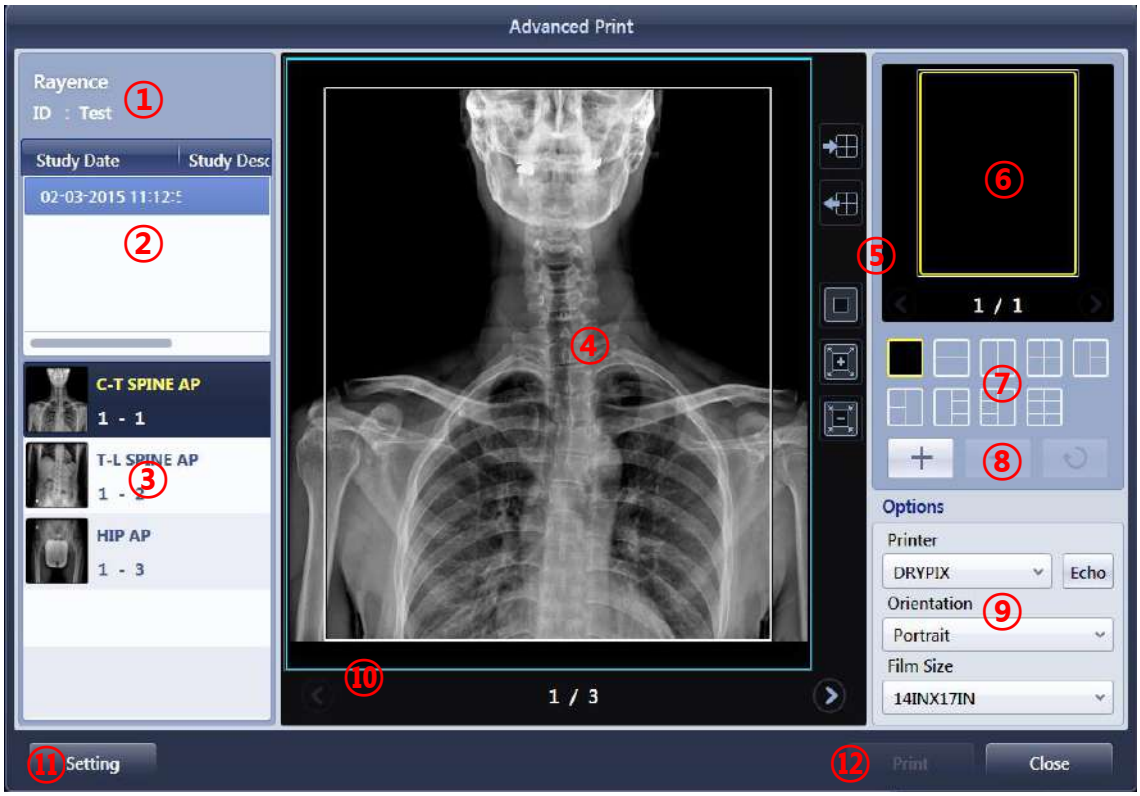
3.5 Advanced Printing (Print Composer lisence not applied)



< Figure 93 Advance Print >

① Patient Information.

② Study List.

③ Image List.(Thumbnail List)

④ Main Screen.

⑤ Insert & Reject, Fit on screen, Enlargement & Reduce

⑥ Preview.

⑦ Film Layout.

⑧ Add film & reset.

⑨ Option

- Select the printer, Film size, Film orientation, Number of copies.

⑩ Previous Image, Next Image.

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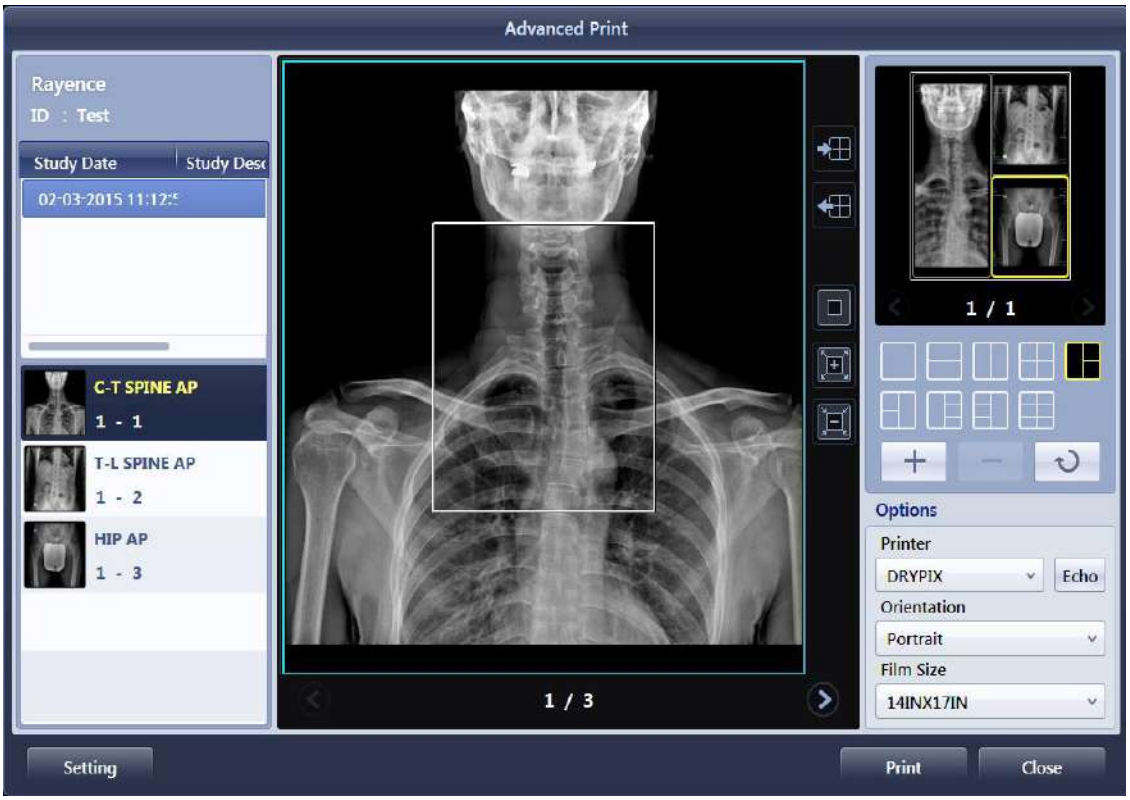
⑪ Setting

- Display the Printer setting window

⑫ Print & Cancel



CAUTION	In case the Print Composer option is disabled, it's displayed as above. (Operates as a basic ADV function.)

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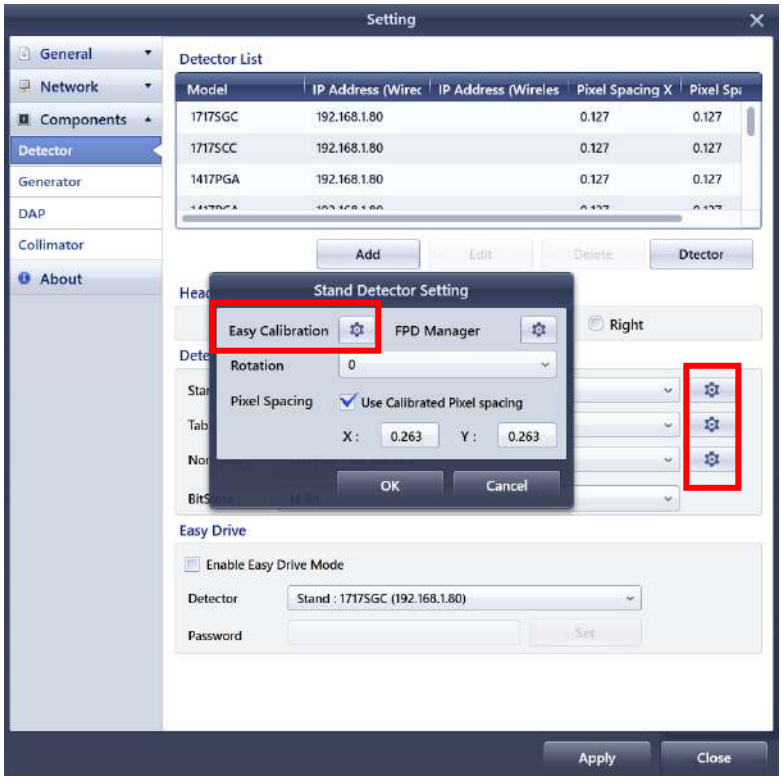
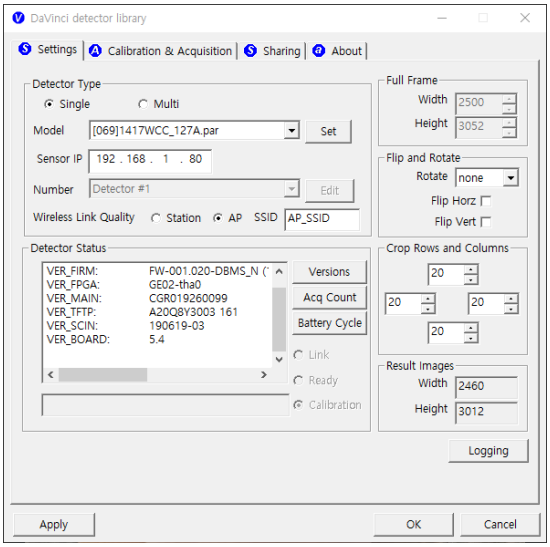
4. Detector Setting

4.1 Easy Calibration

4.1.1 Easy calibration mode



- Go to Davinci by pressing button in red box of Detector Setting window.



- Detector information will be displaced at Davinci window.
- Serial No. and F/W version of detector can be checked on Davinci window.

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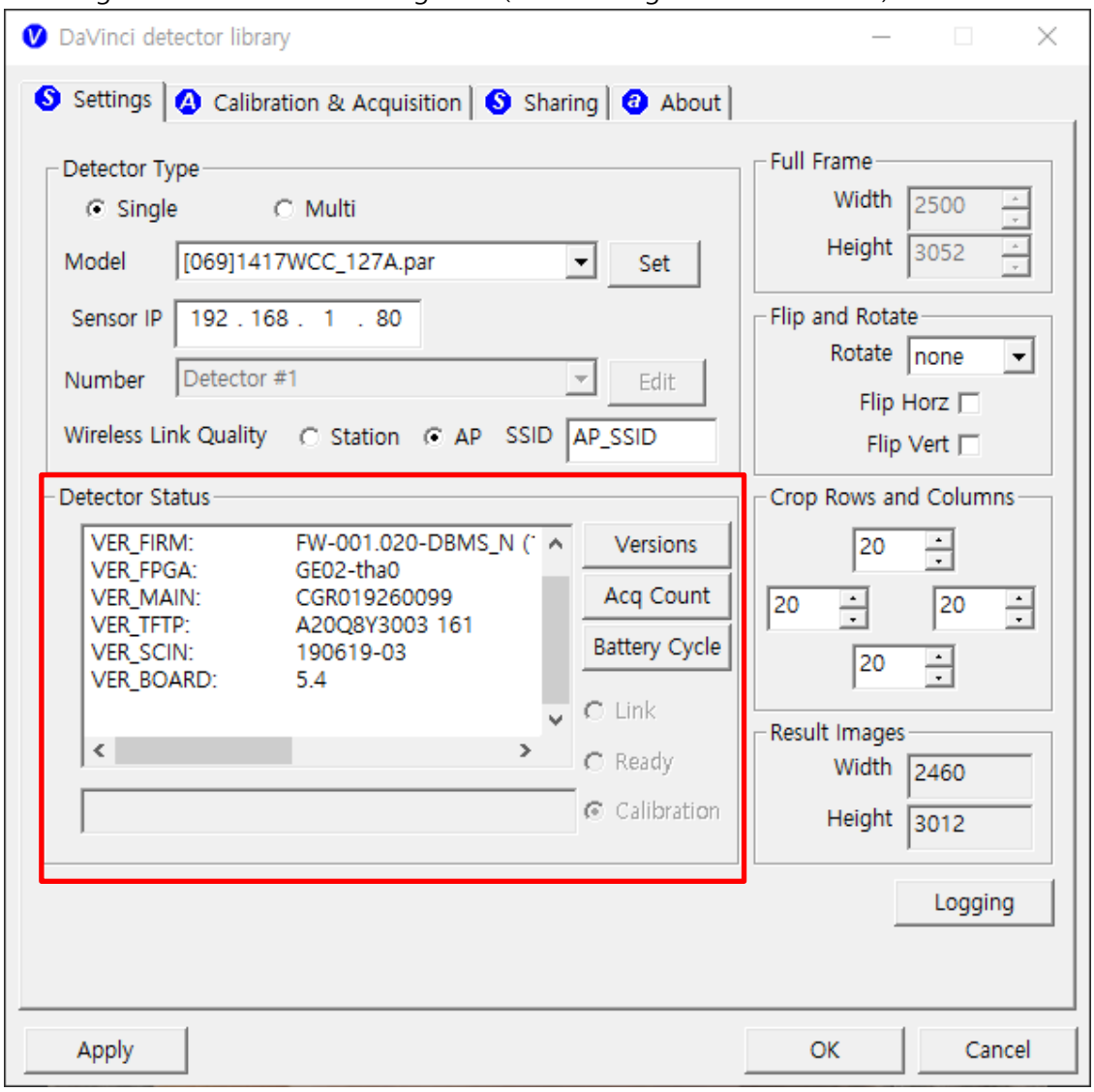
4.1.2 How to Use Easy calibration

- Checking detector version in settings tab. (For checking connection status.)



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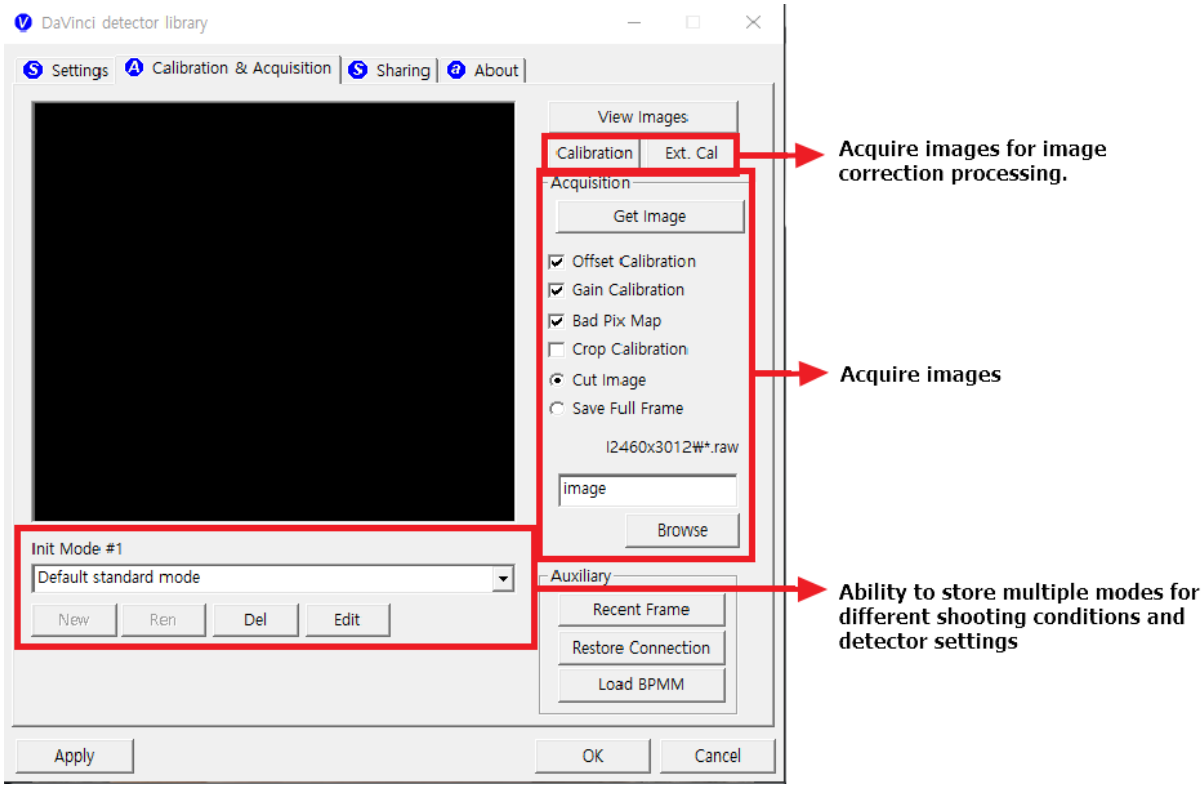
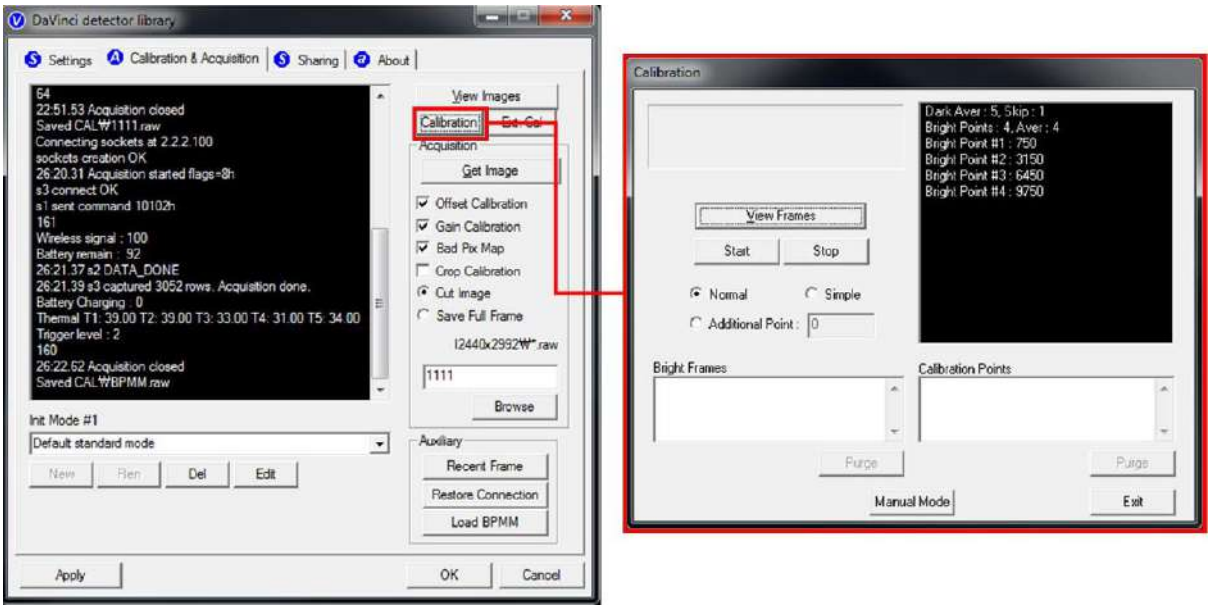
- Going to calibration & acquisition tab.

  - Default standard mode brings parameters saved in detector, after clicking 'Edit' & 'Get settings'. And thenthe data is saved.



Calibration

- Part of the acquisitionof offset, gain, and BPM images for image processing
- Directory : 'C:₩Davinci₩CAL₩'



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Please refer to the separate manual(vadav Manual) for detailed calibration operation procedures.

Easy calibration Technique Chart

	CsI type			GdOS type		
SID(cm)	100	130	180	100	130	180
Point 1	50kV 1mAs	50kV 1mAs	60kV 1mAs	50kV 1mAs	50kV 1mAs	60kV 1mAs
Point 2	60kV 1mAs	70kV 1mAs	70kV 2mAs	70kV 1mAs	70kV 2mAs	70kV 3.2mAs
Point 3	70kV 1mAs	70kV 2mAs	70kV 4mAs	70kV 2mAs	70kV 4mAs	70kV 6.3mAs
Point 4	70kV 1.6mAs	70kV 2.5mAs	70kV 5mAs	70kV 2.5mAs	70kV 5mAs	70kV 8mAs
Point 5	70kV 2mAs	70kV 3.2mAs	70kV 6.3mAs	70kV 3.2mAs	70kV 6.3mAs	70kV 10mAs
Point 6	70kV 2.5mAs	70kV 4mAs	70kV 8mAs	70kV 4mAs	70kV 8mAs	70kV 12.5mAs
Point 7	70kV 3.2mAs	70kV 5mAs	70kV 10mAs	70kV 5mAs	70kV 10mAs	70kV 16mAs
Point 8	70kV 4mAs	70kV 6.3mAs	70kV 12.5mAs	70kV 6.3mAs	70kV 12.5mAs	70kV 20mAs

* If X-ray irradiation using the X-ray conditions specified above is deemed impossible, calibrate the equipment to similar X-ray conditions.

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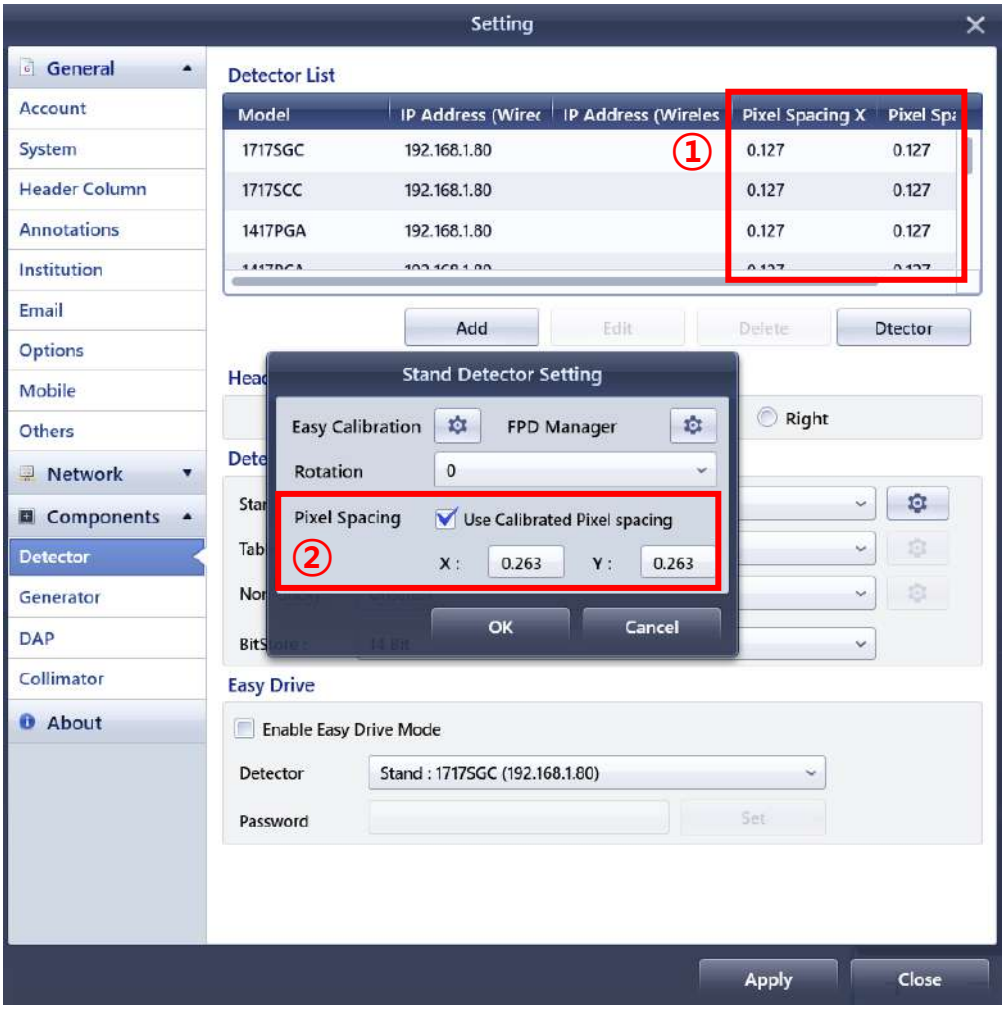
4.2 FPD Manager

Run the FPD_Manager.exe program to check the detailed logs for detector shocks.

See the Detector manual for more information.

4.3 Length Calibration

4.3.1 Length Calibration mode



① Original Pixel Spacing

② Calibrated Pixel Spacing

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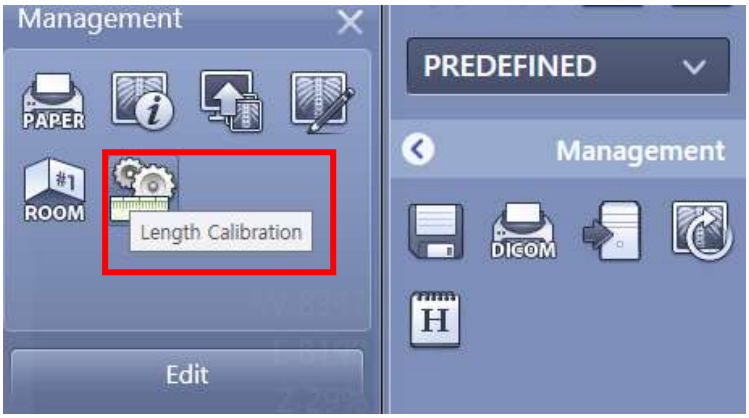
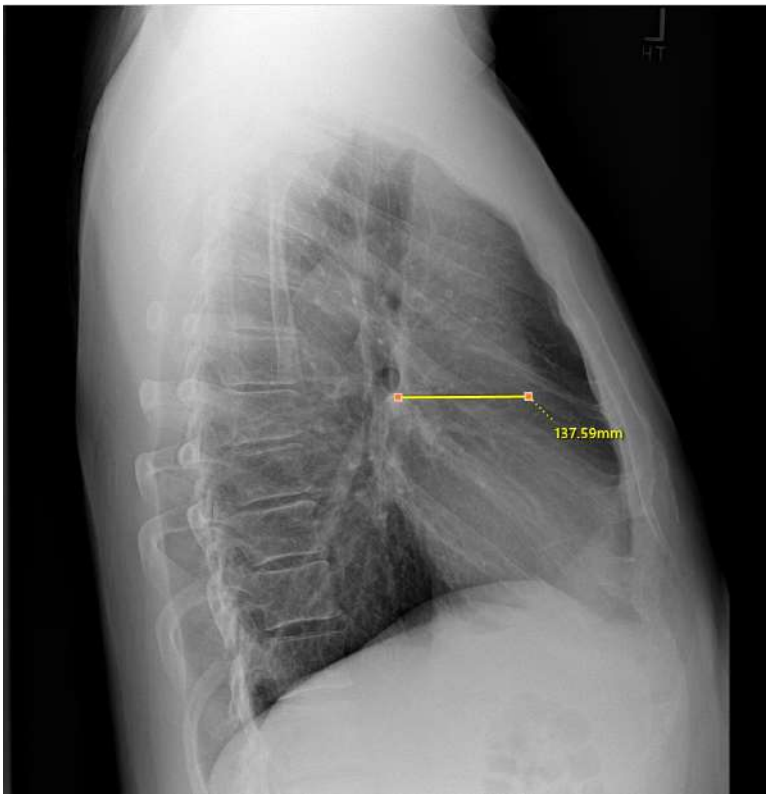
4.3.2 How to Use Length Calibration

- Steps of Length Calibration

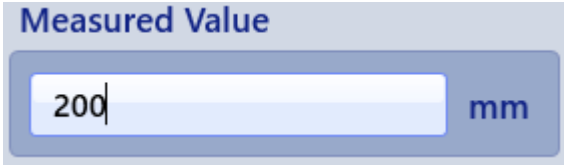
① Once X-ray image capturer is done, click Length Calibration icon at Management side tool bar.



② Draw line to check the length in image.



③ Enter the actual length of the drawn line.



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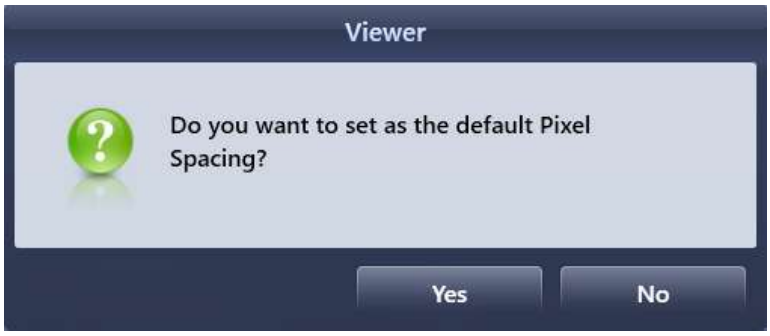
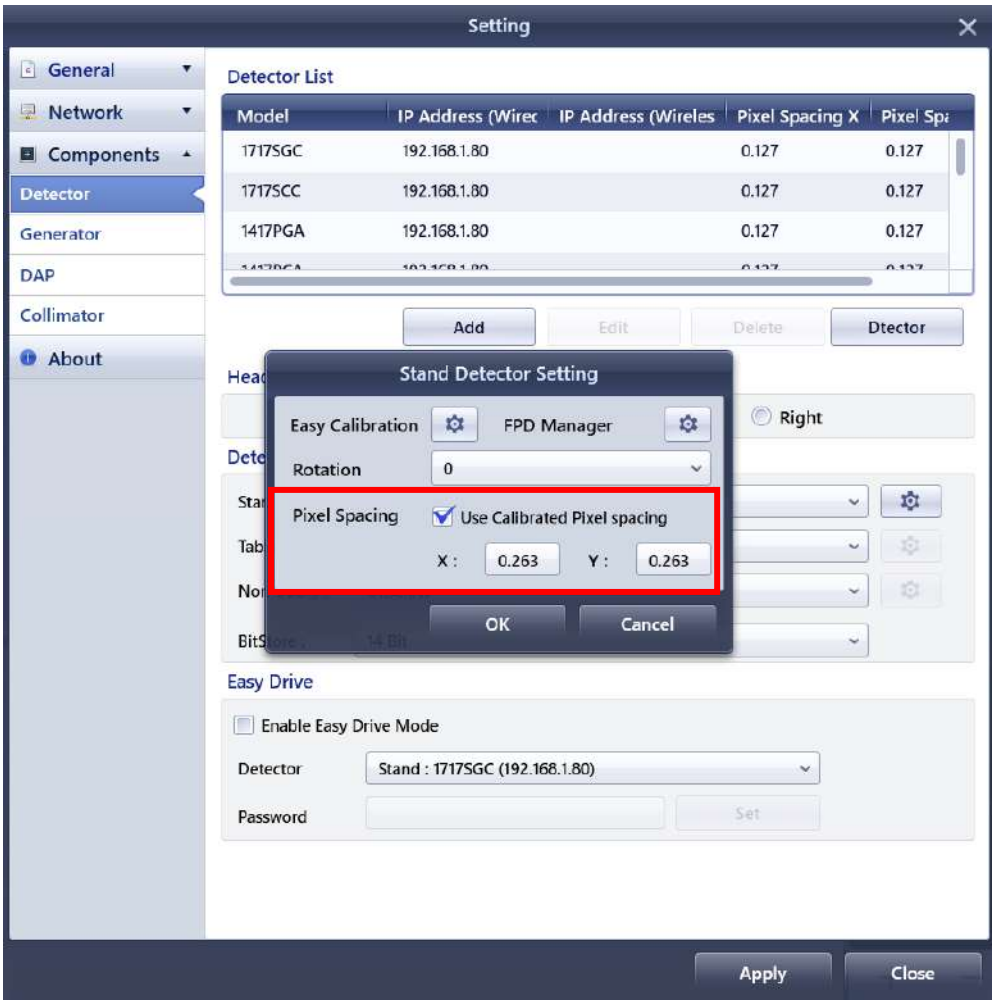
④ Click apply

⑤ Click Yes to apply Calibrated Pixel Spacing.



⑥ Once "Use Calibrated Pixel Spacing" is checked as shown below, Length Calibration is completed. This is applied to all subsequent images.



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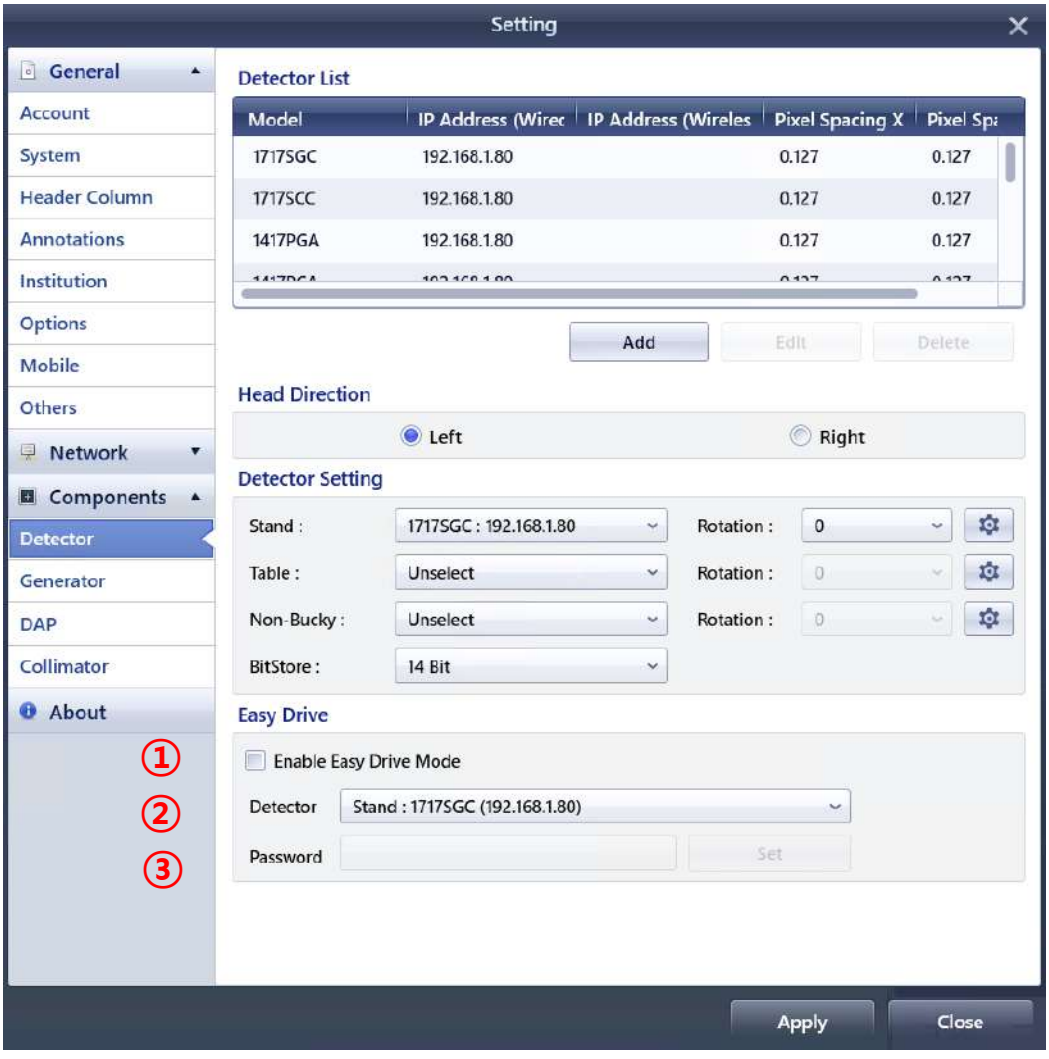
5. Easy Drive

To use the "Easy Drive" function, please switch the Detector to "Storage" mode. Please refer to the Manual for the supported Detector for more details.

5.1 Easy Drive Setting

You can set in Detector item under System Menu.



① Enable Easy Drive Mode : Activate Easy Drive Mode.

② Select the detector.

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③ If connected to the web, enter your password to set.

④ If you click the set button, the procedure step list of Easy Drive will be synchronized with XmaruView V1.

When the mode is activated, you can see the worklist upload button and the Image Download button in Worklist Main Tools.

5.2 Worklist Upload

Upload the order(s) in Worklist to Easy Drive.

① Selected List : Uploads the selected order only.

② Current Page : Uploads the order(s) in currently searched page.

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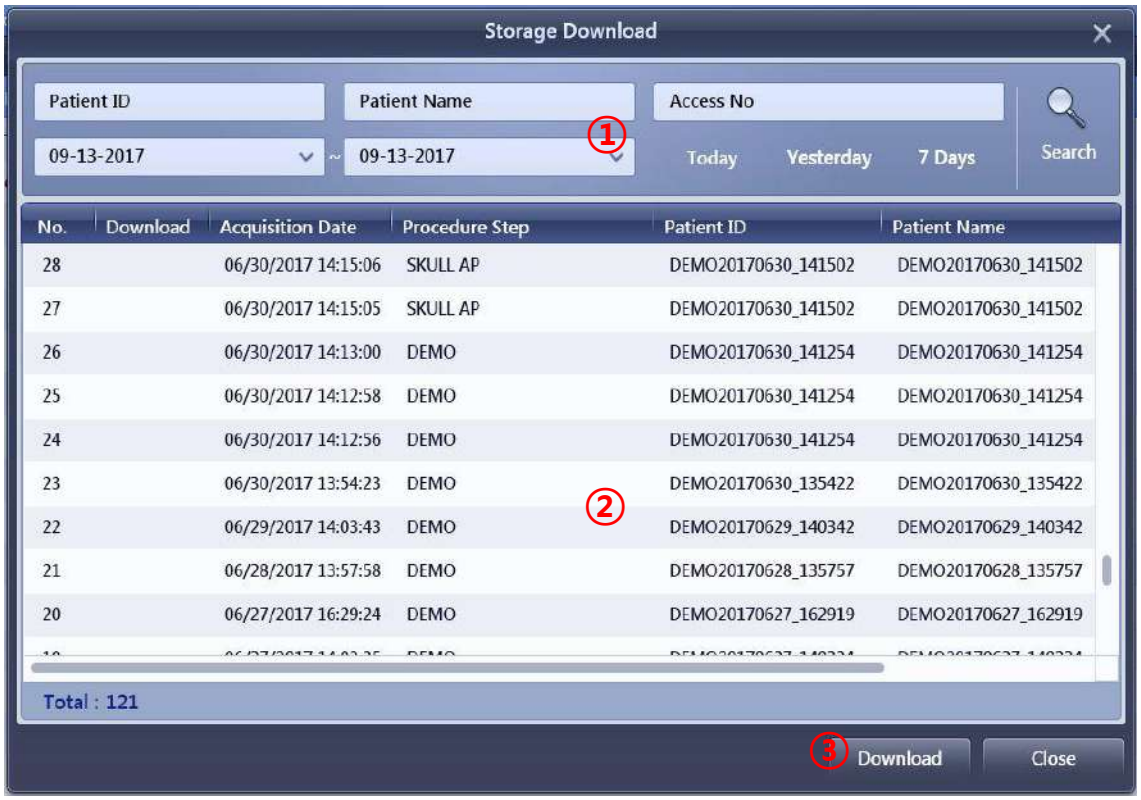
5.3 Image Download

Download the capture image from Easy Drive.



① Search: Search captured image(s) in Easy Drive.

You can set Patient ID, Patient Name, Access No, and Study Date for search condition.

② Displays searched image data. Select the image to download.

③ Click Download to start downloading.

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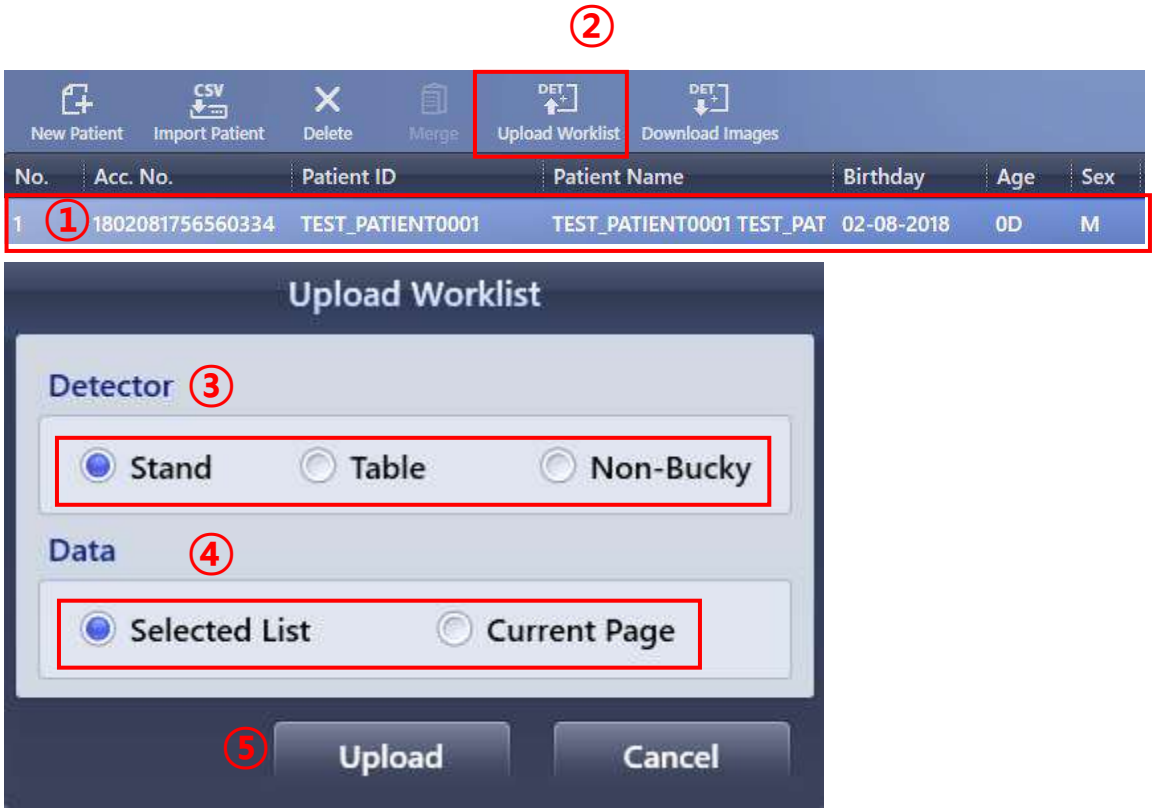
5.4 Order Upload



① Select the created Worklist Order.

② Click the "Upload Worklist" button at the top.

③ Select the Detector to upload.

④ Select the Data Mode to upload.

- Upload the selected list only.
- Upload all lists on the current page.

⑤ Click the "Upload" button to complete uploading.

	Uploaded Orders can be confirmed in the Easy Drive Web Viewer of the connected Detector. Please refer to the Manual for the supported Detector for more details.

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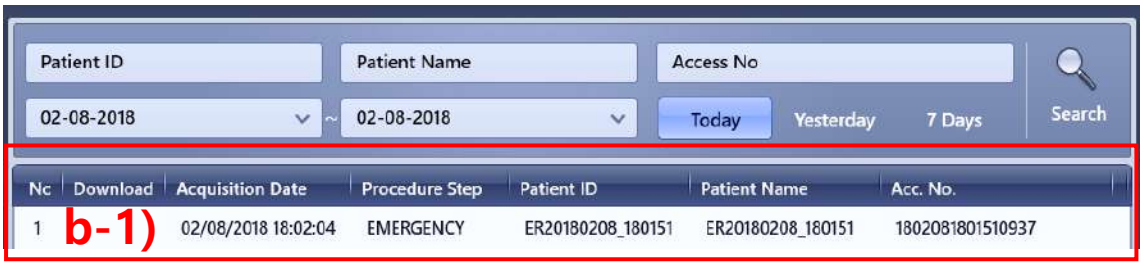
5.5 Image Download by Condition

a) A list to confirm downloaded images filmed using the Detector only without any order information.



b-1) A list to confirm downloaded images filmed from "Emergency" mode of the Easy Drive Web Viewer.

b-2) A list to confirm downloaded images filmed from the Easy Drive Web Viewer after the "Edit Procedure" is modified in a Study created with "Emergency" mode.

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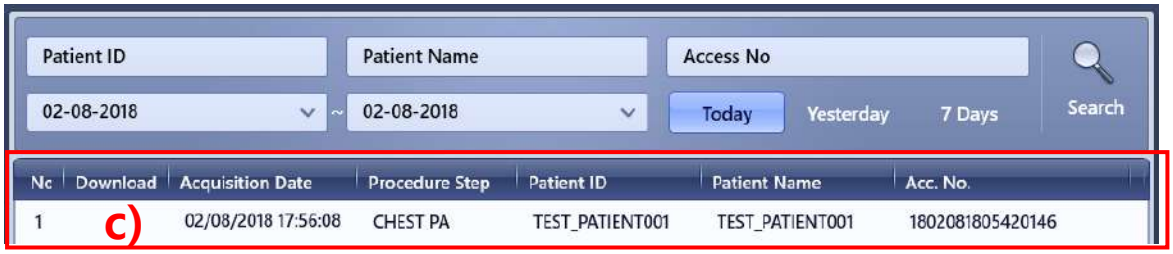

c) A list to confirm downloaded images filmed from a Study uploaded after an Order was created.

- The following information is regarding the Study shall be created depending on the condition.

