FUJIFILM

Whole Body X-ray CT System
SCENARIA View

Simplified Instruction for Use

Special Notes to Operators and Maintenance Managers

- Before using this system, be sure to thoroughly read this manual and make yourself familiar with this system.

- After reading this manual, keep it in an easily accessible place close to the system.

- ALWAYS READ SAFETY PRECAUTIONS IN PARALLEL!

FUJIFILM Corporation

C E 0197

Introduction

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Preface

Conventions used in this manual

If images of the actual text in windows and dialog boxes are not shown, the text is formatted as bold text.

(Example) OK : The [OK] button

Symbols used in this manual

⚠ DANGER
> Indicates an imminently hazardous situation that, if not avoided, might result in death or serious injury. This symbol also indicates an immediate danger that might result in the total destruction of devices, or in fire.

⚠ WARNING
> Indicates a potentially hazardous situation that, if not avoided, might result in death or serious injury. This symbol also indicates a potential (latent) danger that might result in the total destruction of devices, or in fire.

⚠ CAUTION
> Indicates a situation that, if not avoided, might result in light or moderate injury. This symbol also indicates a situation that might result in damage to part of a device or erasure of data stored on the computer.

NOTICE
> Indicates a precaution that we strongly urge operators to observe to prevent damage to or deterioration of devices during operation, as well as to ensure that the devices are used efficiently. Alternatively, this symbol indicates a recommended procedure, condition, or action that requires careful attention.

🚫 Indicates prohibited conditions or actions. Safety precautions accompanied by this symbol describe conditions or actions that are prohibited.

❗ Indicates required actions that the user must perform.

💡 Indicates supplementary information.

Trademarks and registered trademarks

- The company names and product names described in this manual are trademarks or registered trademarks of FUJIFILM Corporation and its group companies.

- Other holders' trademarks
  Windows is a registered trademark or trademark of Microsoft Corporation in the United States and other countries. All other company names and product names described in this manual are the trademarks or registered trademarks of their respective holders.

Cautions on exportation

When exporting this equipment, be sure to check the Foreign Exchange and Foreign Trade Control Law and the regulations related to export control in the United States of America, and perform the necessary procedures.
FUJIFILM Corporation or an authorized representative if you have further inquiries.

Revision history

First edition: 2023-12 Q6ec-FC0509-01
Second edition: 2024-07 Q6ec-FC0509-A1

To Our Customers

Thank you for your purchase of the SCENARIA View Whole Body X-ray CT System.
The contents of this simplified instruction for use are limited to the information needed for basic use of the system.
Some of the images used in this manual were acquired by using a human body phantom.

How to Download the Instructions for Use from the Website

The latest version of the instructions for use is available for download from the following website.

- Website: https://med-lib.fujifilm.com/

Precautions for the Safe Use of the System

- The operator must take sufficient X-ray protection measures.

- The operator must pay attention to the patient when a patient is placed on or removed from the patient table.

- The operator must pay attention to the patient when moving the patient table and tilting the scanner gantry.

- If the patient is connected to an IV or other medical device, make sure that the connection route does not catch on the patient table. In addition, be sure to check the length of the connection route before sending the patient table into the scanner gantry.

- To avoid repeated scans, check the scan requirements carefully before pressing [START] button.

- Pay attention to the patient during the scan, as there is the possibility of sudden changes in the patient's condition, and also of the patient falling from the patient table.

- In the event that any abnormal conditions occur, immediately press [Emergency] button and ensure the safety of the patient.

Daily Inspection

Inspection before carrying out daily work

(1) Inspecting the operation panel

- Inspection: Inspect the operation of push buttons and indicators, as well abnormalities in appearance.

- Handling: If any abnormalities are found, contact FUJIFILM Corporation or one of our certified dealers to schedule repair work.

(2) Inspecting the operating space of the equipment

- Inspection: Check for any obstacles such as chairs or baskets that are within the operating range of the scanner gantry and patient table.

- Handling: Move all obstacles out of the operating range of the equipment.

(3) Inspecting the wiring

- Inspection: Ensure that all wires between devices are connected correctly and that there are no abnormal twists or bends in cables.

- Handling: If any abnormalities are found, contact FUJIFILM Corporation or one of our certified dealers to schedule repair work.

Inspection after carrying out daily work

(1) Inspecting the operation panel

- Inspection: Inspect the operation of push buttons and indicators, and check for abnormalities in appearance, as well as for soiling.

- Handling: If any abnormalities are found, contact FUJIFILM Corporation or one of our certified dealers to schedule repair work. Clean off any soiling if necessary.

(2) Inspecting the scanner gantry and patient table

- Inspection: Inspect the equipment for abnormalities such as scratches and dents, as well as for soiling.

- Handling: If any abnormalities are found, contact FUJIFILM Corporation or one of our certified dealers to schedule repair work. Clean off any soiling if necessary.
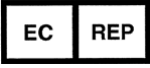
Periodic Inspections

We recommend periodic inspections of this equipment, generally every 3 months. These inspections must be performed by a trained service engineer to ensure safety and to protect the equipment. Contact FUJIFILM Corporation or one of our certified dealers for assistance or to schedule an inspection.

CE Marking

Only for EU countries

The Medical Device as specified below and related options meet the provisions of the EC-Regulation (EU) 2017/745.

Product Name	Whole Body X-ray CT System
Product Classification	IIb
Model **REF**	SCENARIA View
Manufacturer	FUJIFILM Corporation 26-30, Nishiazabu 2-chome, Minato-ku Tokyo 106-8620, JAPAN
European Representative **EC | REP**	FUJIFILM Healthcare Europe GmbH Balcke-Duerr-Allee 6 40882 Ratingen, Germany

WEEE Marking

Symbol	Description
	Only for EU countries Do not dispose medical devices together with household waste! In observance of the European Directive on waste electrical and electronic equipment and its implementation in accordance with national law, medical devices that have reached the end of their product life must be collected separately and returned to an environmentally compatible recycling facility. Please contact your local FUJIFILM Corporation distributor for information about qualified recycling facility.

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Starting the System

1.1 Turning on the system

1.1 Turning on the system

This section explains how to turn on the system at the beginning of work.
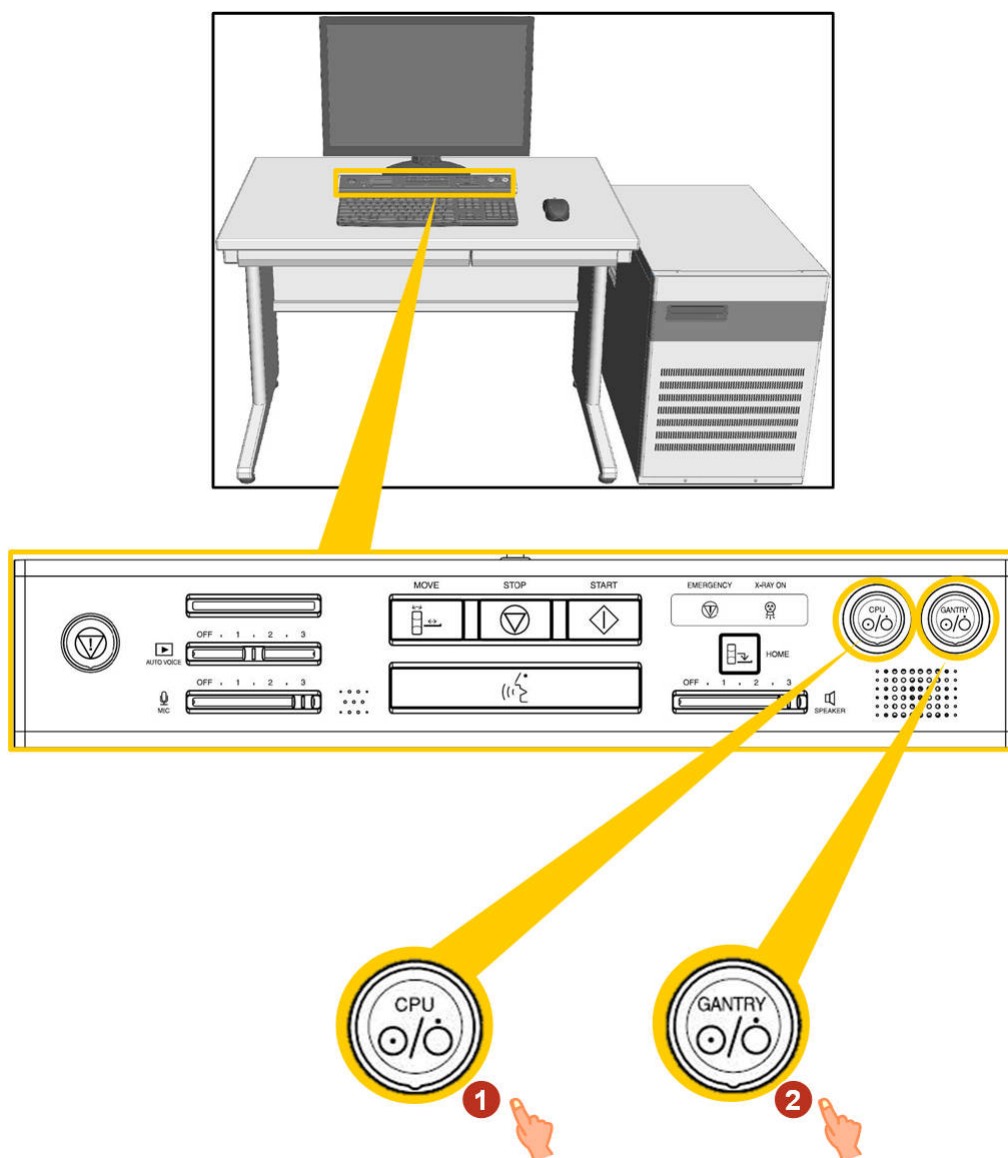
1. Press [CPU] button on the intercom box.
   The operation console turns on, and after a short time the initial screen appears on the LCD monitor.

2. Press [GANTRY] button on the intercom box.
   The scanner gantry turns on.

2

Device Configuration

2.1 Operation console

2.1.1 Operation console and LCD monitor

This section describes the operation console and LCD monitor.
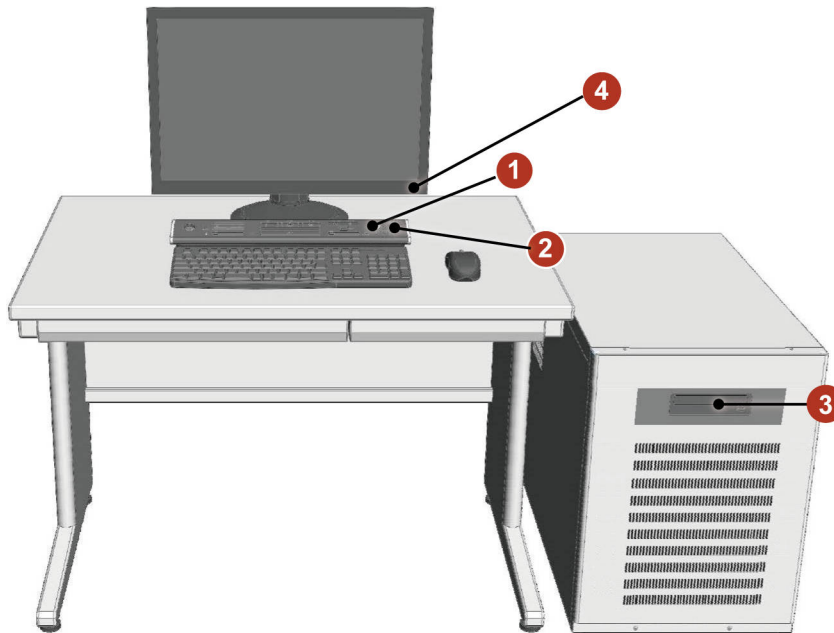
1. [CPU] button
   Turns the operation console on.

2. [GANTRY] button
   Turns the scanner gantry on or off.

3. Media drive unit
   Used to store data and for other purposes.

4. Monitor power button ($\bigcirc$)
   Turns the LCD monitor on or off.

2.1.2 Mouse

This section describes the mouse.

1. Left-click button

2. Wheel button

3. Right-click button

- **Click**

  Press the mouse button once.

- **Double-click**

  Press the mouse button twice rapidly.

- **Drag**

  Hold the mouse button down while moving the mouse.

- **Drag and drop**

  Drag the mouse, and then release the mouse button at the target position.

2.1.3   Keyboard and intercom box

This section describes the keyboard and intercom box.

1. Intercom box

2. Keyboard

Intercom box
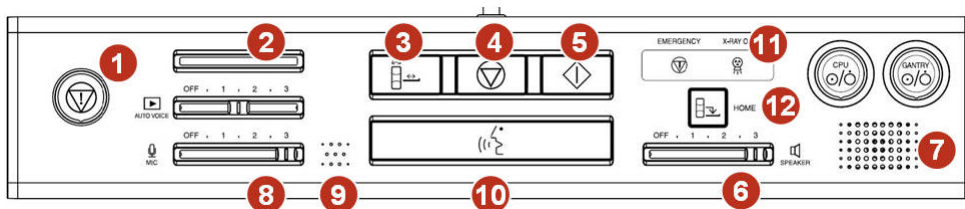
1. [Emergency] button

   Activates the emergency stop.

2. Auto Voice volume

   Adjusts the Auto Voice volume.

3. [MOVE] button

   Moves the patient table and tilts the scanner gantry.

4. [STOP] button

   Stops the scan or the preparation for a scan.

5. [START] button

   Starts the scan.

6. Speaker volume

   Adjusts the volume of sound output from the CT scan room.

7. Speaker

Outputs sound from the CT scan room.

8. Talk volume

Adjusts the volume of sound transmitted into the CT scan room.

9. Microphone

Used to speak to the patient in the CT scan room.

10. [TALK] button

Transmits the operator's voice into the CT scan room.

11. X-ray on LED

Lights up to indicate when X-rays are being emitted.

12. [HOME] button

Returns the patient table to the HOME position. To use this button, press this button and [START] button at the same time. (Note that, to use this button, the preference settings must be configured.)

2.2 Scanner gantry
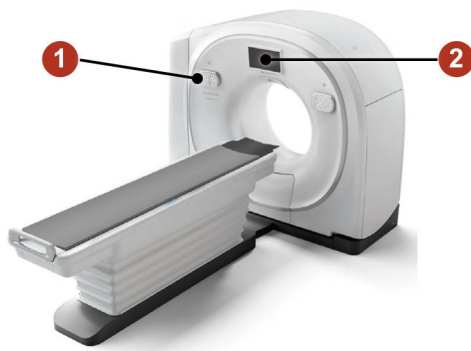
1. Operation panel
2. Touch Vision

2.2.1 Operation panel

This section describes the buttons on the operation panel of the scanner gantry.
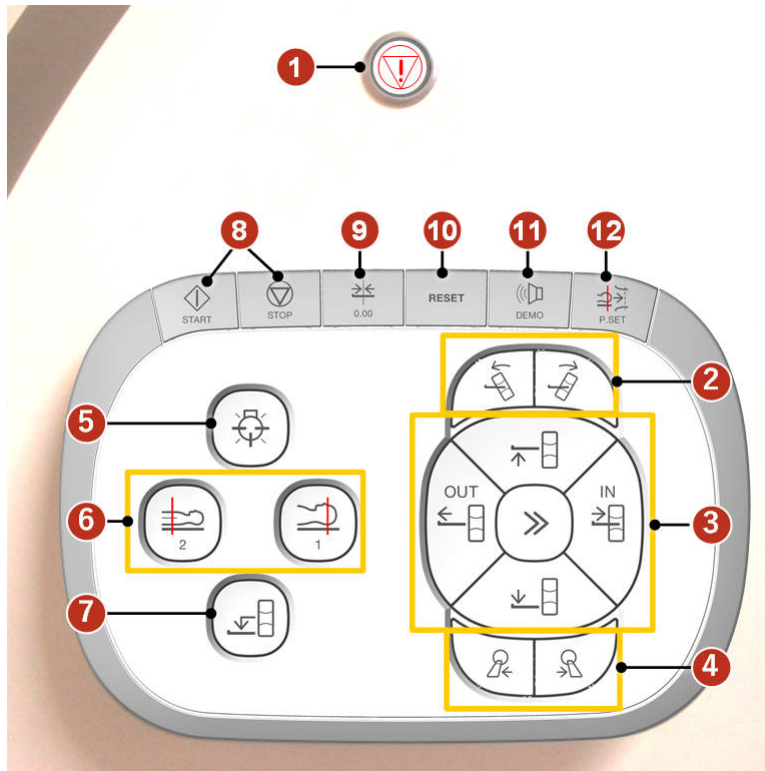
1. [Emergency] button
    Activates the emergency stop.

2. [Scanner gantry forward tilt] and [Scanner gantry backward tilt] buttons
    Tilt the scanner gantry forward or backward.

3. Tabletop movement buttons, and [Patient table up] and [Patient table down] buttons
    Move the patient table up or down, and forward or backward. Press one of the outer
    buttons together with [Tabletop rapid-movement] button (the center button) to move the
    table at a faster speed.

4. [Patient table right shift] and [Patient table left shift] buttons
    Move the patient table to the left or to the right. The patient table can be moved a
    maximum of 100 mm in either direction.

5. [Light localizer] button
    Used for positioning. Press the button to turn the light on for approximately 5 minutes.
    Press the button again to turn the light off.

6. [Preset 1] and [Preset 2] buttons
    Move the patient table to the scan position. Use [Preset 1] button for head scans and
    [Preset 2] button for chest and abdomen scans.

7. [HOME] button
    Moves the patient table to the original position where the patient was placed on or
    removed from the tabletop. The button also stops scan rotation.

8. [START]/[STOP] button
    Starts or stops the scan.

9. [0-clear] button
    Sets the current patient table position as the 0 position.

10. [RESET] button
Releases the emergency stop and allows the patient table to be moved.

11. [Breathing demonstration display] button
Displays a demonstration to help patients practice holding their breath before the scan.

12. [P.SET] (patient set) button
Position the patient outside the scanner gantry by using the light of the light localizer. If you continue to hold down this button, the tabletop moves so that the position reaches the scan position inside the scanner gantry.

2.2.2 Touch Vision

This section describes the Touch Vision on the scanner gantry.

1. Patient information
   Displays the name, age, sex, and region of the patient.

2. Tabletop information
   Displays the tabletop position (POSITION), lateral shift (SHIFT), and the tabletop height (HEIGHT). Note that SHIFT is displayed only for systems that have a lateral shift patient table.

3. Tilt angle of the scanner gantry
   Displays the tilt angle of the scanner gantry.

Device Configuration

4. Countdown until the start of the scan
   Displays the amount of time (in seconds) before the scan starts.

5. Maximum tilt angle of the scanner gantry
   Displays the maximum tilt angle of the scanner gantry.

6. Maximum and minimum heights to which the tabletop can be moved
   Displays the maximum and minimum heights to which the tabletop can be moved.

7. Maximum distance that the tabletop can be shifted laterally
   Displays the maximum distance that the tabletop can be shifted laterally.

8. [Menu] button
   Displays the menu dialog box.

9. [Patient information display] button
   Displays patient information. To return to the initial screen from the patient information

   display screen, touch on the screen.

10. Children's screen
    Displays animation sequences geared towards children.

11. Breathing demonstration display
    Displays the breathing demonstration, which can be started by pressing [Breathing demonstration display] button on the operation panel of the scanner gantry.

12. Guidance display screen
    Touch [Guidance] button on the Touch Vision to display the guidance display screen. Touch an item on the guidance display screen to display guidance information about the item.

13. Language settings
    Touch [Language Settings] button on the Touch Vision to display the screen for selecting the language in which guidance information is displayed.

14. Example of content shown on the guidance display screen

15. Example of content shown on the guidance display screen
    This is an example of the content shown on the guidance display screen when Japanese is selected in the language settings.

2.3   Table and table accessories

This section describes the table, table accessories, and safety tools.
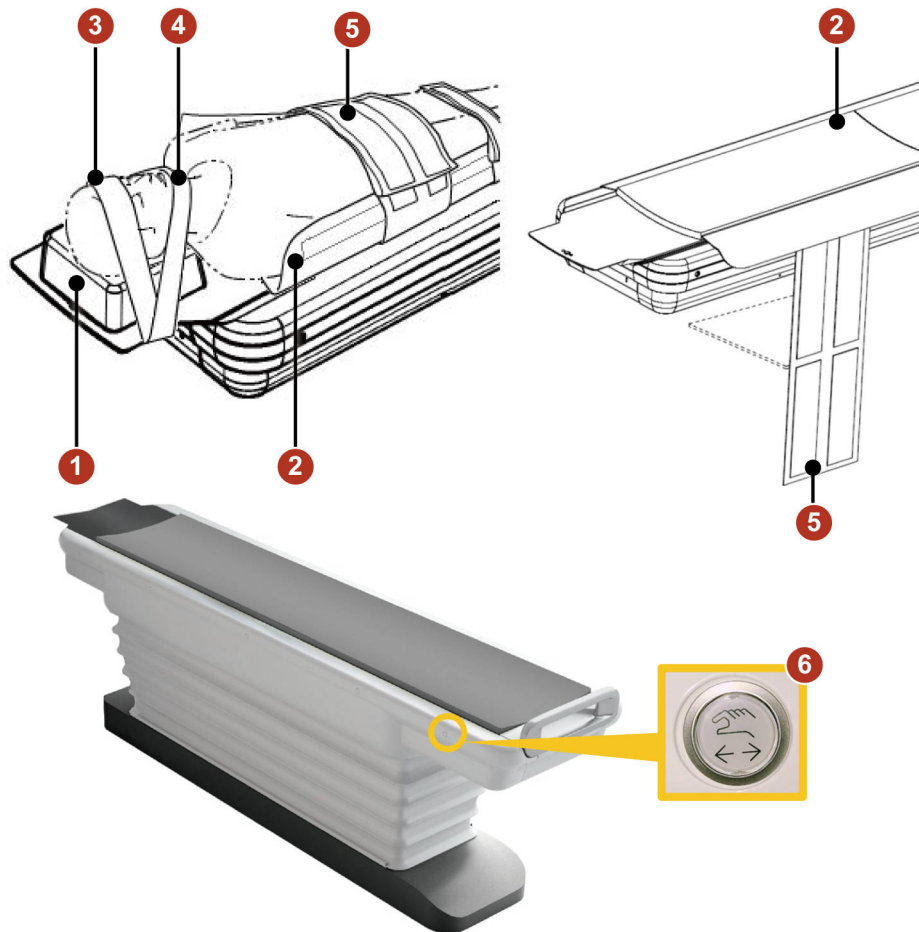
1. Headrest 1
    This is a pillow that is placed on the tabletop during scanning. Have the patient lie down so that their head rests on the headrest.

2. Mat
    This prevents the patient's body from being pinched between the tabletop and the patient table. Use the immobilizing bands to wrap the flaps around the patient.

3. Headband
    This holds the patient's head in place so that it does not move during head scans. Both ends of the band are fastened behind the tabletop by using Velcro.

4. Chin band
    This holds the patient's chin in place so that their head does not move during head scans. Align the hole in the center of the band with the patient's chin. Both ends of the band are fastened behind the tabletop by using Velcro.

5. Body immobilizing bands (large, medium, and small)
    Fasten these around the patient to prevent them from rolling off during the scan. Adjust the position of the immobilizing bands to match the shape of the patient's body.
    Provide a commercially available pillow or towel that allows the patient to easily raise their arms.

6. [Free float] button
    Press this button to manually move the tabletop. Press this button again to return to operation using the tabletop movement button.

2.4   Table accessories (option)

This section describes optional table accessories and safety tools.

Table Accessories (1 of 3)
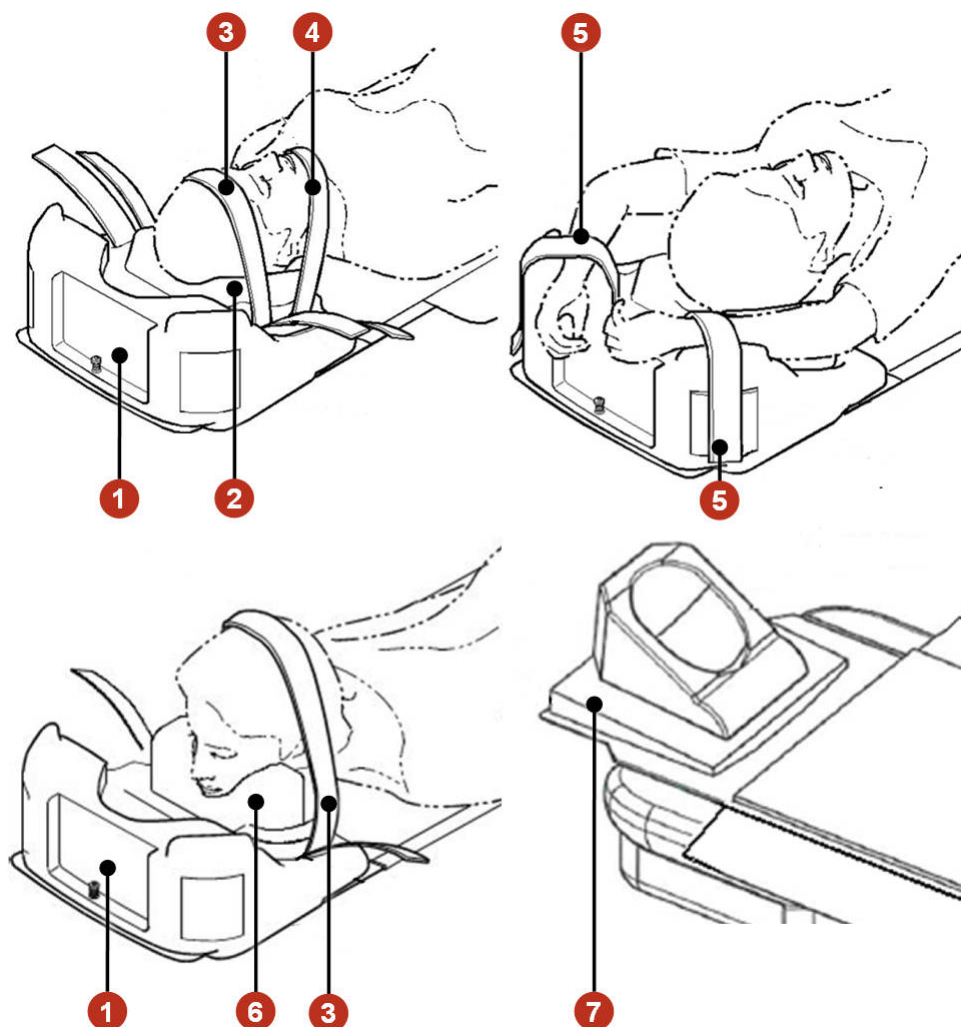
1. Armrest HF
    Used when performing a head-first scan. Align the groove of Armrest HF with the edge of the tabletop and then push it to the shoulder of the tabletop. Push the button on the back of Armrest HF into the hole at the edge of the tabletop to secure Armrest HF.

2. Headrest 2
    Used in combination with Armrest HF.

3. Head band
    Used when scanning the head. Place the head band over the patient's forehead, and secure the ends of the band to Armrest HF by using Velcro.

4. Chin band
    Used when scanning the head. Place the chin band over the patient's chin, and secure the ends of the band to Armrest HF by using Velcro.

5. Arm band

Used when scanning the torso. Place the arm bands around the patient's arms and secure the ends of each arm band to Armrest HF by using Velcro.

6. Chin rest
   Used in combination with Armrest HF. Used when scanning a coronal section of the head.

7. Spacer 1 (5°) or Spacer 2 (10°)
   The spacers are used together with Headrest 1 to incline the head when a head-first scan is performed.

Table Accessories (2 of 3)
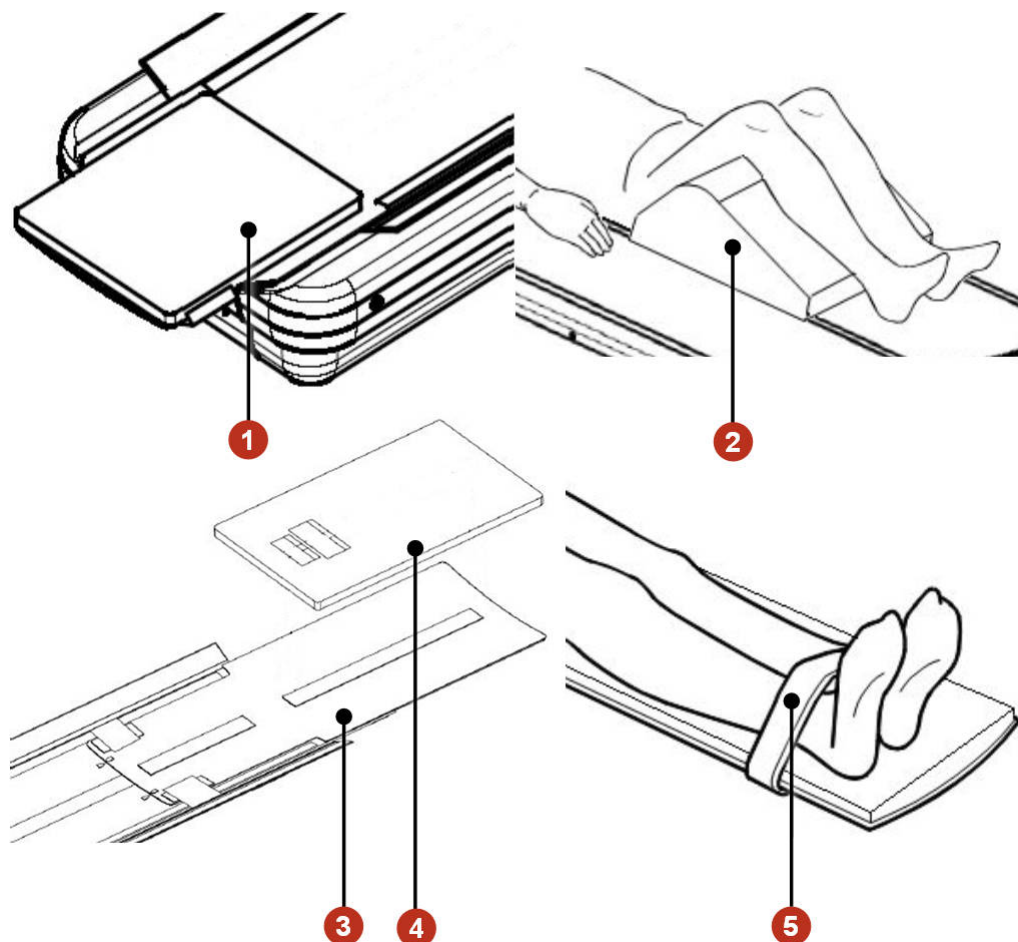
1. Leg mat
   Use it on the end of the tabletop where there is no mat. Attach the Velcro on the leg mat to the Velcro on the bottom side of the end of the tabletop.

2. Triangular mat
   Used the triangle mat as a knee rest.

3. Legrest tabletop
   This is used to extend the tabletop when a long area is to be scanned.

4. Mat for the legrest tabletop
   Used in combination with the legrest tabletop.

5. Magic band
   Used to hold patient's feet in place.

Table Accessories (3 of 3)
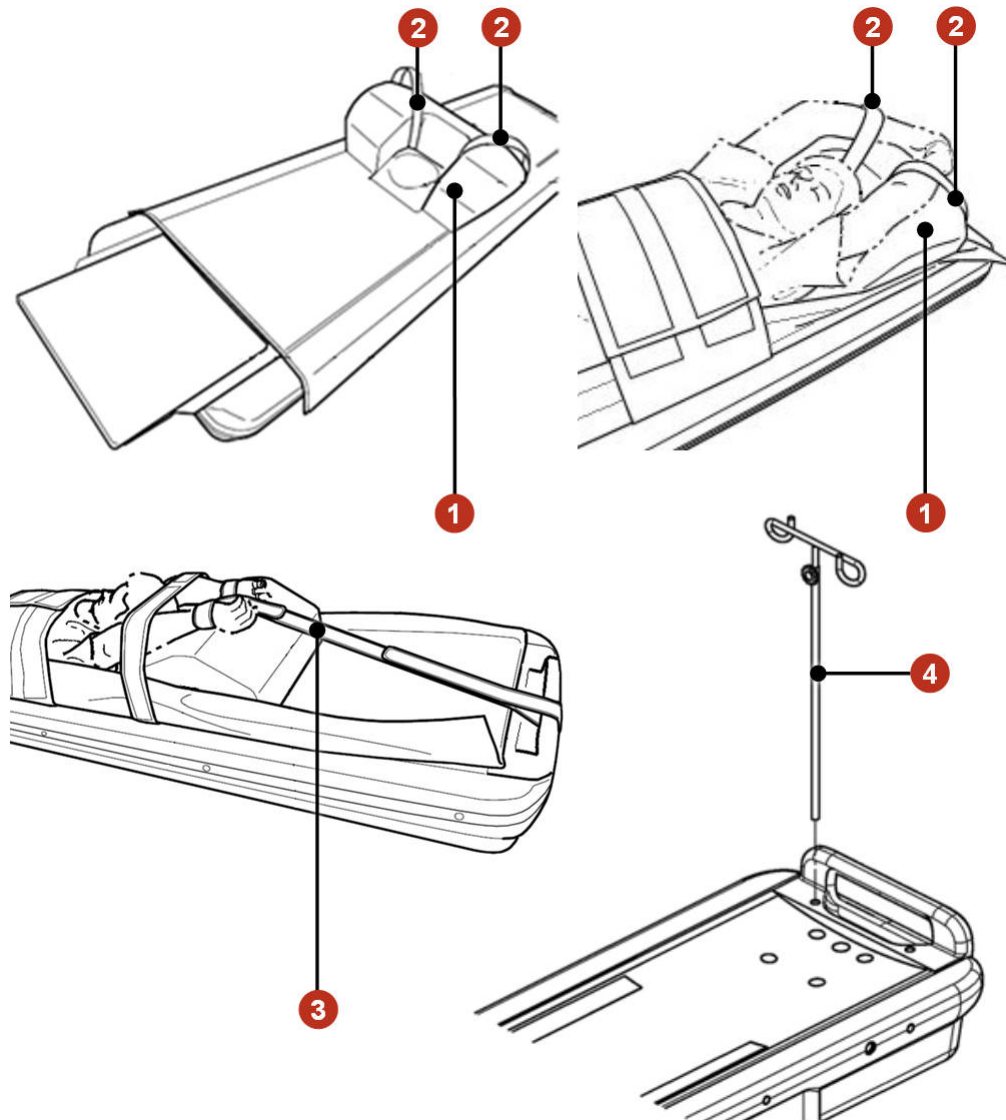
1. Armrest FF
   Use this armrest when performing feet-first (FF) scans. Insert Headrest 1 into the space on Armrest FF, and then have the patient rest their head on Headrest 1.

2. Arm band
   Place the patient's upper arms on Armrest FF, and then secure the patient's arms by using the provided arm bands to prevent the patient's arms from falling.

3. Wristband
   Use the wrist band to secure the patient's arms when the patient's arms are raised over their head for a feet-first (FF) scan.

4. IV drip pole
   Insert the IV drip pole that designed for this system into the IV drip pole holder at the back of the tabletop.
   The height of the IV drip pole is adjustable within the range from 525 mm to 900 mm.
   Adjust the IV drip pole to the appropriate height by using the adjustment knob.

3

Preference Settings

Preferences settings allow you to customize the user interface used for scanning. You can use preference settings to create easy-to-use scanning preferences that suit how the equipment is used in your facility.

To display the Preference Settings window, from [menu], select [Settings/Registration] and then [Preference Settings].