Condition		Acquisition Date	Procedure Step	Patient ID	Patient Name	Acc. No.
a)		Displays the time that the image was acquired.	Emergency	Emergency		Creates new Acc. No.
b)	b-1)			Creates new data.		
	b-2)		Displays filmed region.			
c)			Creates from input Information.			

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6 Image Copy

6.1 Function Description

When reprocessing the image transferred to PACS, derived image is created to preserve the original image. Any modification is applied to derived image.

6.2 User Confirmation Message

When reprocessing the image transferred to PACS, the program notifies you of creating derived image to get your confirmation to go on.

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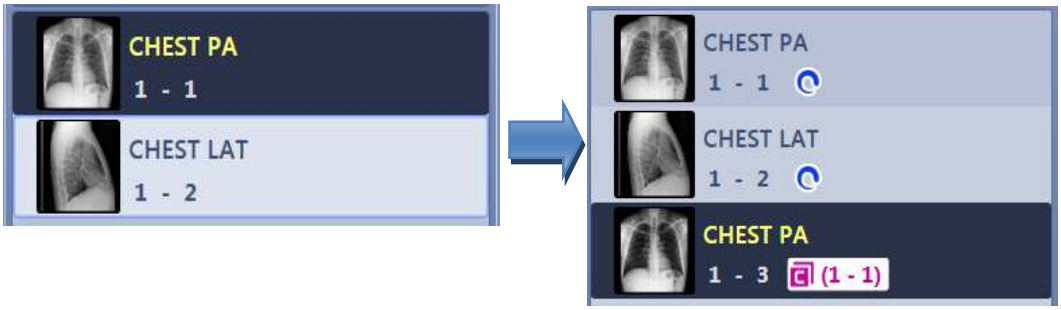
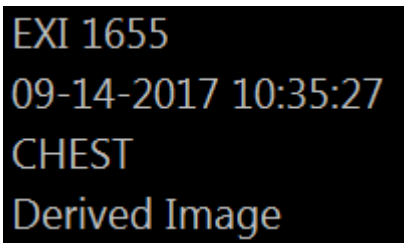
6.3 Derived Image Display

- In the derived Image thumbnail, the number of original image is displayed.



- Derived image information is displayed in the left bottom of the viewer.



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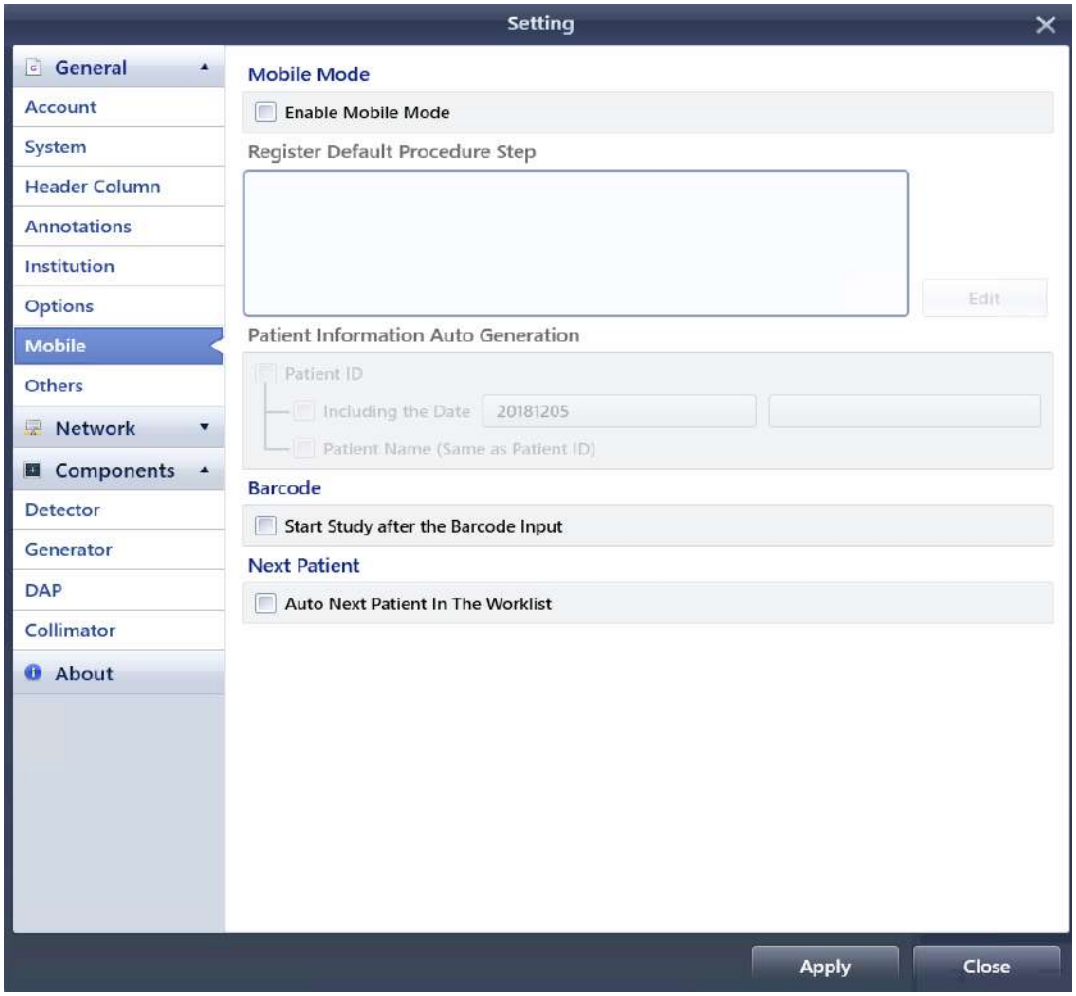
7. Mobile Mode

7.1 Function Description

This function is used when the user needs to capture the images of a specific region continuously for all patients registered for health examinations, etc.

7.2 Settings



Please refer to the Setting Manual to learn how to setup the Mobile Mode.

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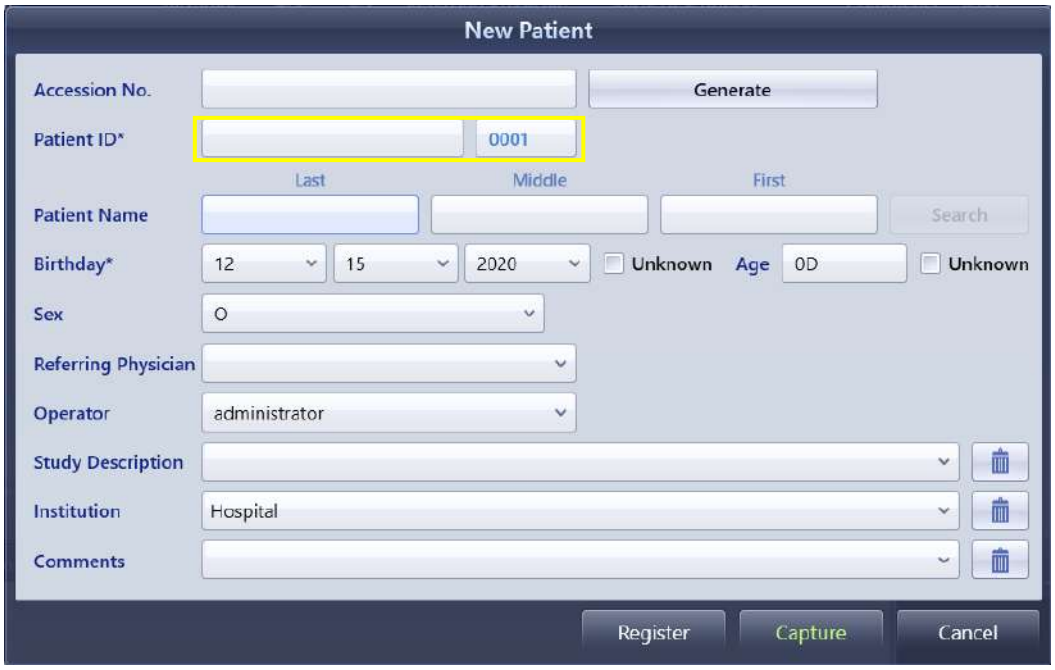
7.3 Register Patient



When registering a patient, if the "Patient Information Auto Generation" option is checked in the "Settings" menu, the program will automatically create the Patient ID and Patient Name in compliance with preset rules.

The number added after the Patient ID shall increase automatically when new patients are added.

Sex displays the last selected gender.

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7.4 Capture Image

When the user selects the study to capture from the Worklist and clicks on "Start Study," the Study begins in accordance with the registered Default Procedure Step and the program stands by to capture the patient.

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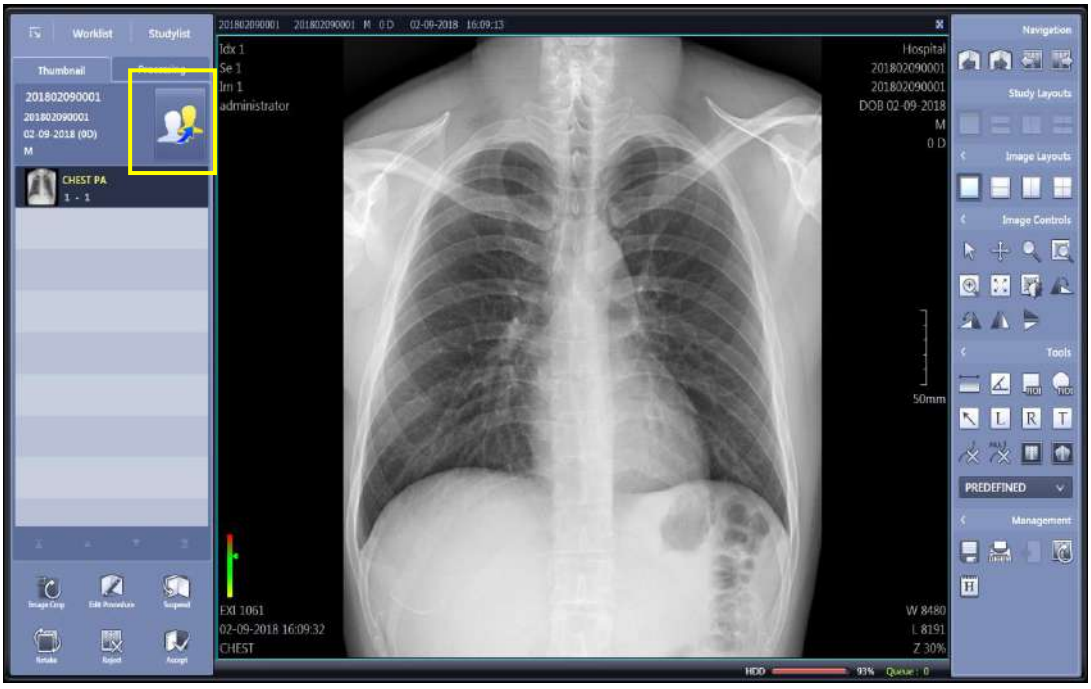
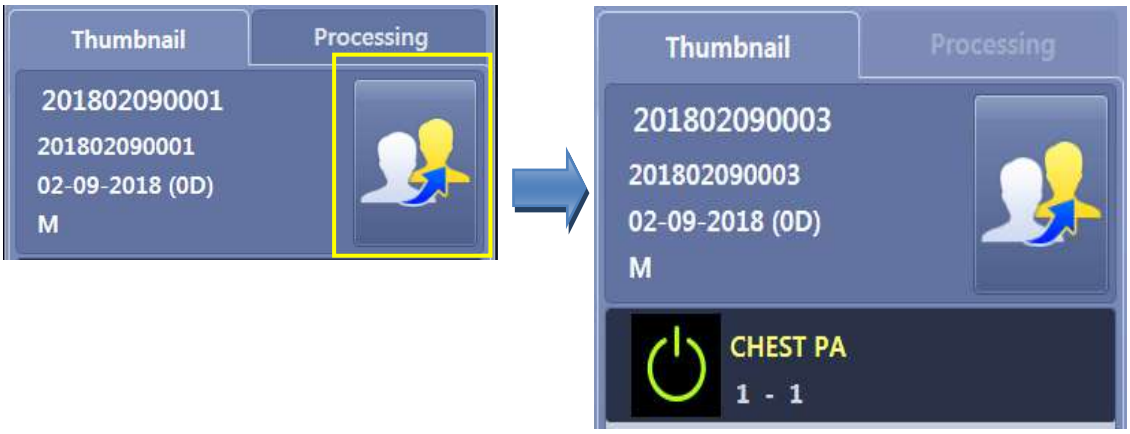
7.5 Capture Next Patient

When the capturing of the current patient is completed, and the user clicks the "Next Patient" button on the top left, the program automatically stands by to capture the next patient.





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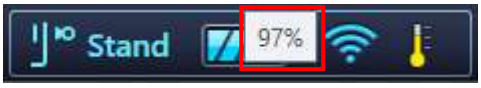
8. WIFI Signal & Battery & Temperature Indicator

8.1 Status bar information output

8.1.1 Status display by Detector

- The status bar displays WIFI Signal Strength, Remaining Battery, and Detector Temperature information of the Stand, Table and Non-Bucky.



- The status bar displays current status values with "Tooltip" when the mouse cursor hovers over the WIFI Signal, Battery and Temperature UI.

8.1.2 Interpretation by Indicator

a) b) c)

① Battery

a) Low (Red): Battery is almost flat and requires replacement. (Range: 0% ~ 10%)

b) Normal (Yellow): Battery still has some remaining power however additional batteries should be available in case the battery level falls to low. (Range: 11% ~ 50%)

c) High (Blue): Battery has sufficient power. (Range: 51% ~ 100%)

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a) b) c)

② Battery Temperature of Detector

a) High (Red): The Battery temperature of Detector is very high. The user is recommended to temporarily suspend the system and lower the temperature.

b) Normal (Yellow): The Battery temperature of Detector is holding nominal. However, the user must check for any temperature spikes.

c) Low (Blue): The Battery temperature of Detector is stable.

a) b) c) d)

③ WIFI Signal

a) Low (Red): WIFI Signal strength is very weak. The user is recommended to take necessary measures so that the system can operate at normal levels. (Range: < 1%)

b) Normal (Yellow): WIFI Signal strength is average. However, the system may experience some interferences when sending/receiving data. . (Range: 1% ~ 32%)

c) High (Blue): WIFI Signal strength is stable. (Range: 33% ~ 100%)

d) Wired: The UI changes when the system switches from "WIFI" mode to "Wired" mode.

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	It only works as shown below for new detector models and appears only in Capture Viewer mode for other models.

	Indicators displayed on the Status bar will appear for designated Detectors only. Please refer to the "Settings" section of the Manual to learn more on Detector Settings.

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8.2 Warning Alert Box

8.2.1 Yellow Warning Alert Box

- If a "Normal"/"High" level or higher warning is activated for some of the monitored status items (WIFI Signal, Battery, Temperature), the system will display the following "Alert Box."

- If the warning level is "Normal," the system will display an Alert Box with yellow borders.

- If the warning level is "High," the system will display an Alert Box with red borders.

- The corresponding Detector Indicator will be highlighted with red borders.
- The warning level is lowered, and then the red border highlighting the Detector Indicator will be deactivated.

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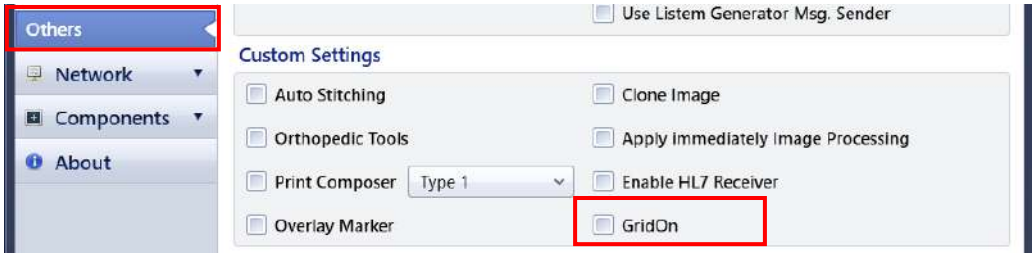
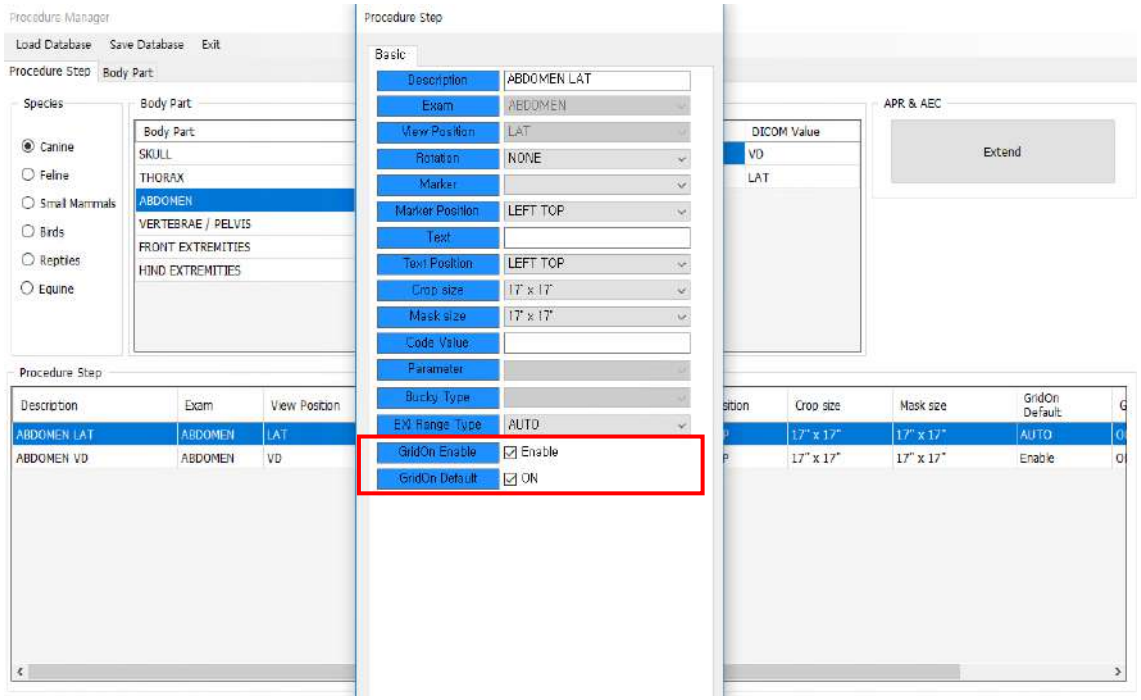
9. GridOn

9.1 Enable GridOn

9.1.1 Setting



- To use GridOn, check the GridOn option in setting > others.



- The GridOn detailed options are set through the Procedure Manager. Depending on each option, GridOn applies as follows:

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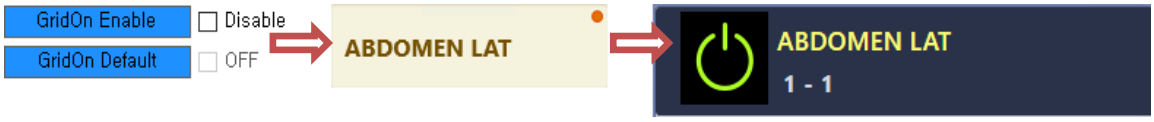

- The GridOn features is not available when all options are off.

- In capture viewer mode, GridOn mode is off by default when only 'GridOn Enable' checked. But you can re-select 'G' mark to activate it after acquire image.

- If all options are checked, 'G' marks will be displayed on the procedure part, and GridOn is enabled by default in capture mode.

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Technical Manual

rayence

PART III. Technical Manual

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1. Install / Remove the XmaruView V1

The installation file includes perquisite programs for a proper use of XmaruView V1 program.

The installation procedure may be subject to change depending on whether or not prerequisite programs are installed.

1.1 Install the XmaruView V1

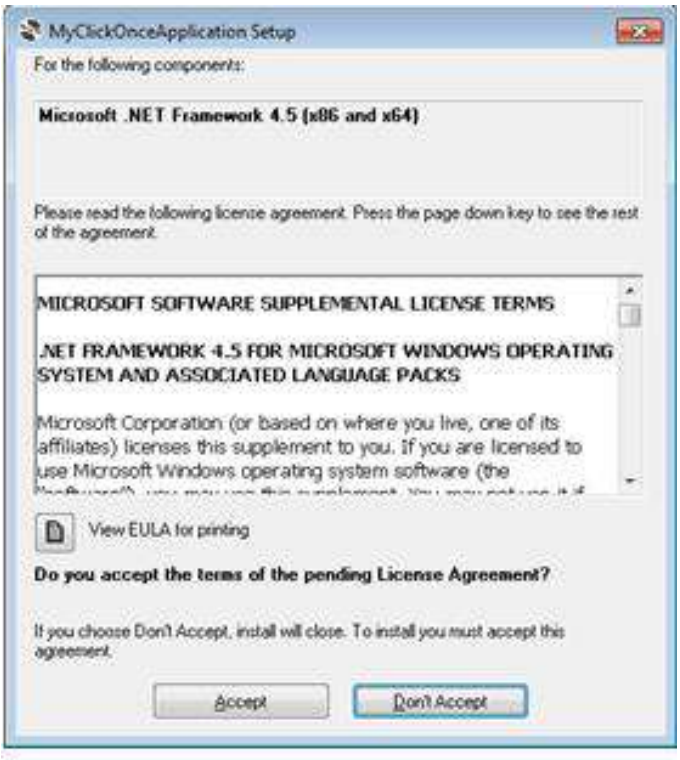
① Insert the Installation CD in CD-ROM Drive.

② Run the *[Installation CD Drive]* ₩2. Console Installation₩Setup.exe

◆ Run as administrator

1.1.1 Installation the required program

① Click the "Accept" button.



< Figure 94 Components Install >

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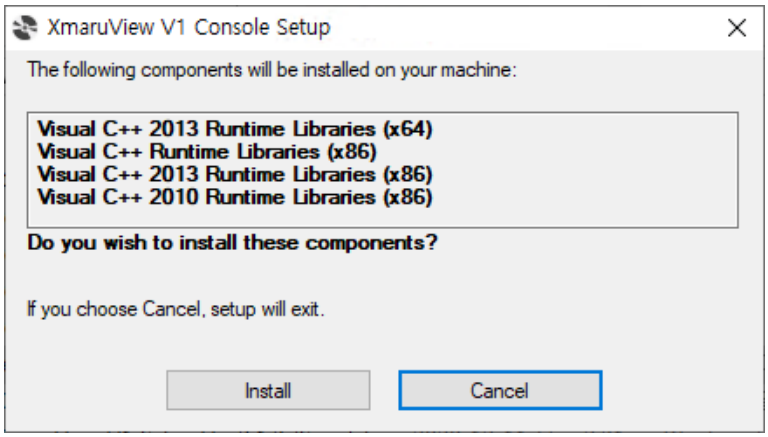
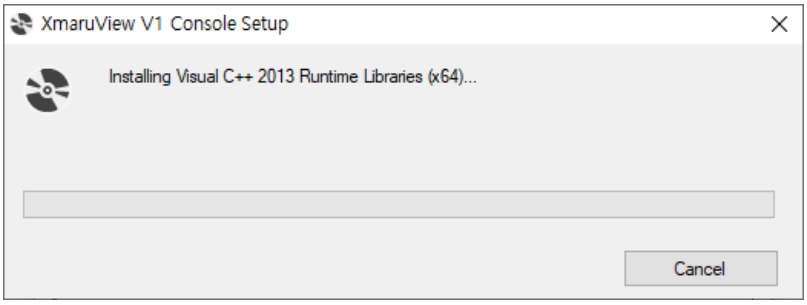
② Click the "Install" button.



< Figure 95 Components Install >

③ Start the components installation.



< Figure 96 Components Install >

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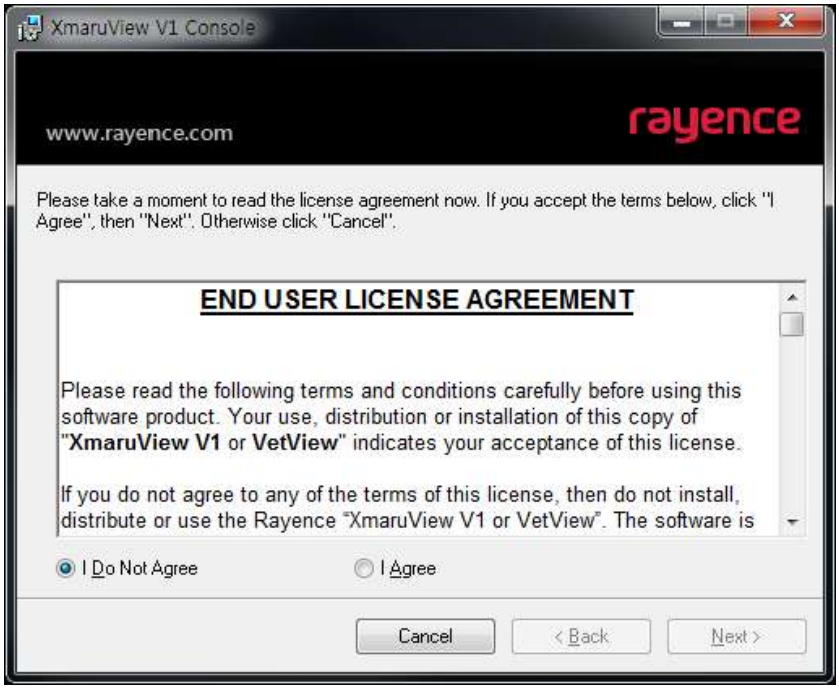
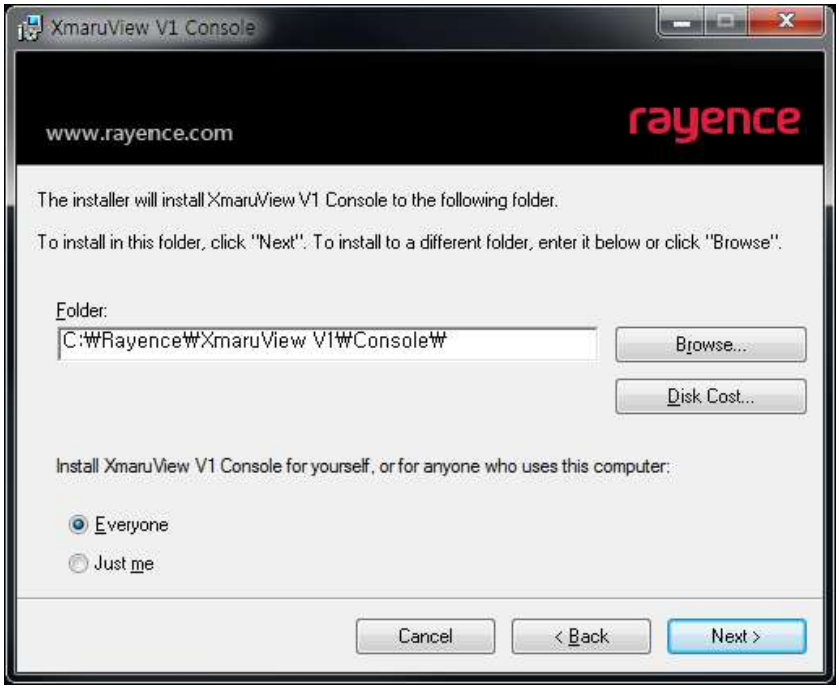
1.1.2 Install the XmaruView V1 main program

① Select the "I Agree" and Click the "Next" button to proceed with installation.



< Figure 97 Install >

② Click the "Next" button.



< Figure 98 Install >

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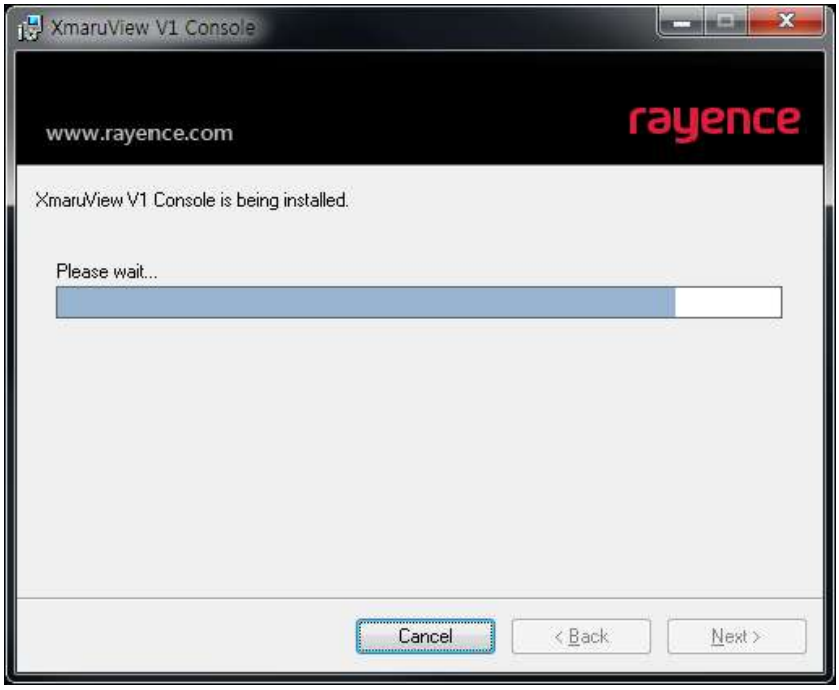
③ Click the "Next" button.

< Figure 99 Install >

④ The installation will proceed.



< Figure 100 Install >

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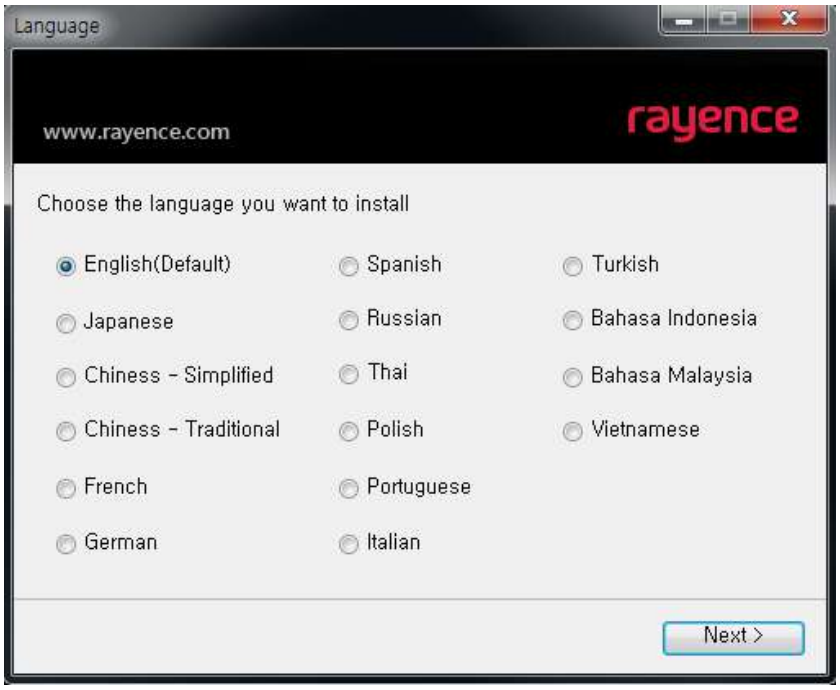
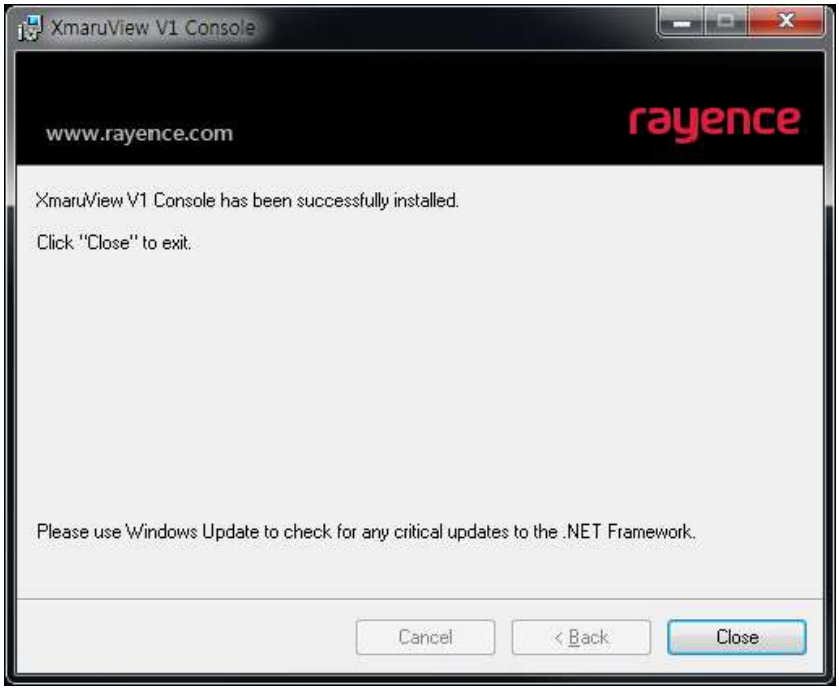
⑤ Choose the "language" and click the "Next" button.



< Figure 101 Install >

⑥ Click the "Close" button.



< Figure 102 Install >

⑦ Before running XmaruView V1, check device or system if it works correctly.

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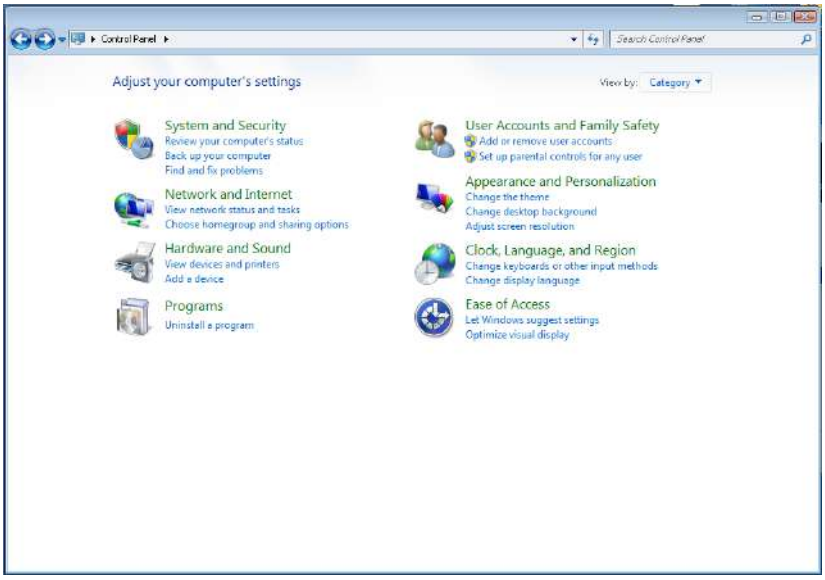
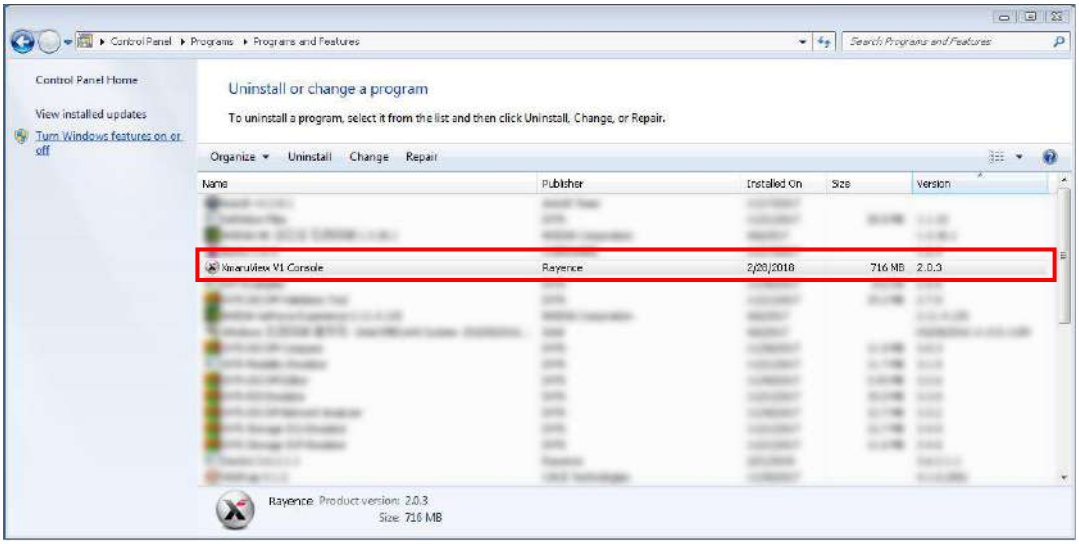
1.2 Remove XmaruView V1

① Go to Control Panel – Uninstall a Program.



< Figure 103 Control Panel >

② Click XmaruView V1 Console in the list of programs.



< Figure 104 Control Panel >

③ Select "XmaruView V1 Console" and click the Uninstall button.

	Uninstalling does not delete data from the database. However, it is recommended to back up data before uninstalling. Delete the database file if you want a clearn reinstallation.

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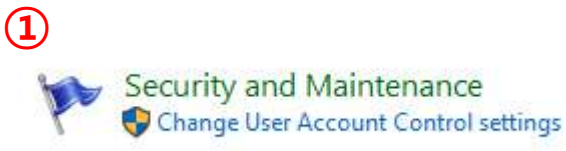
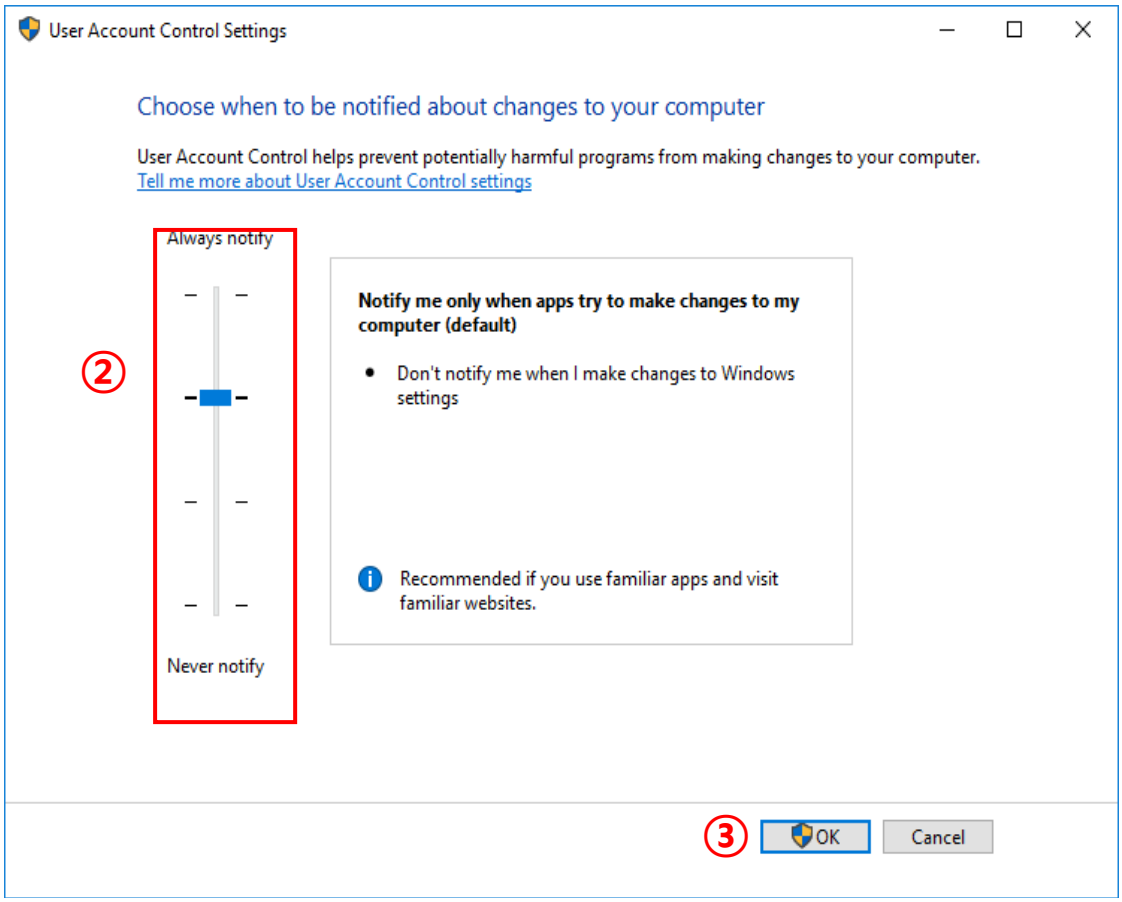
2. OS Settings

2.1 User Account Control Settings

2.1.1 Windows 10 Environment



① Go to [Control Panel > 'Change User Account Control Settings'].



② Set level to "Default."

③ Click the "OK" button.

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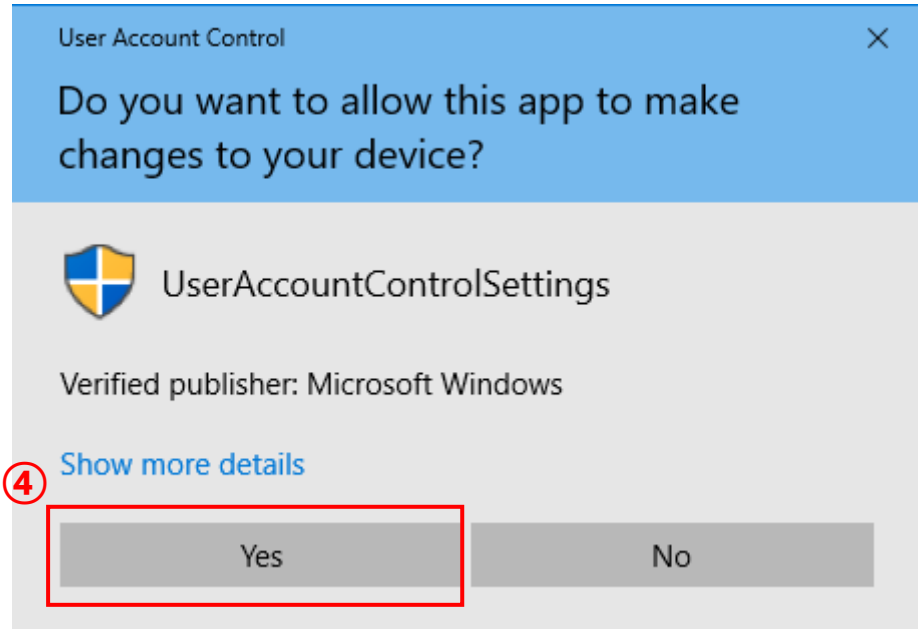
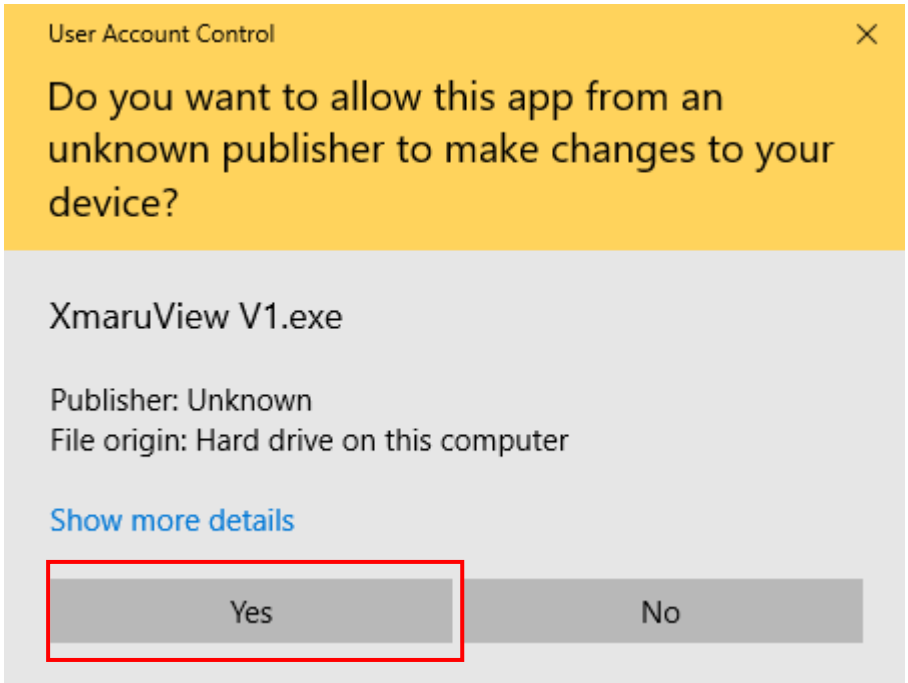


④ Click the "Yes" button.

CAUTION	Please note that a security issue may occur if the settings level is lower than the default level.