3.1 Preference settings (1 of 2)
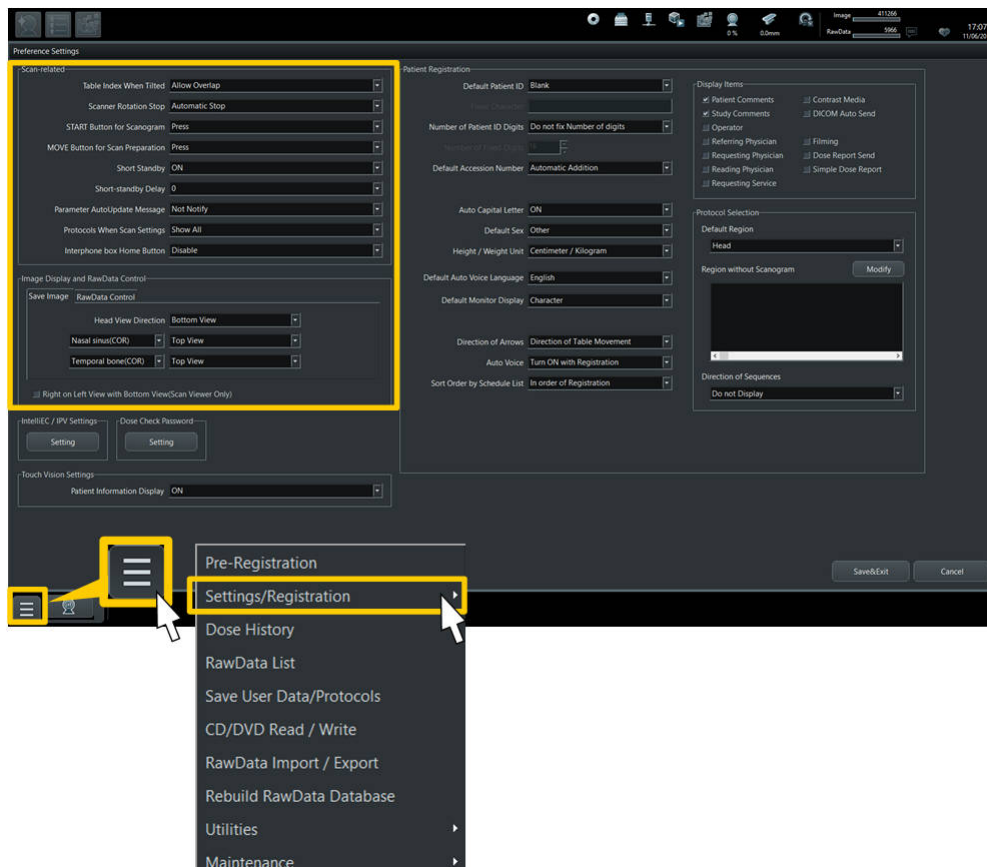
1. Table Index When Tilted
   Available options: [Allow Overlap] and [Disallow Overlap]

2. Scanner Rotation Stop
   Available options: [Manual Stop] and [Automatic Stop]

3. START Button for Scanogram
   Available options: [Press] and [Press and Hold]

4. MOVE Button for Scan Preparation
   Available options: [Press] and [Press and Hold]

5. Short Standby
   Available options: [ON] and [OFF]

6. Short-standby Delay
   This setting is unavailable when Short Standby is OFF.

7. Parameter AutoUpdate Message
   Available options: [Notify] and [Not Notify]

8. Protocols When Scan Settings
   Available options: [Show All] and [Show only selected orientation]

9. Interphone box Home Button
   Available options: [Disable], [Enable (Enable for Non-contrast studies only.)], and [Enable (contrast studies limited to table "Out" only.)]

10. Head View Direction
    Available options: [Top View] and [Bottom View]

11. Image Display Direction (optional)
    For scans of the head region, you can optionally set two additional image display directions.

12. Right on Left View with Bottom View (Scan Viewer Only)
    Select this check box to always display images in the Scan Viewer in Bottom View where "L" is on the right during scanning.

3.2   Preference settings (2 of 2)
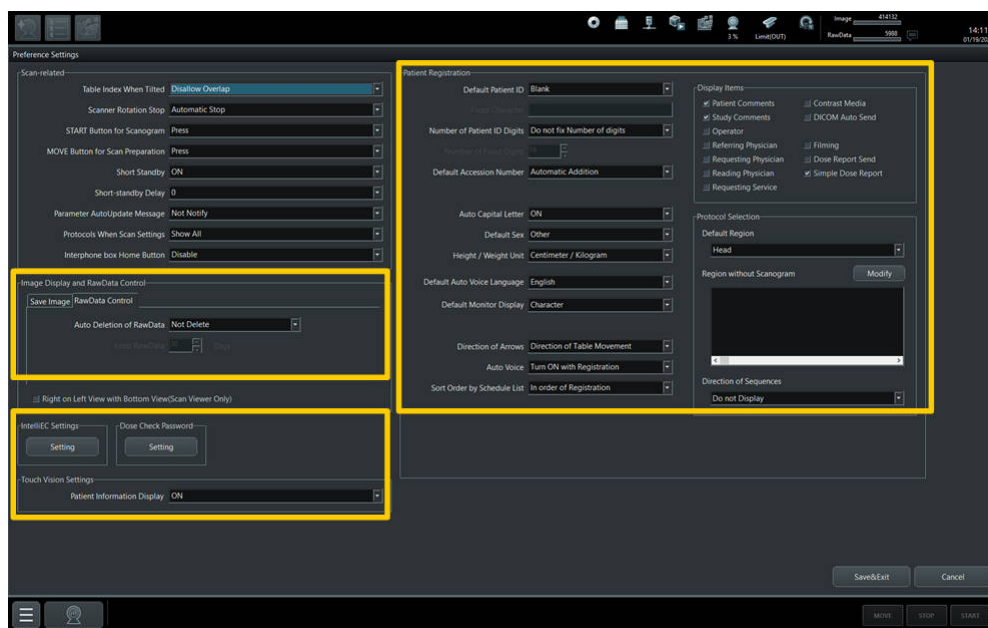
1. Auto Deletion of RawData
   Available options: [Not Delete], [Set by Days], and [Set by Studies]

2. Keep RawData
   If you selected [Set by Days] or [Set by Studies] option for [Auto Deletion of RawData] setting, specify the number of days to keep the RawData (1 to 180 days), or the number of studies for which to keep the RawData (1 to 500 studies).

3. Default Patient ID
   Available options: [Blank], [Automatic Addition], [Fixed Character + Automatic Addition], and [Date + Automatic Addition]

4. Fixed Character
   If you select any option other than [Fixed Character + Automatic Addition] for [Default Patient ID], this text box is unavailable and cannot be set.

5. Number of Patient ID Digits
   Available options: [Do not fix Number of digits] and [Fix Number of digits]

6. Number of Fixed Digits
   You can specify a value in the range from 1 to 16.

7. Default Accession Number
   Available options: [Blank] and [Automatic Addition]

8. Auto Capital Letter
   Available options: [ON] and [OFF]

9. Default Sex
   Available options: [Other], [Male], [Female], and [Same as previous patient]

10. Height / Weight Unit
    Available options: [Centimeter], [Kilogram, Feet], and [Pound]

11. Default Auto Voice Language
    Select the default language for the Patient Registration window.

12. Default Monitor Display
    Available options: [Character] and [For Child]

13. Direction of Arrows
    Available options: [Direction of Scanning Image] and [Direction of Table Movement]

14. Auto Voice
    Available options: [Do not reset with Registration] and [Turn ON with Registration]

15. Sort Order by Examination List
    Available options: [In order of Registration] and [In reverse order of Registration]

16. Display Items
    Select the items to be displayed during patient registration.

17. Default Region
    Available options: [Same as Previous Patient] and [Region registered at region registration]

18. Region without Scanogram
    Select the region or regions for which the default scanogram protocol is to be "None" if the region is selected during patient registration.

19. Direction of Sequences
    Available options: [Do not Display] and [Display]

20. IntelliEC Settings
    Available options: [CNR mode settings items - Standard body weight -] and [Intelli IP - Strength Level limit -]

21. Dose Check Password
    You can set a password that must be entered in order to continue scanning after the CTDIvol (z) value for a single examination exceeds the warning threshold.

22. Patient Information Display
    Available options: [ON] and [OFF]

4

Moving the Table

4.1 Moving the table by using the operation console

This section describes how to move the table by using [MOVE] button when you are not performing a scan or scanogram.

1. Click [Table Move Settings] icon in the system information area.

2. In the Table Movement Settings dialog box that opens, set the table movement mode.

3. Click [OK] button.

4. Press and hold [MOVE] button on the intercom box.

> 💡 The table only moves while [MOVE] button is pressed. You can press [MOVE] button to move the table even if [MOVE] button is not lit.

4.2 Moving the table to the HOME position by using the operation console

In the Preference Settings window, if you select [Enable for Non-contrast studies only.] or [Enable (contrast studies limited to table "Out" only.)] for [HOME] button on the intercom box, you can move the table to the HOME position by pressing [HOME] button and [START] button on the intercom box at the same time.

Moving the Table

5
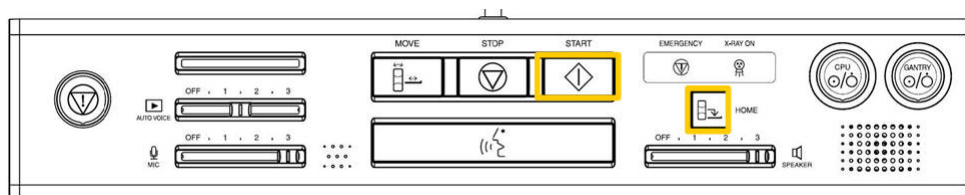
Warm-Up

5.1 Warm-up

5.1 Warm-up

This section describes the warm-up procedure that is performed at the start of work or when the machine has not emitted X-rays for a lengthy period.

⚠ WARNING

Confirm the following before performing warm-up:

- No persons are in the CT scan room.

- No objects are inside the scanner gantry.

- The door to the CT scan room is closed.

NOTICE

- When the remaining time until warm-up is required falls below one hour, the remaining time is displayed in minutes on [Warm-up] button. Use this time as a reference for when to ask the patient to enter the room.

- If 6 hours or more have passed since the previous scan, a message requesting warm-up will appear. Follow the message instructions and perform warm-up.

---
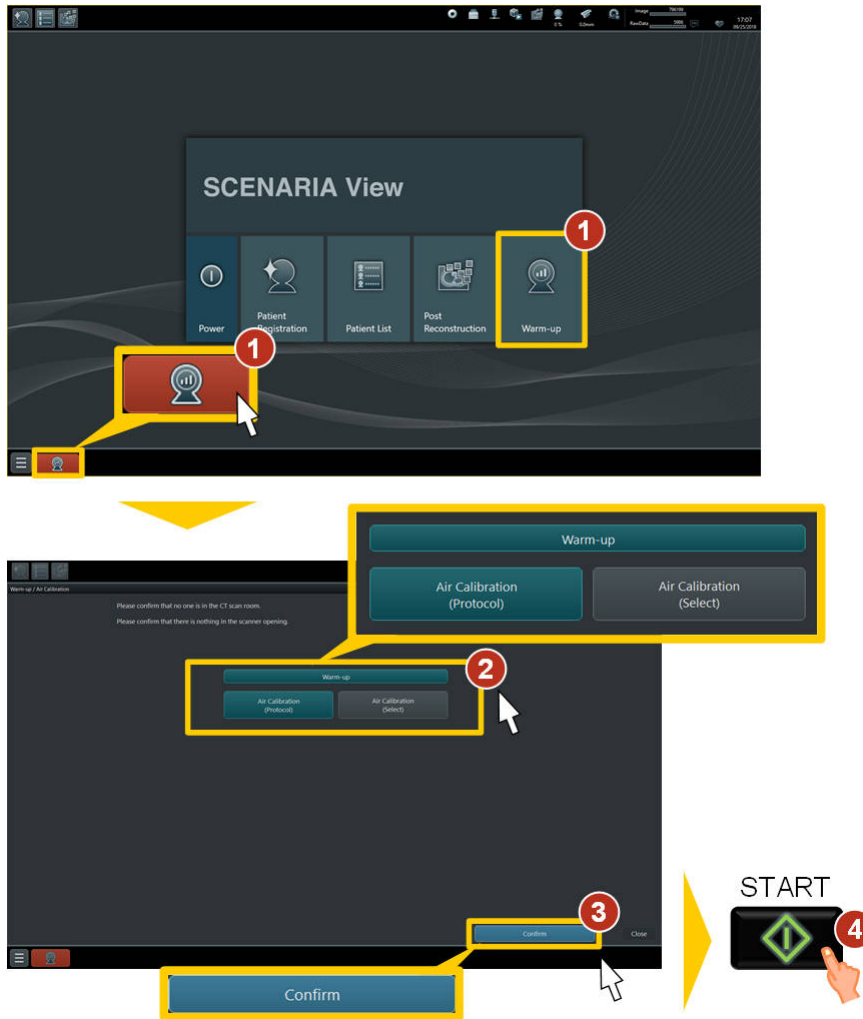
1. Click [Warm-up] button in the main menu.
   The Warm-up/Air calibration window appears.

2. Confirm that [Warm-up] + [Air Calibration (Protocol)] button is selected.
   If the table position is not at the OUT limit position, move it to the OUT limit position.

3. Click [Confirm] button.
   The [START] button LED on the intercom box begins flashing.

4. Press [START] button on the intercom box.
   Warm-up scanning begins.
   To cancel warm-up, press [STOP] button on the intercom box.

Warm-Up

6

Patient Registration

6.1 Scan procedure

1. Patient registration (Register the patient.)

2. Scanogram window (In the Scanogram window, set the scanogram parameters.)

3. Scanograms (Perform the scanogram.)

4. Scan plans (In the Scan window, set the scan parameters.)

5. Scans (Perform the scan.)

- To proceed from step 1 to 2:
  Click [Start Exam.] button, which registers the patient for a scan by using a scanogram.

- To proceed from step 1 to 3:
  Click [Standby] button, which registers the patient for a scan by using a scanogram.

- To proceed from step 1 to 4:
  Click [Start Exam.] button, which registers the patient for a scan without using a scanogram.

- To proceed from step 1 to 5:
  Click [Standby] button, which registers the patient for a scan without using a scanogram.

6.2 Patient registration
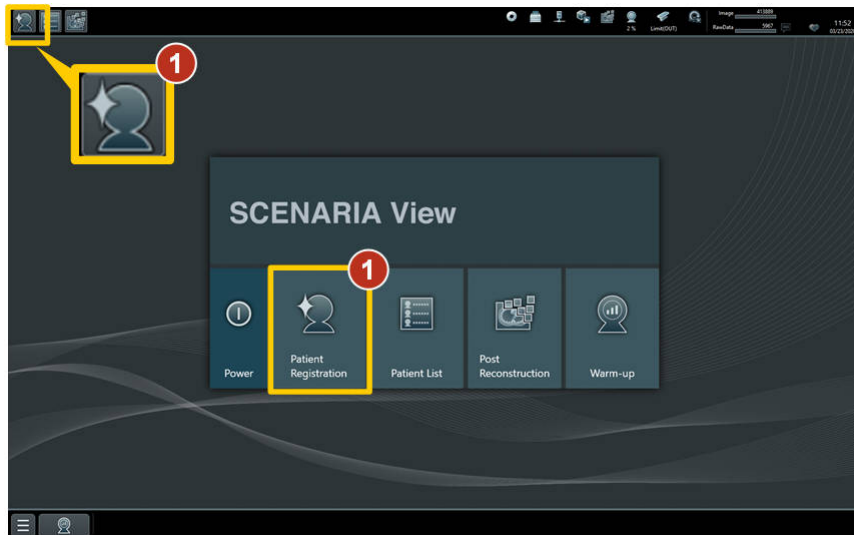
1. Click [Patient Registration] button.

> 💡 The installed MWM will display the MWM screen. For details, see *6.3 MWM* on page 42.

2. Enter the values for [Patient ID] (a required item) and for [Patient Name].

3. Enter values for [Birth Date] and [Sex].
   Also, enter the following as necessary: [Patient comment], [Study comment], [Height], and [Weight].

4. Select the region.
   Press the button for the region to be scanned.

   ◦ When scanning a region that is not in [Quick Entry] tabs, select [All Protocol] tab and select the region to be scanned and the scan protocol.

   ◦ For details about how to scan each region, see *Chapter 8, Scanning the main regions* on page 55.

◦ After you complete patient registration, the installed MPPS will display the MPPS screen. For details, see *6.4 MPPS* on page 42.

6.3 MWM

MWM (Modality Worklist Management) is an application for retrieving worklists (such as patient information) from the RIS (Radiology Information System) by using the DICOM interface.
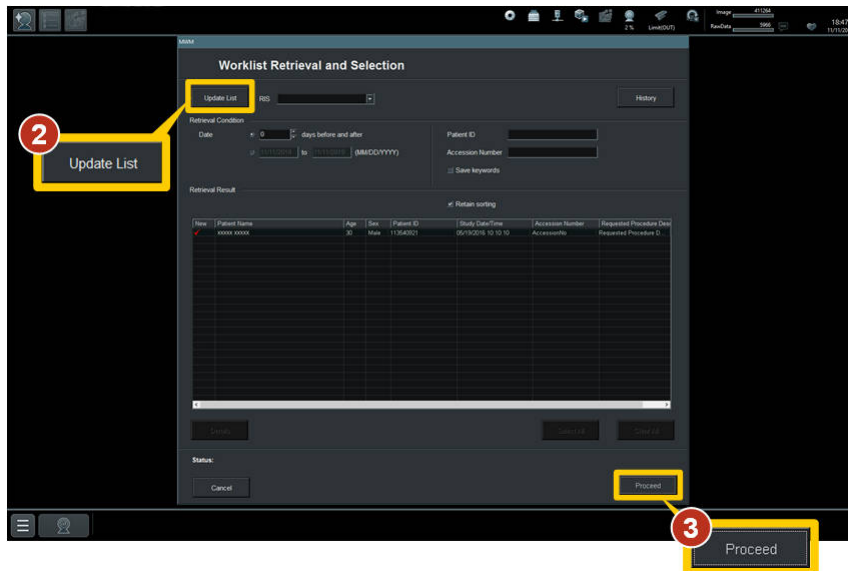
1. Click [Patient Registration] button on the Main window to display the MWM window.

2. Click [Update List] button to retrieve the worklists.

3. Select the worklists and click [Proceed] button. The worklists will then be saved on the CT scanner, and the Patient Registration window will be displayed.

6.4 MPPS

MPPS (Modality Performed Procedure Step) is an application that uses a DICOM interface to send examination reports to RIS (Radiology Information System). The examination reports sent to RIS when an examination begins include worklists and other types of information. The examination reports sent to RIS when an examination ends include information regarding the examinations performed.
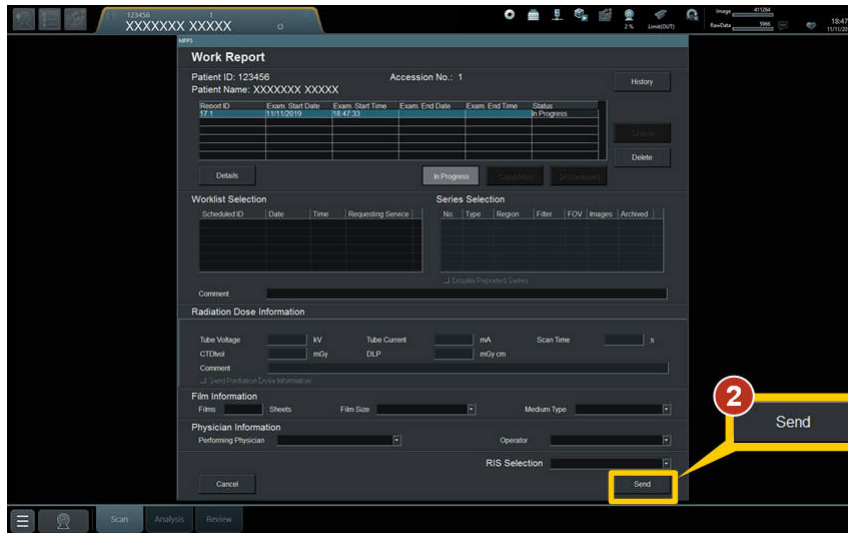
1. The Work Report window is displayed after patient registration, and after the end of the examination.

2. Input the required information in the Work Report window, and then click [Send] button.

7

Scanning

7.1   Scanogram scanning parameters

This section describes the parameters that you can change in the scanogram window.
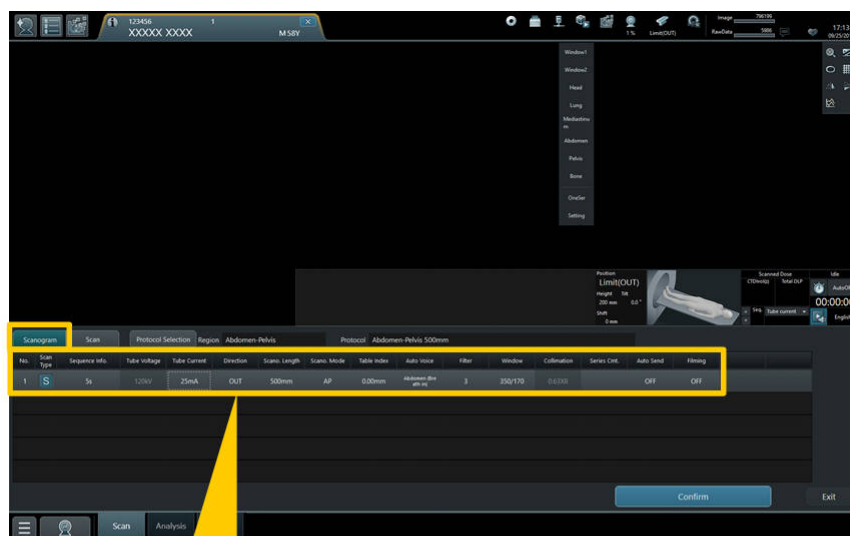
No.	Scan Type	Sequence Info.	Tube Voltage	Tube Current	Direction	Scano. Length	Scano. Mode	Table Index	Auto Voice
1	S	3.5s	120kV	25mA	OUT	350mm	AP	0.00mm	Chest
	①	②		③	④	⑤	⑥	⑦	⑧

Filter	Window	Collimation	Series Cmt.	Auto Send	Filming
4	350/170	0.63X8		OFF	OFF
⑨	⑩		⑪	⑫	

1. Scan Type
    Displays the scan type.

    S   Scanogram (no change)

2. Sequence Info.
    Displays the scanogram imaging time.

3. Tube Current
    Sets the tube current (mA).

4. Direction
    Use this to switch between IN and OUT.

5. Scano. Length
    Sets the scanogram imaging range.

6. Scano. Mode
    Use this to change between AP (front view), LAT (side view), AP-LAT (2-way), and LAT-AP (2-way).
    To change the scanogram mode from AP to PA or vice versa, specify that setting in the scanogram protocol settings.

7. Table Index

Use this to move the table before scanogram imaging.

8. Auto Voice

    Use this to set the announcement for the patient to hold their breath.

9. Filter

    Sets the image filter to be applied to the scanogram.

10. Window

    These are the window conditions applied first when an image is displayed.

11. Series Cmt.

    Use this to add a comment.

12. Auto Send and Filming

    Use these parameters to automatically send images to the DICOM server or to a film tool after scanning is complete.

    To automatically send the images, set the automatic transfer parameter in the Scanogram window and also in the Patient Registration window.

7.2   Scan parameters

This section describes the items that you can change in the Scan window. To switch the display to the Scan Parameters window, click [Parameter page toggle] button.
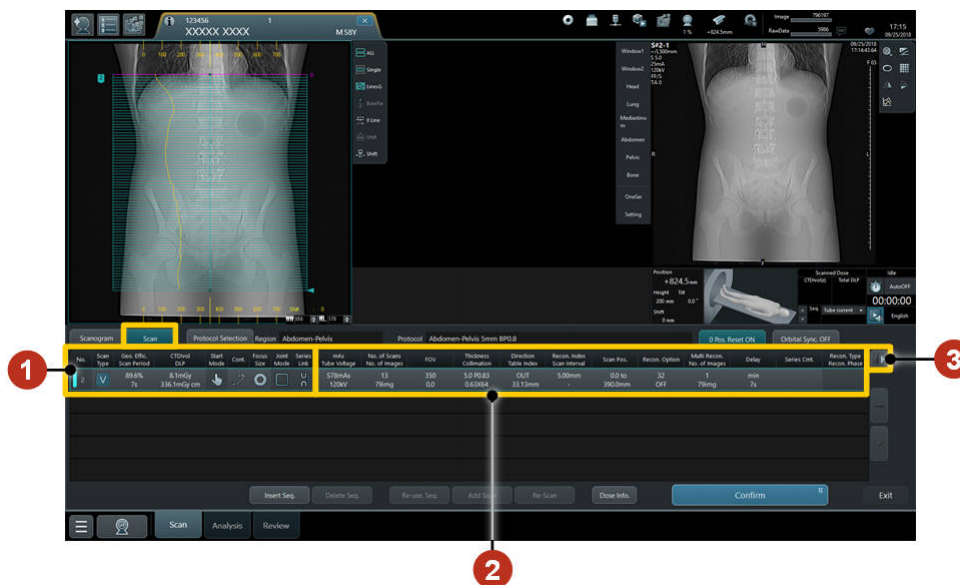
1. Sequence information area

2. Scan parameter area

3. [Parameter page toggle] button

7.2.1 Sequence information area

1. Scan Type
   Displays the scan type.

   ○ Normal scan

   ○ Volume scan

   ○ Dynamic scan

   ○ Predict scan

   For a detailed explanation, see *19.1 Types of scans* on page 146.

2. Geo. Effic. and Scan Period
   The geometric efficiency is the efficiency with which emitted X-rays form the image (that is, the percentage of emitted X-rays that are actually used to form the image). The scan period is from when X-ray emission starts until the emission ends.

3. CTDIvol and DLP
   Displays the absorbed dose (mGy) and scanned dose (mGycm). If IntelliEC is used, these values change according to the physical build of the patient.

4. Start Mode
   Displays the method used to start the scan. Click the icon to change the method.

   ○ [Manual start mode]
   This mode starts a scan when [START] button is pressed.

   ○ [Auto start mode]
   This mode automatically starts a scan after the previous scan. This can be selected from the second continuous sequence.

5. Contrast
   Click this to toggle the contrast mark on or off.

   ○ [Without Contrast Media]
   This icon indicates that contrast media is not used.

   ○ [With Contrast Media]
   This icon indicates that contrast media is used.

6. Focus Size

Scanning

Displays the size of the focal spot when X-rays are emitted. Click the icon to change the size.

- ◦ [Large focal spot]

  This icon indicates that the scan uses a large focal spot.

- ◦ [Small focal spot]

  This icon indicates that the scan uses a small focal spot.

7. Joint Mode

   Displays the movement of the scan range for each sequence.

   - ◦ [Free]

     This icon indicates that you can freely set scan settings.

   - ◦ [Continue]

     This icon indicates that the scan position is fixed by continuing from the position of the previous sequence.

   - ◦ [Repeat]

     This icon indicates that the scan position is fixed to the same position as the previous sequence.

   - ◦ [Go back]

     This icon indicates that the scan position is fixed to the same position as the previous sequence but the scanning direction is reversed.

8. Series Link

   Displays whether the image is linked to the same series of the preceding sequence. You can select this after the second sequence of continuous sequences.

   - ◦ [Do not link]

     This icon indicates that the scan is performed as a new series.

   - ◦ [Link]

     This icon indicates that the scan is performed as the same series as the previous sequence.

7.2.2 Scan parameter area (page 1)

mAs Tube Voltage	No. of Scans No. of Images	FOV	Thickness Collimation	Direction Table Index	Recon. Index Scan Interval	Scan Pos.	Recon. Option	Multi Recon. No. of Images	Delay	Series Cmt.
S78mAs 120kV	13 79img	350 0,0	5.0 P0.83 0.63X64	OUT 33.13mm	5.00mm -	0.0 to 390.0mm	32 OFF	1 79img	min 7s	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

1. mAs and Tube Voltage

   Use this to set the tube current (mA), scan time (s), tube voltage (kV), and IntelliEC.

Scanning

2. No. of Scans and No. of Images
Use this to set the number of scans. The number of images is the number of images for the main reconstruction.

3. FOV
Use this to set the effective field of view (mm) and center X and Y coordinates.

4. Thickness and Collimation
In addition to the image slice thickness and collimation settings, displayed information also includes Image Mode (output of several images per scan), which is used during a normal scan, and Table Pitch (amount of progress per scan), which is used during a volume scan.

5. Direction and Table Index
For Direction, you can set IN or OUT. The table index shows the amount the table will move forward per scan.

6. Recon. Index and Scan Interval
Use this to set the scan time interval for each scan, and the reconstruction interval (mm) during a volume scan.

7. Scan Pos.
Use this to set the scan position (range).

8. Recon. Option
Use this to set the image reconstruction filter, Intelli IP, and the reconstruction mode.

9. Multi Recon. and No. of Images
Multi-reconstruction is set when images are created under multiple conditions, such as lung field conditions, mediastinum conditions, thick slice, and thin slice. The number of images shows the number of images created by the multi-reconstruction.

10. Delay
Use this to set the delay time from when [START] button is pressed until the X-rays are emitted. You can use delays when performing contrast radiography.

11. Series Cmt.
Use this to add a comment.

7.2.3 Scan parameter area (page 2)

1. Tilt Angle
Change the angle of the slice line to change the tilt angle. (This option is available when the Scano. Mode is "LAT", "AP-LAT", or "LAT-AP".)

2. Window
Use this to set the window conditions applied when the image is first displayed.

3. B.H.C. and B.G.C.

B.H.C. corrects image quality degradation due to radiation hardening. B.H.C. is used for the head. B.G.C. corrects image quality degradation due to movement, such as when scanning the intestinal track. (For normal scans only)

4. Auto S.W.
    This starts a stopwatch when [START] button is pressed.

5. Auto Voice
    Use this to set the announcement to the patient to hold their breath.

6. AutoPose
    Use this to automatically set the imaging area.

7. Auto Analysis
    Use this to conduct analysis processing automatically after the images are taken.

8. Auto Send and Filming
    Use this to automatically send images to the DICOM server or to a film tool after scanning is complete.
    To automatically send the images, set the automatic transfer parameter in the Scan window and also in the Patient Registration window.

7.3   Scan plans

This section describes how to set the scan scope in the Scan window. For details on Scan Plan tools, see *7.4 Scan Plan Tool* on page 53. For details on Table Shift, see *8.10 Table shift* on page 73.
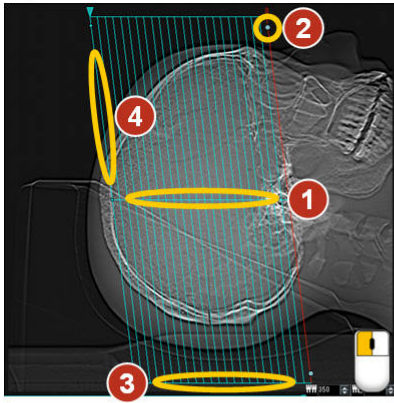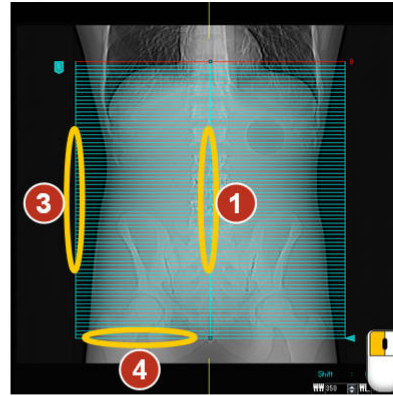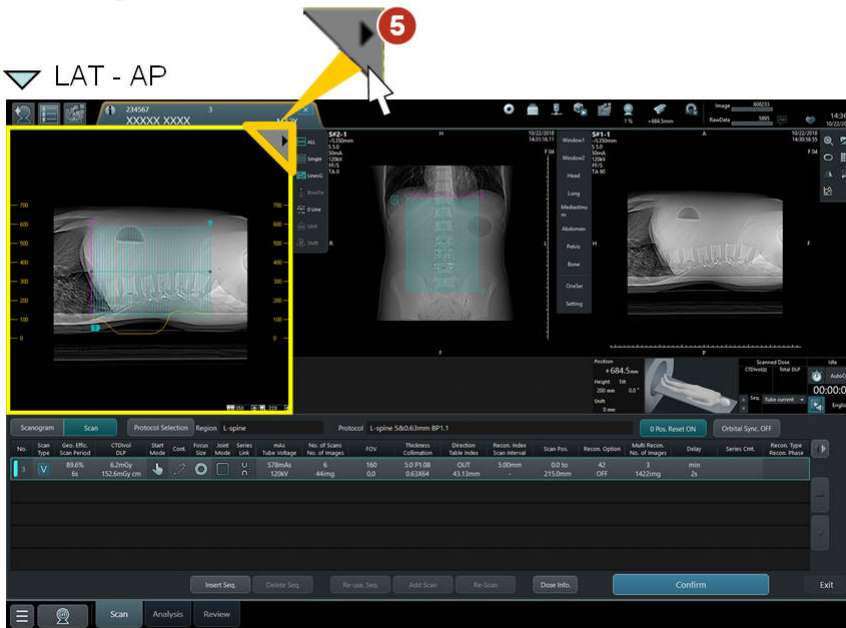
1. Move the slice line so that the start line is at the scan start position. Also move the slice line so that the scan center is at the center of the desired scan.

   When you move the mouse to the slice line center, the pointer changes to [🖐]. Dragging the mouse at this point will move the slice line.

   ◦ Head
     Move the slice line so that the start line is at the scan start position (OM line). Also move the slice line so that the scan center is at the center of the head.

   ◦ Chest/Abdomen
     Move the slice line so that the start line is at the scan start position. Also move the slice line so that the scan center is at the center of the body trunk.

   ◦ L-Spine
     Movethe slice line so that the start line is at the scan start position. Also move the slice line so that the scan center is at the center of the lumbar spine.

2. Change the slice line angle.
   When you move the mouse over the slice line corner •, the pointer changes to [十]. By dragging the mouse at this time, you can change the angle.
   To take scans of the head, angle the head so that the part to be scanned lines up with the OM line.

This option is available when the Scano. Mode is "LAT", "AP-LAT", or "LAT-AP".

3. Determine the FOV (scan field of view).

   When you move the mouse to the edge of the slice line, the pointer changes to [↕] [↔]. Dragging the mouse at this point will change the FOV.

4. Determine the scan end position.
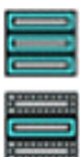
   When you move the mouse to the edge of the slice line, the pointer changes to [↔] [↕]. Dragging the mouse at this point will change the scan end position.

5. Click [AP/LAT switch] button at the top right of the scanogram to switch between a LAT (side image) and AP (front image).

7.4 Scan Plan Tool

This section explains the functionalities of the Scan Plan Tool.
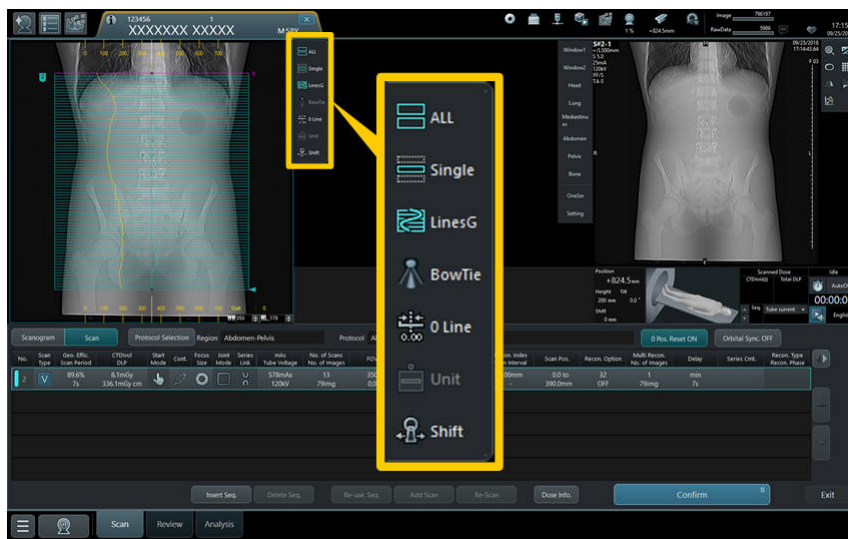
Button	Type	Description
	ALL	Displays all slice lines.
	Unit	Displays the slice line of the selected sequence. In addition, this displays the over-range line of the displayed sequence as a dotted line.
	Coop	If you move a slice line, slice lines for the selected sequence onward also move.
	Single	If you move a slice line, only the slice line of the selected sequence moves.