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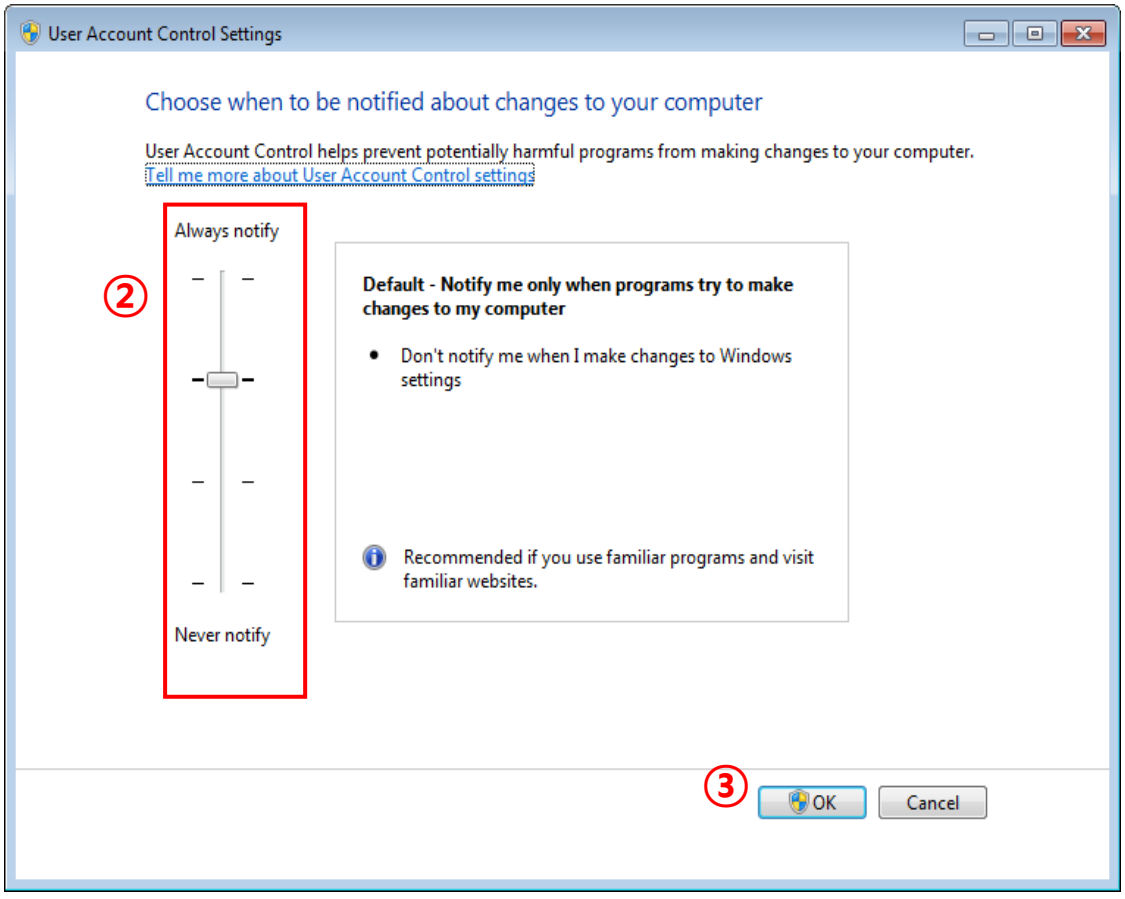
	The above popup notice will appear when the user runs XmaruView V1 in accordance with the settings level. Select 'Yes,' then run the Console.

2.1.2 Windows 7 Environment

① Go to [Control Panel > 'Change User Account Control Settings'].



② Set level to "Default."

③ Click the "OK" button.

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	A security issue may occur if the settings level is lower than the default level.

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2.2 Windows Defender Settings

2.2.1 Windows 10 Environment

① Go to [Control Panel > "Windows Defender Firewall"].

② Defender Firewalls for the Private Network / Public Network must be activated.

CAUTION	All Defender Firewalls must be activated through "Change Notification Settings" if the "Defender" option is set to "Off."

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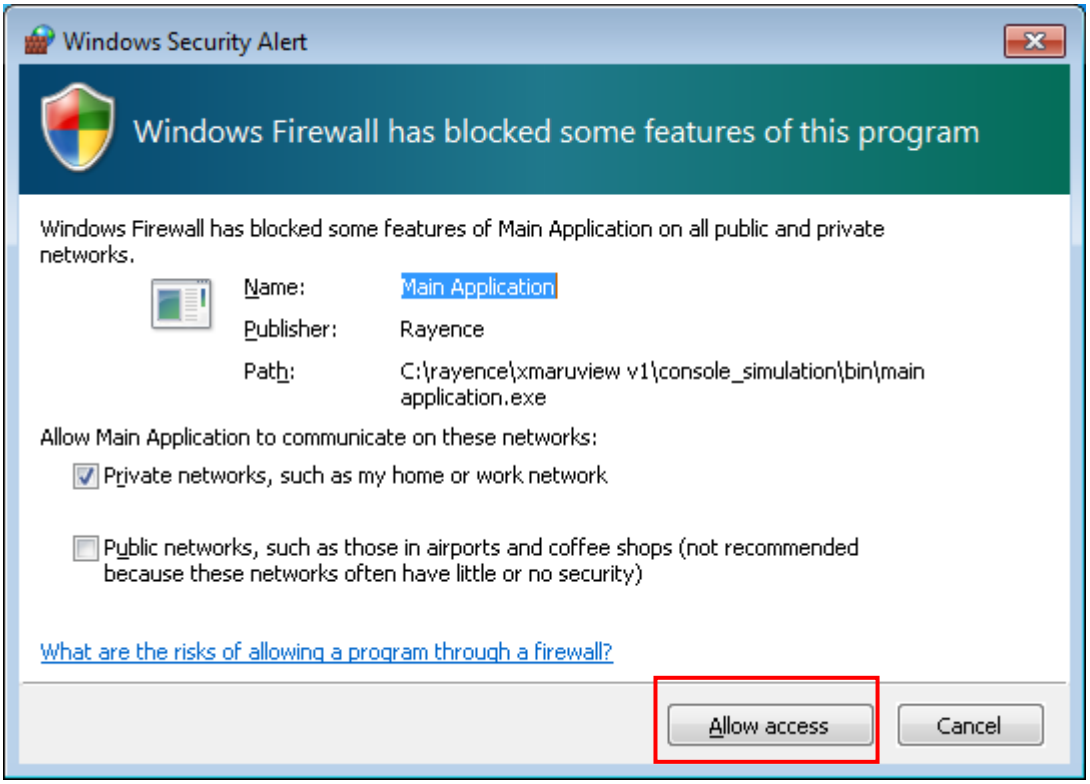

	A Windows Security Alert shall appear when the user uses the console with all Defender Firewalls activated. Here, the user must select "Allow Access" and proceed.

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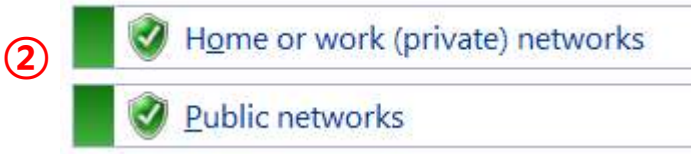
2.2.2 Windows 7 Environment (Reference)

① Go to [Control Panel > "Windows Firewall"].



② The Defender Firewall for the Private Network / Public Network must be activated.

CAUTION	All Defender Firewalls must be activated through "Change Notification Settings" if the "Defender" option is set to "Off."

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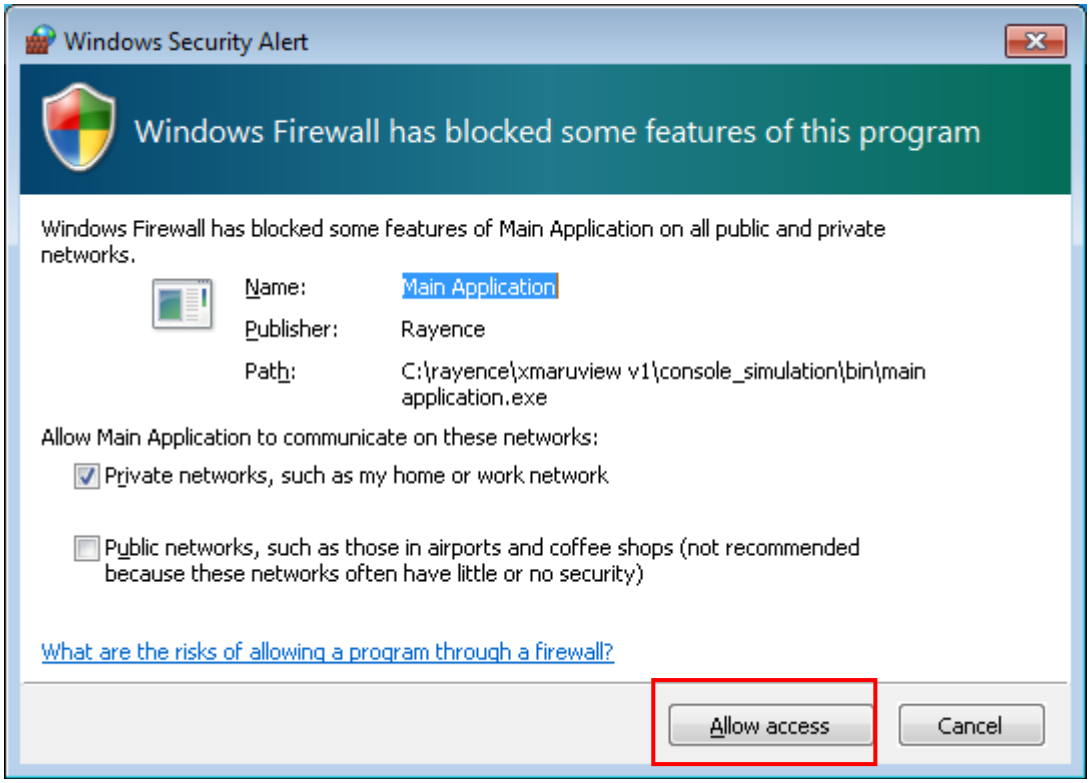

CAUTION	A Windows Security Alert shall appear when the user uses the console with all Defender Firewalls activated. Here, the user must select "Allow Access" and proceed.

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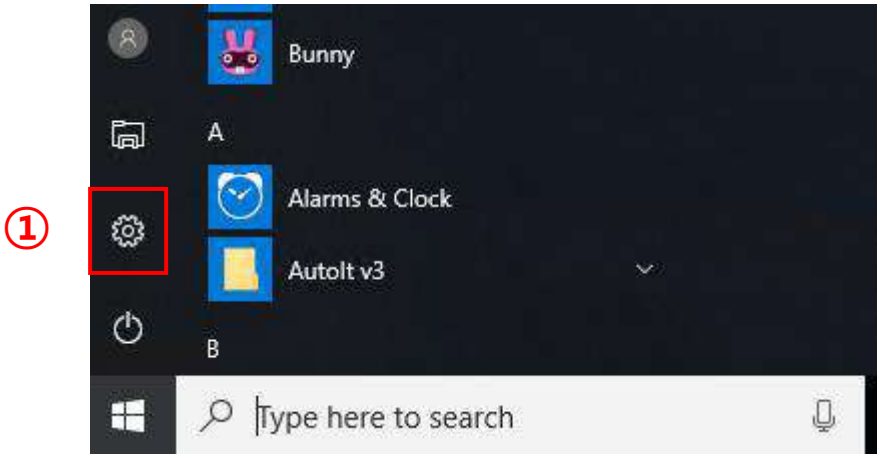
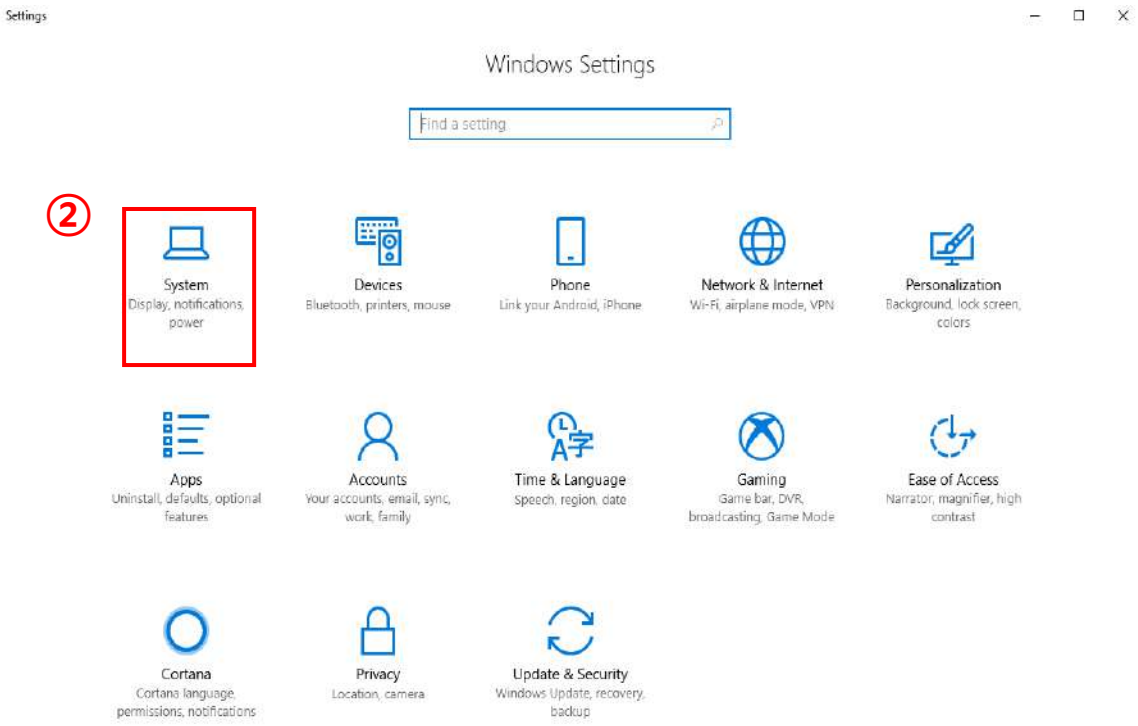
2.3 Activate/Deactivate Tablet Mode

2.3.1 Method 1



① Select "Settings" from the "Start" Menu.



② Select the "System" Menu.

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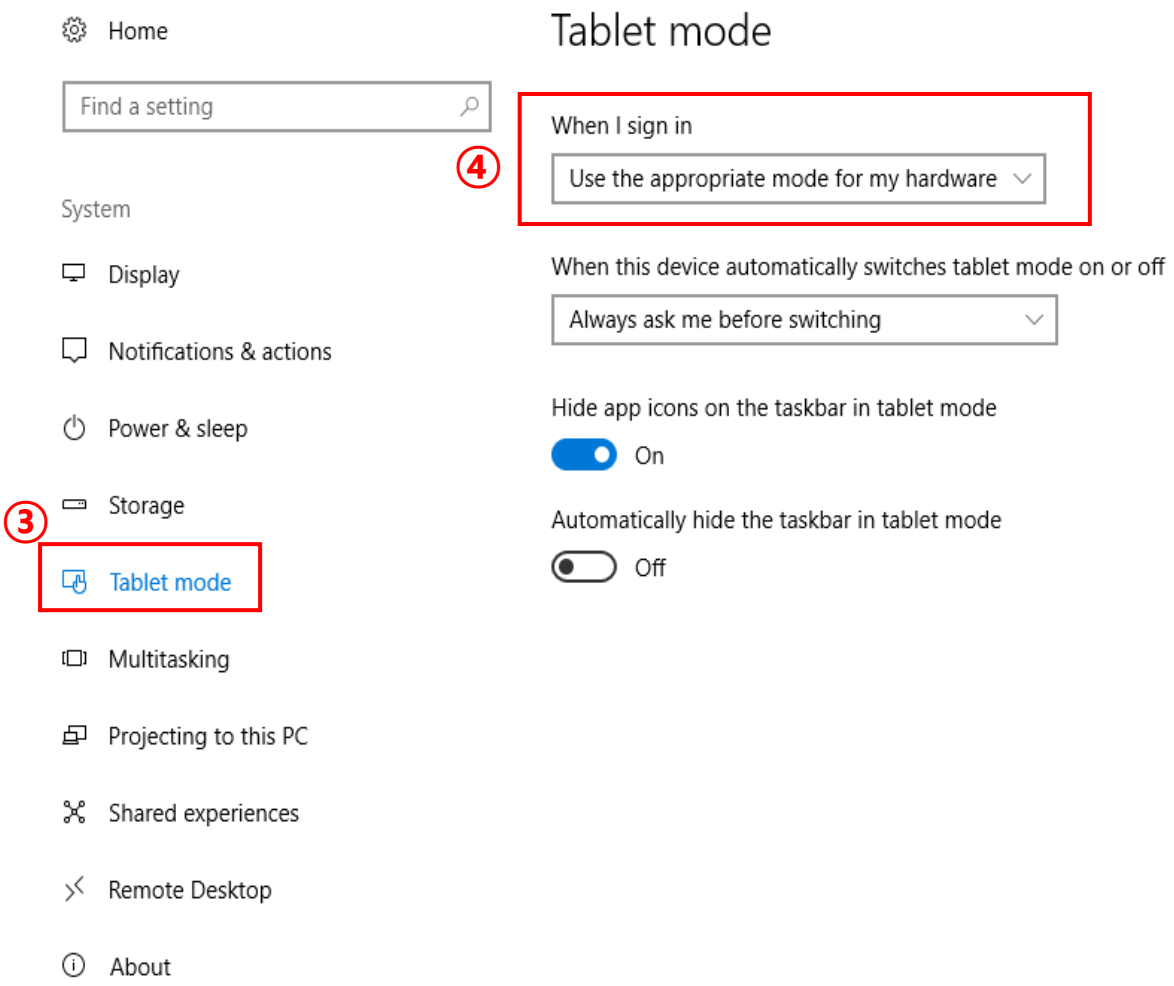

③ Select "Tablet" mode from the left-hand-side panel. (A submenu will appear on the right-hand-side after "Tablet" mode is selected.)

④ Select the appropriate option from the three available items.

- When I sign in use the appropriate mode for my hardware.
- When I sign in use tablet mode.
- When I sign in use desktop mode.

	Activate/Deactivate through "Make Windows friendlier when using your device as a tablet" if Windows 10 is the old build version.

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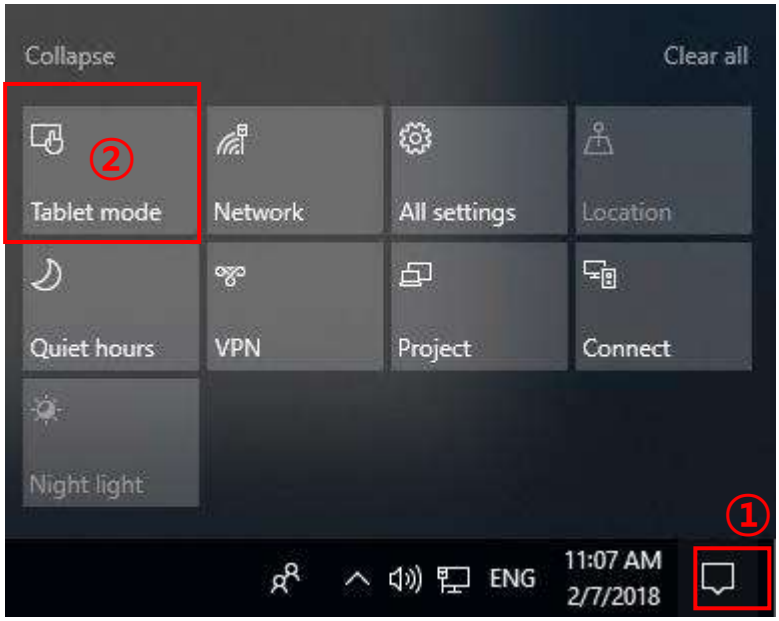
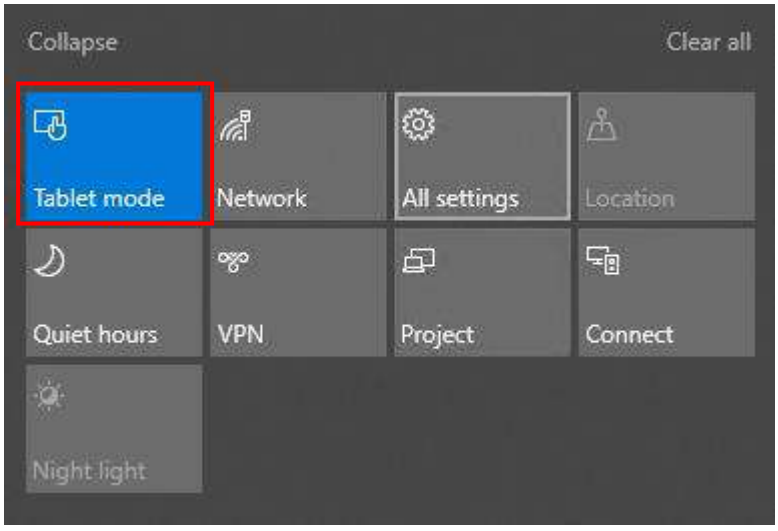
2.3.2 Method 2



① Select the "Action Center" icon from the taskbar.

② Use the "Tablet Mode" button and select the intended activity/operation.



The button will turn blue when Tablet mode is activated and gray when Tablet mode is deactivated.

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2.4 Add exceptions to Anti-Virus settings

"Real-time Protection" functions of anti-virus programs may limit XmaruView V1's functions and data creation.

Therefore, please add the following directories to the "Add Exceptions" in your anti-virus program.

- C:₩Davinci
- C:₩Rayence

The "Add Exceptions" is different in each anti-virus program, so please refer to the program user manual.

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3. Program Folder Structure

3.1 Folders of XmaruView V1

1	Directory	C:₩Rayence₩XmaruView V1₩Console
	Description	This is the root folder where XmaruView V1 is installed.
	Importance	High
2	Directory	C:₩Rayence₩DICOMService
	Description	This is the root folder where DICOM service component is installed.
	Importance	High
3	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin
	Description	Folder that contains important run files and library files for the console program.
	Importance	High
4	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩Generator
	Description	Program configuration file for generator models synchronized with XmaruView V1 using an external program.
	Importance	Intermediate
5	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩Resource
	Description	Folder that contains icon and logo files used in the program.
	Importance	Low
6	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩Main Application.exe

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	Description	Main console program
	Importance	Critical
7	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩AutoDelete.exe
	Description	Sub-program that reads the "Auto Delete" option settings and executes the "Auto Delete" function.
	Importance	High
8	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩AutoImportClient.exe
	Description	Sub-program that reads the tag information of a DICOM file when a DICOM file is imported.
	Importance	Intermediate
9	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩AutoMirroring.exe
	Description	Sub-program that reads the "Auto Mirroring" option settings and executes the "Auto Mirroring" function.
	Importance	High
10	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩BurnCD.exe
	Description	Sub-program that burns a patient's image data onto a CD when the "CD Export" function is executed.
	Importance	Intermediate
11	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩DICOMHeaderView.exe
	Description	Sub-program that pops up when the "DICOM Header View" command is executed from the console.
	Importance	Intermediate
12	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩osk.exe

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	Description	Virtual keyboard program
	Importance	Low
13	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩VPrintSCU.exe
	Description	Sub-program that requests the "DICOM Print" command.
	Importance	Intermediate
14	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩VTQRSCU.exe
	Description	Sub-program executed when the "Q/R" function is executed from the console.
	Importance	High
15	Directory	C:₩Rayence₩XmaruView V1₩Console₩Bin₩XmaruView V1.exe
	Description	A console login program. This program executes Main Application.exe.
	Importance	Critical
16	Directory	C:₩Rayence₩XmaruView V1₩Console₩CAL
	Description	A folder created to store calibration data. Currently not in use.
	Importance	Low
17	Directory	C:₩Rayence₩XmaruView V1₩Console₩CDViewer
	Description	A folder that temporarily contains patient's image when it is being burned onto a CD. It includes the CDViewer program.
	Importance	Intermediate
18	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database
	Description	Folder that contains the Database files used in the console.

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	Importance	Critical
19	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Chiro.db
	Description	Database file that contains values required for the description and measurement data of the Chiro measurement tool.
	Importance	High
20	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Config.db
	Description	Database file that contains the values set through the "Settings" menu of the console.
	Importance	High
21	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩History.db
	Description	Database file that records a log of information on the acquisition, re-filming, deletion, and acceptance of images from the console. It also records the login information of each command.
	Importance	Intermediate
22	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Procedure.db
	Description	Database file that contains the data set through the "Procedure Manager" tool.
	Importance	High
23	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Queue.db
	Description	Database file used to input and send requests from the corresponding database in sequence when "DICOM Send" and "DICOM Print" commands are executed.
	Importance	Low
24	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Recycle.db

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	Description	Database file that contains the information of deleted images to help recover images deleted from the console.
	Importance	Low
25	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Report.db
	Description	Database file that contains "Report" data entered in for each image from the console.
	Importance	Intermediate
26	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩Study.db
	Description	Database file that contains patient, study, and image information.
	Importance	Critical
27	Directory	C:₩Rayence₩XmaruView V1₩Console₩Database₩DBBackup
	Description	Contains backup files of the most recent database of XmaruView V1. (Database is backed up upon termination of program and the folder is automatically created if it is absent)
	Importance	Low
28	Directory	C:₩Rayence₩XmaruView V1₩Console₩Doc
	Description	Folder that contains documents related to the use of the console and settings used for the sub-program.
	Importance	High
29	Directory	C:₩Rayence₩XmaruView V1₩Console₩Doc₩eula.rtf
	Description	End-User License Agreement document.
	Importance	Intermediate
30	Directory	C:₩Rayence₩XmaruView V1₩Console₩Doc₩ACQModule.ini

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	Description	File used when the console sends/receives data to/from sub-programs.
	Importance	Intermediate
31	Directory	C:₩Rayence₩XmaruView V1₩Console₩Doc₩DICOMInfo.ini
	Description	File where the location of patient information and image information are displayed and specific items to be displayed with the image on the console.
	Importance	High
32	Directory	C:₩Rayence₩XmaruView V1₩Console₩Doc₩Patient Import Format #.csv
	Description	CVS sample file used for the "Patient Import" function at the console.
	Importance	Low
33	Directory	C:₩Rayence₩XmaruView V1₩Console₩ImageData
	Description	Serves as local storage to keep acquired images. (able to change its use to keep other data in configuration settings)
	Importance	High
34	Directory	C:₩XmaruViewV1₩Console₩ImageTmp
	Description	Temporary folder.
	Importance	Low
35	Directory	C:₩XmaruViewV1₩Console₩Language
	Description	Folder that contains language files for multi-lingual support.
	Importance	High
36	Directory	C:₩XmaruViewV1₩Console₩Log
	Description	Contains logs of XmaruView V1.

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	Importance	Low
37	Directory	C:₩XmaruViewV1₩Console₩Bin₩PrintLog
	Description	Contains work logs of DICOM Print. (automatically created if absent)
	Importance	Low
38	Directory	C:₩XmaruViewV1₩Console₩Spool
	Description	Contains temporary image data for DICOM Print.
	Importance	Low
39	Directory	C:₩XmaruViewV1₩Console₩Store
	Description	Contains temporary image data for DICOM Store.
	Importance	Low

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3.2 Backup and Recovery folders of XmaruView V1

3.2.1 Backup

When removing the program from the console, all folders and files were installed will be deleted. So, please take a backup of the following folders before removing the program.

- C:₩Rayence₩XmaruView V1₩Console₩Database
- C:₩Rayence₩XmaruView V1₩Console₩Doc
- C:₩Rayence₩XmaruView V1₩Console₩ImageData
- C:₩Rayence₩XmaruView V1₩Console₩Language-
- C:₩Rayence₩XmaruView V1₩Console₩Log

3.2.2 Recovery

Once the program is reinstalled, please rewrite all backup folders and files

in the same directory.

The incumbent program version must be identical to the newly installed version.

	When installing the program, please keep in mind that new files will replace the same files that already exist in the program installation directory.

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Workflow Diagram for a General Radiographic Examination

New Patient

Emergency

Start Study

Suspend

Worklist

Capture

Worklist

Worklist

Studylist

Login

Restore

Recycle List

Capture

Studylist

Studylist

Studylist

Open Study

Or

Print

DICOM DIR

Send

NOTE: The Following Example Illustrates a Case in which the Software is used under Interoperability Services with the PACS

Screen Tabs

Screen Transition

Captured Image Transmission

Button

Xmaru View V1

gistration

Edit Procedure

Capture

Edit Procedure

Capture

Edit Procedure
Text Mode

Edit Procedure
Graphic Mode

Exposure
Switch

Next Image

Worklist

Viewer

Send

Print

DICOM DIR
(CD Burn)

DICOM
Printer

PACS

Client
(miniPACS)

Retake

Acquiring Image
After Exposure

Close Study

Edit Procedure

Viewer

Send

Print

Hanging
Protocol
Wizard

View Image
Review Post-Processed Image

4. XmaruView V1 License

4.1 Activation

4.1.1 Get Request Code

- Run the console program.
- If your license is not certified yet, the following image is displayed.

< Figure 105-1 Request Code >

① You can check the request code.

② Press the Copy button to copy the code into clip board automatically.

③ Press the Request button to get a new request code. In this case, you cannot use the old activation code issued as request code.

4.1.2 Set Activation Code

- Run the console program.
- If your license is not certified yet, the following image is displayed.

< Figure 105-2 Activation >

① Enter the Activation Code issued by License Server.

② Press the Activation button to activate.

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4.2 Introduction of License Server

- License Server is a software program that issues and manages license keys for Rayence S/W products.
- Because License Server software is operated in a cloud environment, you can use it through your internet browser anytime and anywhere.
- License Server is currently compatible with XmaruView V1, Mobile Console, etc., and provides an easy-to-use interface.

4.3 Major Function of License Server

- License Server lets you conveniently issue a license key and manage its corresponding history.
- The followings are the major functions of License Server.
- It controls the permitted account to access to License Server with the login/logout function.
- It manages License Server access account(s) with functions to generate, view, delete or update an account.
- It issues the license key based on the information concerning the dealer, customer, request code and options.
- It manages the history of the issued license key based on the information concerning the dealer, customer, request code, options, etc. by recording to the relevant database.
- It uses a method of self-encryption to ensure the security of the license key.
- Upon the issuance of a license key, a notification is delivered to the administrator for confirmation.
- License Server sets the maximum license count that each agent can issue in order to avoid license(s) from being issued indiscreetly, thus enhancing the property value of the S/W product.

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4.4 System Requirements of License Server

4.4.1 License Server System Requirements

- The recommended system requirements for a proper execution of License Server are shown below:
  - All devices that can be connected to the internet
  - PC, tablet (Galaxy Tab, iPad, etc.), smart phone (Android, iOS, Windows Mobile, etc.)
- Supported Web Browsers
  - Internet Explorer 9.0 or higher
  - Google Chrome 16.0 or higher
  - Apple Safari 5.1 or higher
  - Mozilla Firefox 9.0 or higher

4.5 Start / Terminate License Server

4.5.1 Start License Server

- Open your web browser.
- Enter http://www.rayence-license.com in the web browser's address input box.
- Confirm that the Login screen of License Server is displayed.
- Enter your e-mail address account in the ID input box.
- Enter your password in the Password input box.
- To ensure that License Server will remember your account, tick the checkbox next to "Remember me".
- Press the "Login" button to log in.
  If login doesn't proceed in the normal method, contact your administrator.

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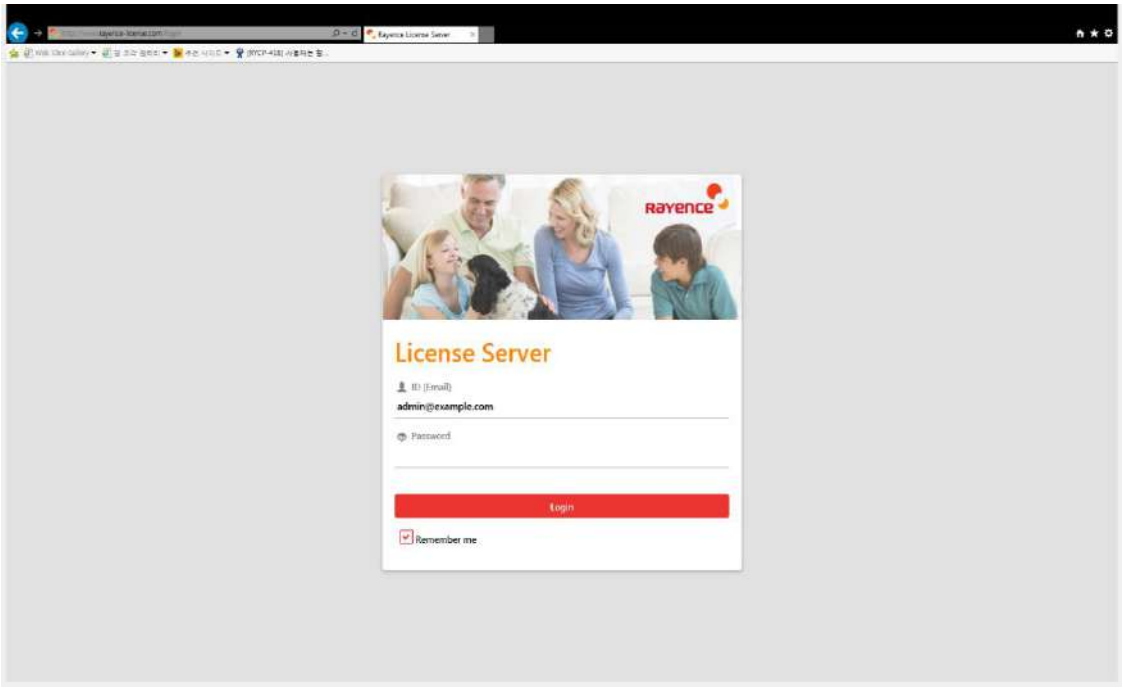

< Figure 106 Login >

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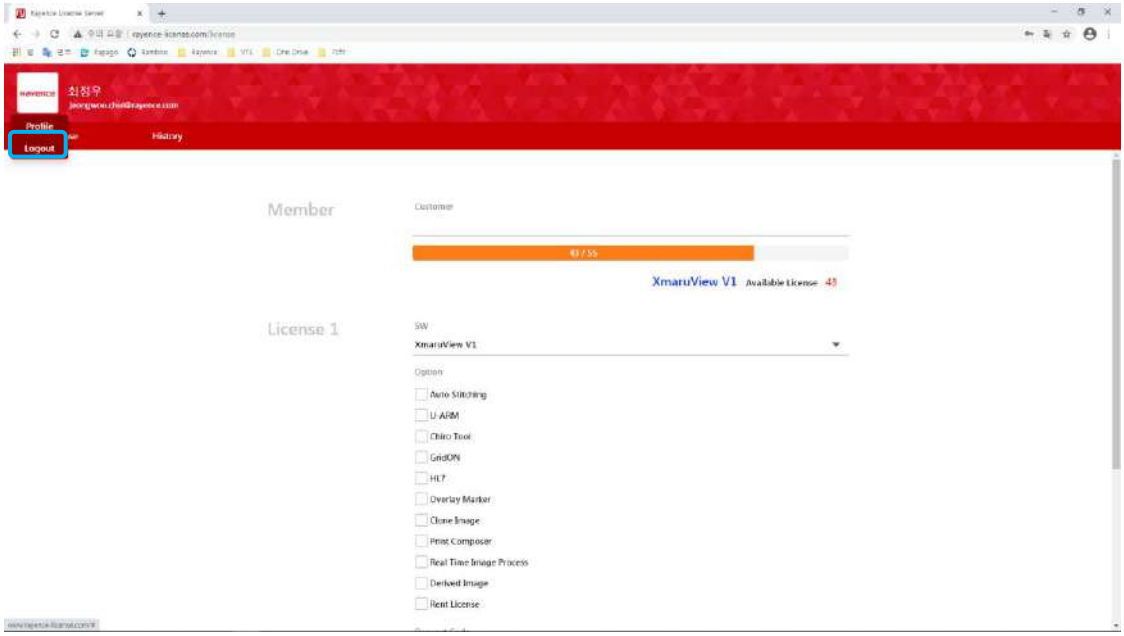
4.5.2 Terminate License Server

- Click the "License Server" -> "Profile" screen to display the "Logout" button.
- Click the "Logout" button to exit.



< Figure 107 Logout >

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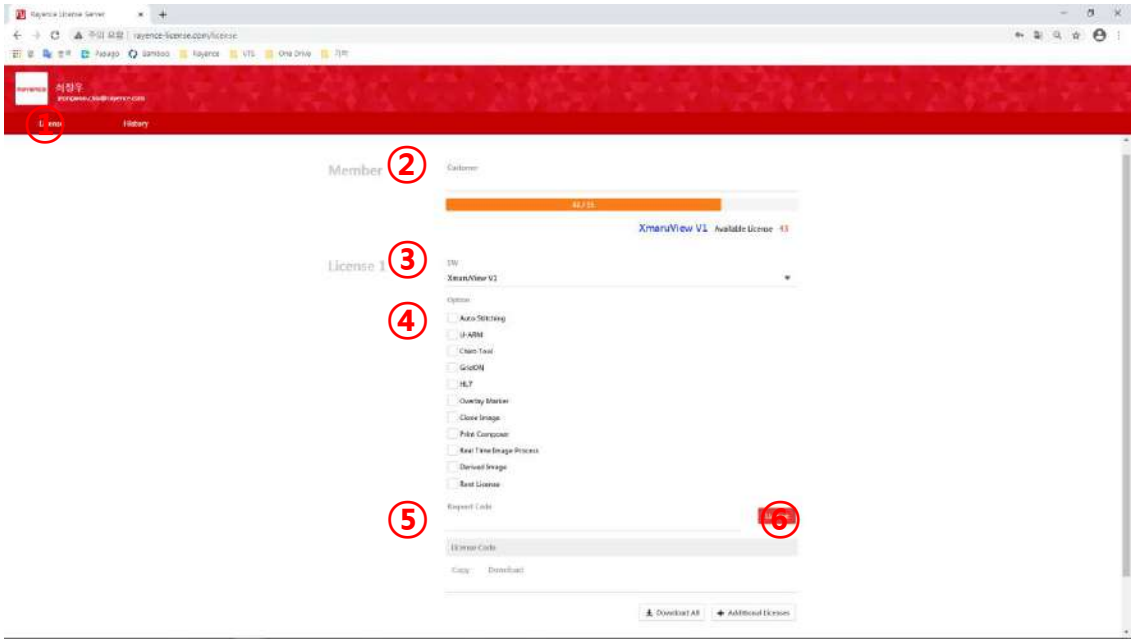
4.6 License Key Insurance Process

4.6.1 Issue License Key



< Figure 108 Issue License Key >

① Click the "License" button.

② Enter the customer information.

③ Select the S/W information.

④ Select "Option".

⑤ Enter the request code.

⑥ Click the "License" button to issue a license key.

⑦ Click the "Copy" button to copy the issued license key to the clipboard.

⑧ Click the "Download" button to download the issued license key in CSV format.

	1. Customer information and request code are required. 2. Issue licenses as many as you bought the product. In case of Copies "0", you cannot issue a license and should buy a product additionally.

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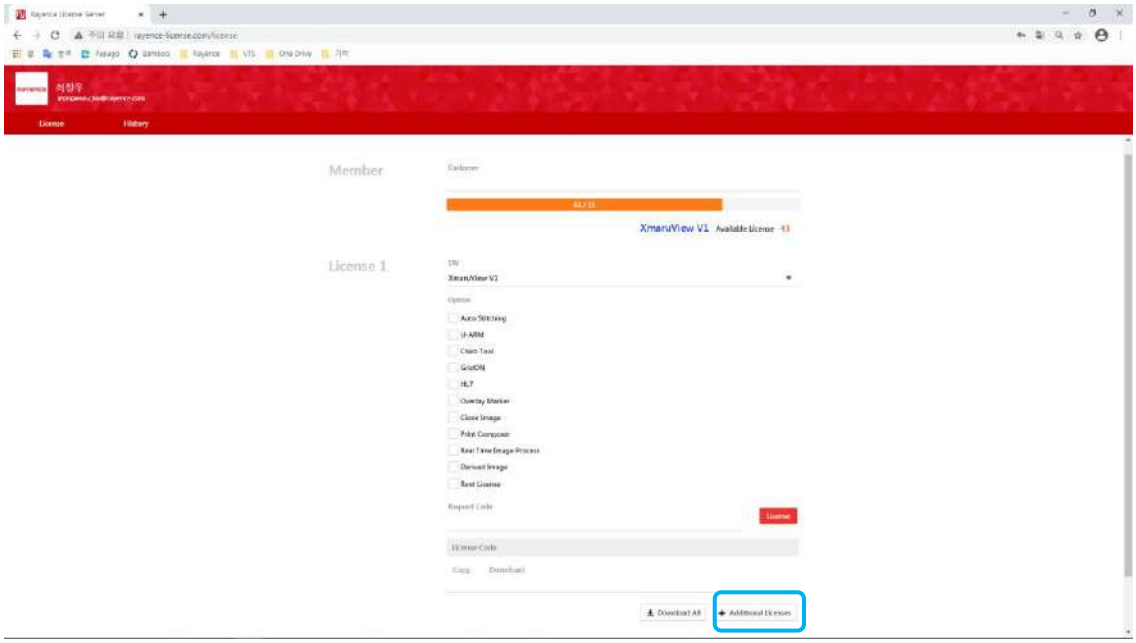
4.6.2 Issue an Additional License Key



< Figure 109 Issue an Additional License Key >

① Click the "Additional Licenses" button.

② Repeat the above license key issuance process.

③ Click the "Download All" button to simultaneously download all the issued license keys in CSV format.

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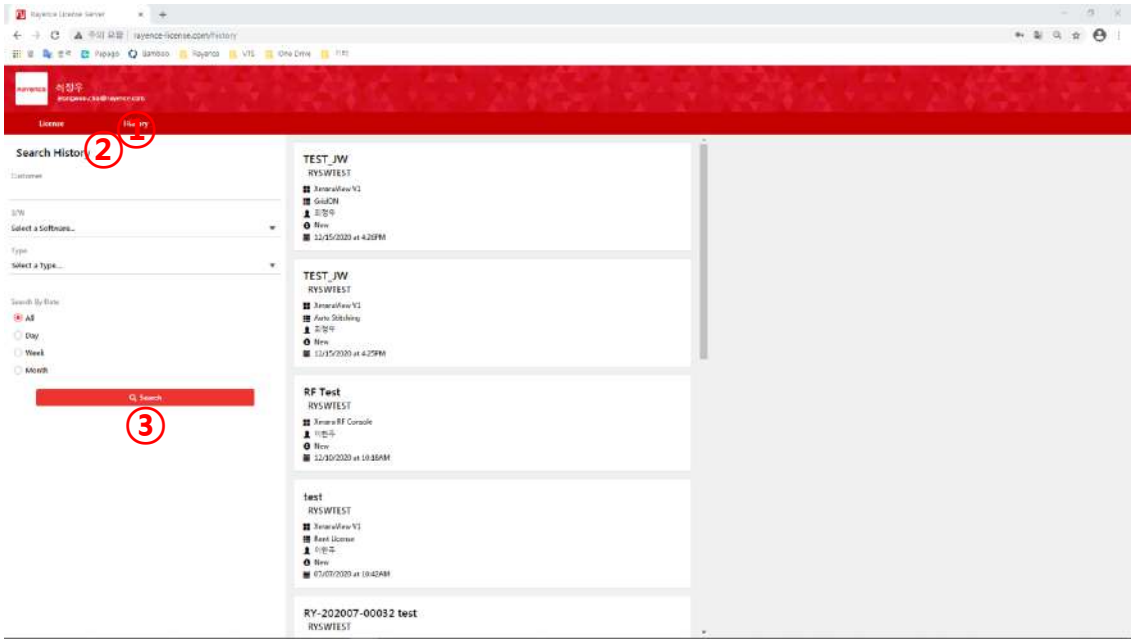
4.6.3 Search License Key History



< Figure 110 Search License Key History >

① Click the "History" button.

② Select the search condition(s).

③ Click the "Search" button to view a list of history search results.