Button	Type	Description
	LinesG	Displays all image positions in the slice line. If IntelliEC is used, this displays a tube current graph.
	Lines	Displays all image positions in the slice line.
	BoxG	Displays the first and last positions in the slice line. If IntelliEC is used, this displays a tube current graph.
	Box	Displays the first and last positions in the slice line.
	BowTie	Toggles between displaying a fixed line and a movable line.
	0Line	0Pos.Reset can be performed based on the specified position.
	ALL	Displays all multi-reconstruction lines.
	Unit	Displays the slice line of the selected sequence.
	Shift	Use this to set the amount of horizontal table movement. You can use this only for tables that can move horizontally.

Scanning

8

Scanning the main regions

8.1 Head scan (using a scanogram)

This section describes how to perform a head scan by using a scanogram.

Perform the following procedures in the order given.

8.1.1 CT examination room (before the scan)
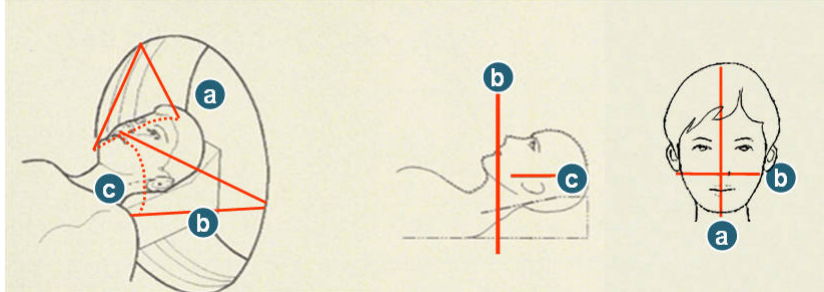
1. Position the patient so that the light localizer illuminates the patient as shown in the figure above.

   a. Sagittal-direction light: Median sagittal plane

   b. Transverse-direction light: Just under the nose

   c. Coronal-direction light: Approx. 2 cm above the external acoustic opening

   ### NOTICE

   - Use the lights inside the scanner gantry to position the patient. Make the OM line as perpendicular as possible and make adjustments while having the patient pull down their chin.

   - The lights use laser radiations. Before you turn on the lights, you must instruct the patient to close their eyes.

2. When you have finished positioning the patient, use the immobilizing bands to securely immobilize the patient's head and abdomen.

8.1.2 Operation room
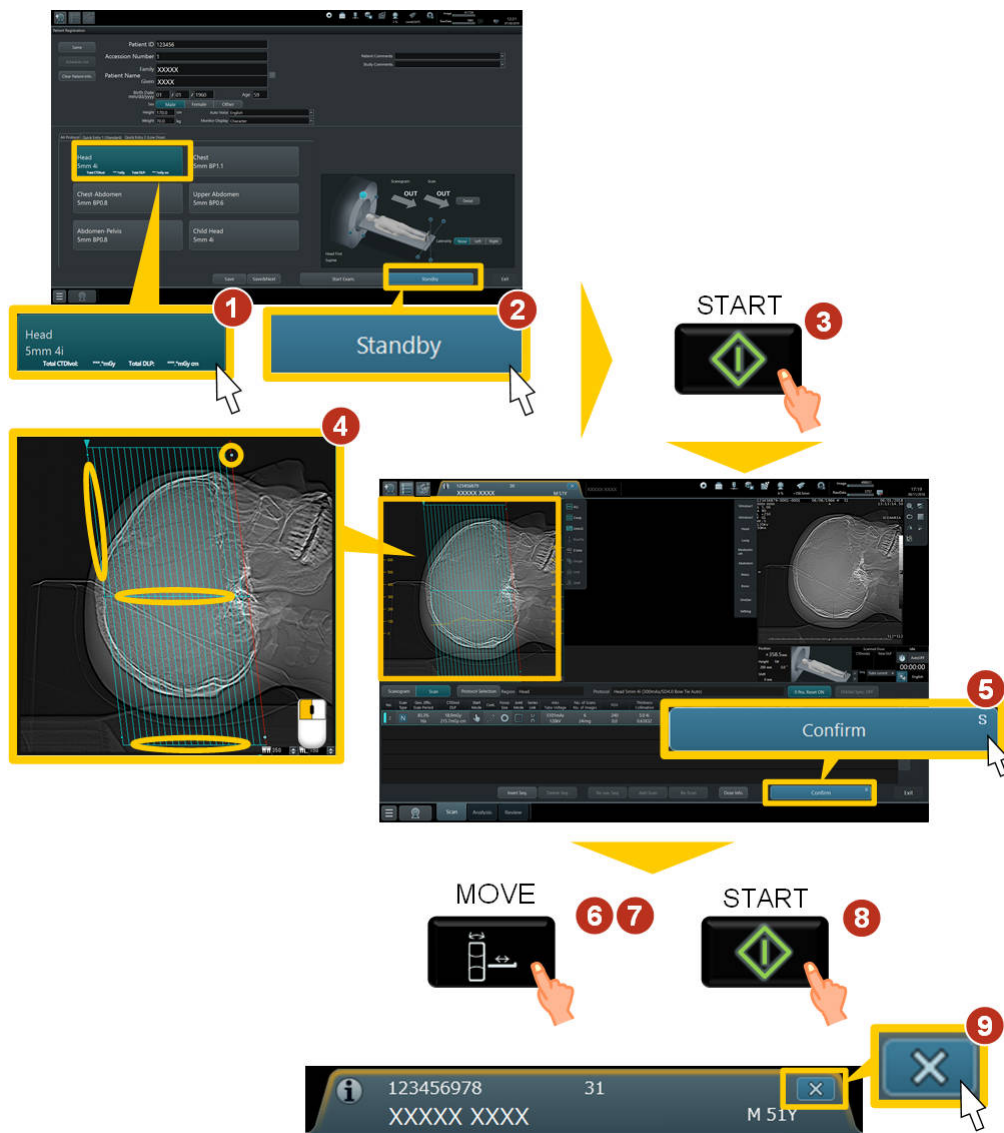
1.   Click [Head] button in the patient registration screen.

2.   Click [Standby] button.
     The [START] button LED on the intercom box begins flashing.

> 💡 After clicking [Standby] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

3.   Press [START] button on the intercom box.
     The scanogram image is displayed in real time on the screen.

> 💡 If the scanogram image is not correct, click [Scanogram] button at the left of the screen and perform the scan again.

4.   Set the tilt angle, the start and end positions of the scan, and the size and center point of the FOV.

5.   Click [Confirm] button.
     The [MOVE] button LED on the intercom box begins flashing.

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> 💡 After clicking [Confirm] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

6. Press [MOVE] button on the intercom box.
   The [MOVE] button LED on the intercom box begins flashing.

> 💡 If you did not change the angle in step 4, go to step 7. [MOVE] button on the intercom box will not flash, but [START] button on the intercom box will flash.

7. Press and hold [MOVE] button on the intercom box.
   The [START] button LED on the intercom box begins flashing.

8. Press [START] button on the intercom box.
   Scanning starts, and the head images are displayed in order once they are ready.

9. When scanning finishes, click [X] button on the Study Tab.
   This ends the examination of the current patient.

> 💡 If necessary, perform an additional scan before clicking [Exit] or [X] button. For details on how to perform an additional scan, see *8.3 Additional scans and re-scans* on page 60.

8.1.3   CT examination room (after the scan)

Lower the patient table, remove the immobilizing bands, and help the patient down off the table.

8.2   Head scan (without using a scanogram)

This section describes how to perform a head scan without using a scanogram.
Perform the following procedures in the order given.

8.2.1   CT examination room (before the scan)
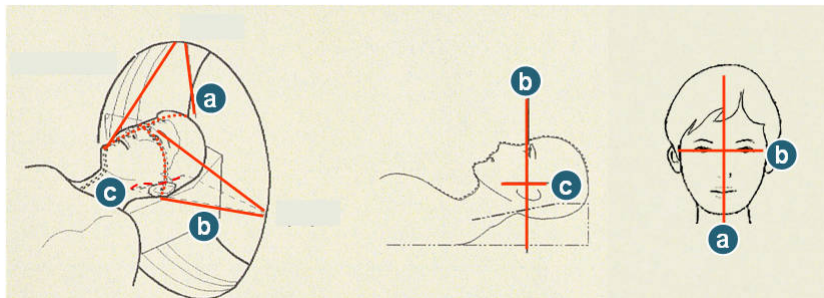

1. Position the patient so that the light localizer illuminates the patient as shown in the figure above.

   a. Sagittal-direction light: Median sagittal plane

   b. Transverse-direction light: Parallel to the OM Line
      OM Line that connects the corner of the eye with the external acoustic opening

Vertical line position: Adjust this by using the patient table and tilt angles.

c. Coronal-direction light: Approx. 2 cm above the external acoustic opening
Horizontal line position: Adjust this by using the patient table height.

NOTICE

- Use the lights inside the scanner gantry to position the patient. If the OM Line position is not aligned, correct it by adjusting the scanner tilt angle or else having the patient tilt their head down.

- The lights use laser radiations. Before you turn on the lights, you must instruct the patient to close their eyes.

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2. When you have finished positioning the patient, use the immobilizing bands to securely immobilize the patient's head and abdomen.

8.2.2 Operation room
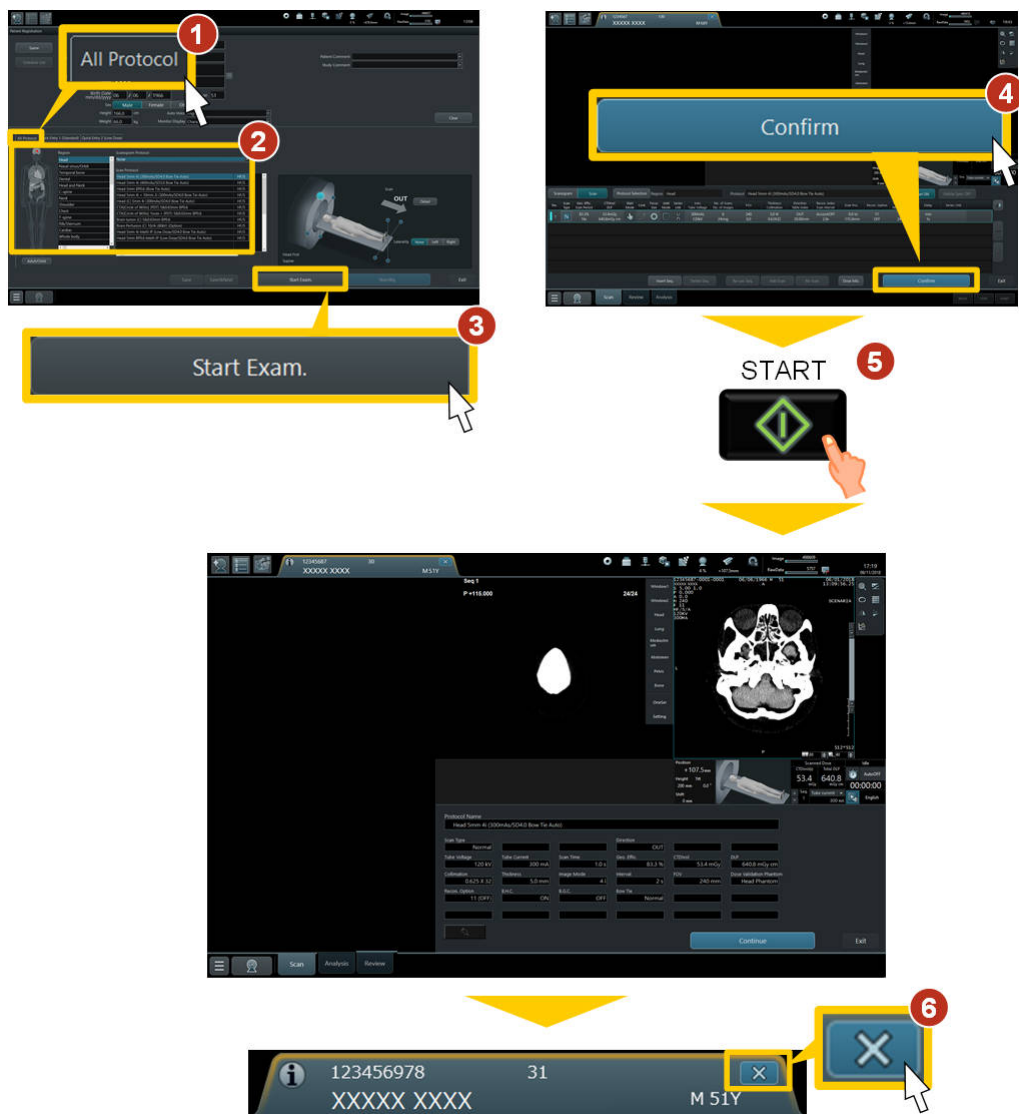
1. From the Patient Registration screen, switch to [All Protocol] tab.

2. Set the following conditions:

Scanning the main regions

Region: Head
Scanogram protocol: None
Scan protocol: Head 5mm 4i

3. Click [Start Exam.] button.
Scan window is displayed.

4. Click [Confirm] button.
The [START] button LED on the intercom box begins flashing.

> 💡 After clicking [Confirm] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

5. Press [START] button on the intercom box.
Scanning begins and the head images are displayed in order when they are ready.

6. When scanning finishes, click [X] button.
This ends the examination of the current patient.

> 💡 If necessary, perform an additional scan or a rescan before clicking [Exit] or [X] button. For details on how to perform an additional scan or a rescan, see *8.3 Additional scans and re-scans* on page 60.

8.2.3 CT examination room (after the scan)

Lower the patient table, remove the immobilizing bands, and help the patient down off the table.

8.3 Additional scans and re-scans

This section describes how to extend the scan area and how to perform a re-scan if the patient moved.
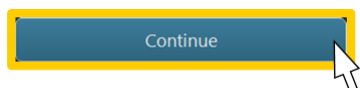
Click [Continue] button on the bottom right of the screen.
To extend the scan area, see *8.3.1 Additional scans* on page 61. To perform a re-scan, see *8.3.2 Re-scans* on page 61.

8.3.1　Additional scans
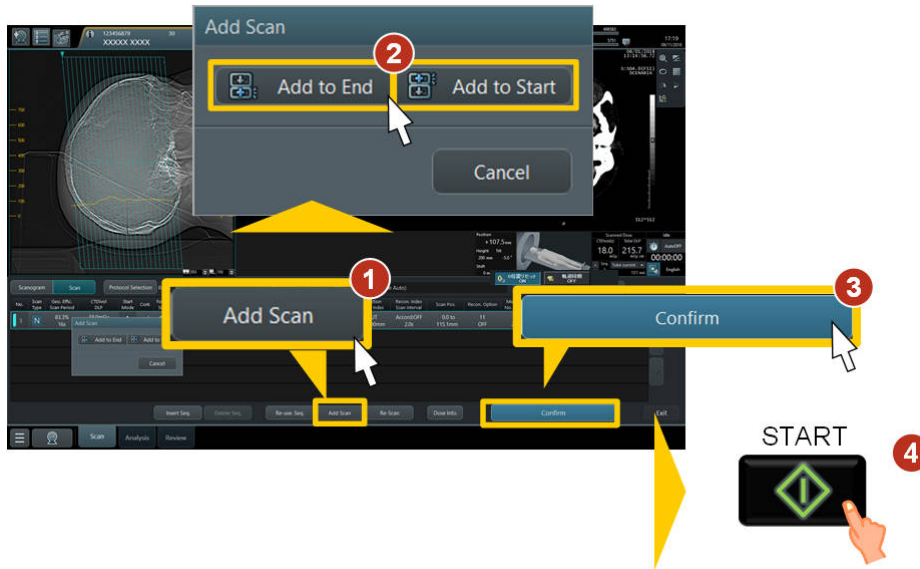
1. Click [Add Scan] button at the bottom of the screen.
    The additional scan dialog box appears.

2. Select the additional scan direction.

    ◦   Add to End
        Continues to scan in the direction of the previous scan.

    ◦   Add to Start
        Scans in the reverse direction of the previous scan from the first scan start position.

3. Click [Confirm] button at the bottom right of the screen.
    Depending on the scan position, the [MOVE] button LED on the intercom box will flash, so follow the screen instructions and move the table.

4. Press [START] button to begin scanning.

8.3.2　Re-scans

A re-scan can be performed only with a normal scan.
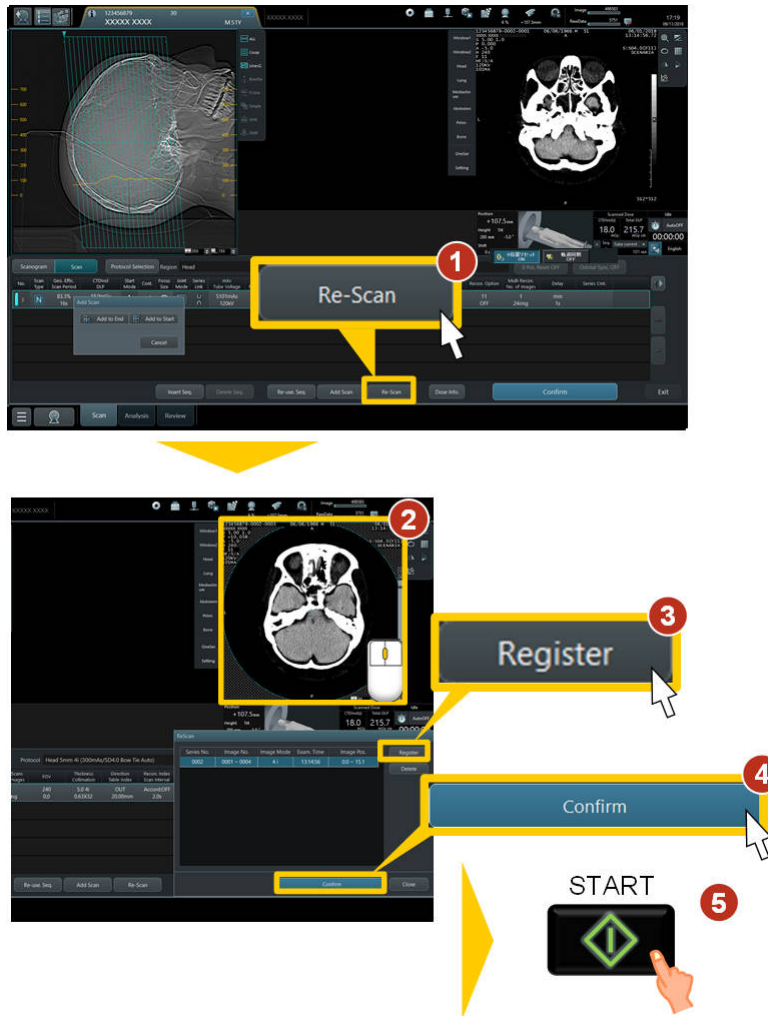
1. Click [Re-Scan] button at the bottom of the screen.
    The Re-Scan window appears.