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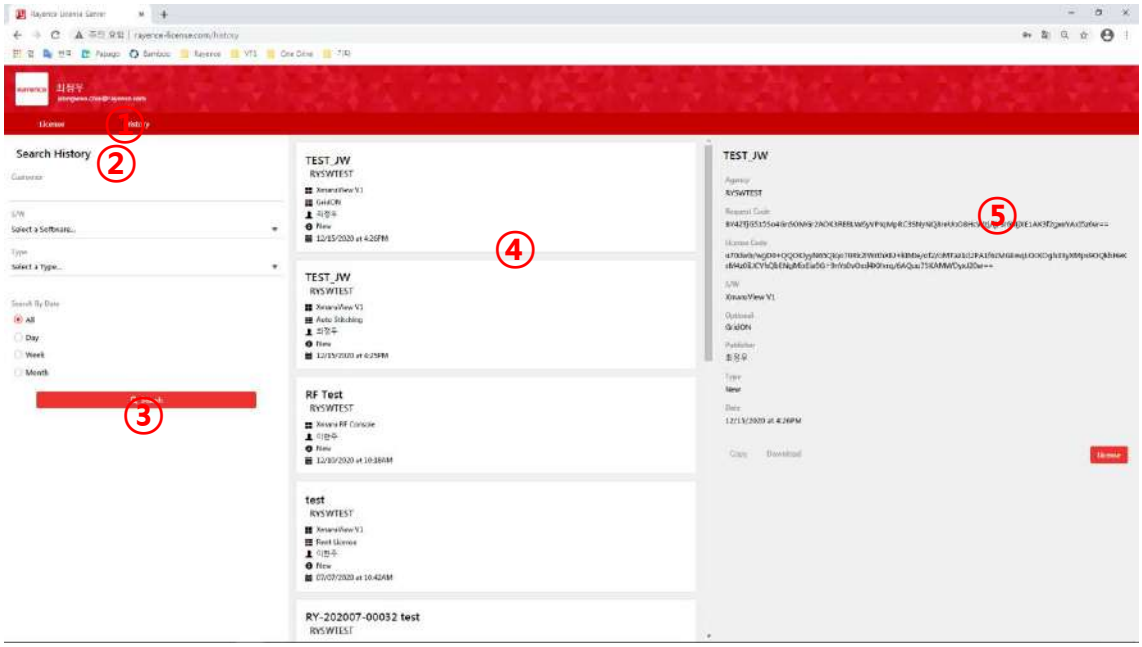
4.6.4 Search License Key History in Detail



< Figure 111 Search License Key in Detail >

① Click the "History" button.

② Select the search condition(s).

③ Click the "Search" button to view a list of history search results.

④ Select your desired history from among the displayed history search results.

⑤ The detailed history is displayed in the right pane of your screen.

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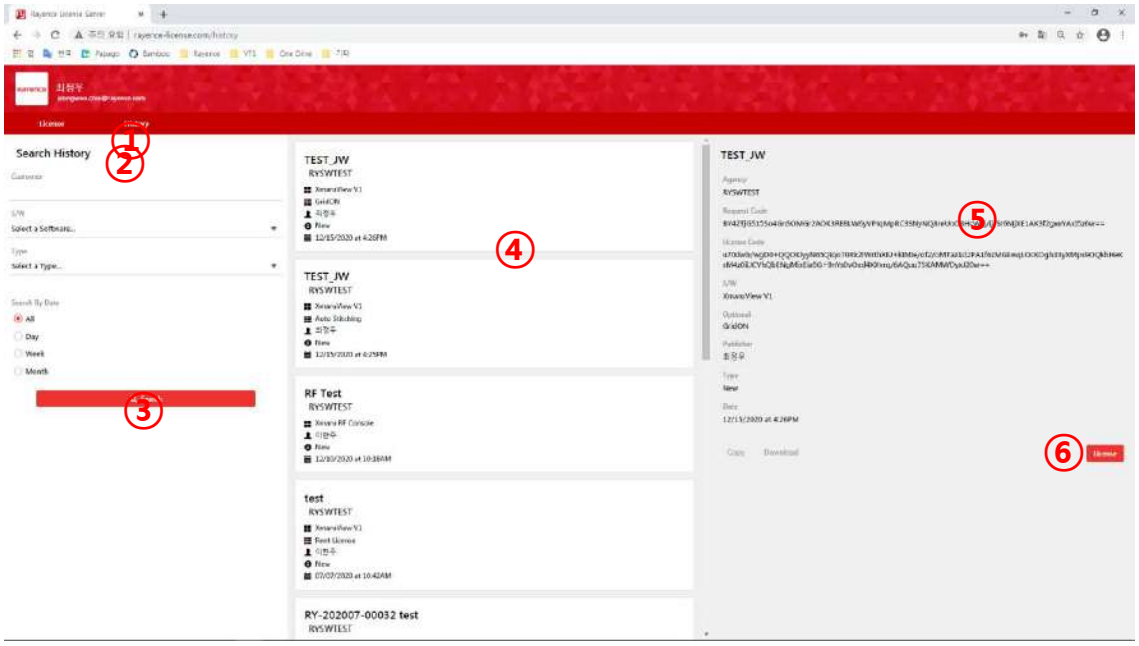
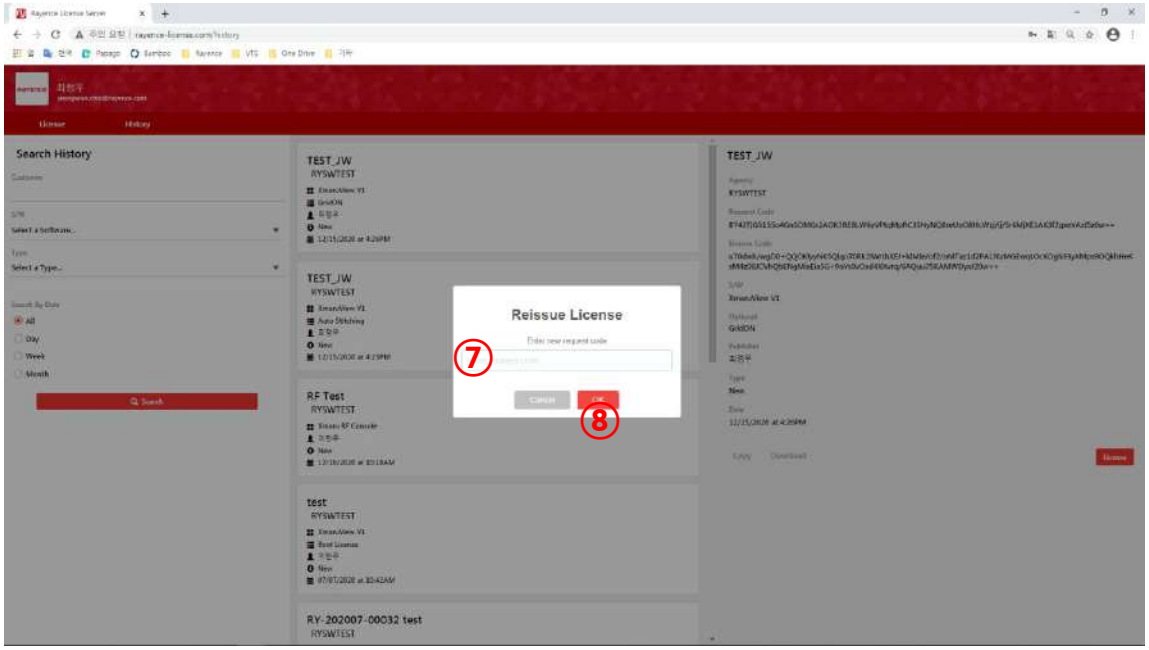
4.6.5 Reissue License Key



< Figure 112-1 Reissue License Key >



< Figure 112-2 Reissue License Key >

① Click the "History" button.

② Select the search condition(s).

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③ Click the "Search" button to view a list of history search results.

④ Select your desired history from among the displayed history search results.

⑤ The detail history is displayed in the right pane of your screen.

⑥ Click the "License" button.

⑦ Enter a new request code.

⑧ Click the "OK" button to request license key reissuance.

	License key reissuance must be approved by the administrator. License key reissuance is not counted as the available license count.

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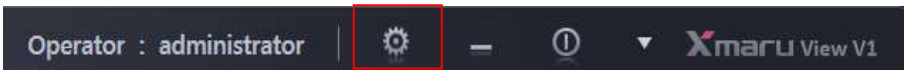
5. System Menu

	You can see the Setting menu only logged-in Administrator account.

- Logged-in Administrator account.

  Setting function will be shown.



- Do not logged-in Administrator.

  Setting function will be not shown.

	Do not change the date & time on Windows OS. It may be reason of system failure.

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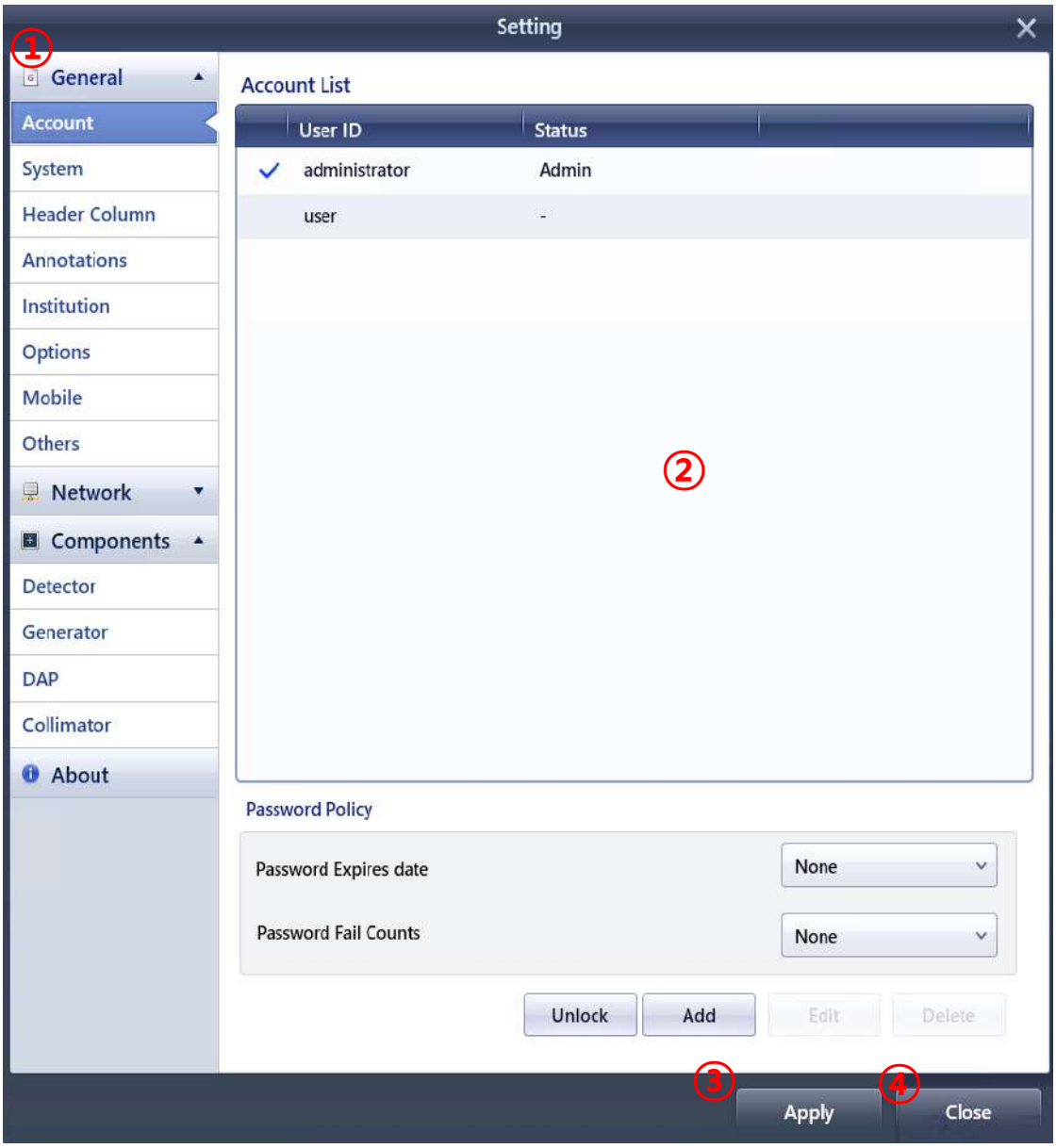
5.1 Basic Settings



< Figure 113 Setting >

① Category : The configuration settings page is classified into General, Network, Component and About.

② Page Display Area : Displays the paged selected from the left category.

③ Apply : Save and apply changes before closing the configuration settings window.

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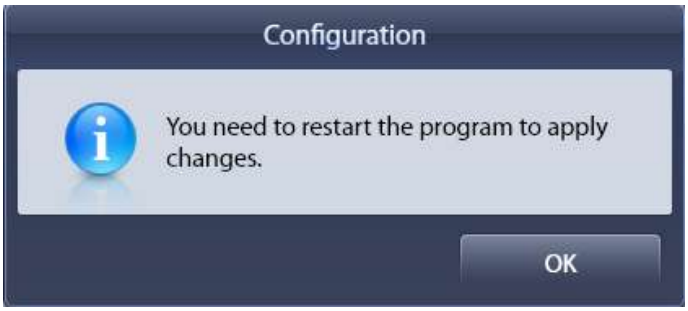
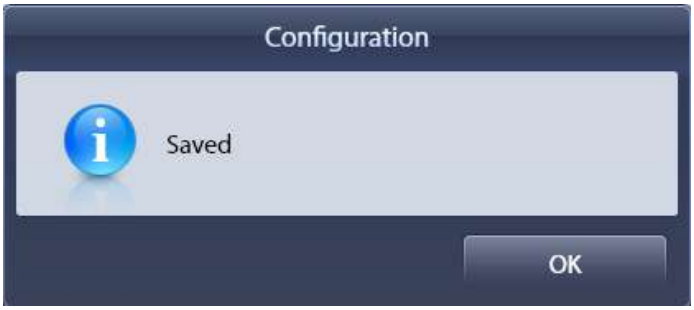
Two different types of message boxes will appear depending on the settings.

- If the program rebooting is required to apply settings.



- If the program rebooting is not required to apply settings.



④ Close : Close the configuration settings window without saving changes.

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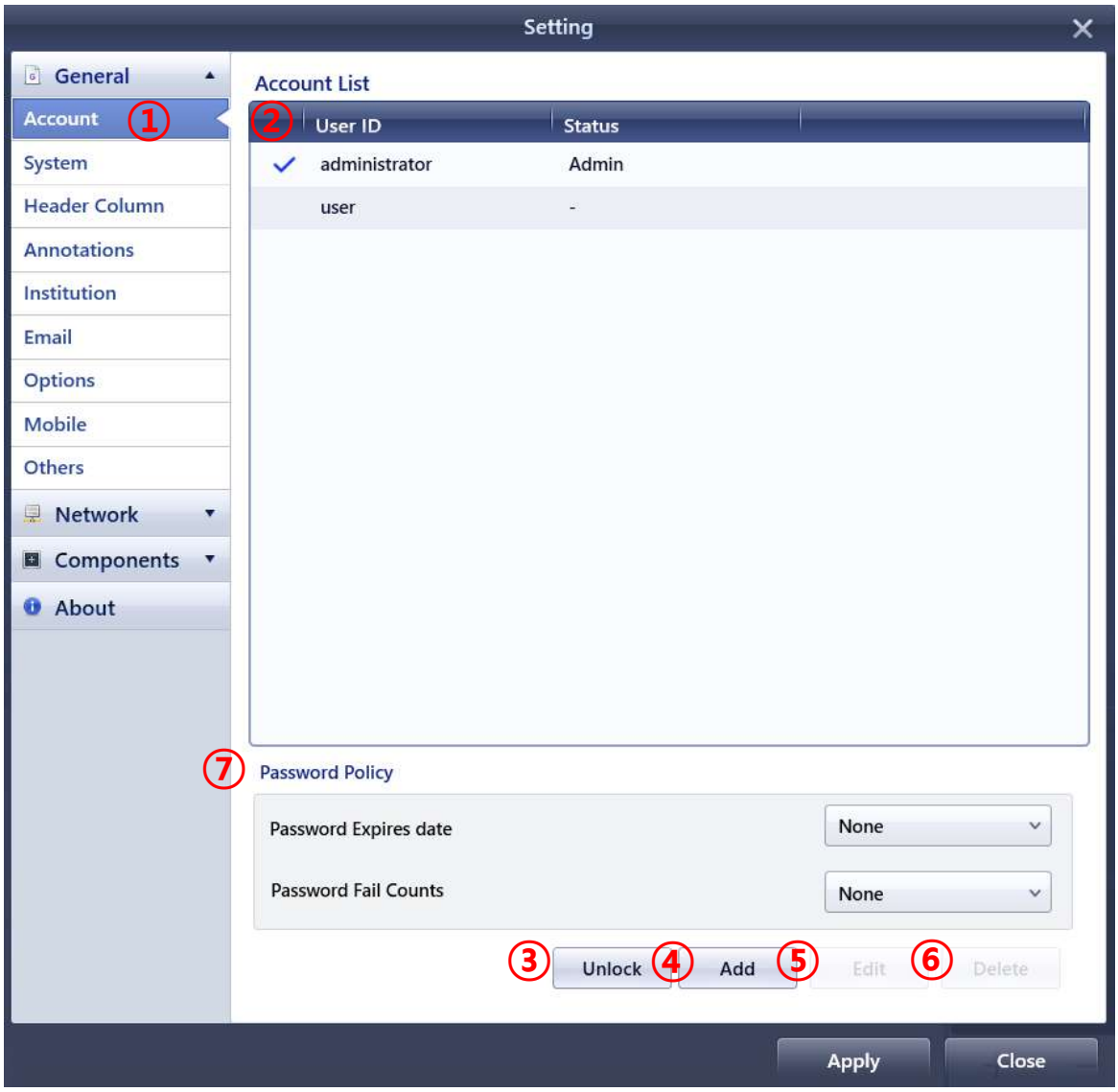
5.1.1 General

5.1.1.1 Account



< Figure 114 Account >

① Click "Account" in General category.

② Account List : Show the list of user accounts registered in current Console S/W

Default User ID : [User].

③ Unlock : This button activates locked accounts for security policy reasons.

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④ Add

- Add a new user account.

a) ID : Enter the user ID.

b) Password : Enter the password.

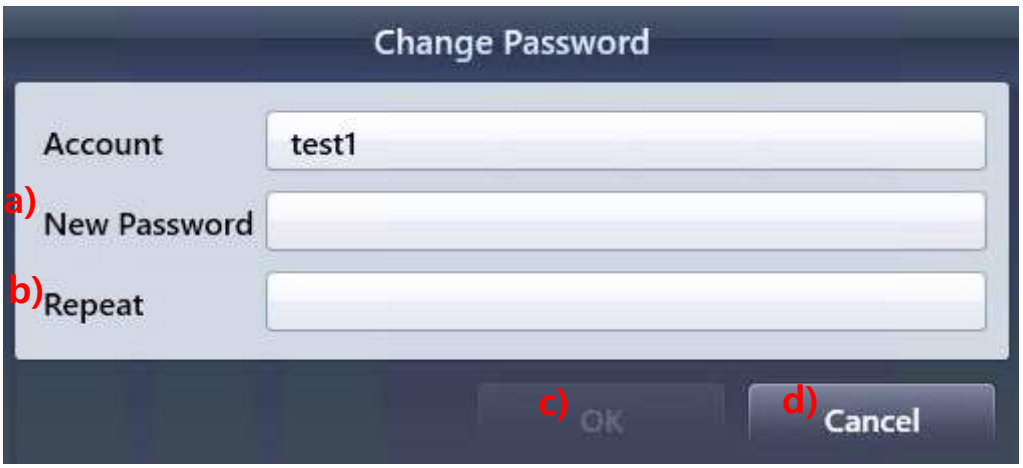
c) Repeat : Repeat the password for confirmation.

d) Click the "OK" button.

e) Click the "Cancel" button if you want to cancel.

⑤ Edit

- Change the password of the selected account.



a) New Password : Enter the new password.

b) Repeat : Repeat the newly entered password.

c) Click the "OK" button.

d) Click the "Cancel" button if you want to cancel.

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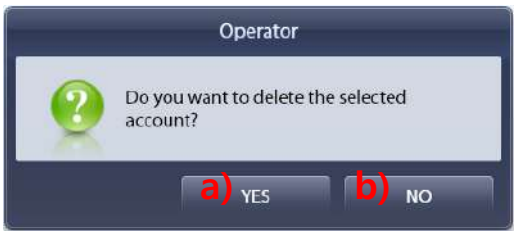
	Password should be inputted at the least 8 letters.

⑥ Delete

- Delete the account selected from the list of accounts.

	It is not allowed to delete default administrator and user account.

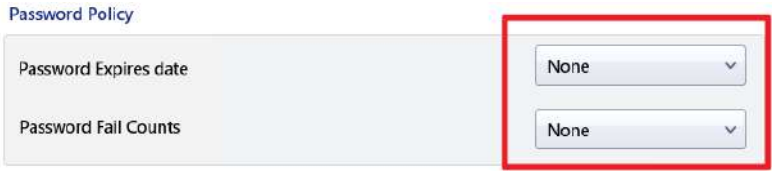


- The Delete Confirmation Dialog Box will be popped up.

a) Delete the account by clicking the "YES" button.

b) Click the "No" button if you want to cancel.

⑦ Password Policy



- If you don't have a security policy, you can use the created account without restriction.

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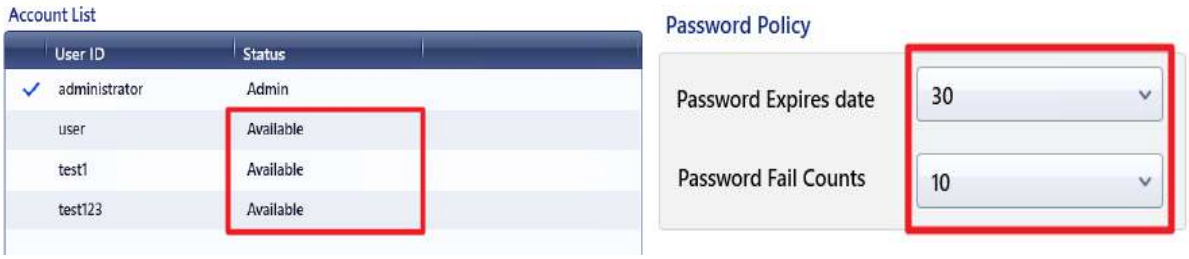
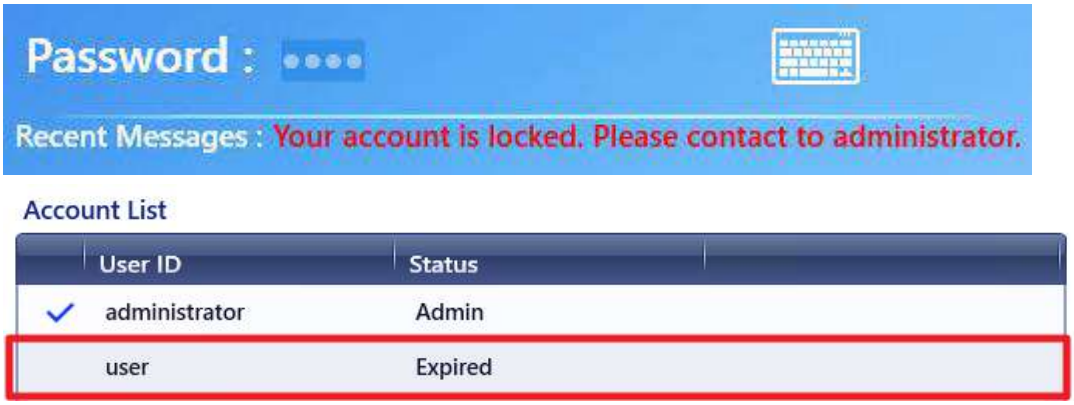


- If the security policy is set up as shown above, you can see the status of each account.

a)

a) If the failure count exceeds the set value, the account status will be locked.

b)



b) If the set period has expired, the account will be 'expired'.

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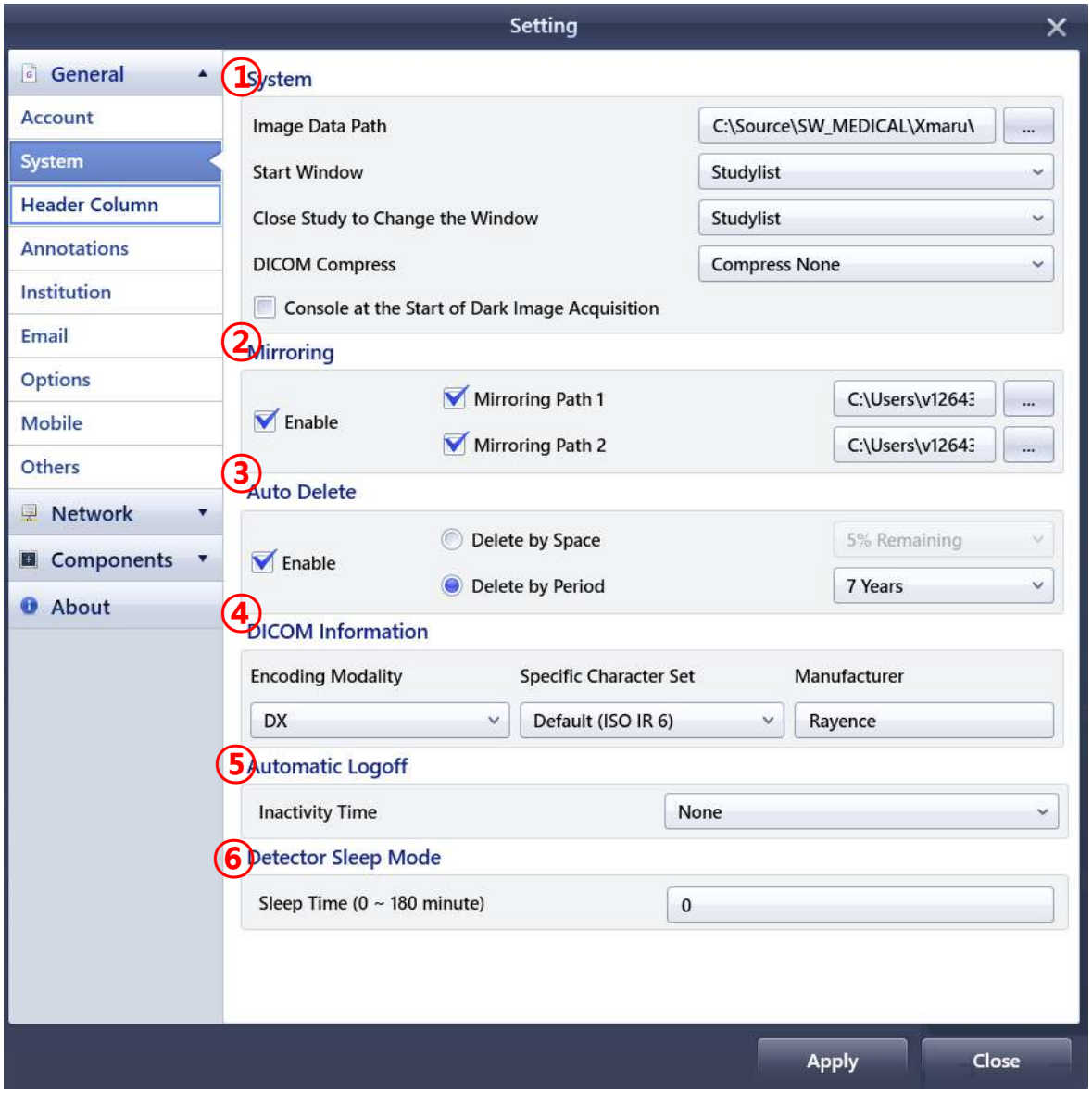
5.1.1.2 System



< Figure 115 System >

① System

- Image Data Path : Specify the folder in which the images will be stored.
  - Default Path : [C:₩Rayence₩XmaruView V1₩Console₩ImageData]
- Start Window
  - When beginning program, screen is activated to selected window.
  - Please select between Studylist and Worklist.

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- Close Study to change window
  - When closing Study, screen is activated to selected window.
  - Please select between Studylist and Worklist.
- DICOM Compress
  - Select the DICOM Compress type.
  - Please select between Compress none or JPEG 2000 Lossless.
- Acquire Dark Frame at Startup
  - Acquire detector dark frame at console startup.

② Mirroring

- If the functionality is enabled, acquired images in current study are automatically saved into the Mirroring path when closing the study. Original DICOM files and DICOM files with image processing are saved.
- Enable Mirroring : Enable or Disable Mirroring function.
  - Default Value : [Inactivated]
- Apply Mirroring

  - No : Perform an existing mirroring operation that only mirrors the image to be shot after apply Mirroring.
  - Don't show again : You will continue to use the existing Mirroring feature, and the above pop-up window will no longer pop up
  - Yes : Mirroring all the previously captured images, and then it will perform the existing mirroring work.
    - The process of mirroring all the images takes a lot of time, so can be canceled during the mirroring operation.
    - When you press the X button in the upper right corner of the popup window during operation, pops up message that it is canceled.

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③ Auto Delete

- Delete images based on space available on PC HDD or by a certain time period.
- Enable Auto Delete : Activate or inactivate the Auto Delete function.

  It is required to restart the program to save and apply changes.

  - Default Value : [Inactivated]
- Delete by space : If the functionality is selected, old images are automatically deleted depending on the amount of available HDD space. If the remaining space is less than the value set by a user, and then images are deleted until the free space is larger than or equal to the set value from the oldest one.

  - Default Space : [5% Remaining]
- Delete by period : If the functionality is selected, it is automatically deleted that an image are older than the time period set by a user are automatically deleted.

  - Default period : [7 Years]

④ DICOM Information

- DICOM Encoding Modality : Select Encoding Modality when creating DICOM.

  (You can select either DX or CR.)

  - Default Modality : [DX]
- Specific Character Set

  - Setting the DICOM Encoding character.
- Manufacturer : Enter the name of manufacturer.

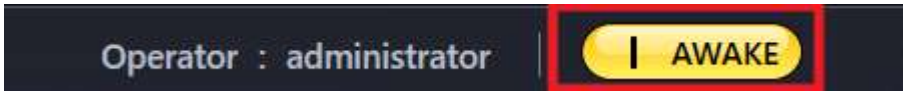
⑤ Automatic Logoff

- Inactivity Time : Automatic logoff for a specified period of time if there is no activity in SW.

⑥ Detector Sleep Mode

- Sleep Time

  - The user can ser the sleep time from 0 to 180 minutes.
  - Sleep mode is only active at values greater than 1 min.



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- If 'Awake' is displayed, sleep mode is active.
- When the console runs, it sends a 'wake-up' signal to the detector.
- If no input has been made over the set time, the 'sleep' signal will be sent.
- Conversely, if you have a mouse input, you will send a 'wake-up' signal again.

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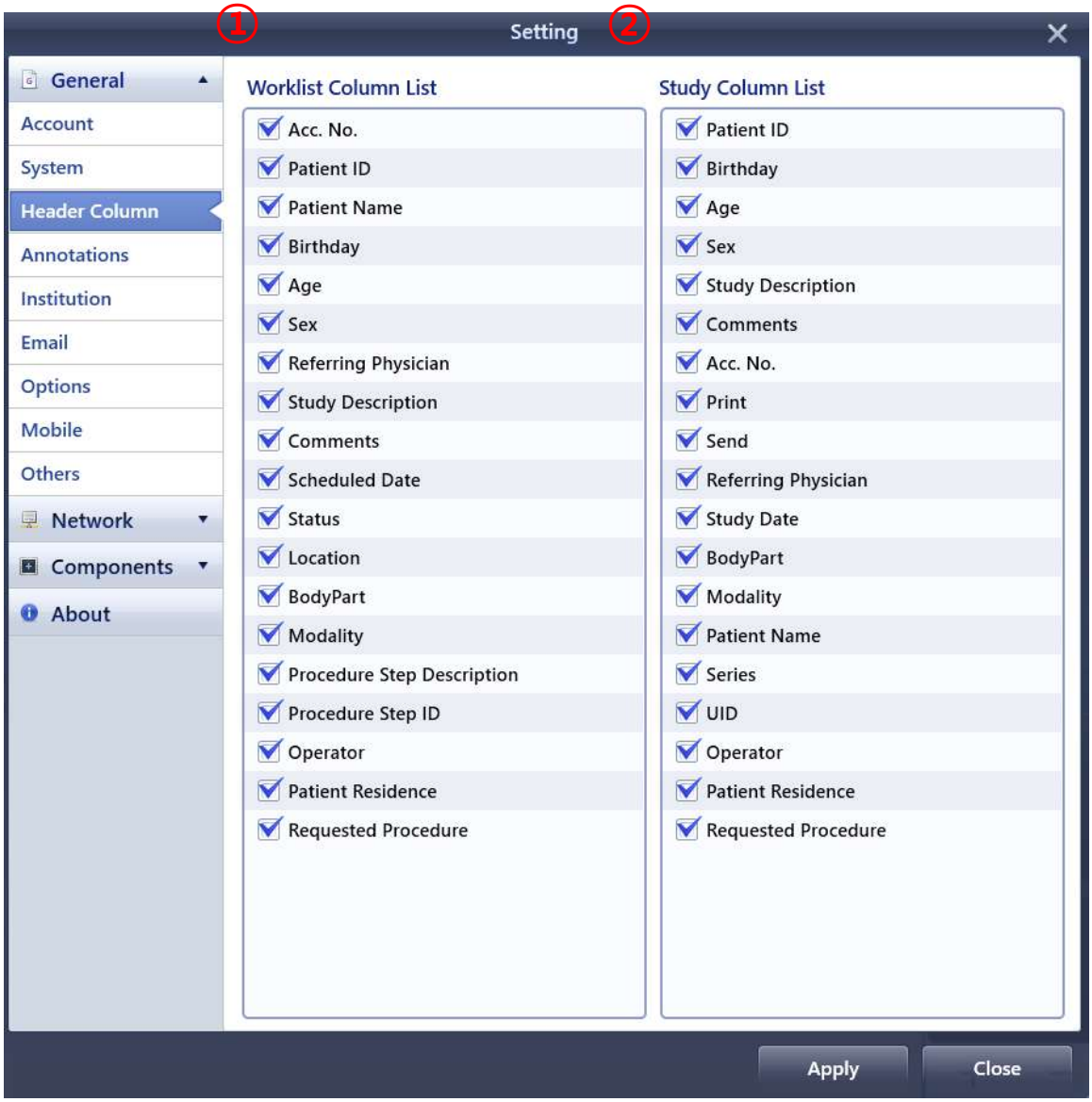
5.1.1.3 Header Column

- This feature allows the user to set which items show on the column list. Items can be set for the Worklist and Studylist.



< Figure 116 Header Column >

① Worklist Column List

- This is the list of columns to be displayed on the header on the Worklist.

② Study Column List

- This is the list of columns to be displayed on the Studylist.

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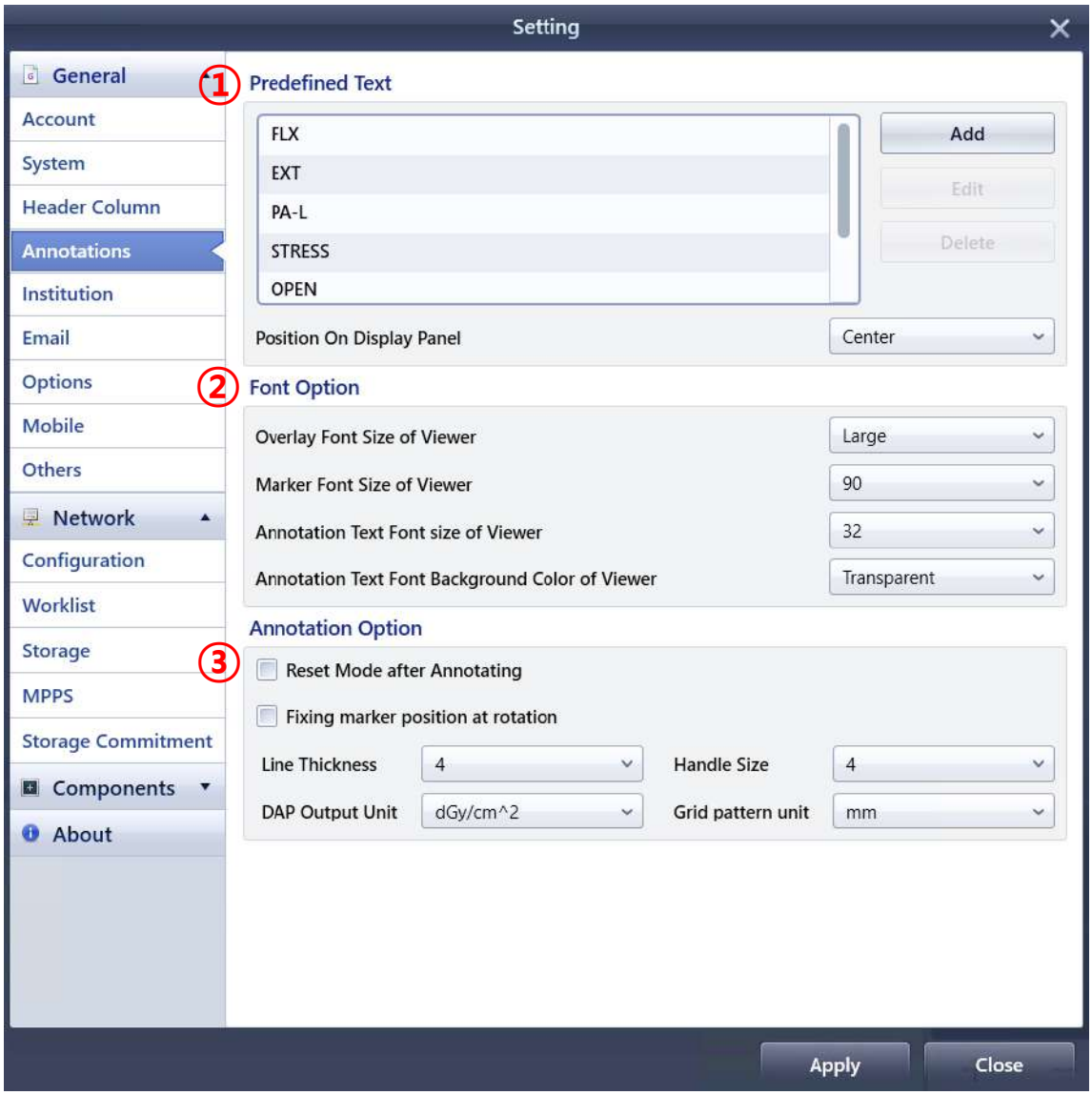
5.1.1.4 Annotations



< Figure 117 Annotations >

① Predefine Text

- Show the list of predefined items.
- Add : Add a new predefined item.

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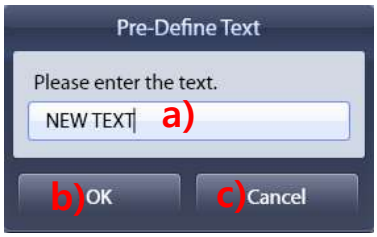
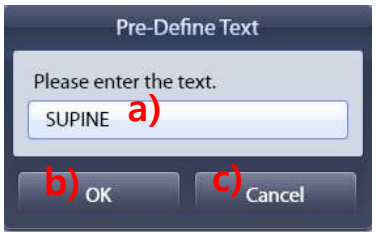


a) Enter a new predefined text.

b) Click the "OK" button to save the new text.

c) Click the "Cancel" button if you want to cancel entering.

- Edit : Edit the selected predefined item. (not case-sensitive)



a) Change the existing predefined item.

b) Click the "OK" button to save changes.

c) Click the "Cancel button" if you want to cancel entering.

- Delete : Delete the selected predefined item.
- Position On Display Panel : Choose the predefine insert position. (Center/Left Top/Left Bottom/Right Top, Right Bottom)

② Font Option

- Overlay font size of viewer : Choose the overlay font size. (Large / Medium / Small)
- Default marker font size of viewer : Choose the default maker size.
- Default annotation text font size of viewer

: Choose the annotation text default Size.

- Default annotation text font background color of viewer

: Choose the background color of text.

③ Annotation Option

- Reset Mode after annotating

: Return to default selector cursor after annotating.

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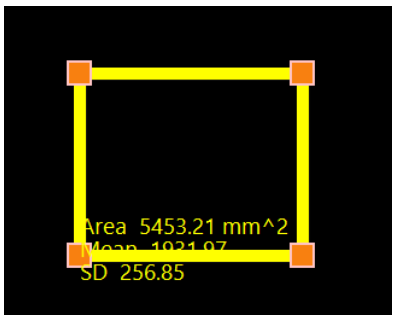
- Fixing marker position at rotation

  : Markers fixing in place at rotation.

- Default Line Thickness, Handle Size

  - Line Thickness : The thickness of the line when drawing the annotation
  - Handle Size : The size of the square box when you click the mouse (the small square box at the vertex)

    : Example : The left is the image with Line Thickness, Handle Size set to 4, and the right set to 10



  - DAP Output Unit

    : Setting of draw unit when display the DAP data.

  - Grid pattern Unit

    : Setting of draw unit when drawing the Grid Pattern. (pixel / mm)

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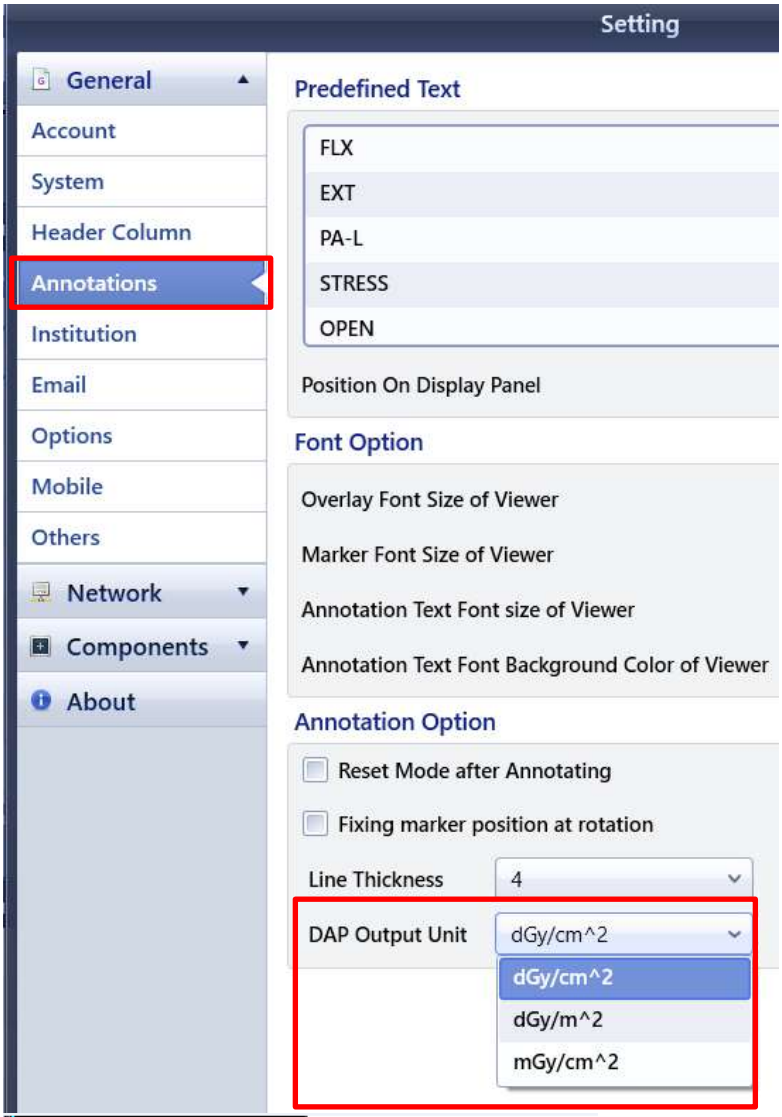
- DAP Ouput Unit

  - The units selected from the two DAP units are marked as DAP units upon image acquisition.



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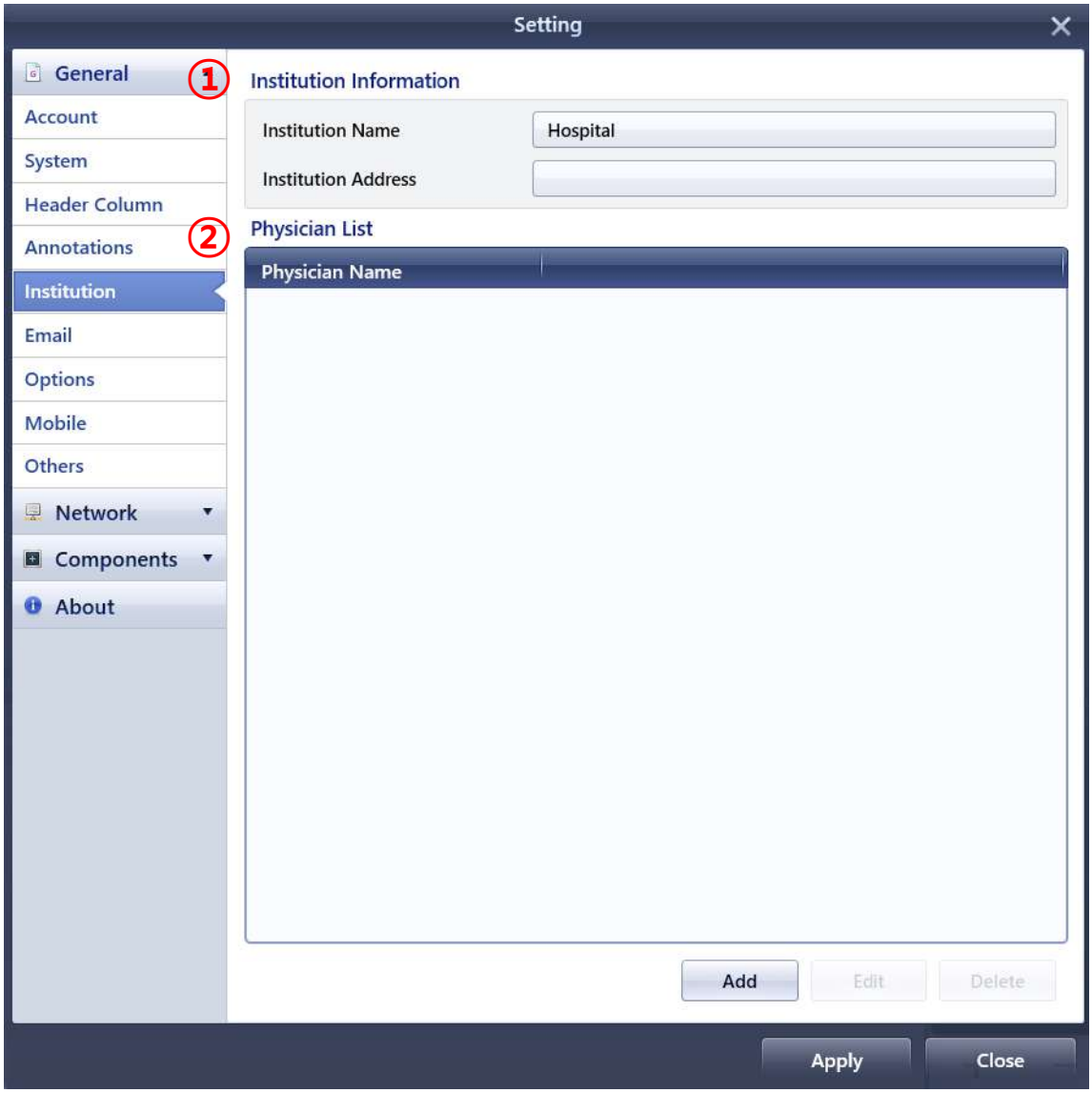
5.1.1.5 Institution



< Figure 118 Institution >

① Institution Information

- Institution Name : Enter the name of hospital or medical institution.
- Institution Address : Enter the address of hospital or medical institution.

② Physician List

- Enter the Physician information.

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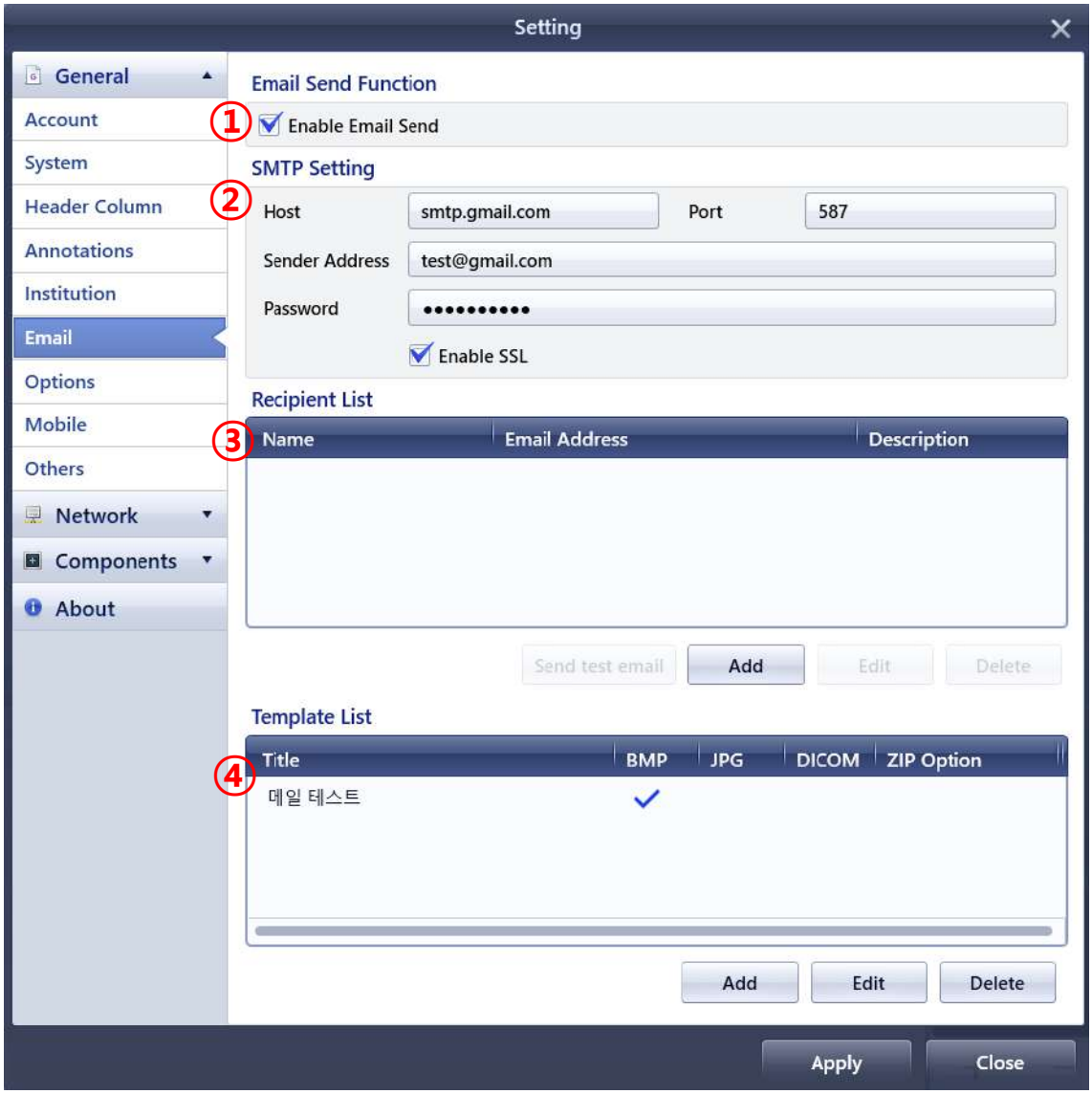
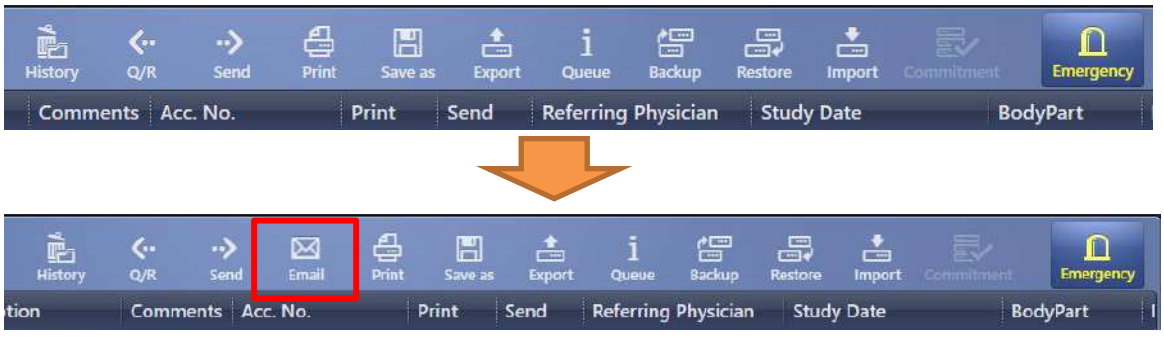
5.1.1.6 Email



< Figure 119 Email >

① Email Send Function

- Enable Email icon in studylist



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② SMTP Setting

- Set the host and port number
- Set user's email address and password
- Decide to use SSL encryption

③ Recipient List

- Manage recipient email addresses
- Send test email : testing sending email
  - If all the settings are done, the following message appears.

- Add/Edit : Add or Edit name, email address and description of recipient email
- Delete : Delete selected recipient email

④ Template List

- Manage Email template
- Add/Edit : Add or Edit subject, body and data format of email
- Delete : Delete selected email template

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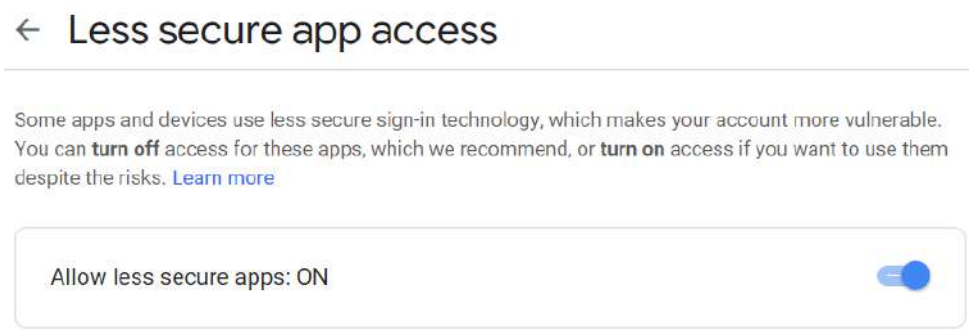
※ When using gmail as sender address

- Set host to smtp.gmail.com and port to 587
- Check enable SSL
- In your gmail account settings, you should enable "Allow less secure apps" as shown in the screen below



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5.1.1.7 Options

< Figure 120 Options >

① Date Format

- Set the date format.

② Display Language

- Set the program language.

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Selected language is applied when restarting the program. And supported languages have difference by language environment of installed OS.

※ Supported languages, please refer to the following table.

		XmaruView V1 (Multi Language)					
		English	Chinese-Simplified	Chinese – Traditional	French	German	Spanish
System Language (O/S)	English	O	N/A	N/A	O	O	O
	Chinese – Simplified	N/A	O	N/A	N/A	N/A	N/A
	Chinese – Traditional	N/A	N/A	O	N/A	N/A	N/A
	French	O	N/A	N/A	O	O	O
	German	O	N/A	N/A	O	O	O
	Spanish	O	N/A	N/A	O	O	O

< Figure 121 Language >

The only English is available in the other OS languages.

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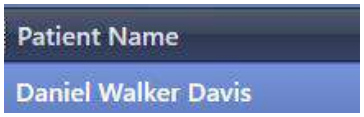
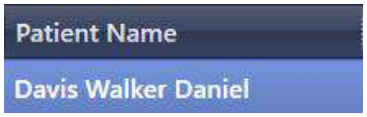
③ Name Format

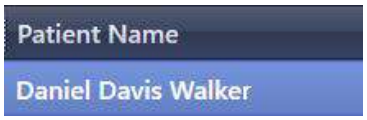
- Setting the patient name format.
  - First/Middle/Last



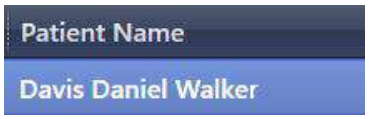
  - Last/Middle/First



  - First/Last/Middle



  - Last/First/Middle



  - Full Name
    There is no separate order of name and it will be marked with the full name as entered.

④ Printing Options

- Advanced Print : Enable the Advanced Print function.

⑤ Paper Print Size

- Size : Select the paper size.

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⑥ Crop & Mask

- Set the options for cropping and masking images.
- Advanced Auto Detection : Ability to crop to the best size based on the detected value of the captured object.

⑦ Application Start Position

- Monitor Number

  Set the monitor for Console SW when using two or more monitors

⑧ BodyPart Mode

- Select the bodypart displaying type.
- Text mode or Graphic mode available.

⑨ Keyboard

- On Screen Keyboard : Enable the on-screen keyboard.

⑩ Compare View

- Enable the compare view.

⑪ Modify Exposure Information: After acquiring an image, the "Modify Exposure Information" window displays.

- Activate/Deactivate the function using the check box.

	Please refer to the "Capture" section in the Manual to learn more about the "Auto Popup Exposure Information" command.

⑫ Next View Position

- Auto Ready : Prepares the next capturing automatically when capturing continuously.

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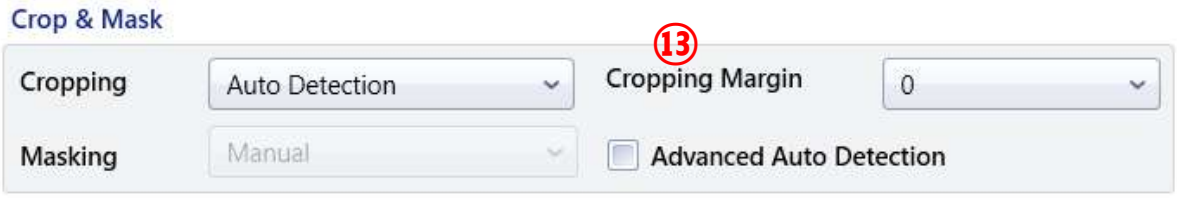

⑬ Cropping Margin: Select and apply the Margin value.

- This function sets the Margin for the "Auto Crop ROI" area.
- Value Range: -200 ~ +200
- When the Margin is set to a "-" value, the Crop area becomes smaller. When the Margin is set to a "+" value, the Crop area becomes larger.
- This command is available when the "Cropping" command is set to "Auto Detection."

	Please refer to the "Capture" section in the Manual to learn more about the functions of the Cropping Margin.

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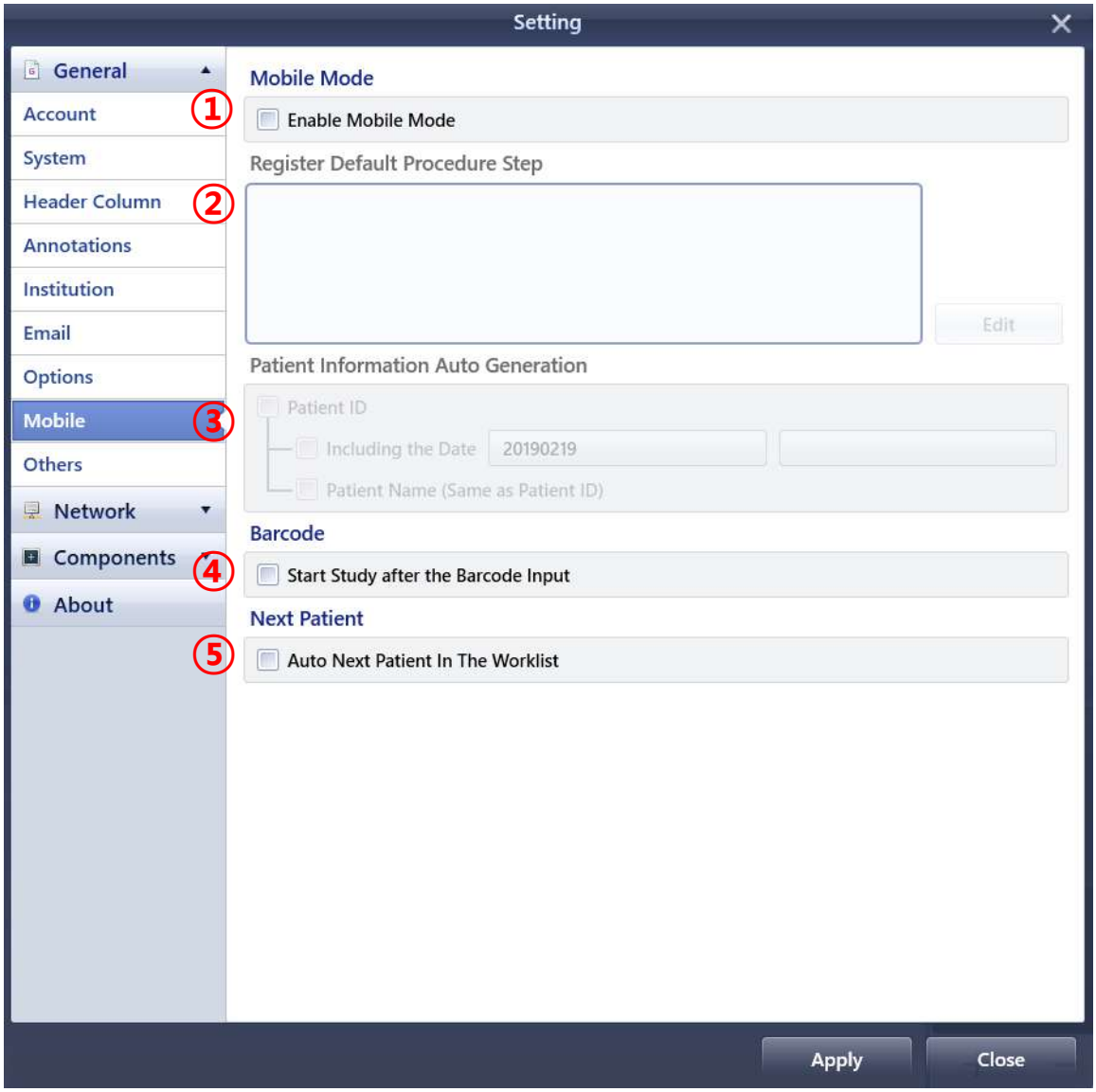
5.1.1.8 Mobile



< Figure 122 Mobile >

① Mobile Mode

- Enable Mobile Mode : Enable the Mobile Mode.

② Register Default Procedure Step

- Register the default Procedure Step.
- You can register up to 10 Procedure Steps.

③ Patient Information Auto Generation

- Create the rules for Patient Information Auto Generation.
- Patient ID : Create the Patient ID automatically.

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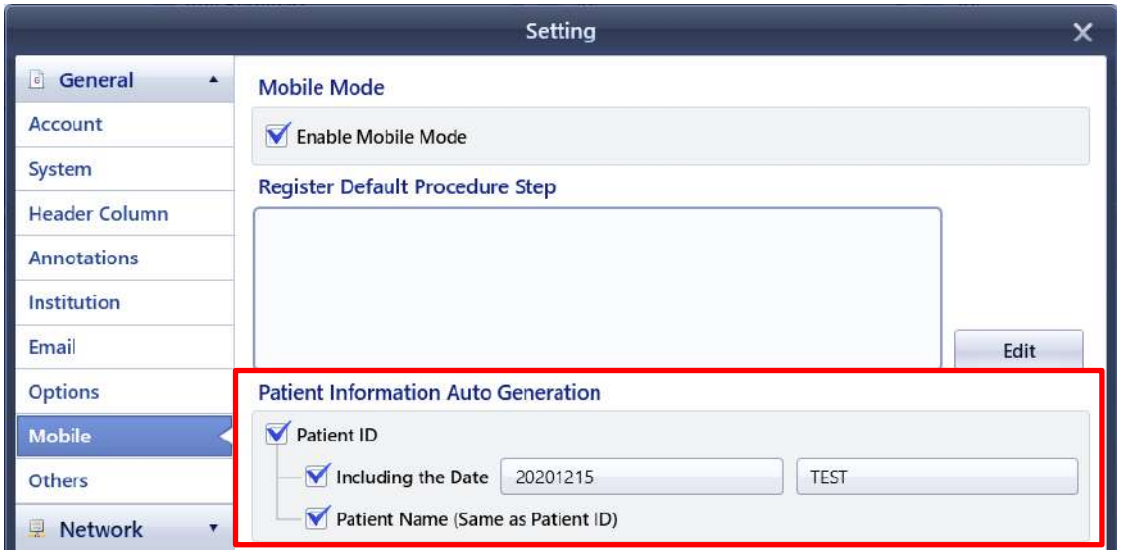
- Including the Date : Include the study date in the ID.
- Inserting separator phrase : Insert the separator phrase.
- Patient Name : Make patient name same with the Patient ID.



④ Barcode

- Start Study after the Barcode Input : Start study automatically when the barcode is inputted.

⑤ Next Patient

- Auto Next Patient In The Worklist : Start next study automatically on the worklist.

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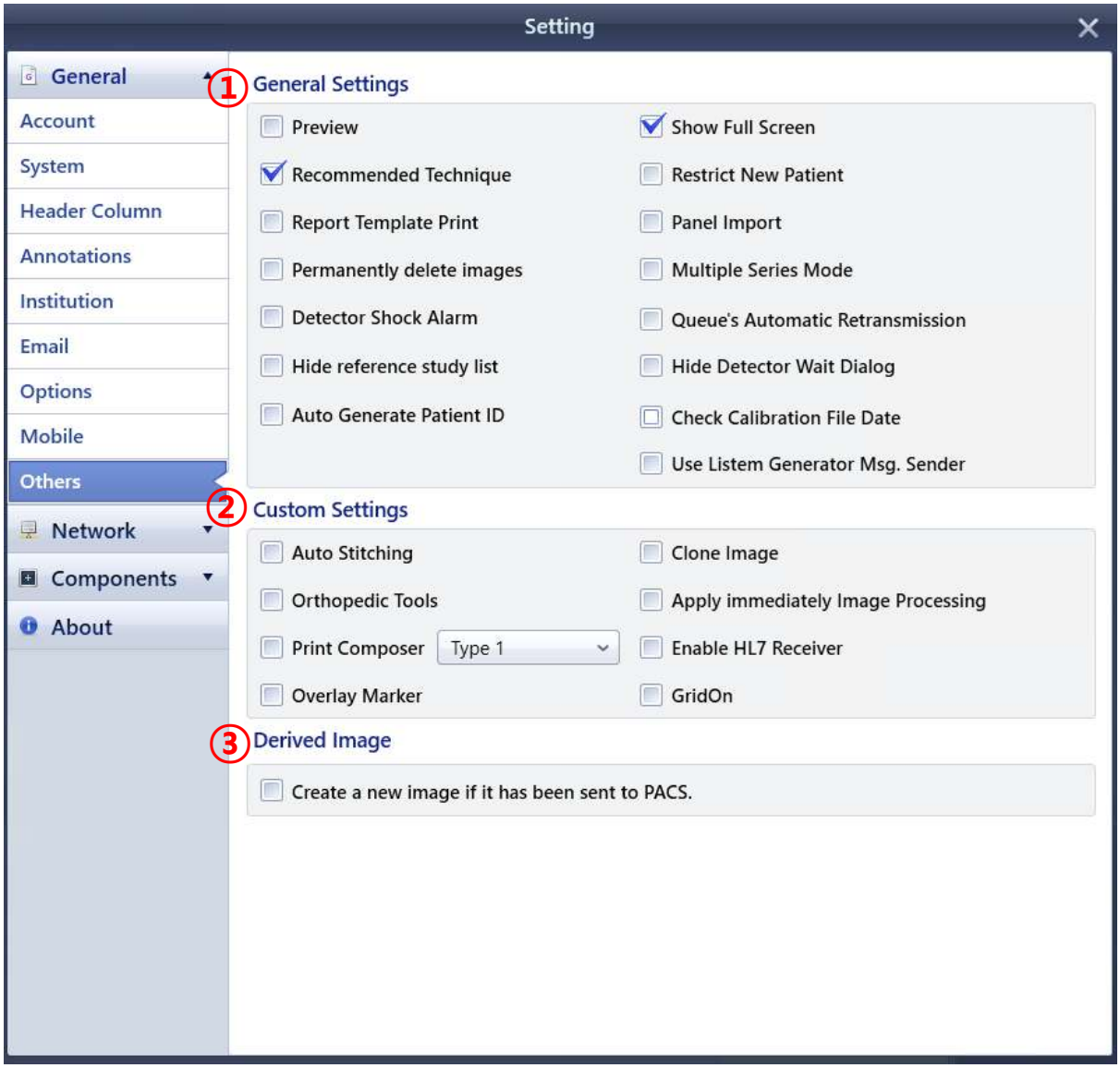
5.1.1.9 Others



< Figure 123 Others >

① General Settings

- Preview : Show preview window while processing the acquired image.
- Show Full Screen
  - Enable the Full Screen mode.
  - Double click the Main Screen to view in the Full Screen mode.
- Recommended Technique : Display the recommended technique.
- Restrict New Patient : Hide new patient, emergency and add study button to restrict new patient

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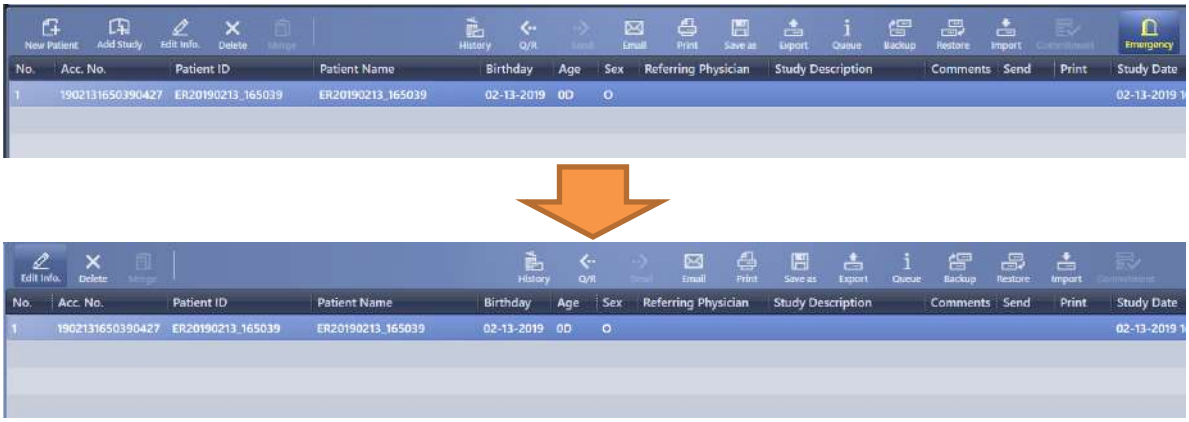
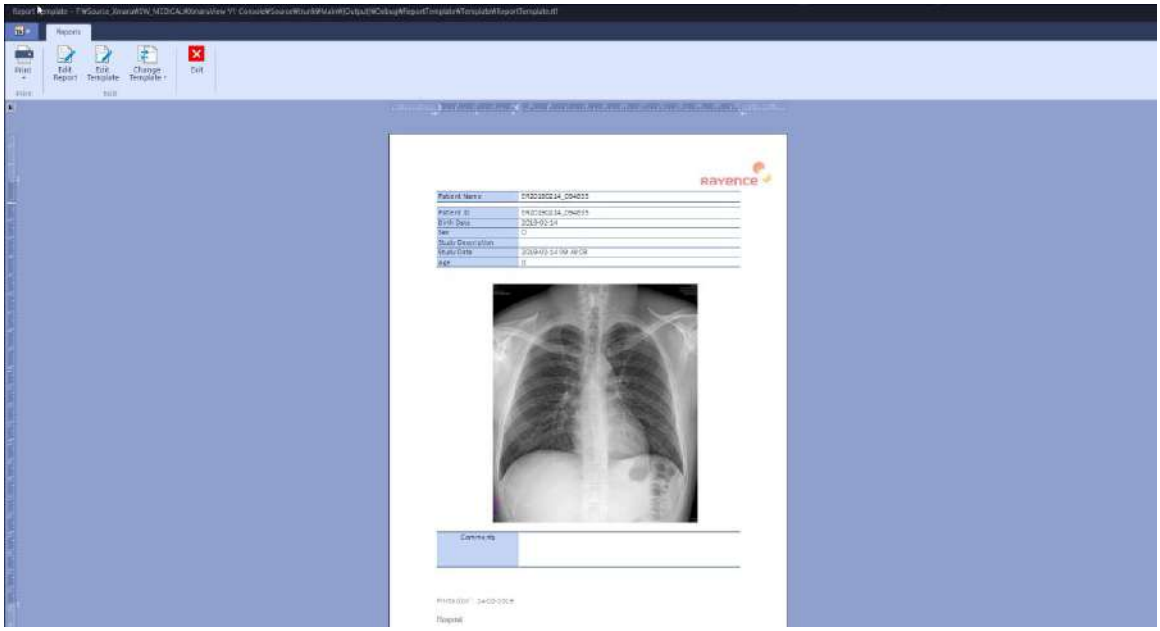
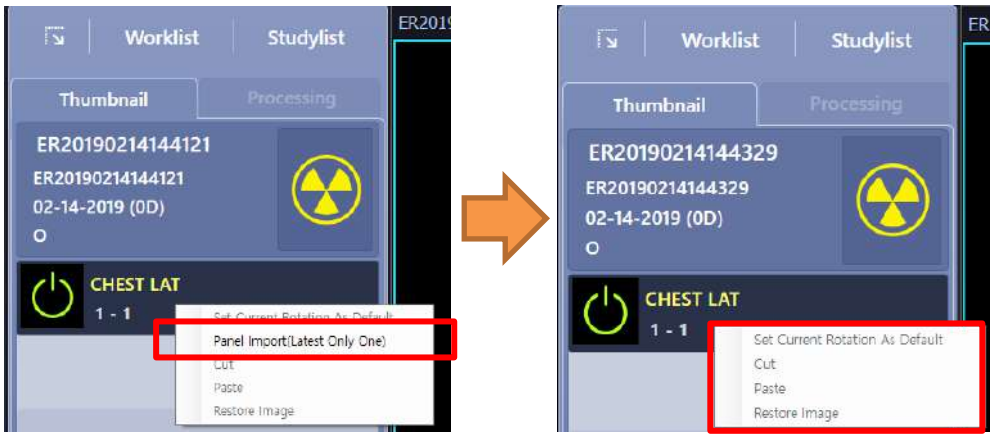


- Report Template Print : New print function, Text Control, can be selected



- Panel Import : Hide Panel Import menu from the shooting standby thumbnail



- Permanently Delete Images : Function to delete actual record

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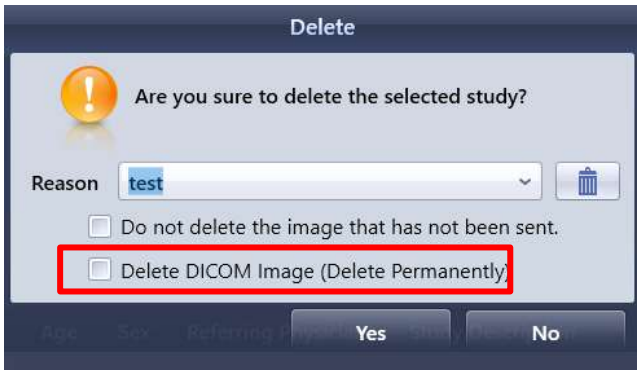
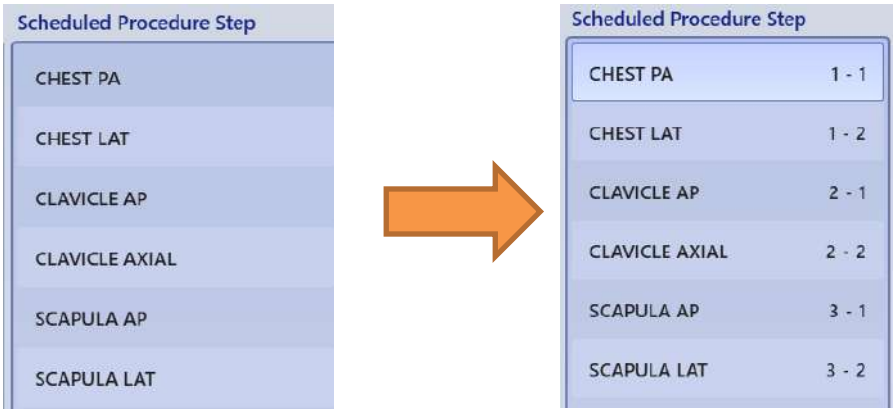
■ The bottom button is activated at the time of deletion after application, and permanent deletion is performed when the check box is selected, and the existing deletion function is performed when not selected.

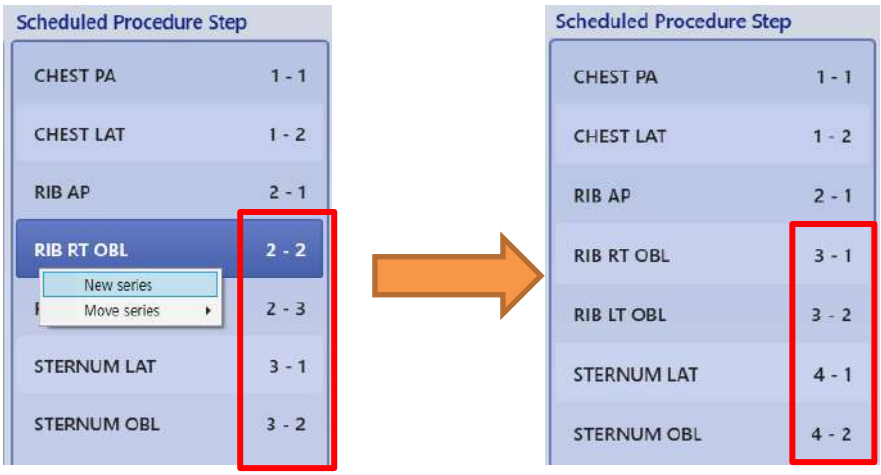


● Multiple Series Mode : If you select Procedure Group and register the shooting area, the series number increases.

- Increasing series number



- New Series : Start new series numer



- Move Series : Move selected procedure steps to another series

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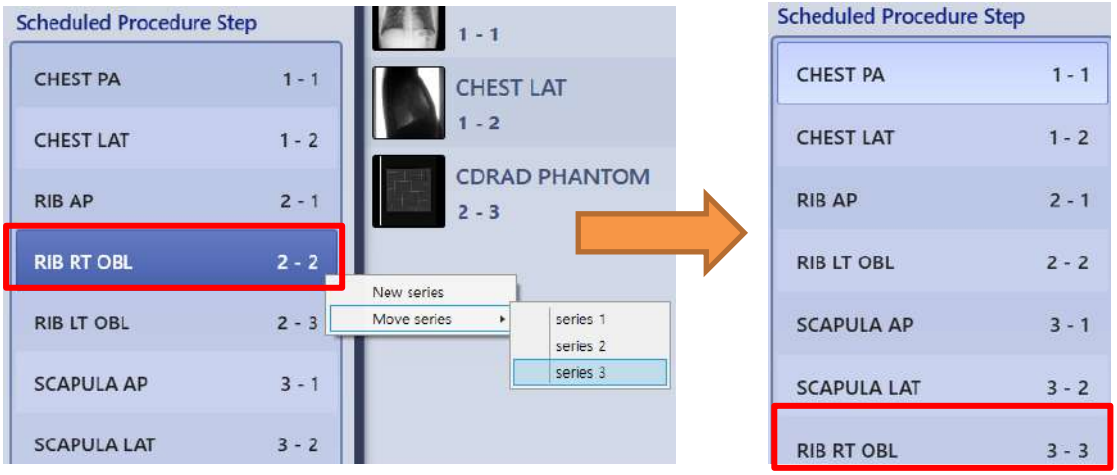
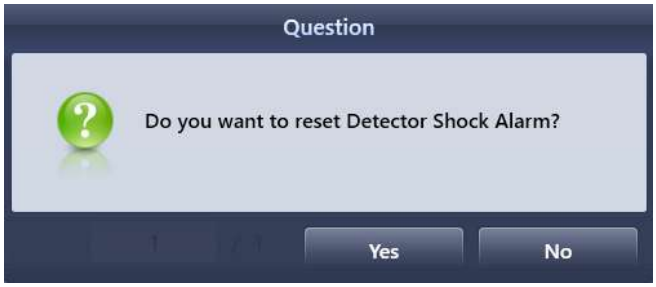


- Detector Shock Alarm : notification to detector shock

  - When the detector got shocked, an icon appears in the lower left corner of the console.

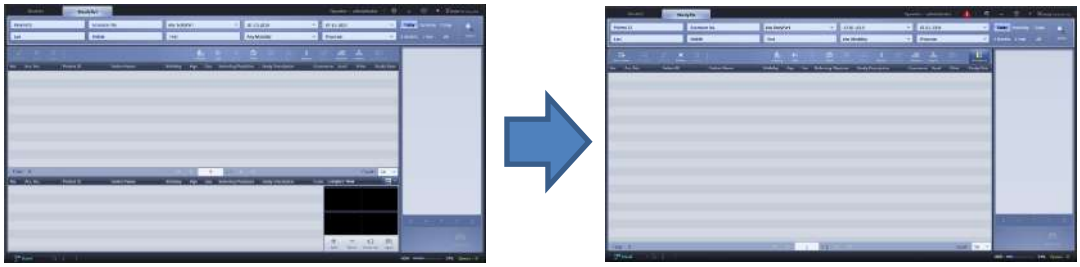
  - Click the Detector Shock Alarm icon to reset the alarm.



  Yes : reset

  No : Maintain current status

- Queue's Automatic Retransmission : Automatic DICOM retransmisions
- Hide reference study list : Hide reference study list



- Hide Detector Wait Dialog : Hide detector wait dialog

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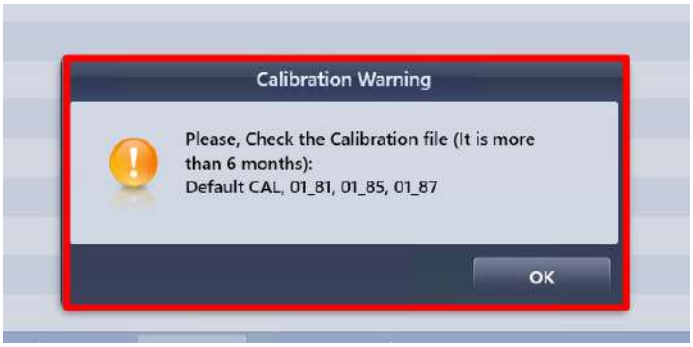
- Check Calibration File Date : A separate alarm is displayed for a Calibration File older than 6 months.



- Auto create Patient ID : This function automatically generates a Patient ID when registering a patient.

② Custom Settings

- Auto Stitching : Enable the auto stitching option.
- Clone Image : Check "Clone Image" to activate the "Image Copy" function and "Image Clone" function.

	Please refer to the "Capture" section of the Manual to learn how to setup the Clone Image.

- GridOn : Option to enable the GridOn Feature.
- Apply Immediately : Processes image immediately after changing parameter.
- Print Composer : Option for enabling the print composer feature in advanced print.
- Enable HL7 Receiver : To receive an HL7 message and register for use in the Worklist, check the "Enable HL7 Receiver" option.

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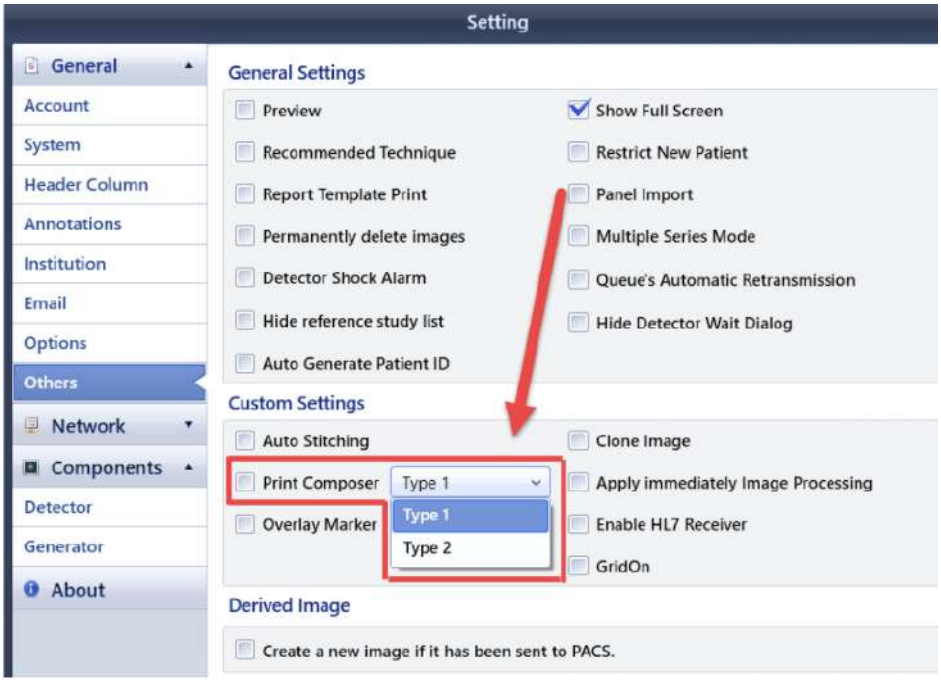
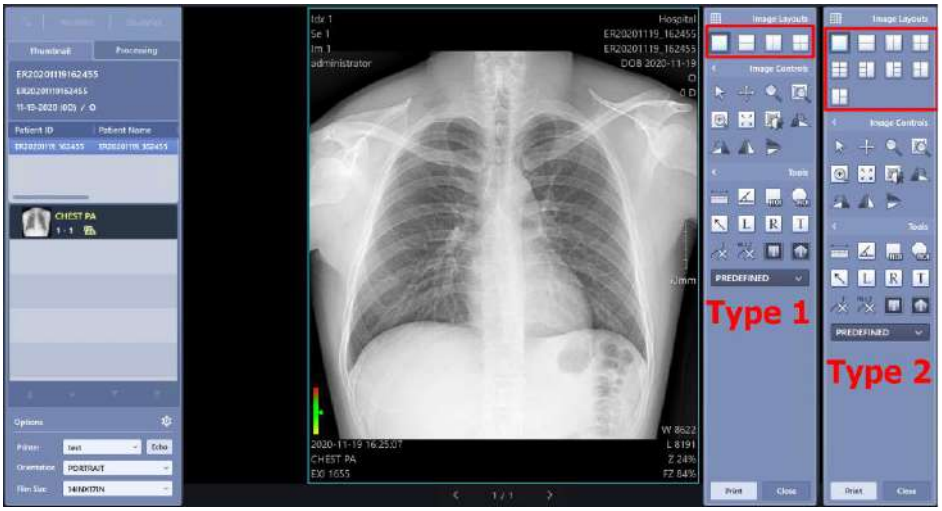
- Chiro Tools : Check "Chiro Tools" to activate Chiroview.
- Overlay Marker : This option is used to enable the overlay function of overlay information when sending PACS.
- Print Composer : There are two types of selection, and the layout of the selection will be changed as shown in the figure below.





③ Derived Image

- Create a new image if it has been sent to PACS : If you check this option, if you change the processing value of the image. It's copied the image before it's sent to PACS sever.

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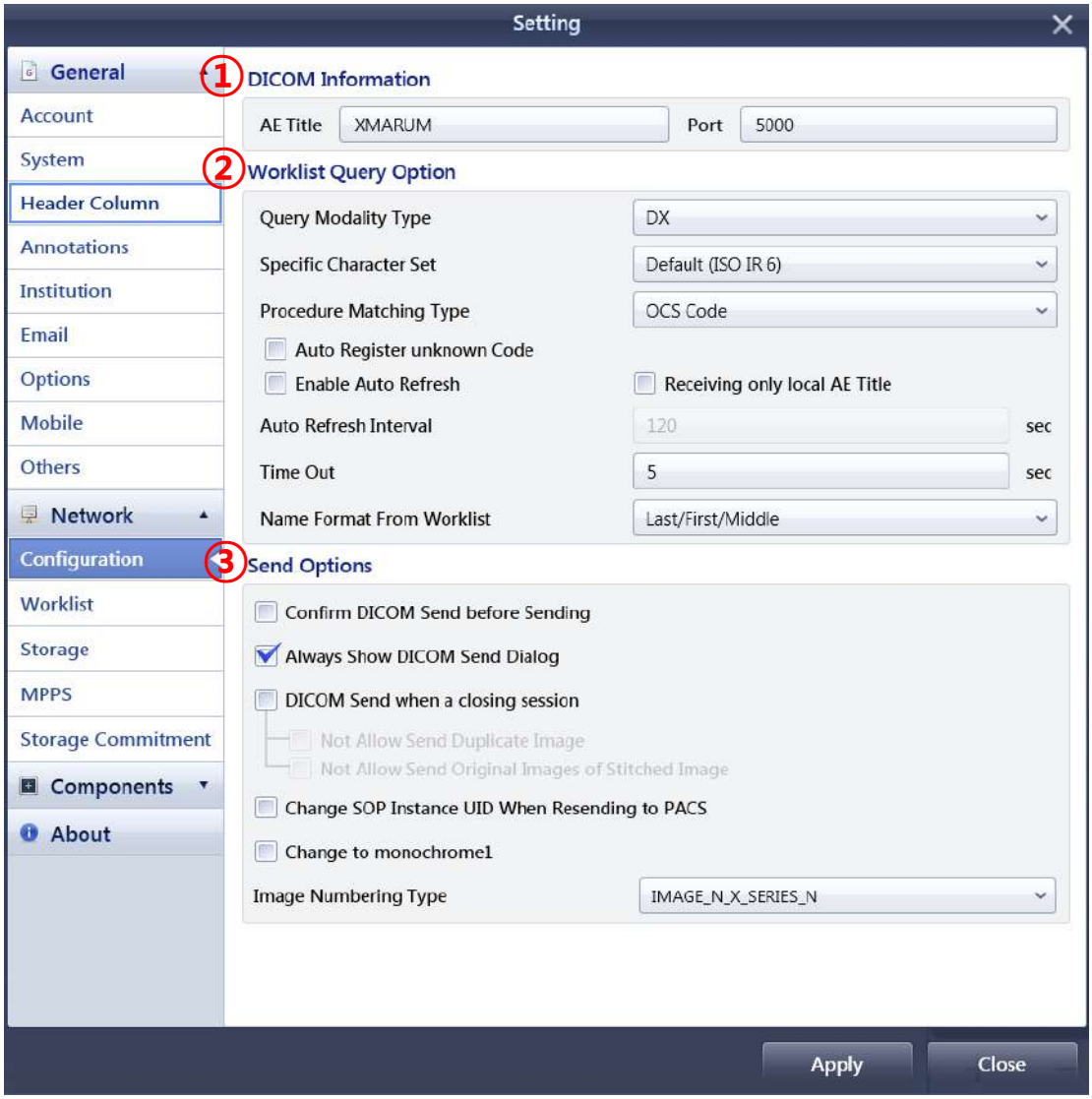
5.1.2 Network

5.1.2.1 Configuration



< Figure 124 Configuration >

① DICOM Information

- Local AE Title : Enter the AETitle of XmaruView V1.
- Local Storage Port : Setting the port for Query & Retrieve function.