2. The slice to be re-scanned (the slice where the patient moved) is displayed in the
    scanned image display area at the top right of the screen.

3. Click [Register] button on the right of the re-scan window.
    Repeat this operation when you want to re-scan multiple slices.

4. Click [Confirm] button at the bottom right of the screen.
    Depending on the scan position, the [MOVE] button LED on the intercom box will flash,
    so follow the screen instructions and move the table.

5. Press [START] button to begin scanning.

8.4   Chest and abdomen scans

This section describes how to perform a chest or abdomen scan.
Perform the following procedures in the order given.

8.4.1   CT examination room (before the scan)
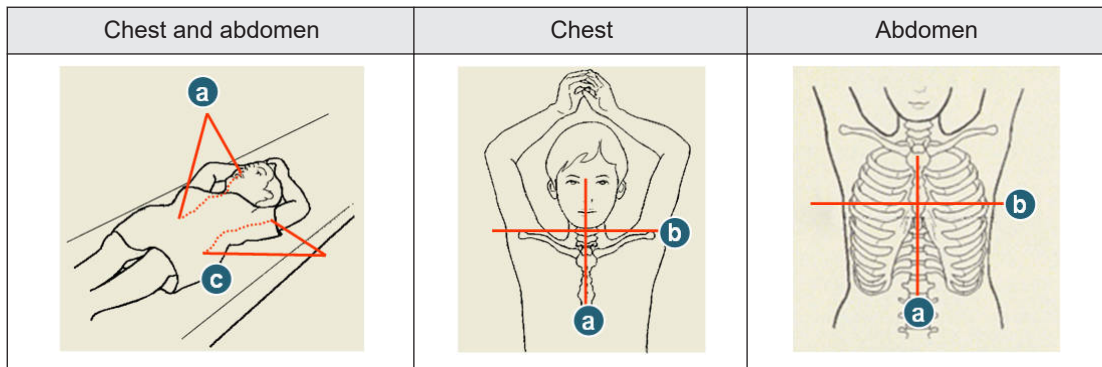
Chest and abdomen	Chest	Abdomen

1.   Lift up the patient's arms.

2.   Position the patient so that the light localizer illuminates the patient as shown in the figure above.

    a.   Sagittal-direction light: Median sagittal plane

    b.   Transverse-direction light:
       (Chest) 5 cm above the subclavian fossa
       (Abdomen) 5 cm above the ensiform cartilage

    c.   Coronal-direction light: Center of the body thickness

3.   When you have finished positioning the patient, use the immobilizing bands to securely immobilize the patient's arms and abdomen.

8.4.2 Operation room
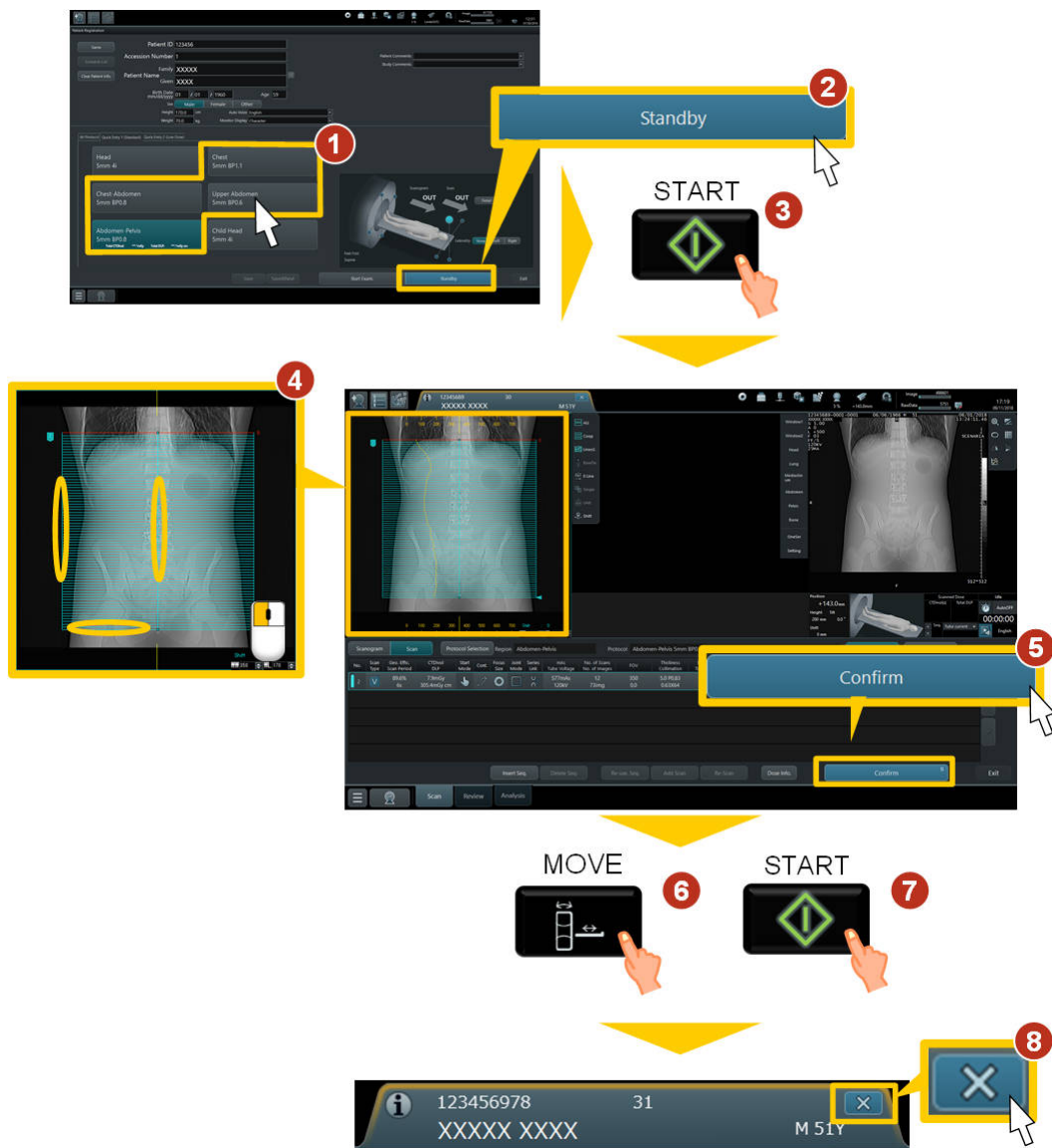
1. From the Patient Registration screen, click the button for the target area such as [Chest] or [Abdomen-Pelvis].

> 💡 For details on patient registration, see *Chapter 6, Patient Registration* on page 39.

2. Click [Standby] button.
   The [START] button LED on the intercom box begins flashing.

> 💡 After clicking [Standby] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

3. Press [START] button on the intercom box.
   The scanogram image is displayed in real time on the screen.

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> 💡 To stop the scanogram at the necessary position, press [STOP] button on the intercom box.
> If the scanogram image is not correct, click [Scanogram] button at the left of the screen and perform the scan again.

4. Set the start and end positions of the scan, and the size and center point of the FOV.

> 💡 For details on how to set a scan plan, see *7.3 Scan plans* on page 51.

5. Click [Confirm] button.
   The [MOVE] button LED on the intercom box begins flashing.

> 💡 After clicking [Confirm] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

6. Press [MOVE] button on the intercom box.
   The [START] button LED on the intercom box begins flashing.

7. Press [START] button on the intercom box.
   Scanning begins and the images are displayed in order when they are ready.

8. When scanning finishes, click [X] button on the Study Tab.
   This ends the examination of the current patient.

8.4.3 CT examination room (after the scan)

Lower the patient table, remove the immobilizing bands, and help the patient down off the table.

8.5 Lumbar spine scan (double scanogram)

This section describes how to perform a lumbar spine scan (double scanogram).
Perform the following procedures in the order given.

8.5.1 CT examination room (before the scan)
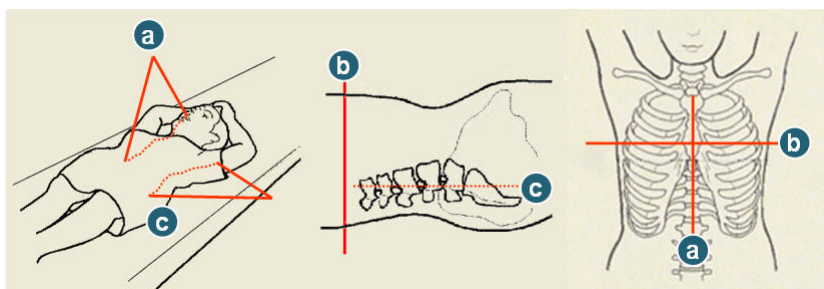
1. Lift up the patient's arms.

2. Position the patient so that the light localizer illuminates the patient as shown in the figure above.

   a. Sagittal-direction light: Median sagittal plane

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b. Transverse-direction light: 5 cm above ensiform process

c. Coronal-direction light: Just below the center of the body thickness (lumbar center)

3. When you have finished positioning the patient, use the immobilizing bands to securely immobilize the patient's arms and abdomen.

8.5.2 Operation room
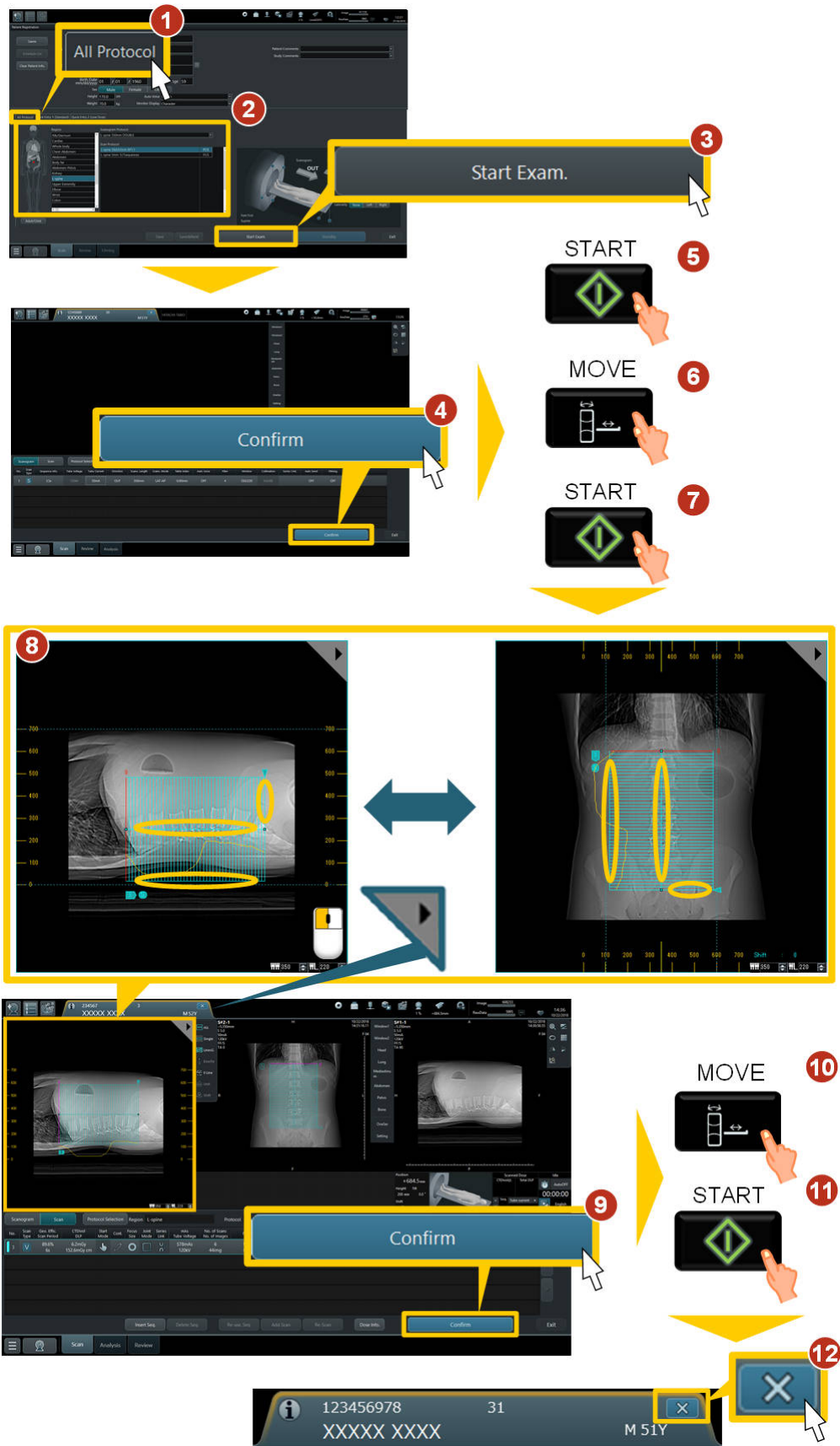
1. From the Patient Registration screen, switch to [All Protocol] tab.

> For details on patient registration, see *Chapter 6, Patient Registration* on page 39.

2. Set the following conditions:
   Region: L-spine
   Scanogram protocol: L-spine 350mm DOUBLE
   Scan protocol: L-spine 5&0.63mm BP1.1

3. Click [Start Exam.] button.
   The Scanogram window is displayed.

4. Click [Confirm] button.
   The [START] button LED on the intercom box begins flashing.

   > After clicking [Confirm] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

5. Press [START] button on the intercom box.
   The lateral scanogram image will be displayed in the above screen in real time. The [MOVE] button LED on the intercom box begins flashing.

   > When you want to stop the scanogram at the required position, press [STOP] button on the intercom box.

6. Press [MOVE] button on the intercom box.
   The [START] button LED on the intercom box begins flashing.

7. Press [START] button on the intercom box.
   The front scanogram image will be displayed in the above screen in real time.

   > When you want to stop the scanogram at the required position, press [STOP] button on the intercom box.
   > If the scanogram image is not correct, click [Scanogram] button at the left of the screen to perform a re-scan.

8. Set the start and end positions of the scan, and the size and center point of the FOV.

   > For details on how to set a scan plan, see *7.3 Scan plans* on page 51.

9. Click [Confirm] button.
   The [MOVE] button LED on the intercom box begins flashing.

   > After clicking [Confirm] button, if you want to return to the conditions setup screen, press [STOP] button on the intercom box.

10. Press [MOVE] button on the intercom box.
    When the move is complete, the [START] button LED on the intercom box begins flashing.

11. Press [START] button on the intercom box.
    Scanning starts, and the images are displayed in order once they are ready.

12. When scanning finishes, click [X] button on the Study Tab.

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8.5.3 CT examination room (after the scan)

Lower the patient table, remove the immobilizing bands, and help the patient down off the table.

8.6 IntelliEC and IntelliEC Plus

IntelliEC is a radiation dosage control function that can reduce radiation exposure while retaining image quality. IntelliEC has the following two modes:

- SD mode
  This mode optimizes the tube current to keep the image noise (SD) value constant.

- CNR mode
  If Contrast in the scan condition settings is set to indicate that contrast media is being used, the tube current is optimized to keep the ratio between the image noise (SD) value and contrast roughly constant. If contrast media is not used, the optimization process is essentially the same as in SD mode.

When IntelliEC is used, a tube current graph is displayed on the scanogram image. IntelliEC Plus is a function that links IntelliEC with Intelli IP Advanced or Intelli IPV.
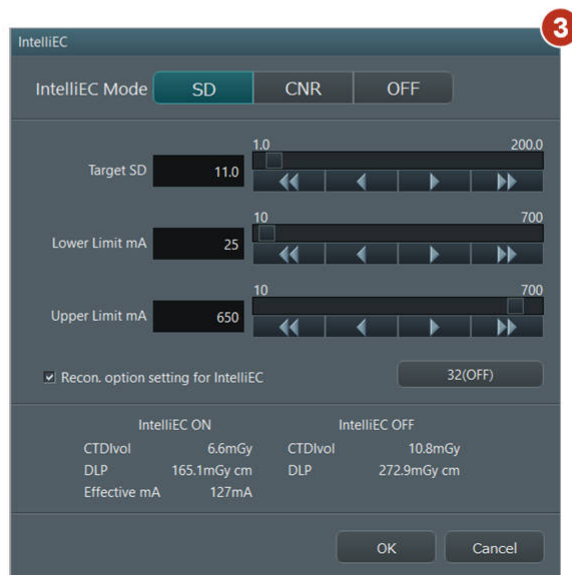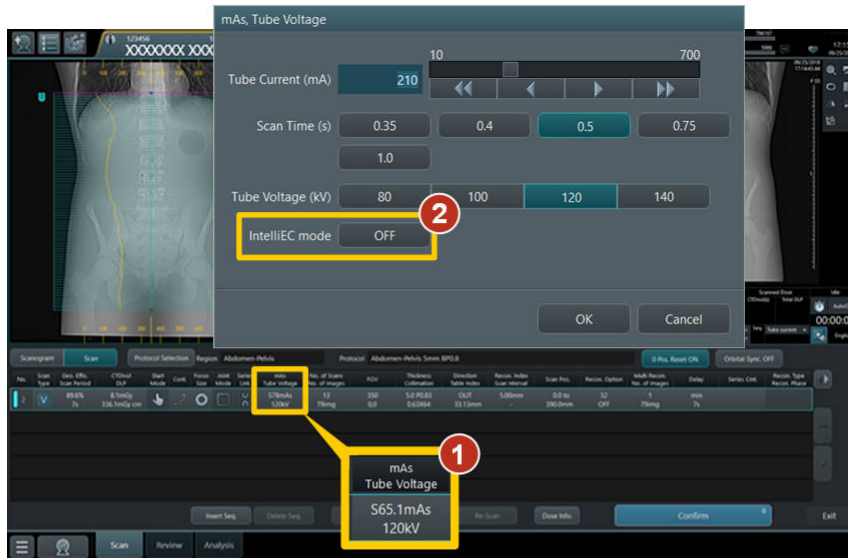
1. Click the value for [mAs/Tube Voltage] for the corresponding sequence.