② Worklist Query Option

- Query Modality Type : Select the modality item to be retrieved from the Worklist.
- Procedure Matching Type : Select the procedure matching type.
- Enable Auto Refresh

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- Auto Refresh Interval : Set the Auto Refresh interval for Worklist. (60~3600s)
- Name Format From Worklist

: Select the Name Format used in the Worklist Server

- Timeout : Set the Timeout option.

③ Send Options

- Confirm DICOM Send before Sending

: Display the DICOM send confirmation dialogue.

- Always Show DICOM Send Dialog

: Display the DICOM send dialogue window.

- DICOM Send when a closing session

: Send the image to the destination on the completion of the study.

- Not Allow Send Duplicate Image : Exclude the transmitted images.
- Not Allow Send Original Images of stitched Image

: Do not send the original image of the stitched image.

- Change SOP Instance UID When Resending to PACS

: Change the SOP Instance UID when resending.

- Change to monochrome1

: Change to monochrome1 when sending.

- Image Numbering Type

: Select the study and image numbering type.

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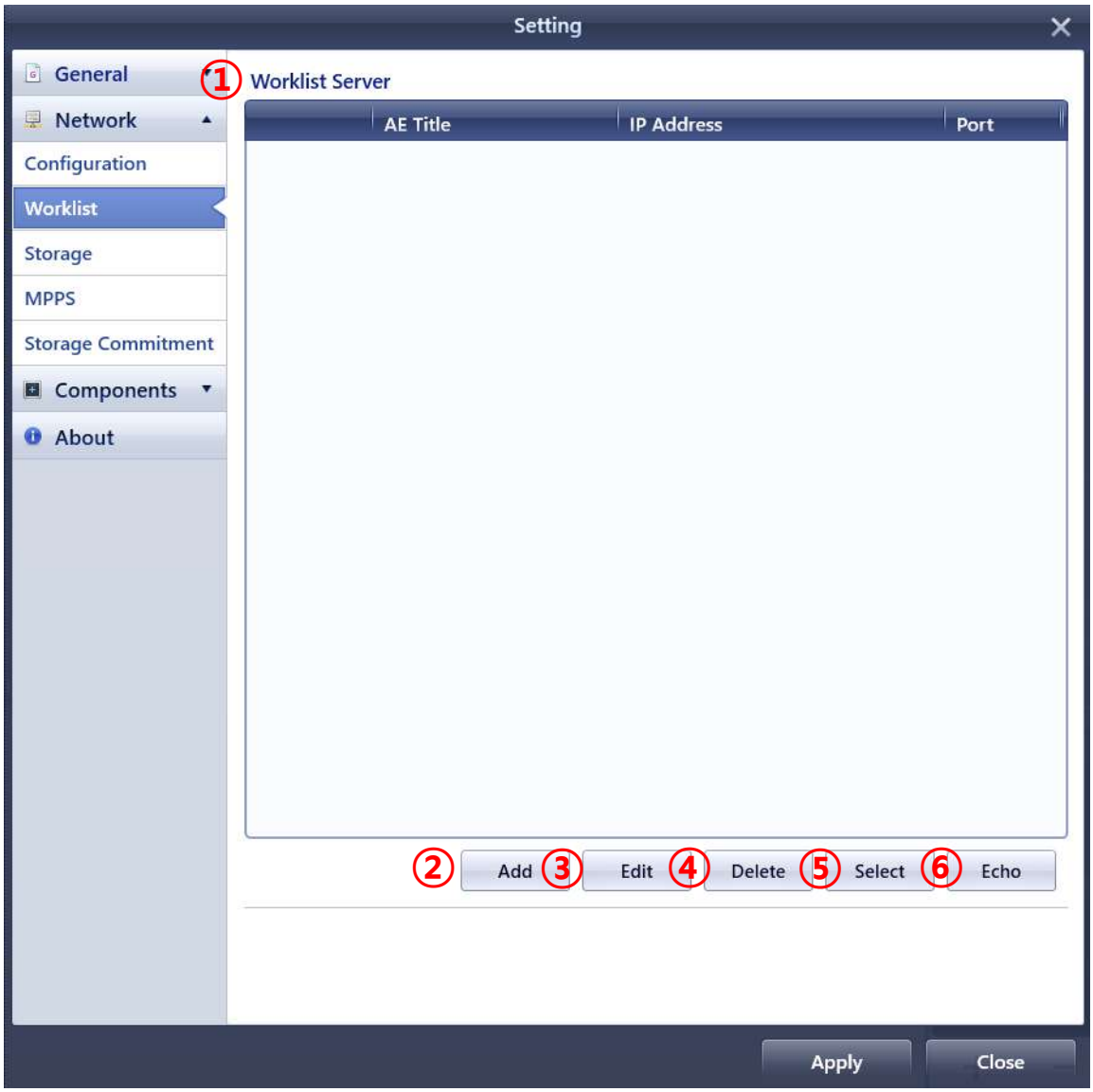
5.1.2.2 Worklist



< Figure 125 Worklist >

① Worklist Server List

② Add : Add a Worklist Server to the Server List.

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a) AE Title : Enter the AE Title of the Worklist to be added.

b) IP Address : Enter the IP Address of the Worklist to be added.

c) Port : Enter the Port of the Worklist to be added.

- Default Port : 104 (DICOM Standards)

d) Add : Save and apply a Worklist Server to the Server List.

e) Cancel : Cancel the operation of adding a Worklist server.

③ Edit : Edit the information of the selected Worklist Server in the Worklist server list.

a) AE Title : Enter the AE Title of the Worklist to be modified.

b) IP Address : Enter the IP Address of the Worklist to be modified.

c) Port : Enter the port of the Worklist to be modified.

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- Default Port : 104 (DICOM Standards)

d) Edit : Edit the information.

e) Cancel : Cancel the editing information.

④ Delete : Delete the selected Worklist Server from the Worklist Server List.

⑤ Select : Use the selected Worklist Server as default server.

You are allowed to select a single Worklist server only.

⑥ Echo : Show the communication status of the Worklist Server selected from the Worklist Server List.

	Worklist Server registration is available up to 20.

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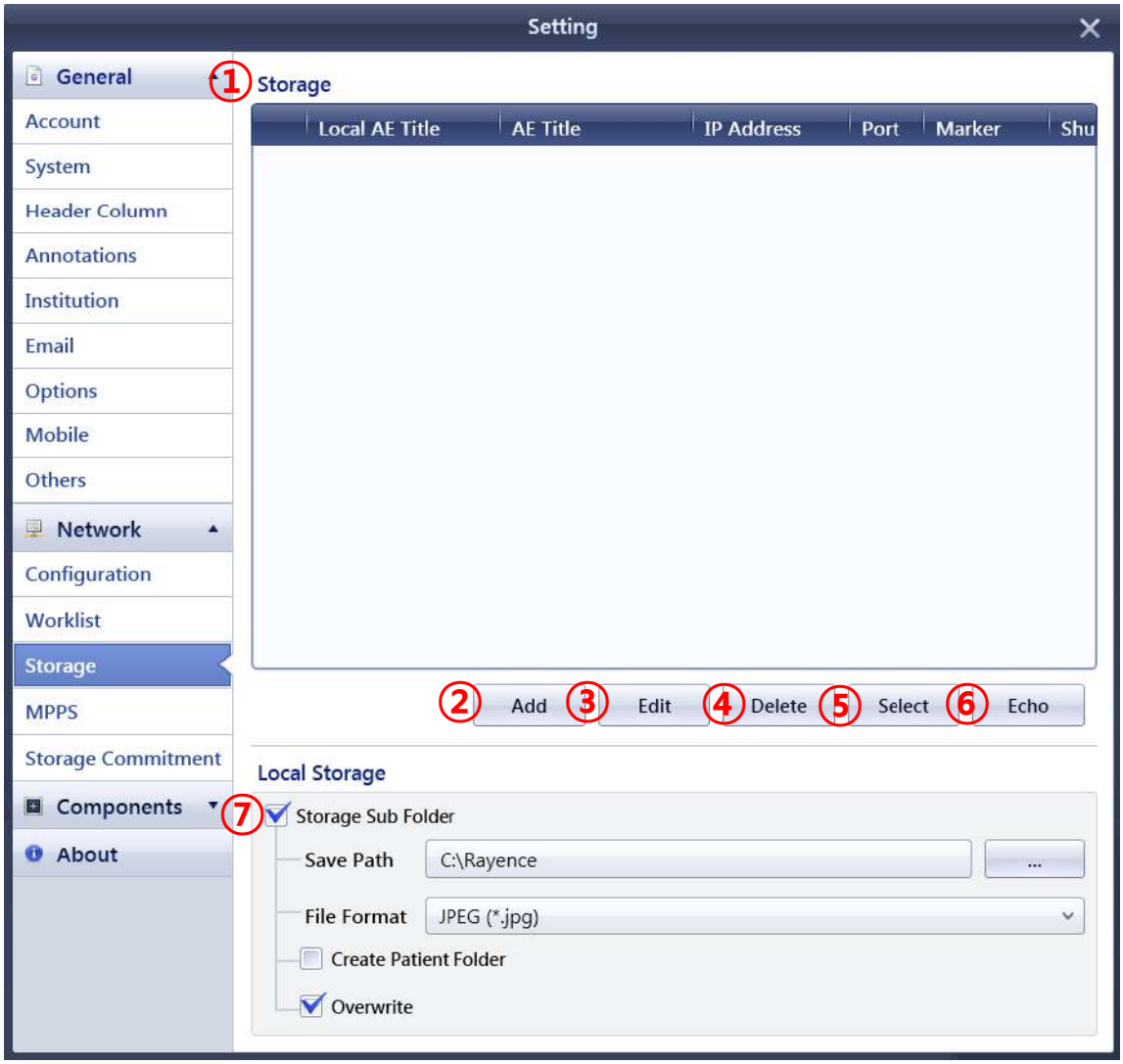
5.1.2.3 Storage



< Figure 126 Storage >

① Storage Server List

② Add : Add a storage server to the storage server list.

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a) AE Title : Enter the AE Title of the storage to be added.

b) IP Address : Enter the IP Address of the storage to be added.

c) Port : Enter the Port of the storage to be added.

- Default Port : 104 (DICOM Standards)

d) Transfer Syntax : Select the transfer syntax.

e) Q-Factor : Input the Q-Factor.

f) Bit Conversion : Select the store bit.

g) Options : Check the send option for annotations.

h) Add : Save and apply storage server information.

i) Cancel : Cancel the operation of adding a storage server.

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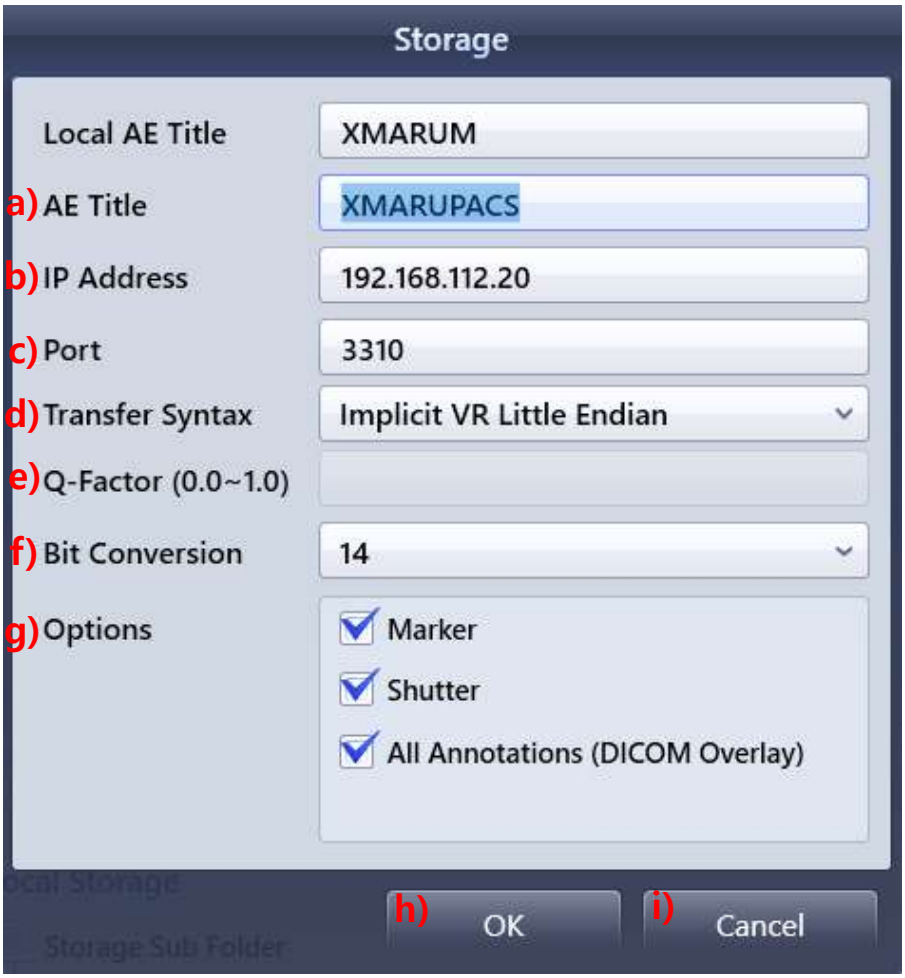
③ Edit : Edit the information on the storage server selected from the storage server list.



a) AE Title : Enter the AE Title of the Storage to be modified.

b) IP Address : Enter the IP Address of the storage to be modified.

c) Port : Enter the Port of the storage to be modified.

- Default Port : 104 (DICOM Standards)

d) Transfer Syntax : Select the transfer syntax.

e) Q-Factor : Input the Q-Factor.

f) Bit Conversion : Select the store bit.

g) Options : Check the send option for annotations.

h) Edit : Edit storage server information.

i) Cancel : Cancel the operation of editing information on the Storage Server.

④ Delete : Delete the storage server selected from the Storage Server List.

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⑤ Select : Select default destinations for DICOM Send.

Select or Unselect the server on the list.

One or more items must be selected.

⑥ Echo : Show the communication status of the storage server selected from the Storage Server List.

	Storage Server registration is available up to 20.

⑦ Local Storage

- Storage Sub folder : Enable the Local Storage.

- Save Path : Set the path to save.
- File Format : Set the file format to save in the Local Storage.

  JPEG, BMP, GIF, PNG, and DICOM file formats are supported.
- Create Patient Folder : Create patient folders and save them there.
- Overwrite : Overwrite the file.

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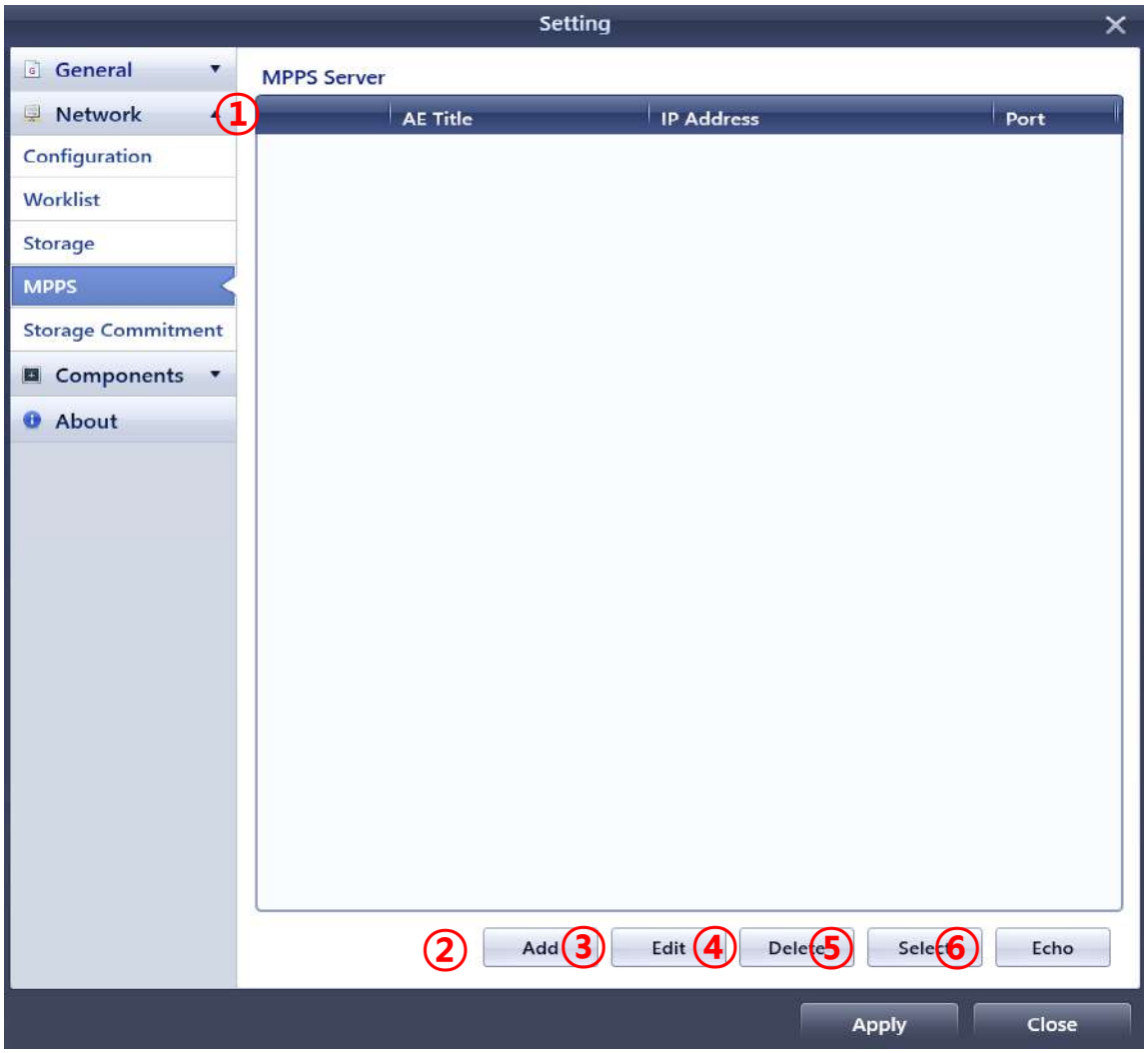
5.1.2.4 MPPS



< Figure 127 MPPS >

① MPPS List

② Add: Adds MPPS to the list. Detail configuration is the same as the configuration described in '5.1.2.2 Worklist'.

③ Edit: Modify the data for selected item in MPPS registered in the list.

④ Delete: Delete the selected MPPS.

⑤ Select: Select the registered MPPS to use.

You can select only one MPPS.

⑥ Echo: Check the communication status of selected MPPS.

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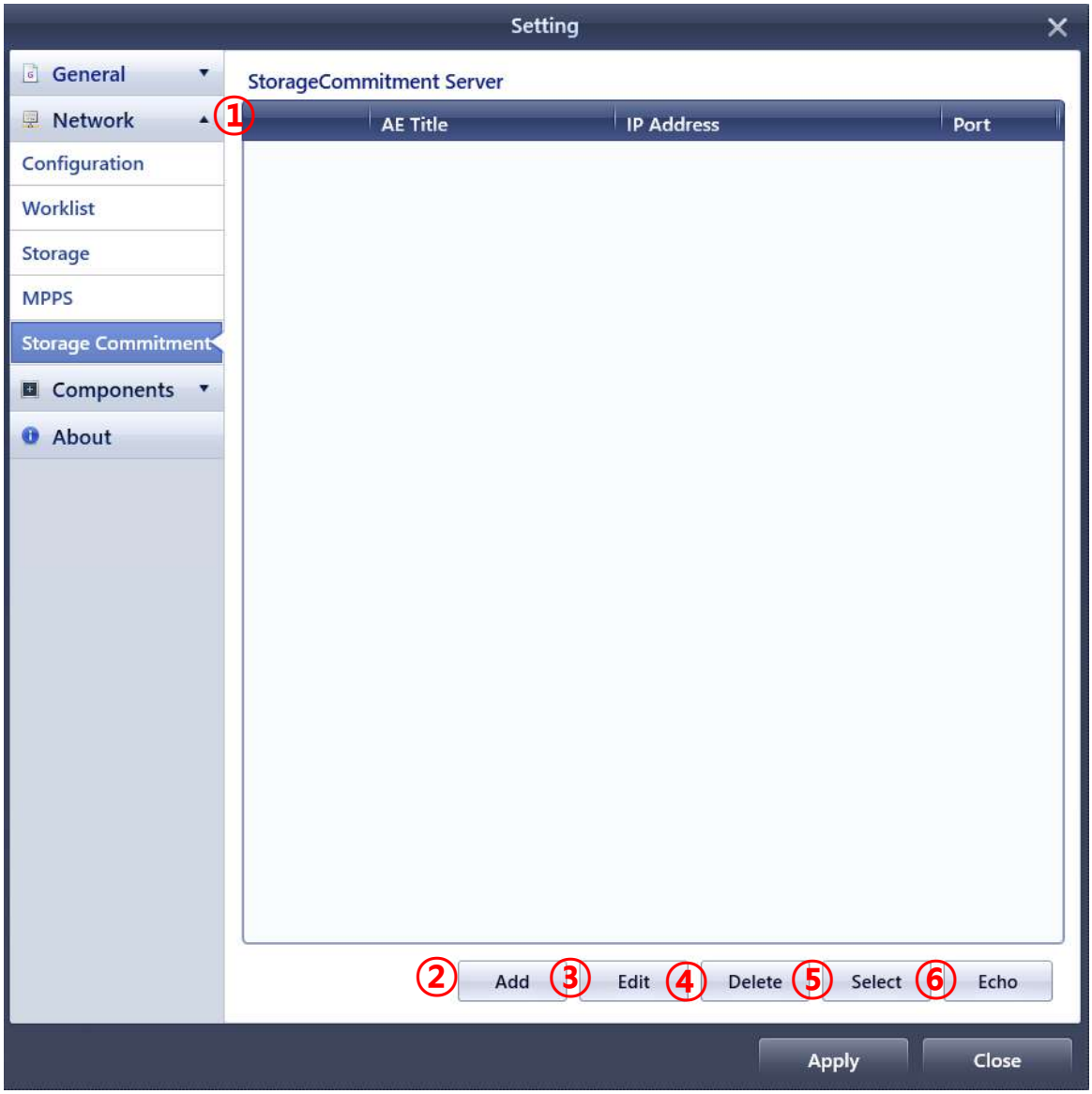
5.1.2.5 Storage Commitment



< Figure 128 Storage >

① Storage Commitment Server List

② Add : Add a storage commitment server. Detail configuration is the same as the configuration described in '5.1.2.2 Worklist'.

③ Edit : Modify the data for selected item in storage commitment server.

④ Delete : Delete the selected storage commitment server.

⑤ Select : Select the registered storage commitment server to use.

You can select only one storage commitment server.

⑥ Echo : Check the communication status of selected storage commitment server.

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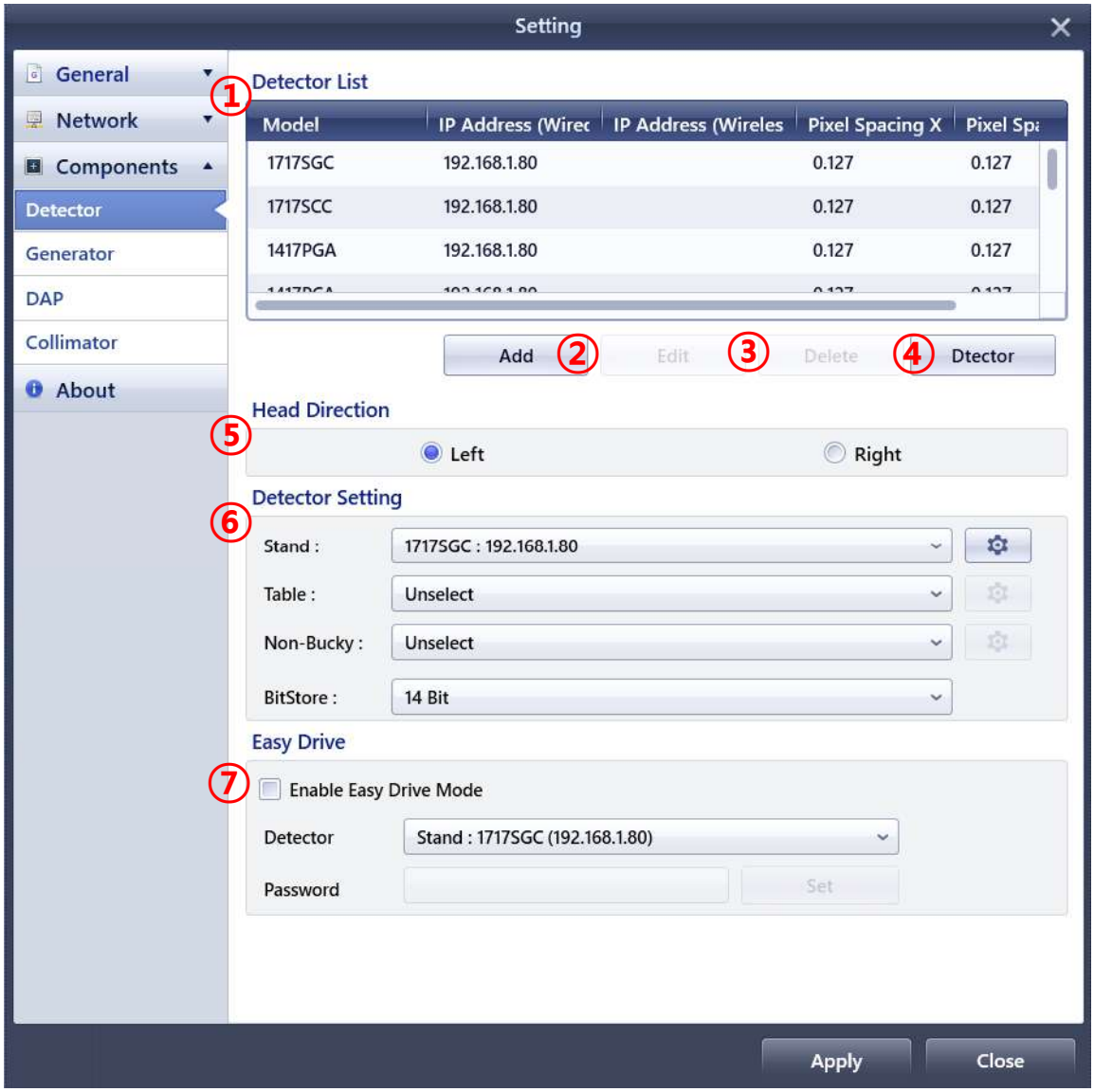
5.1.3 Component

5.1.3.1 Detector



< Figure 129 Detector >

① Detector List

② Add : Add detector item in the detector list.

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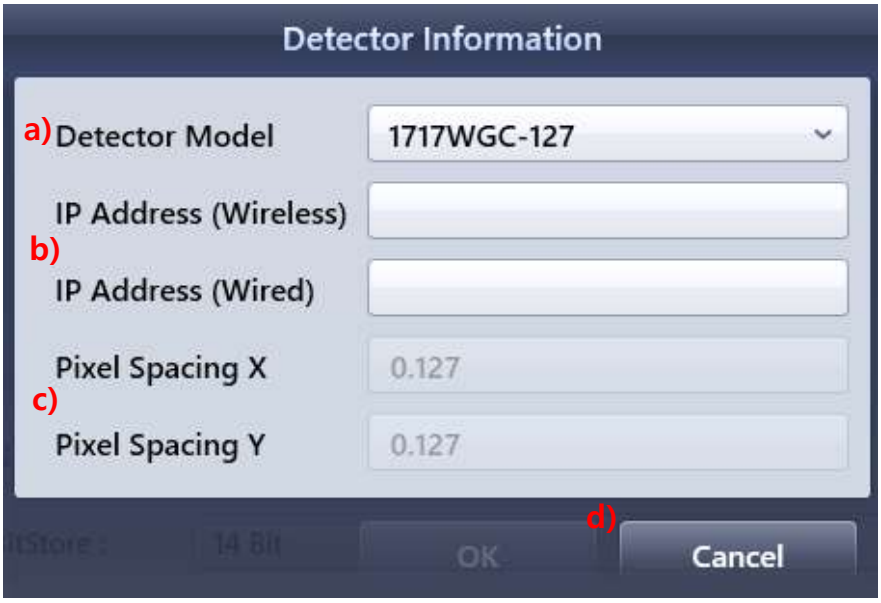

a) Detector Model : Select the Detector Model to be added.

b) IP Address : Enter the IP Address of the Detector Model to be added.

c) Pixel Spacing X : Display the length of the pixel spacing of the Detector Model to be added.

Pixel Spacing Y : Display the width of the pixel spacing of the Detector Model to be added.

d) OK & Cancel.

③ Edit : Edit the information on the selected detector from the detector list.

a) Detector Model : Select the detector model to be modified.

b) IP Address : Enter the IP address of the detector model to be modified.

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c) Pixel Spacing X : Display the length of the pixel spacing of the detector model to be added.

Pixel Spacing Y : Display the width of the pixel spacing of the detector model to be added.

d) Edit & Cancel.

④ Delete : Remove the selected item in the detector list.

⑤ Head Direction : Select the head direction by using as default zero angle.

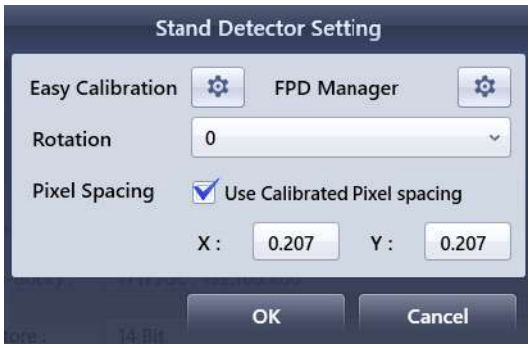
⑥ Stand : Select the detector to be interconnected with the stand bucky.

Table : Select the detector to be interconnected with the table bucky.

Non-Bucky : Select the detector to be interconnected without a bucky.

Bit Store : Depending on the detector bit you use, you can set 14/16Bit.

- Rotation : Set the rotation of Detector.
- : Call out the calibration function(s) for the detector.



5.1.3.2 Generator

- Setting for X-ray generator connections.
- Super Generator Power On/Off : Can be power on/off when Super Generator is connected.

5.1.3.3 DAP

- Setting for dose area product.(DAP).

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5.1.3.4 Equipment

- Setting for X-ray system equipment.

5.1.3.5 Collimator

- Setting for collimator.

For more information on component linkage except for the detector, refer to each manufacturer's manual.

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5.1.4 About

< Figure 130 About >

① Program / Company Information : It shows the information on program, manufacturer and the version of XmaruView V1.

② Company Logo : It shows the company Logo.

③ Ver : It shows the Software Version.

④ Log Viewer : Refer to the '10.Log Viewer'

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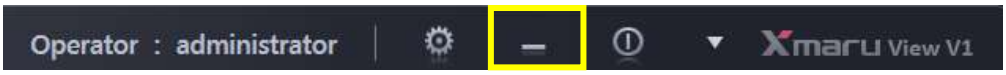
5.2 Minimize

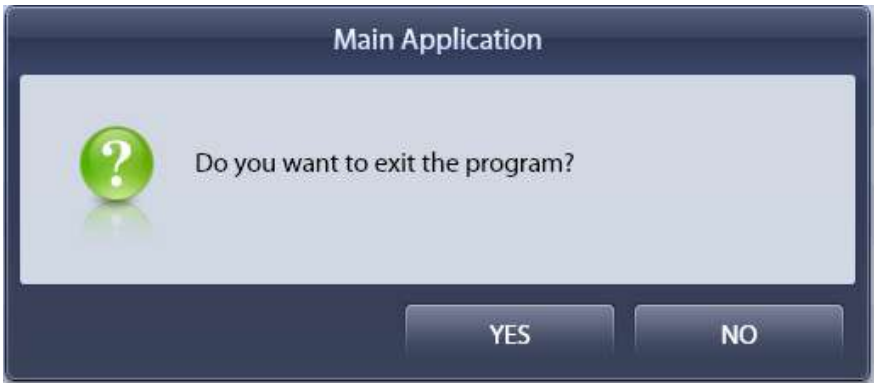


- Minimize : Minimize the XmaruView V1 window.

5.3 Exit

- Exit : Show the exit confirmation dialog box of XmaruView V1.

- YES : Terminate the XmaruView V1 program.
- NO : Cancel terminating the XmaruView V1 program..



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5.4 Advanced Settings

5.4.1 Rules on creating image files

- Save rules of image folders naming

  [image save folder]₩[acquisition date]₩[patient ID]₩[modality]

  Ex) C:₩Rayence₩XmaruView V1₩ImageData₩2011-09-16₩11-0001₩DX

- Image file naming rule (3 types of files)

  *[SOP_INSTANCE_UID]*_O.dcm(O refers to Original)

  *[SOP_INSTANCE_UID]*_P.dcm (P refers to Processed)

  *[SOP_INSTANCE_UID]*_F.dcm (F refers to Full size processed)

  Ex) 1.2.410.200028.100.3.20110803.1405380187.13319.1.1_O.dcm

  1.2.410.200028.100.3.20110803.1405380187.13319.1.1_P.dcm

  1.2.410.200028.100.3.20110803.1405380187.13319.1.1_F.dcm

5.4.2 Log files management

- Main log file

1) The console status of XmaruView V1 and debugging information are collected and recorded into the log file on a real time basis.
2) Save path : C:₩Rayence₩XmaruView V1₩Console₩Log₩*[logfilecreation date]*.log
3) Log file contains

- Start program

  ==========

  <--! Console S/W is started. !-->

  ==========

  XmaruView V1 Console operations details along with time are recorded.

- Terminate program

  ==========

  <--! Console S/W is closed. !-->

  ==========

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The log details that contain starting a program but not terminating, it indicate that the program has been terminated in an abnormal manner.

- Exception messages.
- Exception triggering source file name, function name, and line number.

- DICOM Print log file

1) All of the printouts which used XmaruView V1 Console are collected and recorded in log file on a real time basis.
2) Save path : C:₩Rayence₩XmaruView V1₩Console₩Bin₩PrintLog₩*[print date]*₩PRN_*[log file creation date]_[log file creation time]*.log
3) Log file contains
   - Exceptions, error, debugging data etc. that occur during the print operation are recorded.
   - Error Return codes of error that occur during the communication with the printer are also recorded.

- DICOM Send log file

1) All the sending through the use of XmaruView V1 Console are collected and recorded in log file on a real time basis.
2) Save path : C:₩Rayence₩XmaruView V1₩Console₩Bin₩StoreLog₩*[Senddate]*₩STR_*[log file creation date]_[log file creation time]*.log
3) Log file contains
   - Exceptions, error, debugging data etc. that occur during the send operation are recorded.
   - Error Return codes of error that occur during the communication with the storage servers are also recorded.

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5.4.3 Configuration settings logo

- You can have the log file dynamically retrieved and displayed on the screen in XmaruView V1. If you change the logo of XmaruView V1 Console, the new logo is displayed when executing XmaruView V1.

- Path where logo files are saved

1) Right top of main window :

   C:₩Rayence₩XmaruView V1₩Console₩Bin₩Resource₩Logo₩MainLogo.png

2) Left top of Viewer window :

   C:₩Rayence₩XmaruView V1₩Console₩Bin₩Resource₩Logo₩ViewerLogo.png

3) Program information window of configuration settings

   C:₩Rayence₩XmaruView V1₩Console₩Bin₩Resource₩Logo₩ProgramInfo.png

- Logo file information

1) File type : PNG(32bit) only.
2) File size :

- Right top of main window : width 150px, height 38px
- Left top of Viewer window : width 115px, height 55px
- Program information window of configuration settings: width 544px, height 555px

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5.4.4 Type and description of database of XmaruView V1 Console

- Database file path : C:₩Rayence₩XmaruView V1₩Console₩Database
- Database file type and description

1) Config.db : Database where configuration settings are kept.
2) Procedure.db : The list of species and view positions to appear on the bodypart in the capture tab, image processing parameters are saved.
3) Queue.db : When conducting PACS Send and DICOM Print on the XmaruView V1 Console, all send and print jobs saved in Queue Database are processed one at a time.
4) History.db : Image history of acquisition, edit, delete saved.
5) Report.db : Image Comments are saved.
6) Study.db : Contain information of patients and images.
7) Study.blank : This is a database file witch copied to the backup folder with images when backing up images on the XmaruView V1 Console. The information on backup images is recorded.

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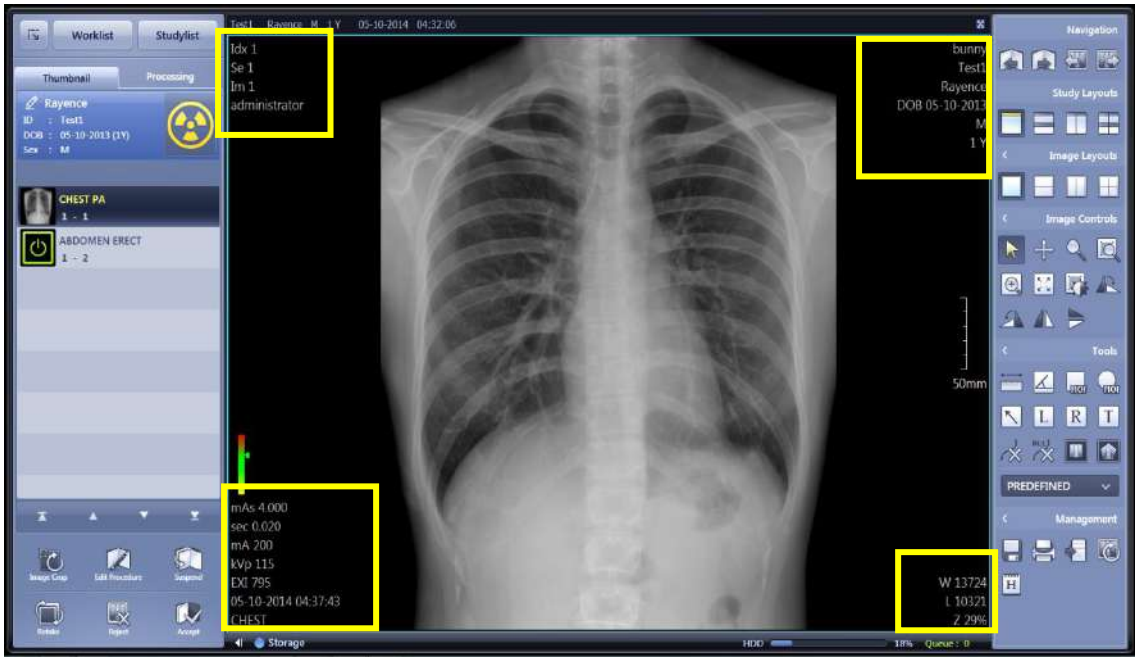
5.4.5 DICOM Overlay Text setting



< Figure 131 Overlay Text >

- Setting the display and location of DICOM Overlay Text.

1) File path : C:₩Rayence₩XmaruView V1₩Console₩Doc₩DICOMInfo.ini

2) Description

```
// DICOM Information
// 1.  Image Index
// 2.  Image Number :TAG_INSTANCE_NUMBER          (0020,0013)
// 3.  Content Time                               (0008,0023)
// 4.  Series Number                              (0020,0011)
// 5.  Institution Name                           (0020,0013)
// 6.  Study Date                                 (0008,0020)
// 7.  Study Description                          (0008,1030)
// 8.  Body Part Examined                         (0018,0015)
// 9.  Manufacturer ModelName                     (0008,1090)
// 10. Modality                                   (0008,0060)
// 11. Patient's ID                               (0010,0020)
// 12. Patient's Name                             (0010,0010)
// 13. Patient's BirthDate                        (0010,0030)
// 14. Patient's Sex                              (0010,0040)
// 15. Patient's Age                              (0010,1010)
// 16. Exposure Index
// 17. Exposure (mAs)                             (0018,1152)
// 18. Exposure Time(mSec)                        (0018,1150)
// 19. Tube Current (mA)                          (0018,1151)
// 20. kVp                                        (0018,0060)
// 21. Window Width                               (0028,1051)
// 22. Window Center                              (0028,1050)
// 23. Zoom Ratio(%)
// 24. Roate/Flip Flag
// 25. View Position Examined                     (0018,5101)
// 26. Operators' Name                            (0008,1070)
// 27. Serial Description                         (0008,103E)
// 29. Serial Date                                (0008,0021)
// 30. Acquisition Date                           (0008,0022)
// 31. Content Date                               (0008,0023)
// 32. Study Time                                 (0008,0030)
// 33. Series Time                                (0008,0031)
// 34. Acquisition Time                           (0008,1032)
```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3) Setting

- Total count : Number of DICOM overlay items.

[INFO]

Total count = 21

- String Position : Setting the text position.

// String Position

// @ LT (Left Top)

// @ LB (Left Bottom)

// @ RT (Right Top)

// @ RB (Right Bottom)

- Font Style : Setting the text font style.

// Font Style

// @ SMALL

// @ MEDIUM

// @ LARGE

// @ LARGE BOLD

- Font Type : Setting the font type.

// Font Type

// @ HIGHLIGHT1

// @ HIGHLIGHT2

// @ NORMAL

// @ IMPORTANT

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6. Procedure Manager

6.1 What is Procedure Manager?

Procedure Manager is a program that allows users to manage a variety of items used in Console S/W (i.e. Body Part, View Position, Procedure, Procedure Step, and Exposure Parameter).

The manager preps image processing and provides common image settings such as image rotation, ROI, and Marker.

Also, pre-defined body parts are registered with the manager. This allows the user to skip manually adding orders into the worklist. (Orders can be manually added using the HIS/RIS Code Match function).

6.2 Start / Terminate the Procedure Manager

6.2.1 Install program

- The program is automatically installed when installing XmaruView V1.
- Program path : C:₩Rayence₩XmaruView V1₩Console₩Bin₩Procedure Manager.exe

6.2.2 Start the procedure manager

① Execute the C:₩Rayence₩XmaruView V1₩Console₩Bin₩Procedure Manager.exe

② Procedure Manager is display.

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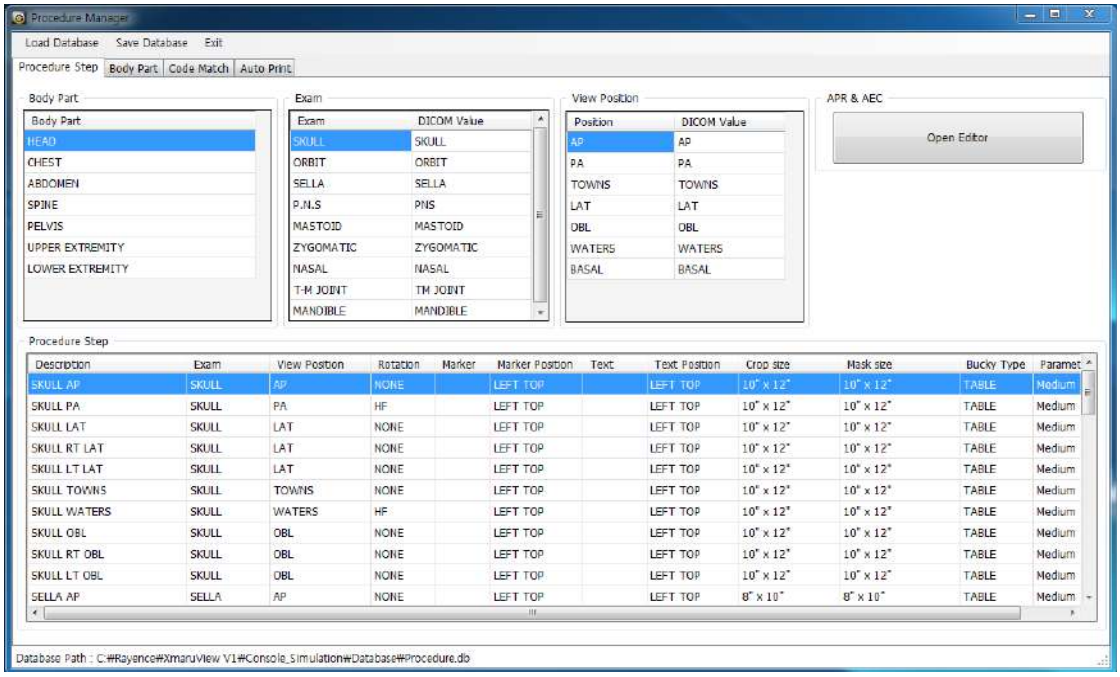
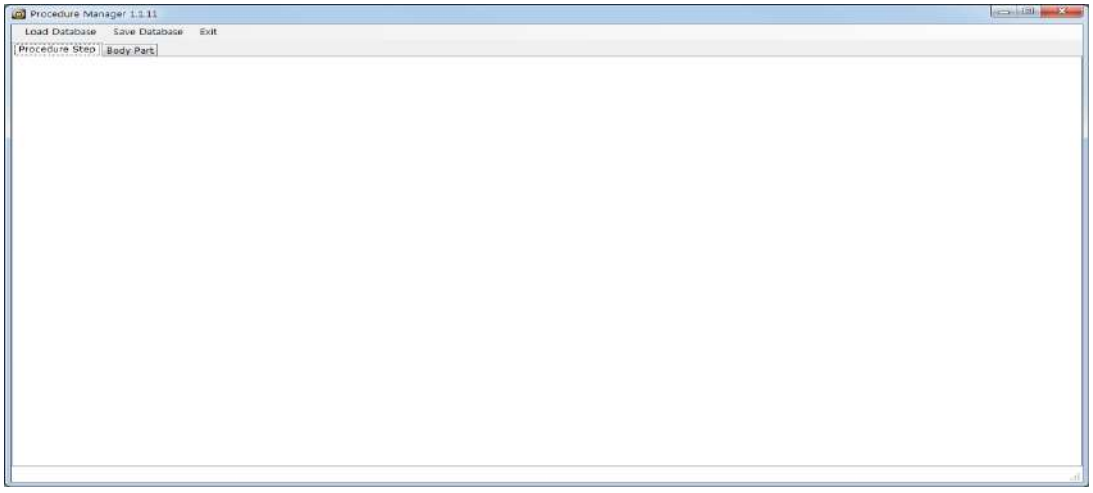


< Figure 132 Procedure Manager >

※ If Procedure.db is not opened properly, the empty window as the one shown below will appear.