2. Click [OFF] button for IntelliEC mode.

3. Set the IntelliEC parameters.

8.7   Skip scanning

In skip scanning, scans are performed at regular intervals within a sequence. Skip scanning is used in cases such as when you want to scan an entire chest area at thin-slice intervals, for example in the chest area of a patient with an interstitial condition.
Skip scanning can be used for a normal scan.
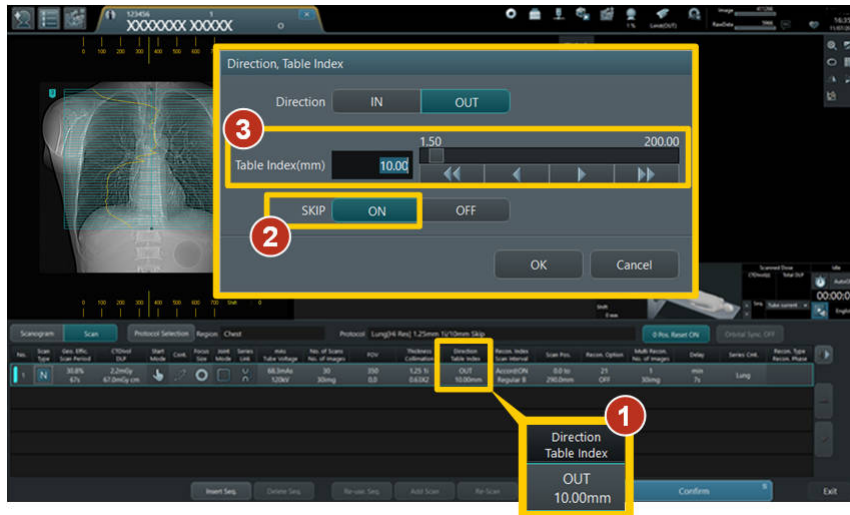
1. Click the value for [Direction/Table Index] for the corresponding sequence.
   The Direction, Table Index dialog box is displayed.

2. Click [ON] button for [SKIP].

3. Set the table index.

8.8 Accord mode

The accord mode is used to set the number of scan iterations to be executed during the holding of one breath.
The accord mode can only be used for a normal scan.
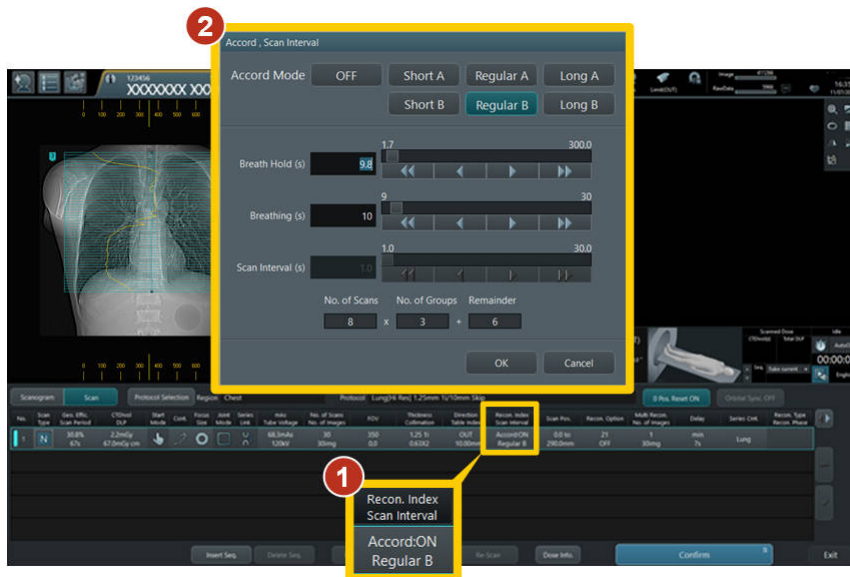
1. In the scan settings display area for the normal scan sequence, click [Recon. Index/Scan Interval].
   The Accord, Scan Interval dialog box is displayed.

2. Specify the accord mode.

8.9 ECG Scan

In ECG scan mode, scanning and image creation take place in synchronization with data produced by an electrocardiograph.

8.9.1 ECG Scan (retrospective)

In an ECG retrospective, an ECG recording is taken while acquiring images in a volume scan, and the associated ECG data is then used to create scans from a particular phase of the cardiac cycle.

1. Turn on the electrocardiograph and properly attach the electrodes to the patient.

2. Click [Retrospective] button in the displayed Scan Type dialog box.

3. Practice breath holding from Touch Vision or the console.

4. Click the value of [Recon. Type/Recon. Phase] and set the Scan/Recon/Dose Modulation conditions.

5. After confirming there is no problem, press [START] button to start the scan.

8.9.2 ECG Scan (prospective)

In an ECG Prospective, ECG data is monitored, and when a specified time has passed after the detection of an R-wave, a normal scan is performed.
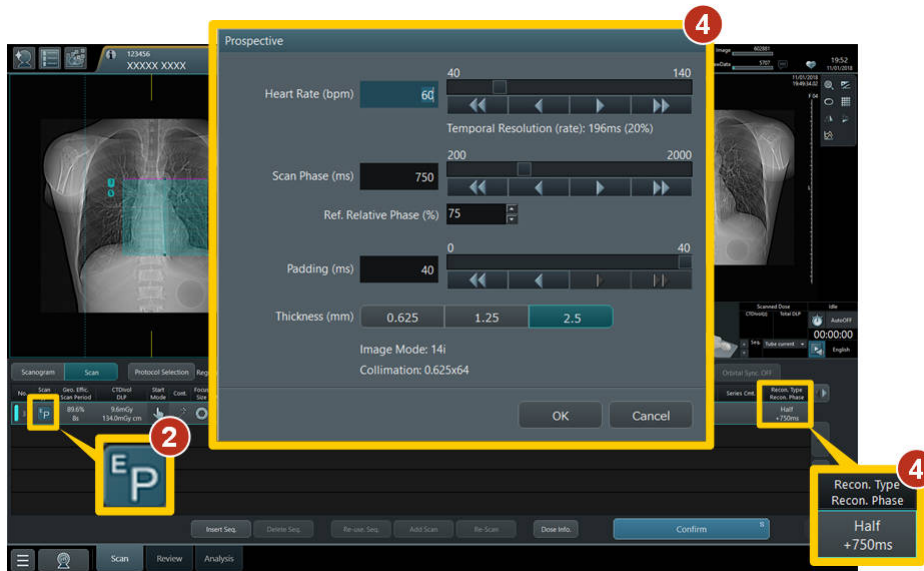
1. Turn on the electrocardiograph and properly attach the electrodes to the patient.

2. Click [Prospective] button in the displayed Scan Type dialog box.

3. Practice breath holding from Touch Vision or the console.

4. Click the value of [Recon. Type/Recon. Phase] and set the scanning conditions.

5. After confirming there is no problem, press [START] button to start the scan.

8.10   Table shift

The table shift function positions the region being scanned at the center of rotation, by moving the table laterally based on the information in scanogram images.
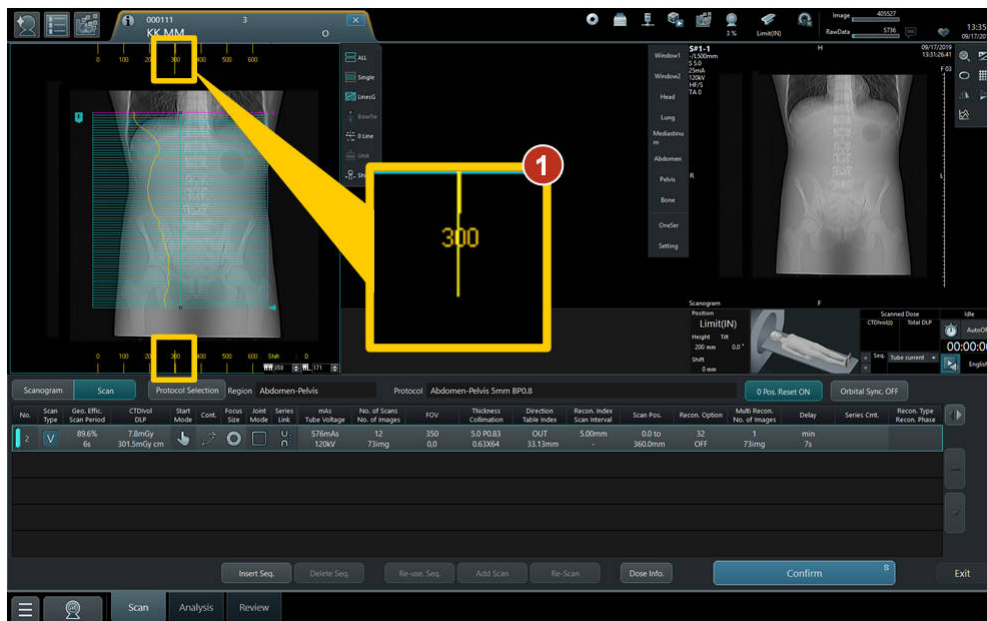
1. Move the mouse pointer onto the scan center of the rotation line. At this time, the pointer shape changes to ⬌ .

2. Click and drag the line with your mouse.

Scanning the main regions

The scan rotation center line moves, and the initial table shift is updated.

3. After clicking [Confirm] button, press and hold [MOVE] button to shift the table.

8.11 Dual Energy Scan

8.11.1 Overview

The Dual Energy Scan repeats the following procedure, enabling you to use X-rays of two different energies (tube voltages) for scanning.

1. Emit X-rays without moving the table.

2. Switch tube voltages and emit X-rays.

3. Move the table.

8.11.2 Dual Energy Scan operations
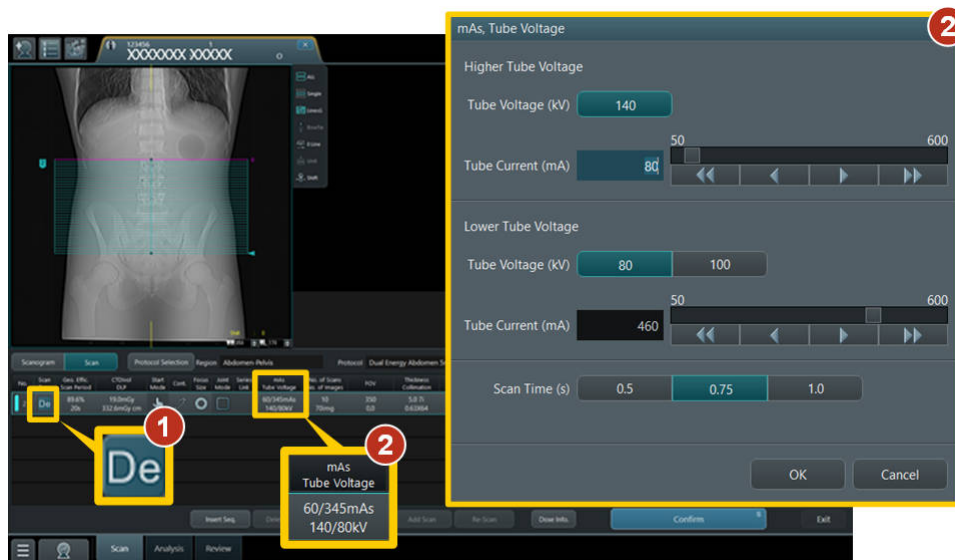
1. Click [Dual Energy] button in the displayed Scan Type dialog box.

2. Click the value of [mAs/Tube Voltage] and set the scanning conditions.

3. After confirming there is no problem, press [START] button to start the scan.

Only Dual Energy Scan is supported. There is no Dual Energy analysis function.

8.12 Shuttle Scan

Shuttle Scan is a function for moving the table at a high speed between two adjacent points. By using this function, you can perform scans at a fixed interval (3.2 seconds) in a radiography area of 80 mm (twice as large as the radiography area of the standard dynamic scan function).
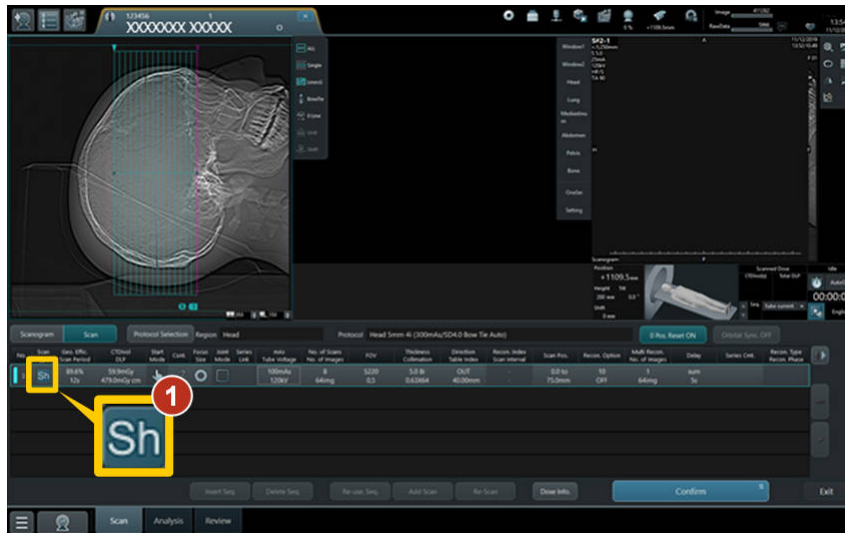
1. Click [Shuttle] button in the displayed Scan Type dialog box.

2. Set the scanning conditions and perform a shuttle scan.

The system will repeatedly scan the same position, so take local radiation into account when setting the acquisition conditions.

8.13   guideShot (option)

With the guideShot function, a foot switch is used to determine the scanning position and to perform scanning while the operator looks at CT images in the scanner gantry room. Because this function uses the one-shot method, the function can greatly reduce radiation exposure for both the operator and patient, as compared with conventional continuous CT fluoroscopy.

8.13.1   Unit structure

The guideShot includes a foot switch for guideShot to operate the table and to perform scans in the scanner gantry room, as well as a monitor for guideShot.
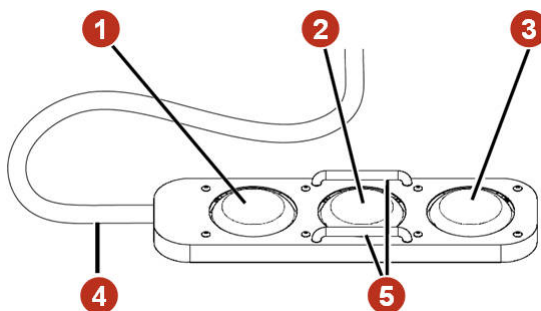
1. [Table Forward] switch

2. [Start] switch

3. [Table Backward] switch

4. Connection cable

Scanning the main regions

5. Foot rest

8.13.2 Scanning
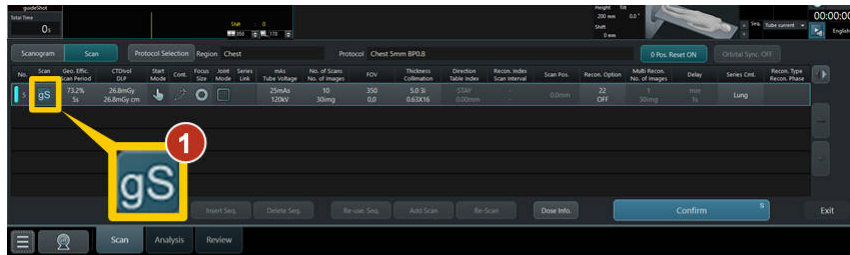
1. Click [guideShot] button in the displayed Scan Type dialog box.