In this case, terminate Procedure Manager and check if Procedure.db is damaged or if there is another problem before trying it again. If the problem persists, contact the customer service center.



< Figure 133 Procedure DB Error >

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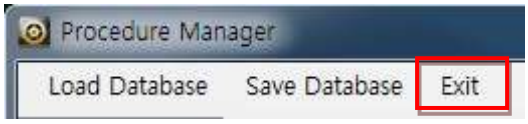
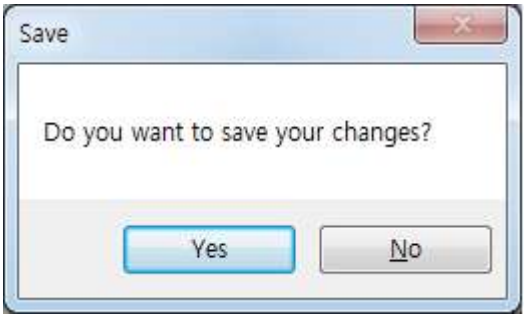
6.2.3 Terminate the procedure manager



- Click the Exit menu on top of the program.

- If there is no change : The program is immediately terminated on clicking the Exit button.
- If there is any change



: The save confirmation dialog box as shown above will appear.

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6.3 Automatic Backup

- Procedure Manager is not designed to modify data directly in Procedure.db but backs up original data into a temporary folder instead, if users change the copied file, and then save the changes incorporated into the "Procedure.db".

- Backup on starting program

  A folder named ProcedureTemp is created in the folder where Procedure Manager.exe file resides and Procedure.db selected in starting Procedure Manager is copied to the folder named ProcedureTemp as ProcedureTemp.db. ProcedureTemp.db is overwritten and updated after every execution.

- Backup on terminating program

The save confirmation message that asks you whether or not to save the change will appear when terminating the program.

- YES : Change will be saved and applied to the original Procedure.db. A temporary file with the format of current date_time is created in subfolder of ProcedureBackup₩OriginalBackup within the folder where Procedure Manager.exe resides and automatically backs up changes before saving and applying changes to "Procedure.db".
- NO : Change will not be saved and applied to the original Procedure.db. Therefore, a temporary file with the format of current date_time is created in subfolder of ProcedureBackup₩OriginalBackup within the folder where Procedure Manager.exe resides and automatically backs up changes.

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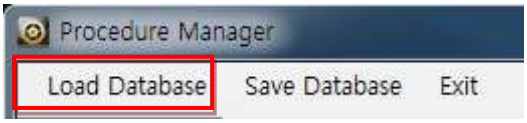
6.4 Menu

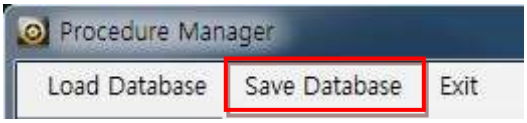
6.4.1 Load Database

- Load the selected “Procedure.db” file.



6.4.2 Save Database

- Save the “Procedure.db” file.



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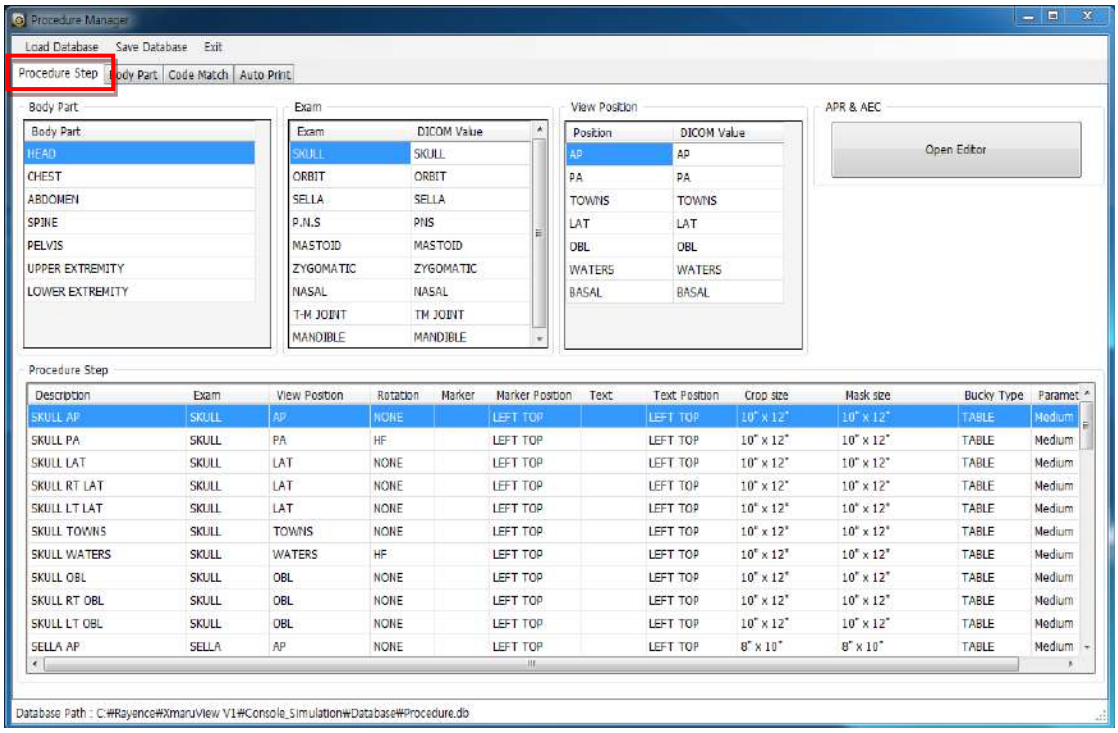
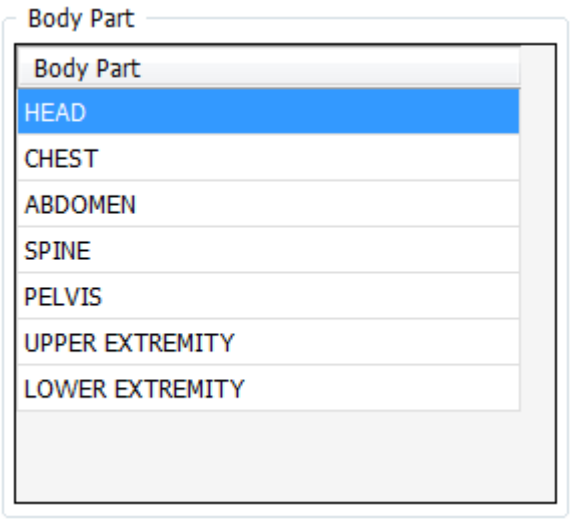
6.5 Procedure Step Page



< Figure 134 Procedure Step >

6.5.1 Body Part

- Select the Body Part.



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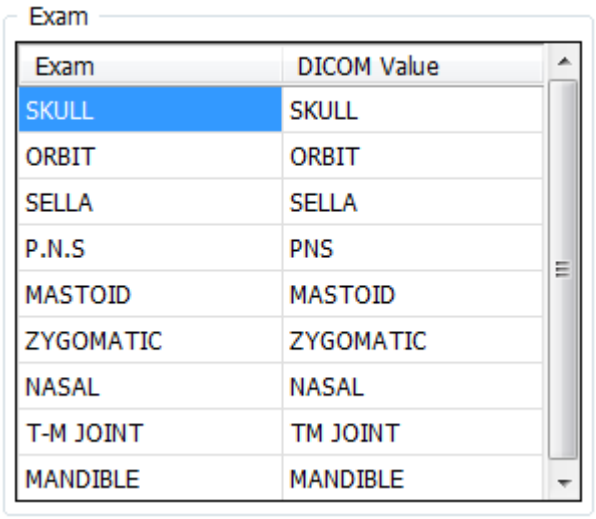
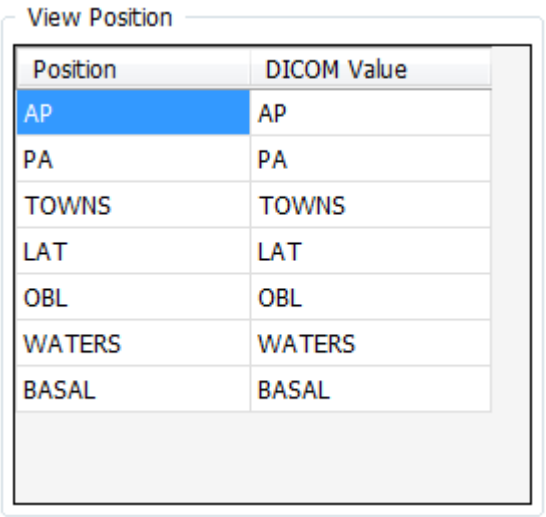
6.5.2 Exam

- Select the Exam.



6.5.3 View Position

- Select the View Position.



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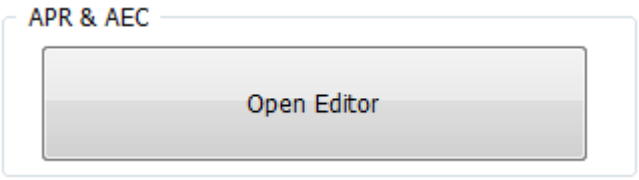
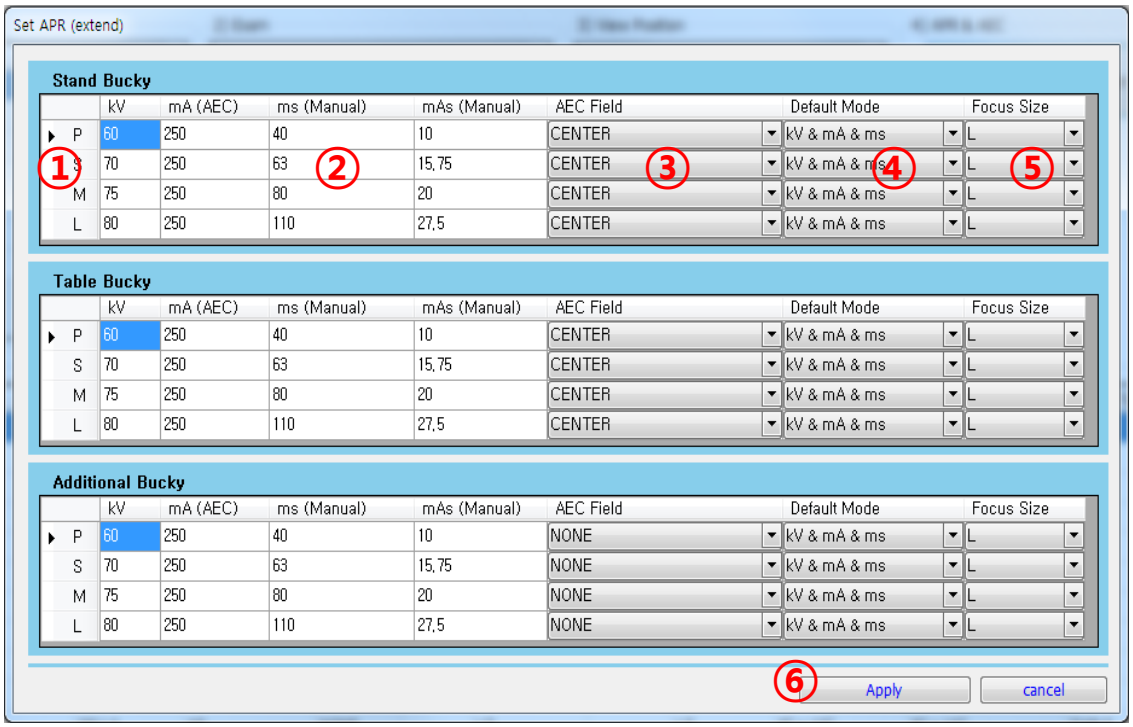
6.5.4 APR & AEC

APR (Anatomical Programmed Radiography) & AEC (Auto Exposure Control) setting.



- Open Editor

- APR & AEC setting by each bucky type.



< Figure 135 APR & AEC >

① Select the "Patient Size".

② Adjust the "Exposure Condition".

- kV : kV value is pressed by selecting on your keyboard +,-
- mA : mA value is pressed by selecting on your keyboard +,-
- ms : ms value is pressed by selecting on your keyboard +,-
- mAs : mAs item is automatically calculated.

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③ AEC Field : Select the AEC Field to be used in AEC mode.

④ Default Mode : Select the generator mode.

⑤ Focus Size : Select the tube focus.

⑥ Apply & Cancel.

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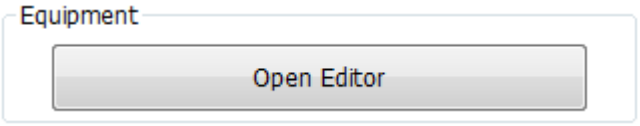
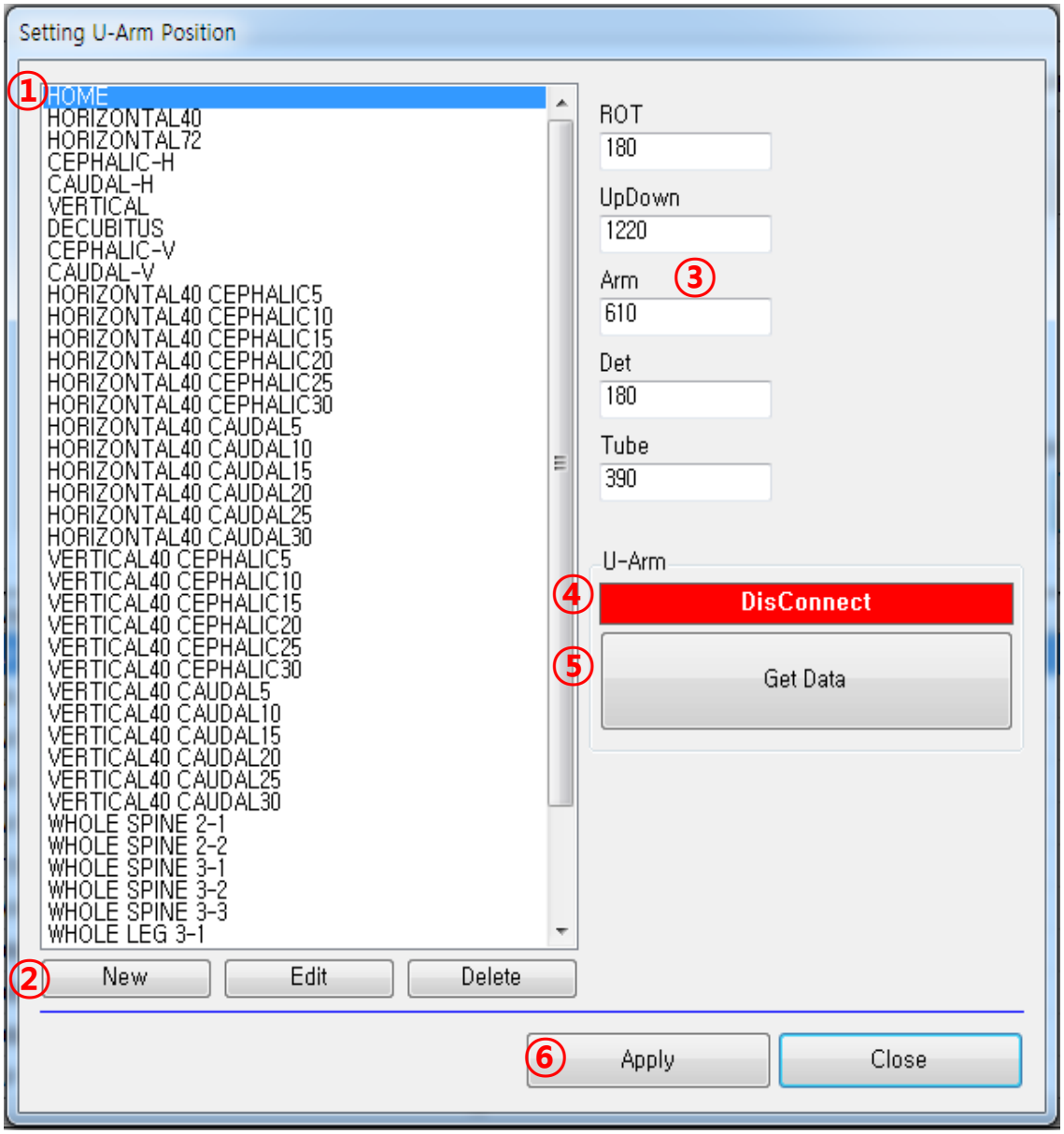
6.5.5 Equipment

- Setting equipment default positions.



- Open Editor



< Figure 136 Equipment Position >

① Equipment Position List

② New : Create the Equipment Position.

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Edit : Create the Equipment Position.

Delete : Delete the Equipment Position.

The name of the 8 default positions, which is connected with Position and OP Panel, cannot be modified or deleted.

③ Display the current position value acquired from the Equipment.

④ Indicate the connection status of the Equipment.

⑤ Acquire current position value of the Equipment.

⑥ Apply : Apply currently displayed position value to the selected Position from the List.
Close : Close the Editor window.

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6.5.6 Procedure Step

- Setting the procedure step.

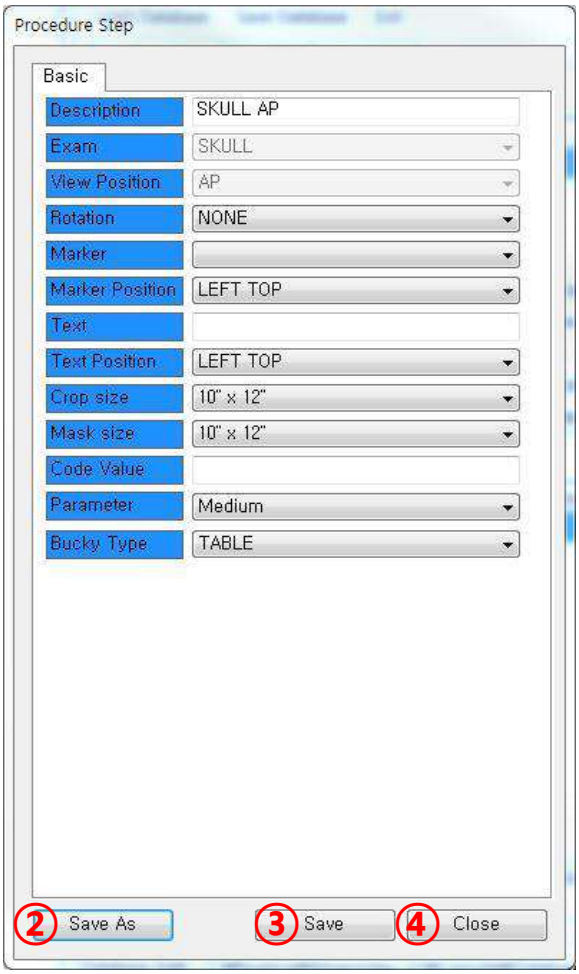
6.5.7 Procedure Step setting

8) Procedure Step

Description	Exam	View Position	Rotation	Marker	Marker Position	Text	Text Position	Crop size	Mask size	Bucky Type
SKULL AP	SKULL	AP	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL PA	SKULL	PA	HF		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL LAT	SKULL	LAT	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL RT LAT	SKULL	LAT	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL LT LAT	SKULL	LAT	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL TOWN'S	SKULL	TOWN'S	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL WATER'S	SKULL	WATER'S	HF		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL OBL	SKULL	OBL	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL RT OBL	SKULL	OBL	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SKULL LT OBL	SKULL	OBL	NONE		LEFT TOP		LEFT TOP	10" x 12"	10" x 12"	TABLE
SELLA AP	SELLA	AP	NONE		LEFT TOP		LEFT TOP	8" x 10"	8" x 10"	TABLE
SELLA LAT	SELLA	LAT	NONE		LEFT TOP		LEFT TOP	8" x 10"	8" x 10"	TABLE

< Figure 137 Select Procedure Step >

① Double-Click the Procedure Step.



< Figure 138 Procedure Step Parameter >

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- Description : Enter the procedure step description.
- Rotation : Rotate the image.
- Maker : Select the maker.
- Maker Position : Select the maker position.
- Text : Enter the auto text.
- Text Position : Select the text position.
- Crop Size : Select the default crop size.
- Mask Size : Select the default mask size.
- Code Value : Enter the code value.
- Parameter : Select one among Medium, Soft, and Hard.
- Bucky Type : Select the default bucky type.

② Save as : Create the Procedure Step that has the same Parameter.

③ Save

④ Close

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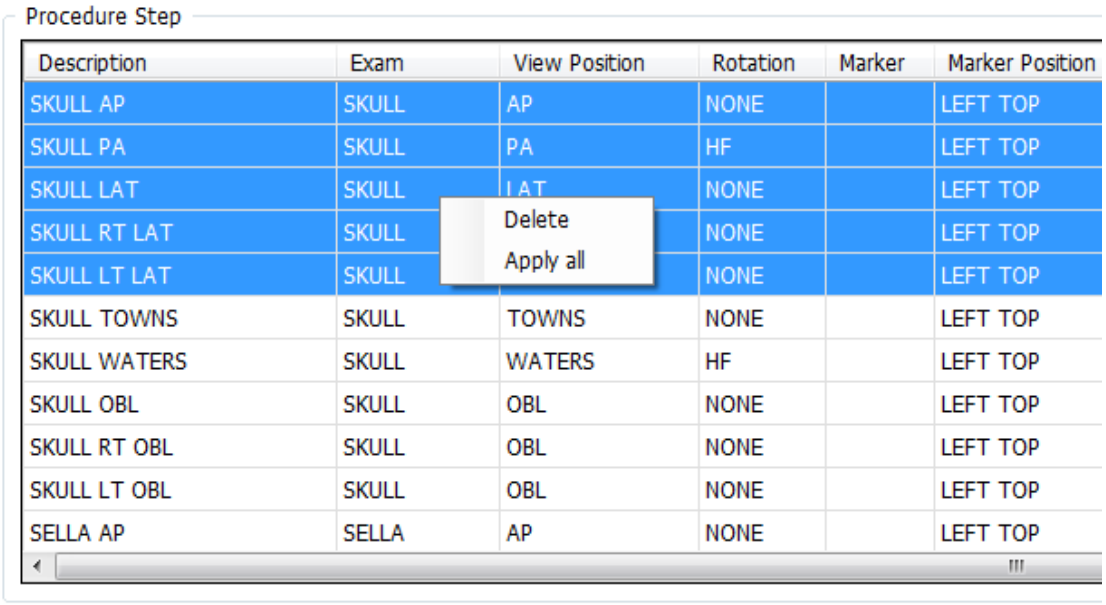
6.5.8 Pop-up Menu

- Click the right button on procedure step list.



< Figure 139 Pop-up Menu >

- Delete : Delete the selected procedure steps.
- Apply all : Change the selected procedure steps.

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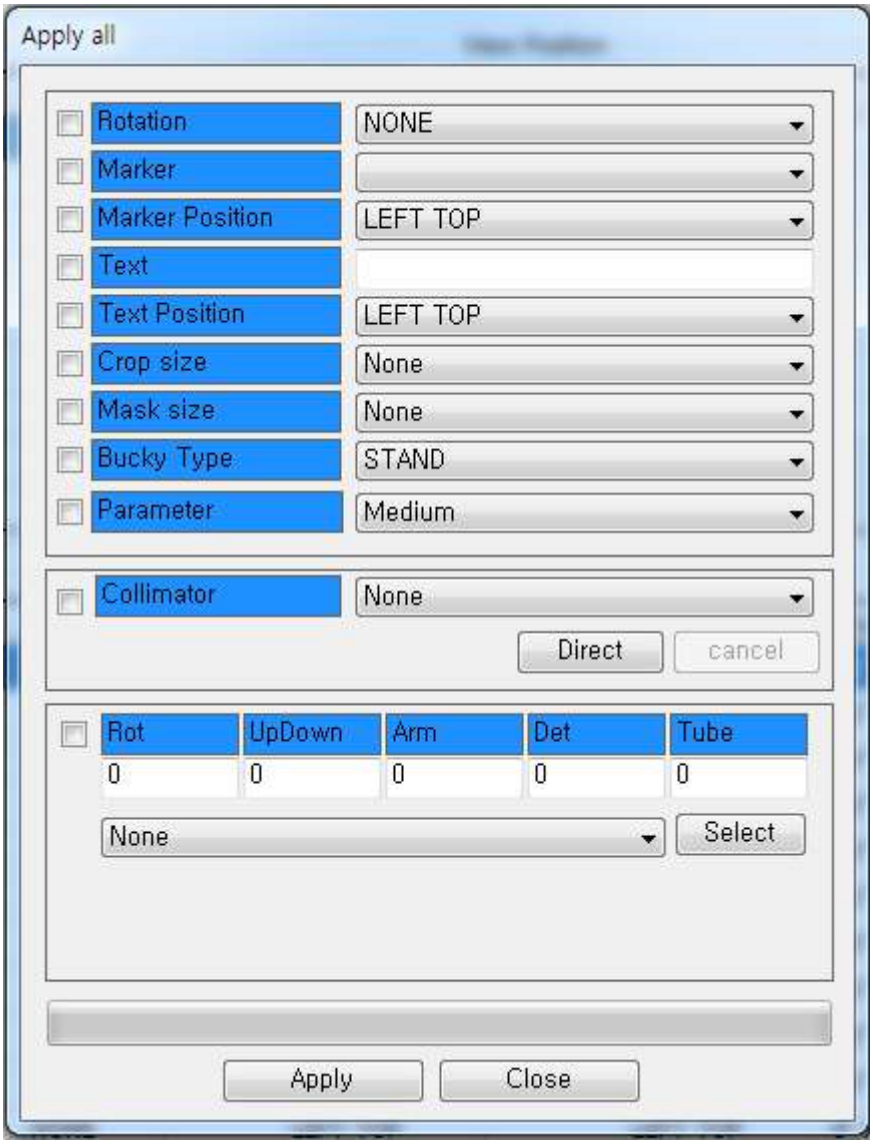

< Figure 140 Apply all >

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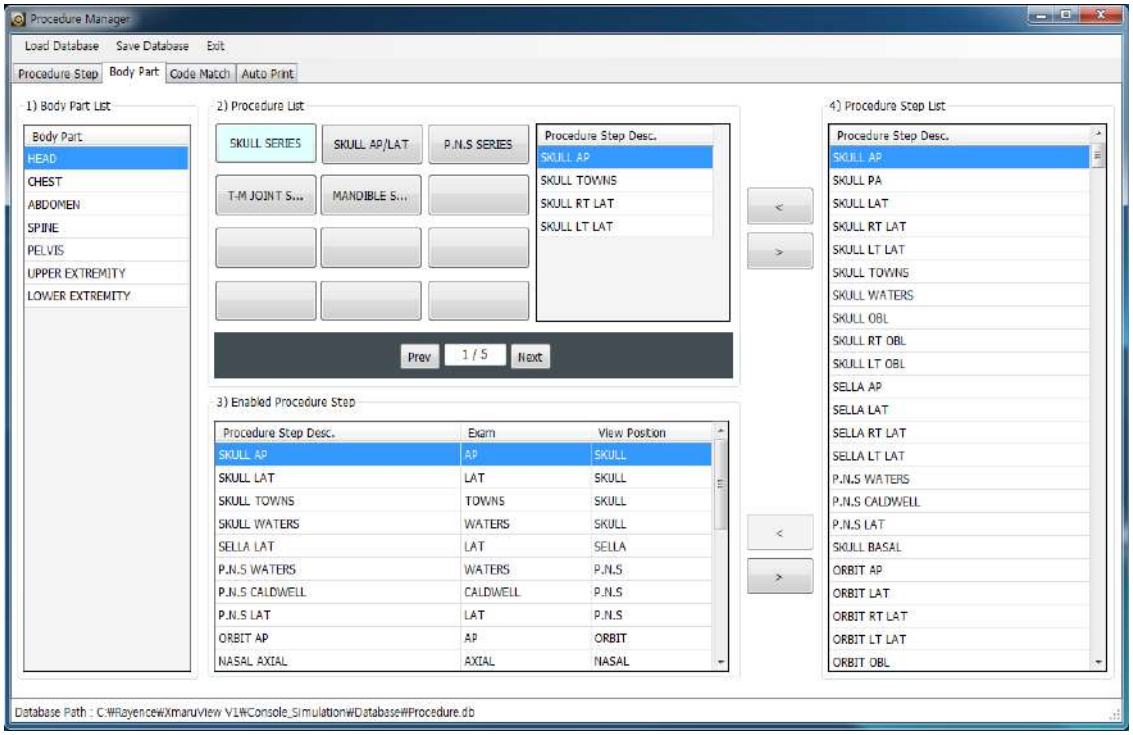
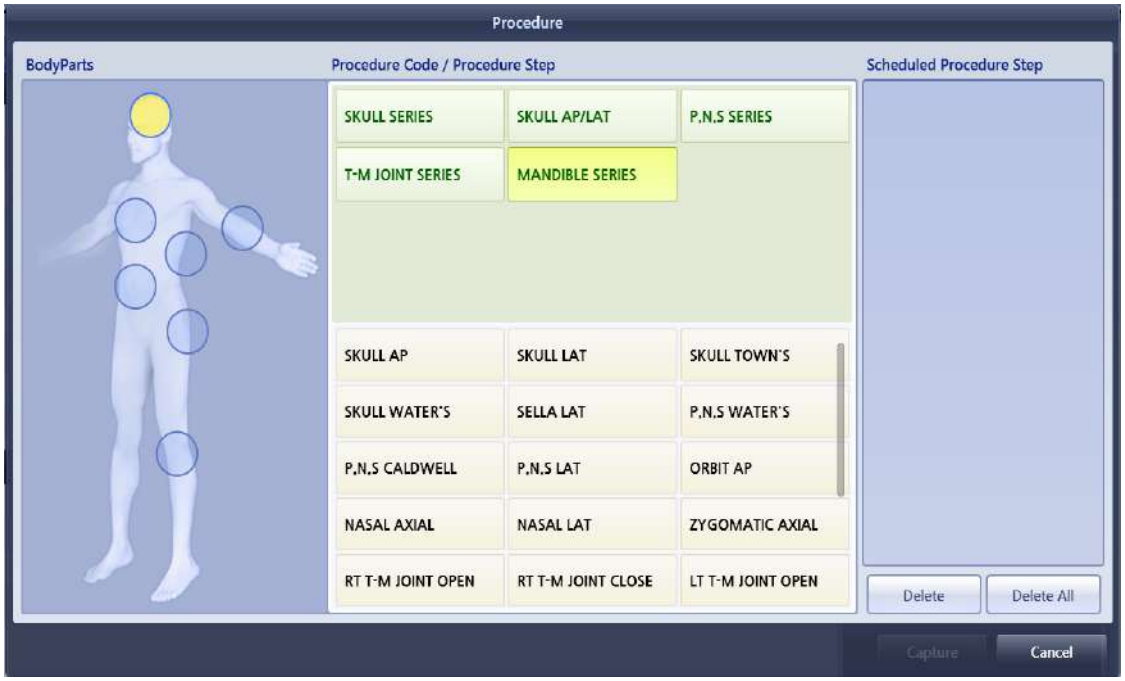
6.6 Body Part Page

- Setting the "Procedure" window.



< Figure 141 Body Part >



< Figure 142 Procedure >

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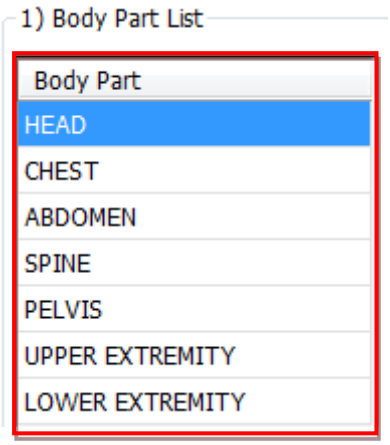
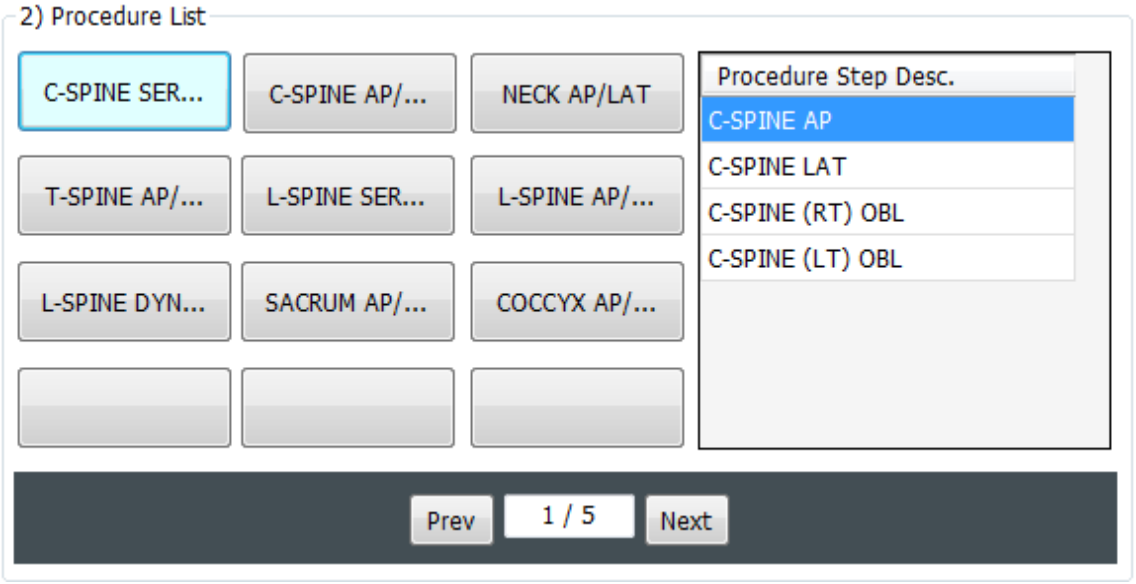
6.6.1 Body Part



① Body Part : Display the Procedure on the right if you select the Body Part.

6.6.2 Procedure List+



< Figure 143 Procedure List >

① Batch of Procedure

Batch of Procedure Step in selected Body Part.

You can set Batch of Procedure Step where you want.

Also, you can set the Auto Stitching.

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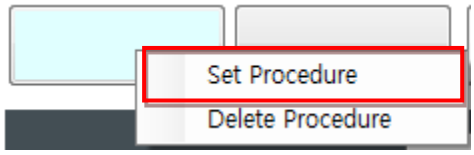
② Page

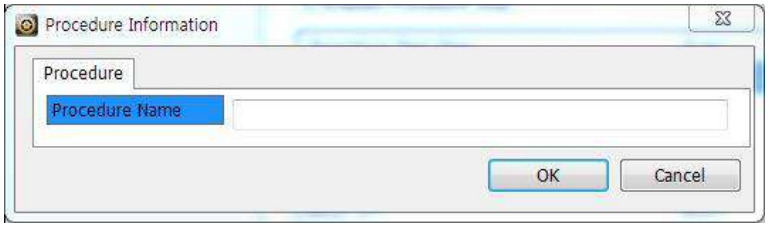
- Max. 5 pages.
- Page move by "Prev" or "Next" button.

③ Addition

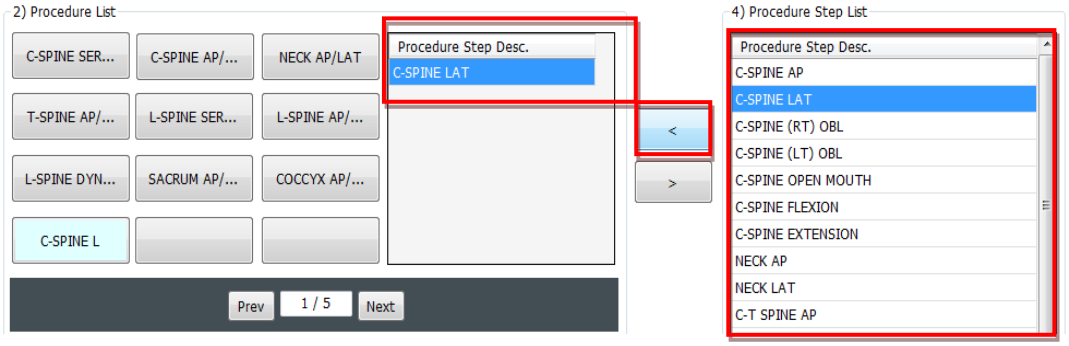
a) Click the mouse right button and select "Set Procedure" menu.



b) Enter the Procedure name.



c) Click the arrow button(<) after selecting the list you want on the procedure step list.



d) Procedure list to modify the item by using the left and right arrow button(<,>).

	Different Body Part's Procedure Step can be mixed.

④ Delete Procedure

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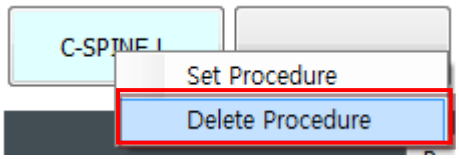
Click the mouse right button and select "Delete Procedure" menu.



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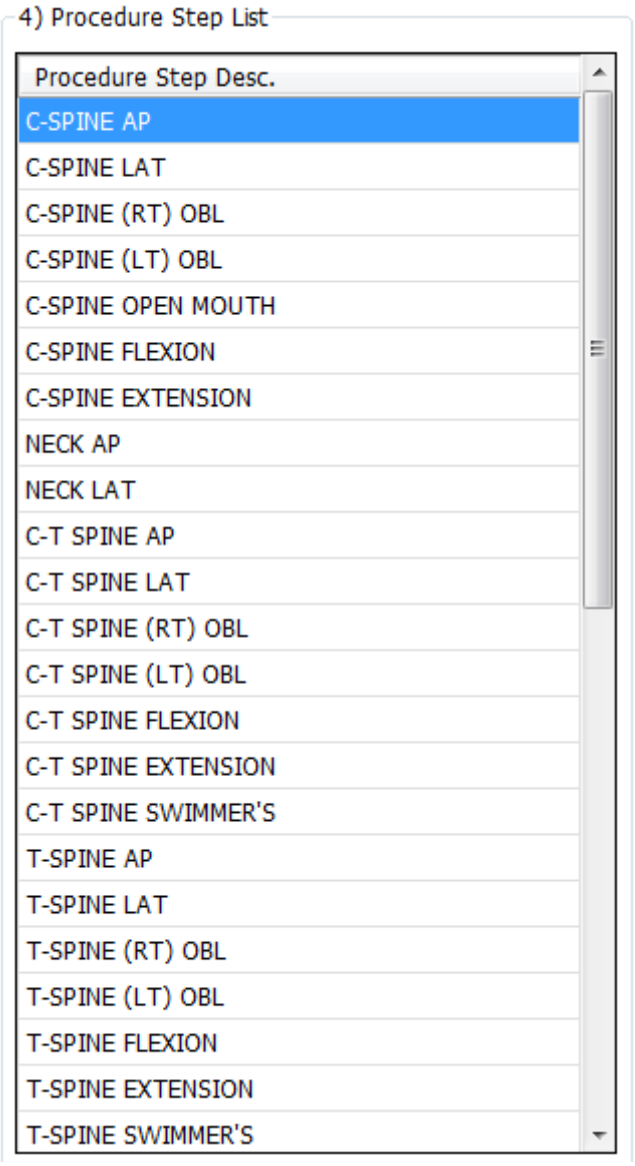
6.6.3 Procedure Step

- Display the all procedure steps.



	The Procedure Step of Body Part which is not selected will be grayed.

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6.6.4 Enabled Procedure Step

3) Enabled Procedure Step

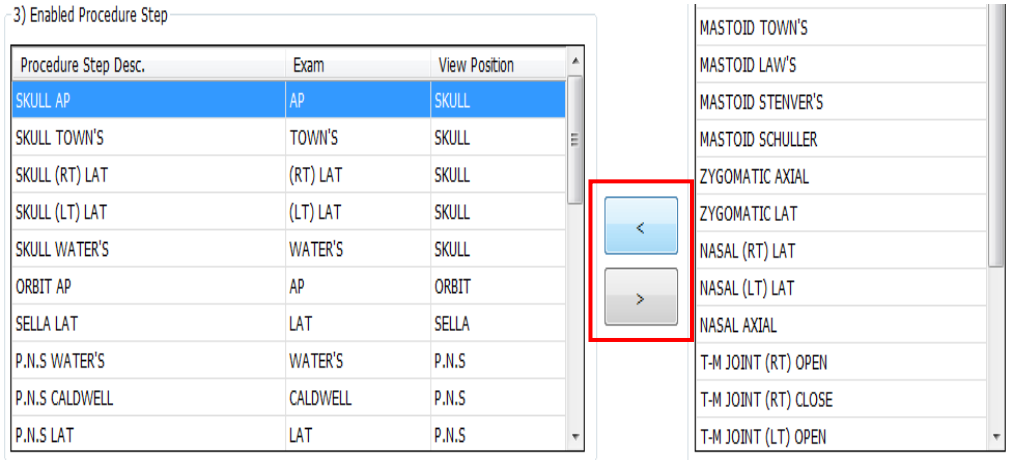
Procedure Step Desc.	Exam	View Position
C-SPINE AP	AP	C-SPINE
C-SPINE LAT	LAT	C-SPINE
C-SPINE (RT) OBL	(RT) OBL	C-SPINE
C-SPINE (LT) OBL	(LT) OBL	C-SPINE
C-SPINE OPEN MOUTH	OPEN MOUTH	C-SPINE
C-SPINE FLEXION	FLEXION	C-SPINE
C-SPINE EXTENSION	EXTENSION	C-SPINE
NECK AP	AP	NECK
NECK LAT	LAT	NECK
C-T SPINE AP	AP	C-T SPINE

① It displays that Procedure steps registered in selected body part.

	You cannot register other Body Parts' Procedure Step to the "Enabled Procedure Step".

② Addition and Delete

Registered Procedure step list modify by using the left and right arrow button(<,>).



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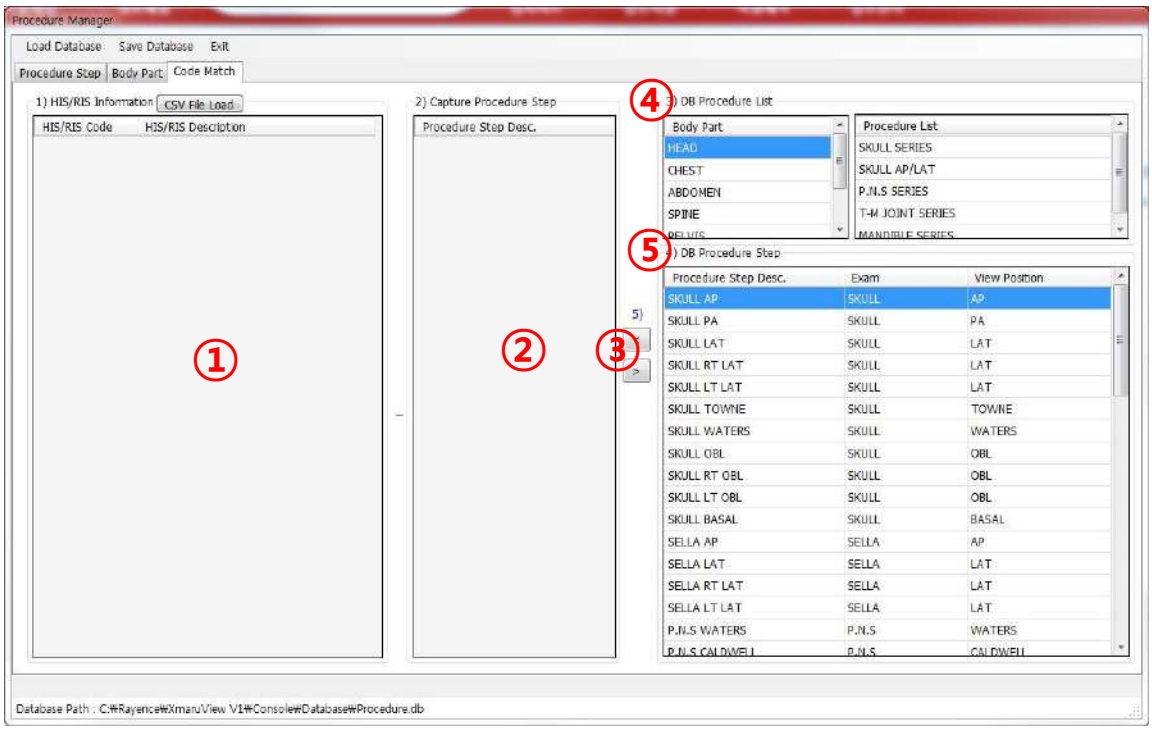
6.7 Code Match Page

- HIS/RIS Code registration.



< Figure 144 Code Match >

① HIS/RIS Code.

② Selected "Procedure Step".

③ Procedure Step add & remove.

④ Procedure list.

⑤ All Procedure Step list.

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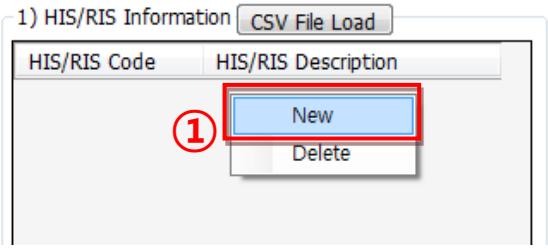
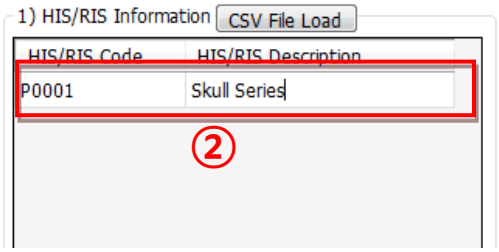
6.7.1 Code Matching

① Click the mouose Right button and select "New" menu.



② Enter the HIS/RIS Code and Description.



HIS/RIS Code cannot add the same code but Description is possible .

③ Select the Procedure.

④ or Procedure Step.

⑤ Click the add button "<" .

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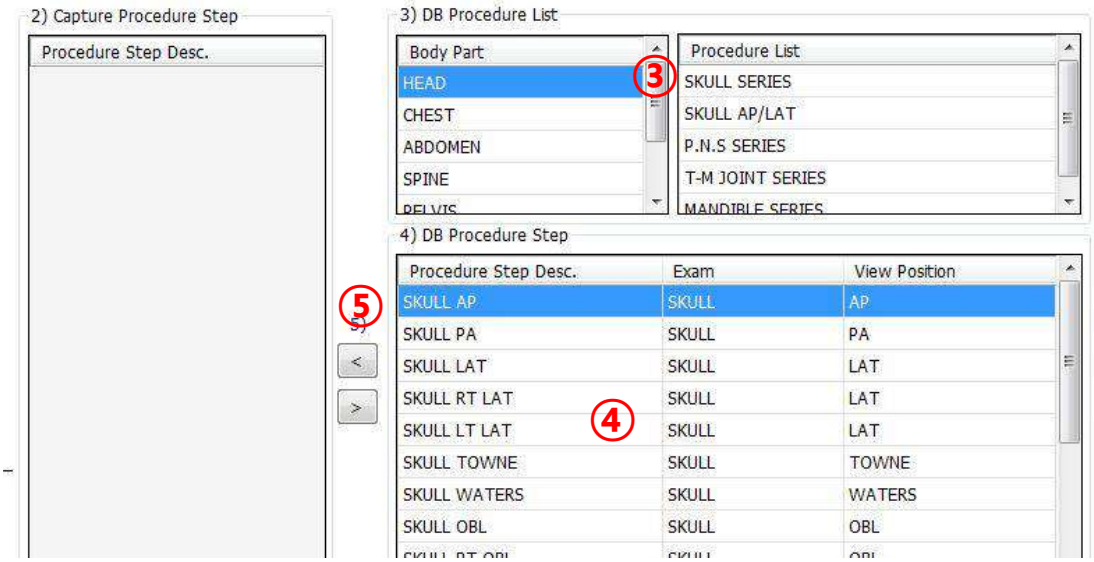
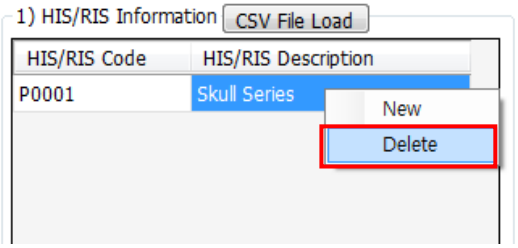


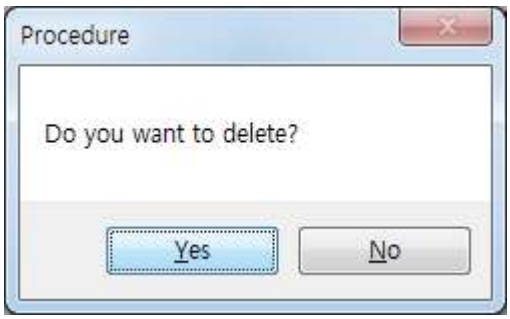
6.7.2 Delete Code and Description

① Select item and right button click on the mouse.

② Click the 'Delete'.



③ Click the "yes" button.



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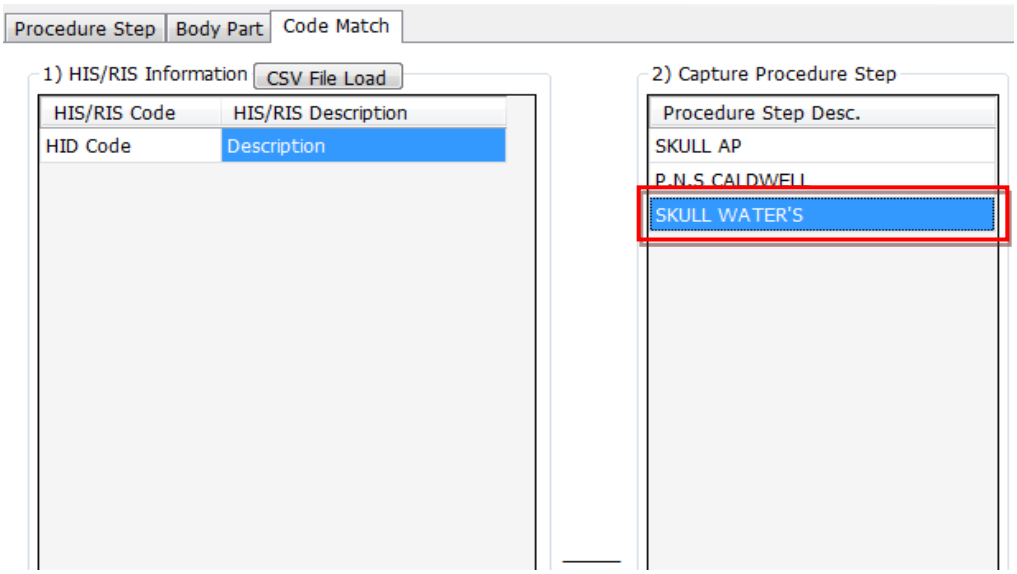
6.7.3 Edit the procedure step

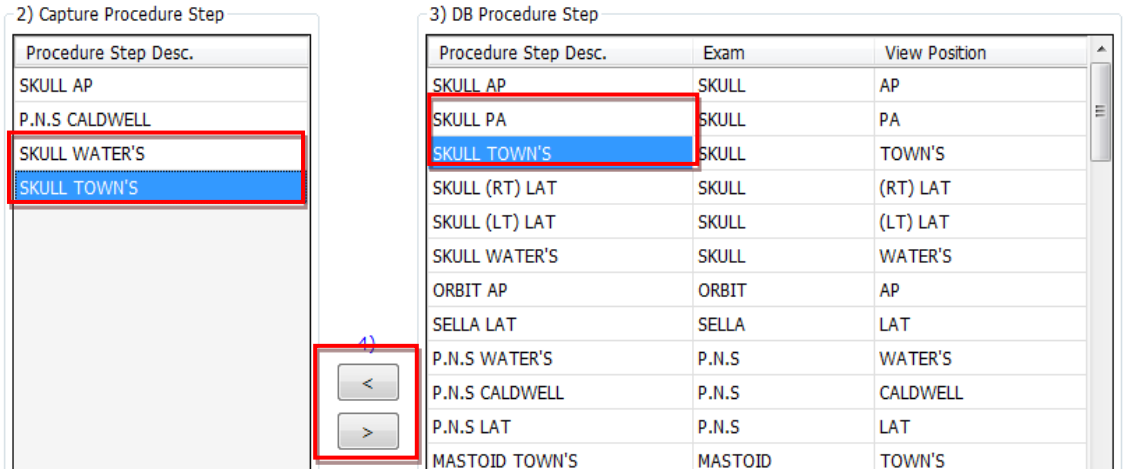
6.7.3.1 Change the Procedure Step



① Select a procedure step whose order you want to modify and drag it to the location you want it to be placed.

6.7.3.2 Add & Remove the procedure step

- Add and Remove after clicking the procedure step.



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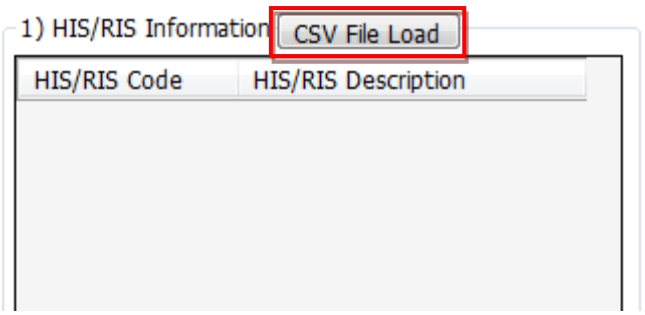
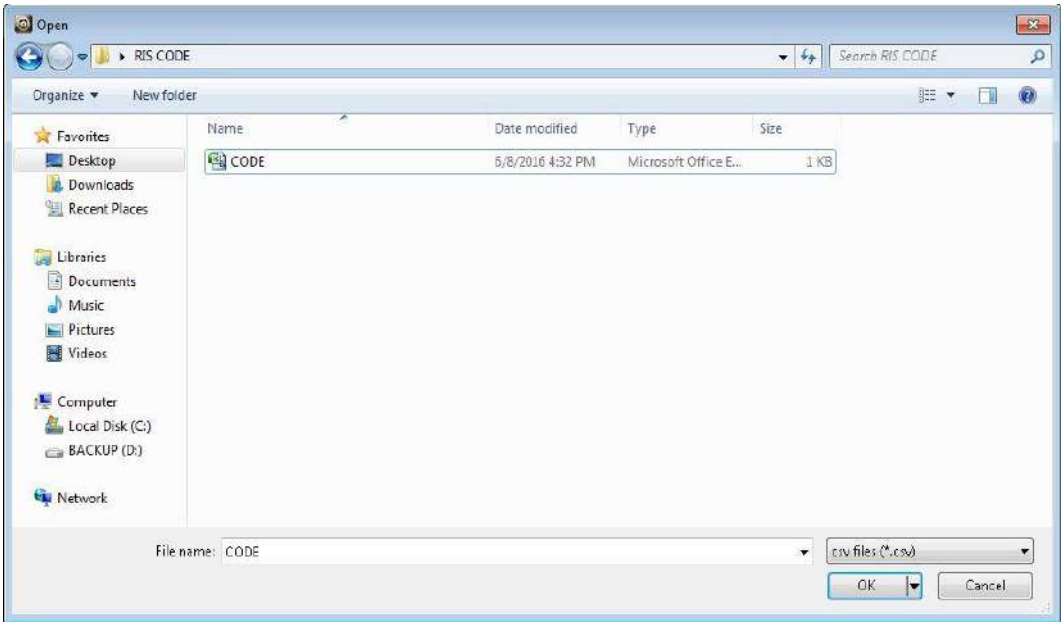
6.7.4 CSV File Load

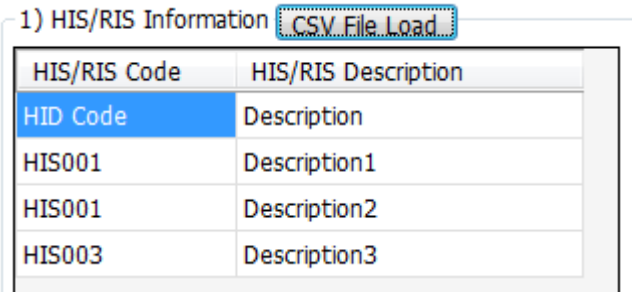
- Load the HIS/RIS Code information from CSV file.

① Click the "CSV File Load" & select the CSV file.





② HIS/RIS Code and Descriptions are automatically added.



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Ex) CSV format

	A	B
1	P0001	Skull Series
2	P0002	Skull AP
3	P0003	Skull Rt Lat
4	P0004	Skull Lt Lat
5	P0005	Skull Town's
6	P0006	Skull Waters
7	P0007	Skull Caldwell
8		
9		
10		

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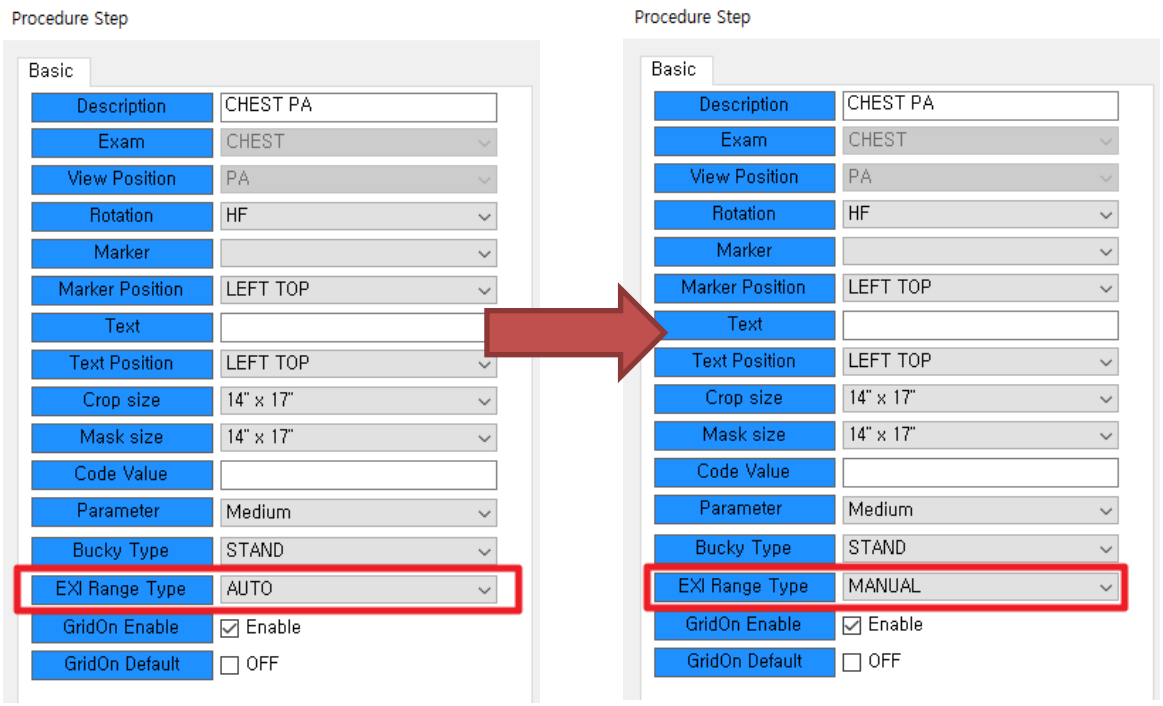
6.8 EXI Calculate Option(Auto/Manual)



- User can select the manual option to prevent image quality degradation due to automatic EXI calculation during crop operation of acquired images.

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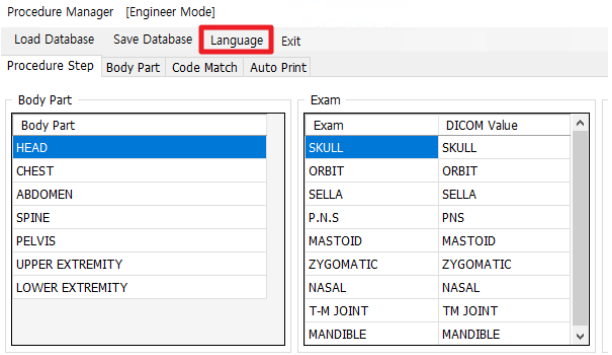
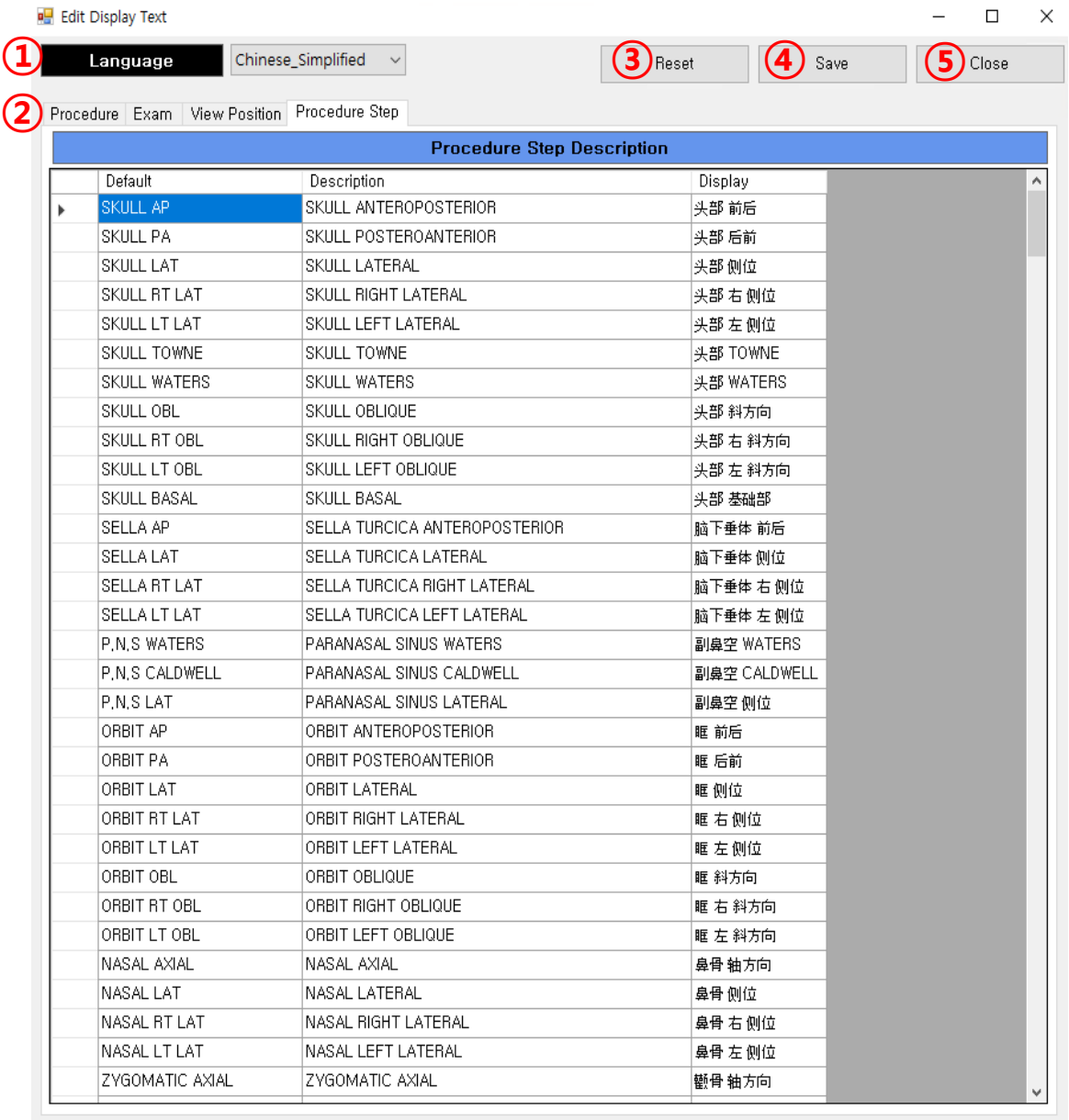
6.9 Language



- Select language tab to reflect the language of the procedure step as shown above.



Default	Description	Display
SKULL AP	SKULL ANTEROPOSTERIOR	头部 前后
SKULL PA	SKULL POSTEROANTERIOR	头部 后前
SKULL LAT	SKULL LATERAL	头部 侧位
SKULL RT LAT	SKULL RIGHT LATERAL	头部 右 侧位
SKULL LT LAT	SKULL LEFT LATERAL	头部 左 侧位
SKULL TOWNE	SKULL TOWNE	头部 TOWNE
SKULL WATERS	SKULL WATERS	头部 WATERS
SKULL OBL	SKULL OBLIQUE	头部 斜方向
SKULL RT OBL	SKULL RIGHT OBLIQUE	头部 右 斜方向
SKULL LT OBL	SKULL LEFT OBLIQUE	头部 左 斜方向
SKULL BASAL	SKULL BASAL	头部 基础部
SELLA AP	SELLA TURCICA ANTEROPOSTERIOR	脑下垂体 前后
SELLA LAT	SELLA TURCICA LATERAL	脑下垂体 侧位
SELLA RT LAT	SELLA TURCICA RIGHT LATERAL	脑下垂体 右 侧位
SELLA LT LAT	SELLA TURCICA LEFT LATERAL	脑下垂体 左 侧位
P.N.S WATERS	PARANASAL SINUS WATERS	副鼻空 WATERS
P.N.S CALDWELL	PARANASAL SINUS CALDWELL	副鼻空 CALDWELL
P.N.S LAT	PARANASAL SINUS LATERAL	副鼻空 侧位
ORBIT AP	ORBIT ANTEROPOSTERIOR	眶 前后
ORBIT PA	ORBIT POSTEROANTERIOR	眶 后前
ORBIT LAT	ORBIT LATERAL	眶 侧位
ORBIT RT LAT	ORBIT RIGHT LATERAL	眶 右 侧位
ORBIT LT LAT	ORBIT LEFT LATERAL	眶 左 侧位
ORBIT OBL	ORBIT OBLIQUE	眶 斜方向
ORBIT RT OBL	ORBIT RIGHT OBLIQUE	眶 右 斜方向
ORBIT LT OBL	ORBIT LEFT OBLIQUE	眶 左 斜方向
NASAL AXIAL	NASAL AXIAL	鼻骨 轴方向
NASAL LAT	NASAL LATERAL	鼻骨 侧位
NASAL RT LAT	NASAL RIGHT LATERAL	鼻骨 右 侧位
NASAL LT LAT	NASAL LEFT LATERAL	鼻骨 左 侧位
ZYGOMATIC AXIAL	ZYGOMATIC AXIAL	颧骨 轴方向

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① Language : Select the language user want to apply. Language options are as follows:

- Chinese Simplified
- French
- Italian
- German
- Polish

② User can enter characters that will appear on 'Procedure, Exam, View Position, Procedure Step' and so on user's own.

③ Reset : User can reload the saved values.

④ Save : User can save the changed values.

⑤ Close : Select the close button to exit the procedure language setup function.

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7. FAQ

- **There is no shortcut for XmaruView V1 on the desktop.**

⇨ Go to Control Panel -> Add/Remove Program to check if XmaruView V1 is removed.

⇨ If XmaruView V1 Console is installed go to the XmaruView V1 installation folder, create a shortcut manually and copy it to the desktop.
(XmaruView V1 default installation folder: C:₩XmaruView V1₩Console)

- **XmaruView V1 Console is not properly executed.**

⇨ Go to Control Panel -> Add/Remove Program to check if the following programs are installed.

- XmaruView V1
- .NET Framework 4.5.1 SP1

If not, make sure to install .NET Framework 4.5.1 SP1
(Go to www.microsoft.com/downloads for downloading and installing)

⇨ Check if XmaruView V1Installation folder exists.
(XmaruView V1 default installation folder: C:₩XmaruView V1₩Console)
If not, make sure to install XmaruView V1.

⇨ Install Microsoft Visual C++ 2010 / 2013 SP1 Redistributable Package.
(Go to www.microsoft.com/downloads for downloading and installing)

⇨ Install Java SE Development Kit 8.
(Go to www.oracle.com/technetwork/java/javase/downloads for downloading and installing)

- **Can I view the photographed images in general image viewer which does not support DICOM format?**

⇨ The default image format in XmaruView V1 Console is DICOM, but you can still view images in any regular viewer by converting the image format from DICOM to jpeg, bmp etc. by using the Save As function in Studylist tab.

- **Can I recover images which are deleted by mistake?**

⇨ Administrator log-in -> Start the "History Mngr." on Studylist tab -> Start the "Study Manager" -> Search and restore image.

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	The deleted image by enabling the Auto Delete function or permanently deleted images from the Study Manager by the Administrator cannot be restored.

- **My hard disk has a limited space. Can I have disk space managed automatically?**

⇨ You can delete old images automatically depending on the storage period or the amount of free space in your hard disk.

Go to Configuration Settings window -> General -> System Tab, check the Auto Delete option to activate the function and set the condition for automatic deletion.

⇨ However, the Delete operation is suspended while the Capture Tab is activated, in order to facilitate photo-taking and image acquisition. It is resumed once the activated tab is switched from Capture to another tab. The Delete operation is performed as a background job.

- **Which files are backed up when backing up images?**

⇨ The following files are created in the backup folder on backing up files by using the Backup function in Studylist tab.

- Database file (study.db)
- *subfolder*₩original image files (DICOM)
- *subfolder*₩processed image files (DICOM)

⇨ Database file (study.db) which is saved together with images during the backup operation contains the backup information. Therefore, extra precautions are required in dealing with the database file as it cannot be recovered once deleted or damaged.

- **Images are not recovered when I select a folder and recover images.**

⇨ Check if the selected folder has the following files in it.

- Database file(study.db)
- *Subfolder*₩mage files that are backed up(DICOM)

⇨ Activate the Overwrite option in Recover option and try again.

⇨ Images cannot be recovered if backup image files change their file name changed.

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- **The imported images are not saving in XmaruView V1.**

⇨ Check if DICOM files exist in the selected folder when performing Import.(DICOM format files only are retrieved when performing Import).

- **How can I sort out the list of patients by their name?**

⇨ You can sort out patients in StudyList Tab and items in Study list. If you click the header in the list, the list will be sorted out in an ascending / descending order.
(However, once the list is updated by search operation, the list option is initialized.)

- **Such items as ID, patient name or gender are not displayed on the patient list.**

⇨ You can set show or hide for the columns on the patient list.
You can set show or hide using Patient, Study, or Worklist Tab of the Column List in Configuration Settings.

- **DICOM Print has failed.**

⇨ Check out the configuration of the printer currently selected from the list of printers in Print Manager window that is popped up during the print operation. (AE Title, Host Address, Port Number)
(Images are printed out to the currently selected printer.)

⇨ Make correct configuration settings by referring to the DICOM Conformance Statement Document provided by the DICOM Printer manufacturer.

(If you make configuration settings that are not supported according to the DICOM Conformance Statement document, the printer may not work properly.)

- **PACS transmission has failed.**

⇨ Check if network settings of your PC are done correctly.
⇨ Check if PACS Storage server settings are done correctly.
(Go to Configuration Settings -> Storage Tab of DICOM to conduct settings.)

- **Can I eliminate Administrator user account in Configuration Settings?**

⇨ **Administrator, User** account is the default ID of XmaruView V1 that cannot be deleted. You can only change the password using the account change function in Configuration Settings -> General -> Operator Tab.

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- **The image won't open.**

⇨ Check if the image save folder of XmaruView V1 exists.
(Go to Configuration Settings -> General -> System Tab to find out of the image save folder exists.)

⇨ Check if there are concerned image files in the image save folder of XmaruView V1.

File save location: [*XmaruView V1 installation folder*]₩[*Study Date*]₩[*Patient Id*]₩[*Patient Id*]_[*Acquisition Date*]_[*Acquisition Time*].dcm

*[SOP_INSTANCE_UID]*_O.dcm(O refers to Original)
*[SOP_INSTANCE_UID]*_P.dcm (P refers to Processed)
*[SOP_INSTANCE_UID]*_F.dcm (F refers to Full size processed).

- **Patients are not searched.**

⇨ Patients who images are absent are excluded from the result of search operation.
Check if there is any image left for the concerned patient.

⇨ If you search by patient ID, you get the list of patients with the exact match as the search result. If you search by patient name instead you can still get the list of patients with the partial match as the search result.

- **There is no image acquired after capture.**

⇨ Check if the save path of the image photographed with XmaruView V1 is set correctly.
You can check and set the image save path in Configuration Settings -> General -> System Tab.

⇨ Check if the hard disk where the path for existing images is set is removed or change its name to another drive.

⇨ Check if there are free spaces available in hard disk.

⇨ Check the detector connection.

- **Images prior to processing are displayed after image acquisition.**

⇨ In case of problems in the process of image acquisition is displayed Original Image.
You can reprocess in image processing tab.

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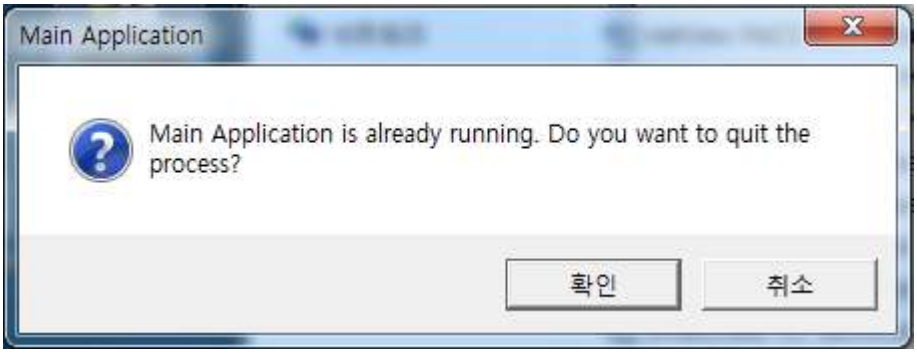
- **What should I do if the dialog box that says "XmaruView V1 Console is already running. Do you want to quit the process?" appears.**



⇨ This dialog box appears if execute XmaruView V1 Login or XmaruView V1 program redundantly.

⇨ If you click the "OK" button, the currently running XmaruView V1 Login or XmaruView V1 program will be terminated and a new session of program will be executed.

⇨ If you click the "Cancel" button, a new attempt to execute the program will be discarded.

- **The message box the say "Can't load language file" has popped up.**

⇨ Check if C:₩Rayence₩XmaruView V1₩Console₩Language₩Language.csv file exists. If not, re-install XmaruView V1.

⇨ Check if the Language.csv file above is used by another program. If that is the case, terminate the program that uses theLanguage.csv file.

- **The message box that says "Access Error" has popped up when executing the program.**

⇨ XmaruView V1 runs properly when it is executed through the Login window only. If you double-click an executable file in the installation folder of XmaruView V1, an error message like the one above may appear.

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- **Error type and description of Queue information window.**

Error messages	Description & Trouble-shooting
Connect operation failed.	Failure to get access to the Store SCP server. Go to [Network] –> [Storage] page in configuration settings or contact network administrator.
DICOM error. The process will be terminated! -- Error code is:	It occurs when temporary DICOM file to be sent is not created. Check if the original DICOM file exists on disk.
Communication timeout. Process will be terminated.	This is a timeout error that occurs during an attempt to establish a connection with Store SCP server. Contact network or server administrator.

- **Images imported from the Studylist are not searched.**

⇨ Import job is designed to run as a background job for the purpose of user convenience as it may take excessive amount of time. Therefore, imported images may not come up immediately as a result of search. Wait for a while before trying a search operation.

⇨ Read the Study Date from concerned images and register it. Check if the current search condition includes the photograph date of the imported images. If you do not know the Study Date, you may conduct search all by clicking the "All" button in search condition. If you click the "All" button together with patient ID or patient name, you can reduce the amount of search result.

- **DB file has been corrupted. How can I have it restored?**

⇨ XmaruView V1 backs up the database file at the time of starting and terminating the program and every 12 hours.

⇨ Backup folder path

- C:₩Rayence₩XmaruView V1₩Console₩Database₩DBBackup
- C:₩Program Files₩XmaruView V1₩DBBackup

⇨ Target backup database files : Study.db, Procedure.db, Config.유

You can restore database files using these backup database files.

(Extra cautions are required in restoring data.)

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- **X-ray images for a patient have been corrupted and it is impossible to identify them. Is there any way I can restore them?**

⇨ Upon taking a picture of a patient, the acquired images are stored in two different formats: the original and the processed.

⇨ The Original image involve the parameter file(PAR) processed.

	The images whose original images are corrupted cannot be restored.

- **Cannot uninstall Programs.**

⇨ Proceed to uninstall a program used to install.

⇨ Uninstall using 'MicrosoftFixit.ProgramInstallUninstall.MATSKB.Run.exe' in the installation CD for the '3.Etc' folder.

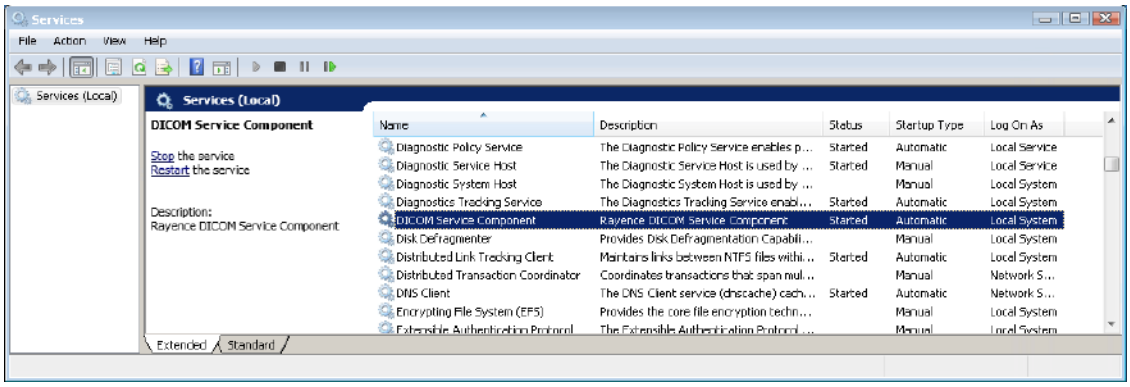
⇨ If one of the above programs uninstall to remove the folder manually.

- **DICOM Service feature does not work.**

⇨ In order to use DICOM feature, DICOM Service Component should work fine.
Type services.msc on the command window.
Check the status of DICOM Service Component.

⇨ If the status of DICOM Service Component is not "Started", right click the DICOM Service Component and click Start to run it.

⇨ If the Startup type of DICOM Service Component is not set to automatic, right click the DICOM Service Component and go to properties. Change the Startup type to Automatic on the General column.



< Figure 145 Service >

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8. Service Code

Code	Error Message	Remark
1	Connection Failure	PACS / DICOM Print / Storage Echo test fail. Check the network status.
2	Can't open file.	DCM files load fail.
3	There is no have image index	
4	There is no have page index	
5	There is no key image.	
6	No Selected Image.	
7	Shows the hidden Annotation Layer.	
8	Shutter layer hidden wait to show.	
9	Cannot get information of the image pixels.	N/A
10	DICOM files Insertion failure	DICOM file export fail.
11	DICOMDIR file creation failure	
12	DICOMDIR file saving failure	
13	Error saving DicomDir	
14	The files cannot be copied	
15	Failed to load DICOM file	
16	Error from Windows API	Detector connection fails.

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		Check the vadav setup & network connection.
17	Error peculiarly from Windows Sockets	
18	ACQ Fail	
19	S/W license key is not connected.	Image processing fail. Check the SW license key.
20	An invalid parameter was applied	
21	Failed to LUT image processing	
22	Failed to PAR image processing	
23	Original raw create fail	
24	Processing raw create fail	
25	Unknown error	
26	Image was not acquired	Image is not acquired or imported image.
27	There is no export data.	Export fail. Check the DICOM file.
28	Toolbar space is full.	
29	Could not find the mirroring path.	Mirroring path not found. Check the Mirroring Path on setting.
30	Could not find the image data path.	Image Path not found. Check the Image Path on setting.
31	Could not create base DICOM file!	DICOM Print fail. Check the DICOM Print setting & DICOM files.

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9. Checking Quality of Raw Image

- To check quality of raw image, the image that not proceed post-processing should be used. And please prepare the 'CDRAD PHANTOM' is lied on the detector.
  And please follow as below workflow.

① Click the "New Patient" button and enter the details on the Study.

② Click the 'Capture' button.

③ Select the 'CHEST' region on the 'BodyParts'

And click the 'CDRAD PHANTOM' procedure step.

The 'CDRAD PHANTOM' procedure step will be inserted in the 'Scheduled Procedure Step' list.

④ Click the 'Capture' button. And then the 'Capture' window will be show up.

⑤ Please shot x-ray, then the raw image will be acquired without post-processing.

⑥ Click the 'Save As' button on the 'Management'

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⑦ Click the '...'(Browse) button to select 'Save Path'.

And please select 'DICOM (*.dcm)' file format.

⑧ Click the 'Selected Image' button. The raw image will be saved in the 'Save Path' folder as DICOM format.

Please use that DICOM file as input of quality-checking tool.

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The 'Artinis' analysis tool is used for checking quality of raw image in Rayence. Please refer to 'Artinis' tool's manual for detailed usage.

CDRARD Test conditions

SID: 150cm

EXI value: more than 5500

(ex. kVp: 70kVp, mAs: more than 3.2mAs/for CsI model)

※ Depending on the status of the generator, an X-ray condition
change may be required.

IQ specification (CDRAD/Artinis analyser/CsI model standard)

IQFInv : >8.5
Total detected(%) : >85

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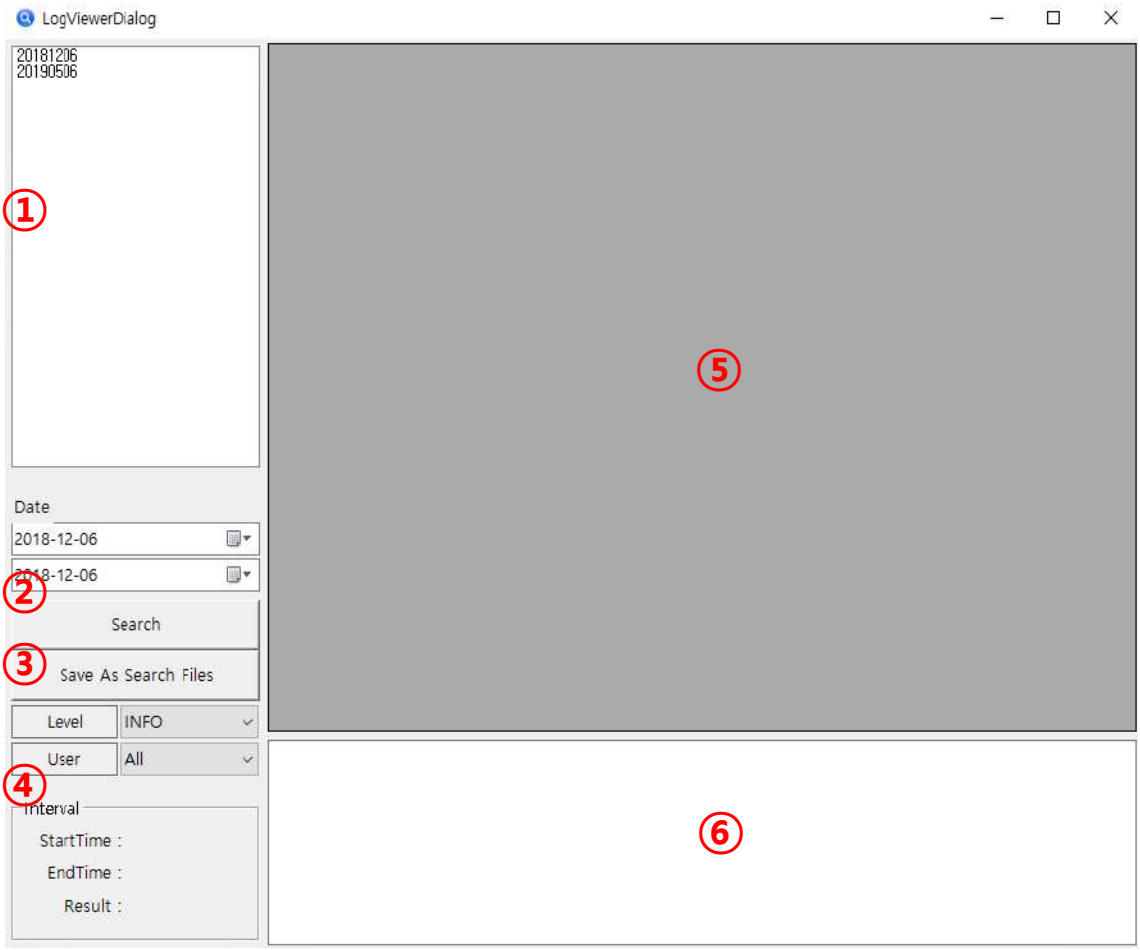
10. Log Viewer

- Click 'Log Viewer' in the list of 'About' during the setting



< Figure 146 Log Viewer >

① Search File List

- Display the search file.
- You can check study by double click.

② Search

- Print out the log file to the list by click the 'Search' button after selecting start date and terminate date.

③ Save As Search Files

- Save the log file of start date and terminate date to the separate location.

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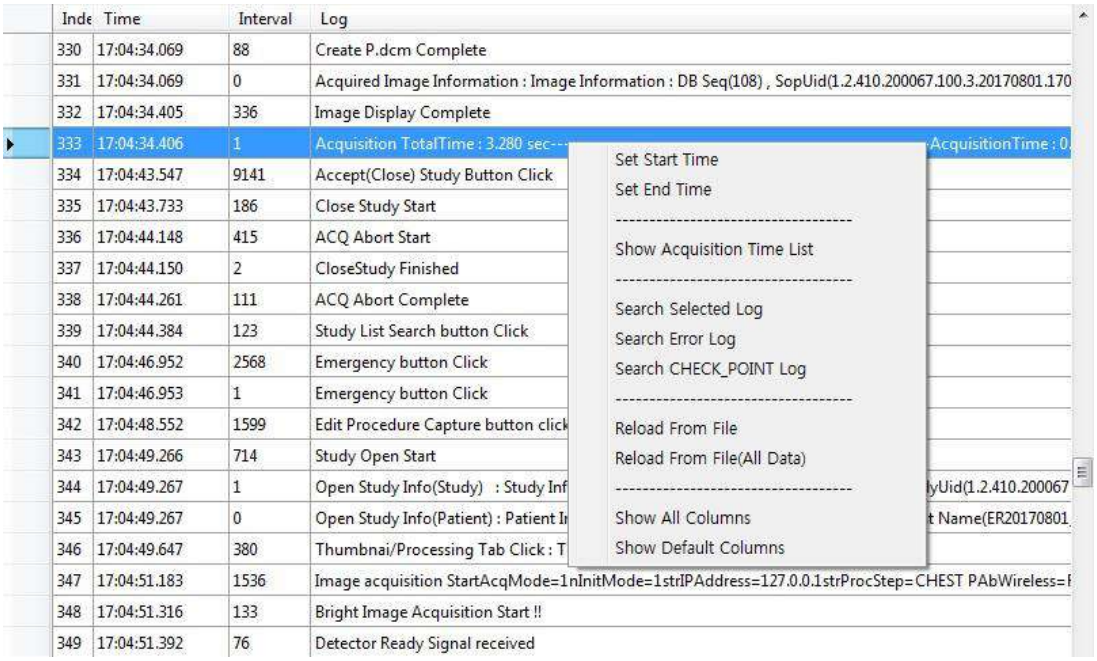
④ Interval

- Print out the Interval of start time, ending time on the log.

⑤ Log

- Display the log.
- You can check the below menu with mouse right button.



< Figure 147 Pop-up Menu>

- Set Start Time : Set the log time as the start time of the interval
- Set End time : Set the log time as the end time of the interval
- Search Selected Log : Search the same log as the selected log
- Search Error Log : Search the error log
- Reload From File(All Data) : Print out all data
- Show All Columns : Print out all Column

⑥ Log details

- Display the Log

CAUTION	The pre-2.0.4.0 version log file cannot be loaded.

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