2. Step on [Start] switch of the foot switch for guideShot (or press [START] button).

9

Post Reconstruction

9.1 Post Reconstruction (Image Post Recon.)

This section describes how to reconstruct images by using the post reconstruction function.
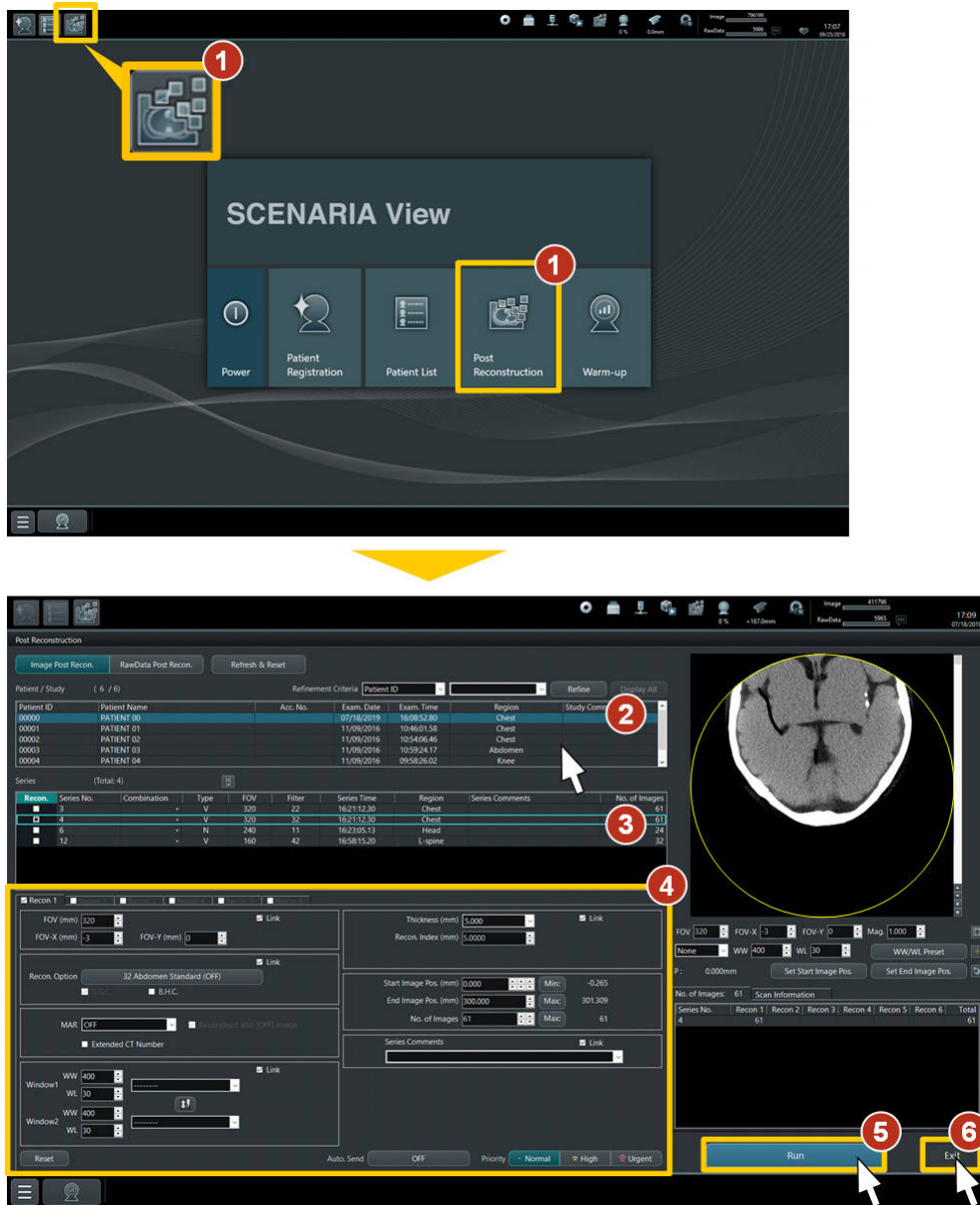
1. Click [Post Reconstruction] button.

2. From the patient information list, select the patient for which post reconstruction will be performed.

3. From the series information list, select the series for which the reconstruction conditions will be set.

4. Set the Recon. Option, B.H.C., (B.G.C.), MAR, Extended CT Number, WW, WL, Thickness, Recon. Index, Image Pos., and Series Comments.

> 💡 For an example of reconstruction, see *9.2 Example of reconstruction conditions* on page 79.

5. Click [Run] button.

6. Click [Exit] button.

> 💡 To perform another post reconstruction, repeat steps 2 to 5.

The reconstruction progress is shown in the "Recon. Status" area at the top of the screen.

- Example of post reconstruction:
  You can correct a defective image by changing the FOV.

Before	After
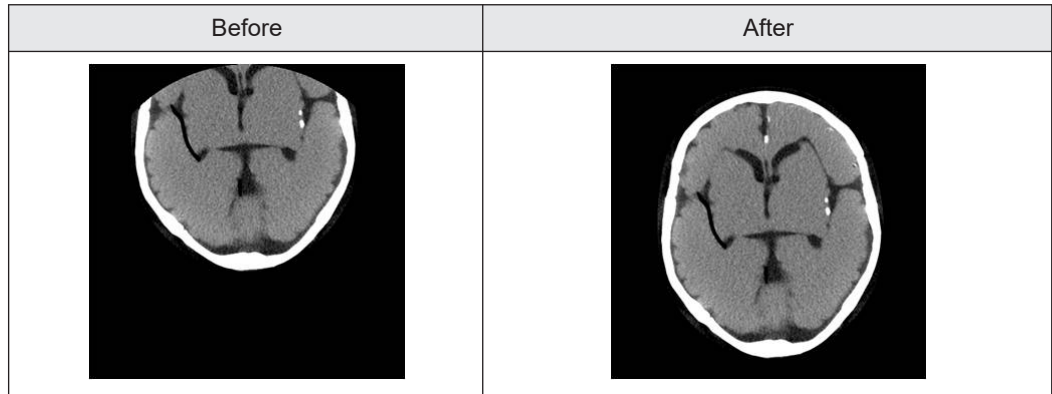
- Example of post reconstruction:
  Turning on the B.G.C. can correct the artifacts caused by minor movements. (For normal scans only)

Before	After
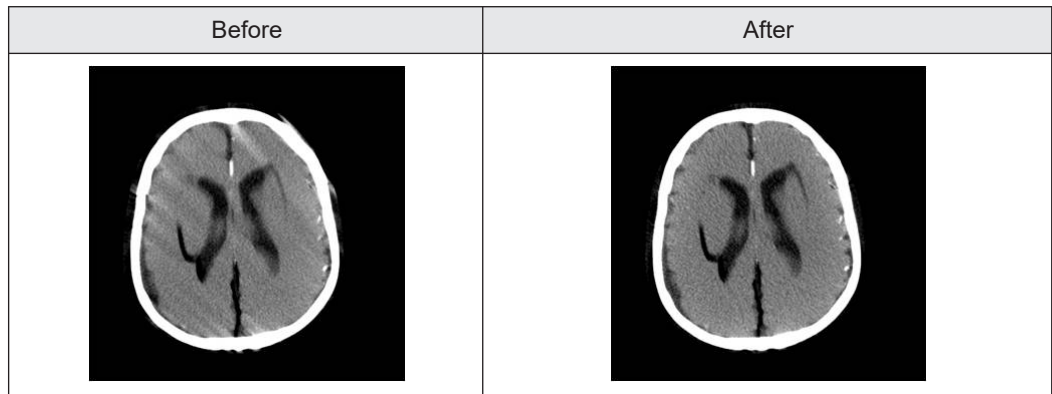
9.2 Example of reconstruction conditions

The table below lists reference values for when the post reconstruction function is used to reconstruct images. This protocol is an example. Make appropriate changes to match the conditions at your facility.

Region	Scan Type	Organ	Purpose	Filter	B.H.C.	Window1 WW	Window1 WL	Thickness [mm]	Recon. Index [mm]
Head	Normal	Brain	Interpretation	11	ON	80	40	5	-
		Brain	MPR	11	ON	80	40	0.625	-
		Bone	Interpretation	42	ON	4000	200	5	-
		Bone	MPR	42	ON	4000	200	0.625	-
	Volume	Bone	3D	11	ON	4000	200	0.625	0.3125
Chest	Volume	Lung	Interpretation	22	OFF	1600	-600	5	5
		Lung	MPR	22	OFF	1600	-600	0.625	0.625
		Mediastinum	Interpretation	32	OFF	400	30	5	5
		Mediastinum	MPR	32	OFF	400	30	0.625	0.625
Chest& Abdomen	Volume	Lung	Interpretation	22	OFF	1600	-600	5	5
		Lung	MPR	22	OFF	1600	-600	0.625	0.625
		Soft tissue	Interpretation	32	OFF	350	50	5	5
		Soft tissue	MPR	32	OFF	350	50	0.625	0.625
Abdomen	Volume	Soft tissue	Interpretation	32	OFF	250	40	5	5
Abdomen-Pelvis	Volume	Soft tissue	Interpretation	32	OFF	300	50	5	5
Abdomen	Volume	Soft tissue	MPR	32	OFF	300	50	0.625	0.625
C-spine T-spine L-spine	Volume	Bone	MPR	42	OFF	3000	400	0.625	0.3125
		Bone	3D	32	OFF	300	30	0.625	0.3125
		Soft tissue	MPR	32	OFF	300	30	0.625	0.3125
Rib	Volume	Bone	3D	32	OFF	300	30	0.625	0.625
Pelvis Hip joint	Volume	Bone	MPR	42	OFF	3000	400	0.625	0.625
		Bone	3D	32	OFF	300	30	0.625	0.625
Upper Extremity Wrist	Volume	Bone	MPR	42	OFF	3000	400	0.625	0.625
		Bone	3D	32	OFF	300	30	0.625	0.625
Knee Ankle joint	Volume	Bone	MPR	42	OFF	3000	400	0.625	0.625
		Bone	3D	32	OFF	300	30	0.625	0.625
Child Head	Normal	Soft tissue	Interpretation	19	ON	80	40	5	-
		Bone	Interpretation	42	ON	2000	200	5	-

Post Reconstruction

10

Image Management

10.1　Patient list

10.1.1　Patient list

This section describes how to start and exit the patient list, and explains the window configuration and how to select images.
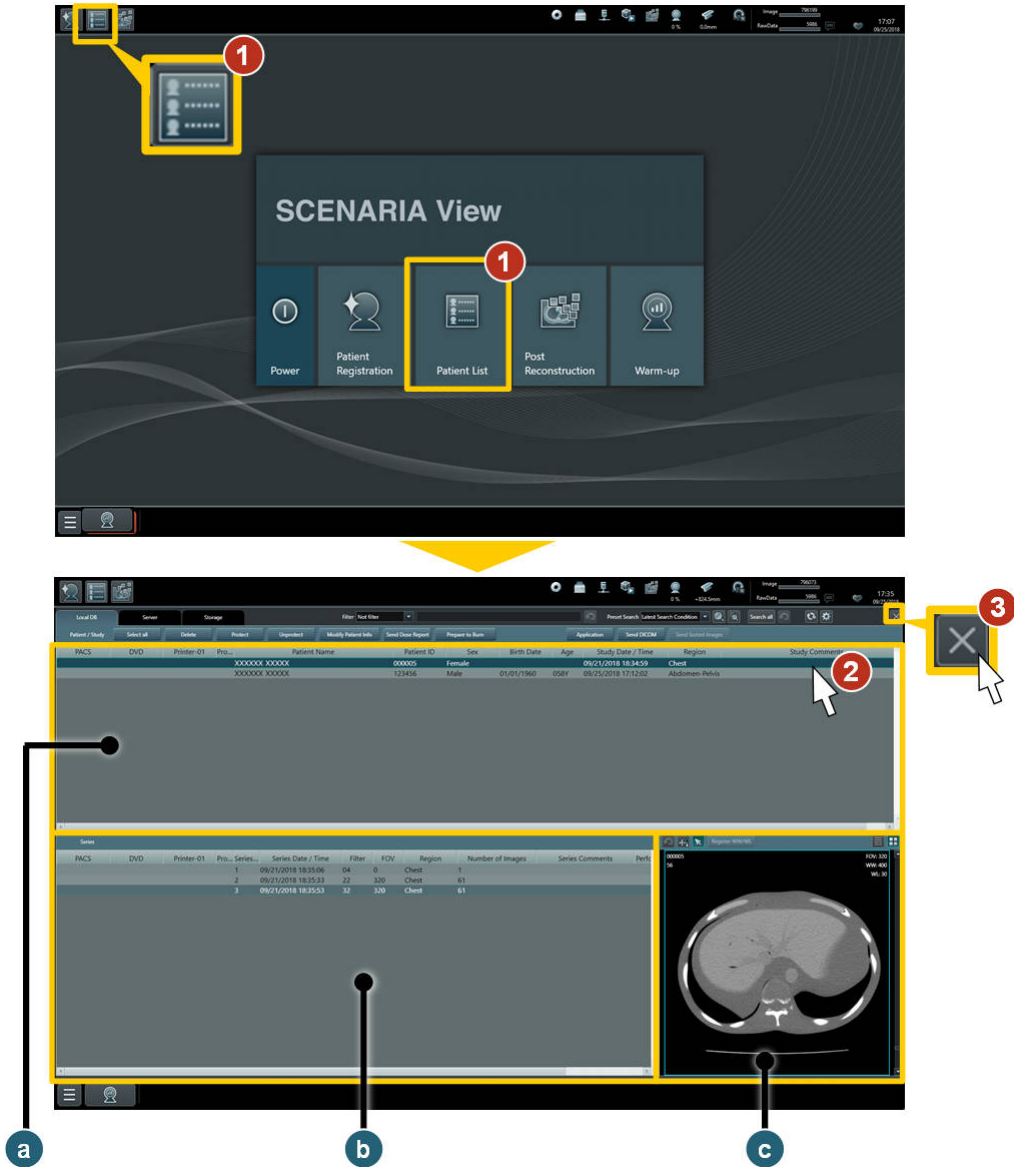
1. Click [Patient List] button.
   The patient list is displayed.
   The patient list has the following structure.

   a. The patient and study area
      Displayed items include patient names, patient IDs, birth dates, etc.

   b. The series area
      Displayed items include the series number, number of images, and series comment, etc.

   c. The image area

Displayed items include the image list, thumbnails, etc.

2. Click the desired folder.
   The selected line is highlighted.

To select multiple folders:

- To select a continuous group of folders:
  Select the first folder and then, while pressing and holding [Shift] key on the keyboard, click the last folder.

- To select multiple folders, regardless of whether they are continuous:
  While pressing and holding [Ctrl] key on the keyboard, click the folders you want to select.

---

3. Click [X] button.
   This exits the patient list.

10.1.2 List manipulation buttons

This section describes the buttons available for the patient list.
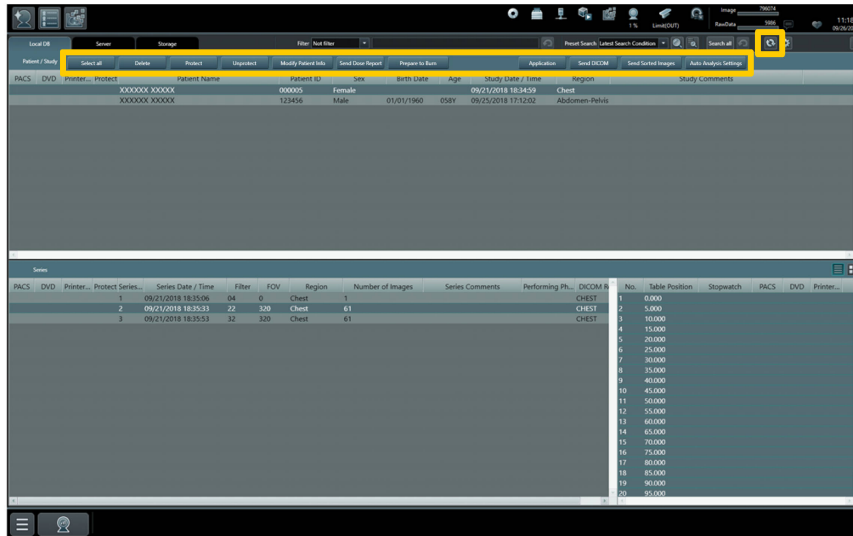
1. [Select all]
   Selects all data.

2. [Delete]
   Deletes the selected data.

3. [Protect]
   Protects the selected data so that it cannot be deleted.

4. [Unprotect]
   Cancels the protection so that the selected data can be deleted.

5. [Modify Patient Information]
   Use this to correct patient information.

6. [Send Dose Report]
   Sends dosage information of the selected patient to the server.

7. [Prepare to Burn]
   Use this to write images to a CD-R or DVD-R.

Image Management

8. [Application]

   Use this to start an application to make use of the selected data.

9. [Send DICOM]

   Transfers images by using the DICOM transfer protocol.

10. [Send Sorted Images]

    Transfers images in the sorted order by using the DICOM transfer protocol.

    You can use this while the image list is displayed.

    Only a single selected series can be transferred.

11. [Auto Analysis Settings]

    Performs an automatic analysis process.

12. [Update]

    Updates the displayed contents with the latest information.

10.2 Deleting, protecting, and unprotecting files

This section describes how to delete image data, and how to set and remove deletion protection.

10.2.1 Deleting files
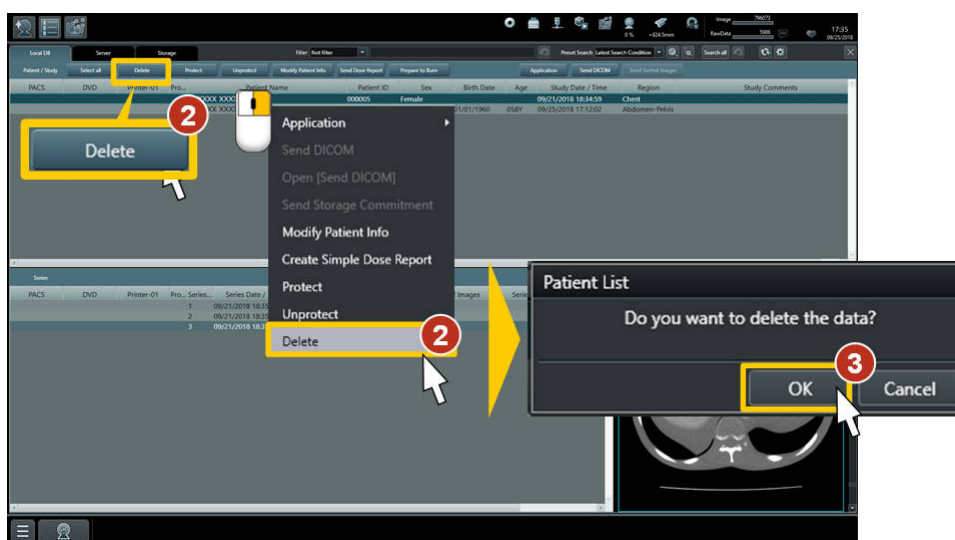
1. In the patient list, click the desired folder.

   💡 For details on how to select folders, see *10.1.1 Patient list* on page 82.

2. Click [Delete] button or right-click the folder and select [Delete].

   A confirmation dialog box appears.

3. Click [OK] button.

   The selected files are deleted.

10.2.2 Protecting files

1. In the patient list, click the desired folder.

> 💡 For details on how to select folders, see *10.1.1 Patient list* on page 82.

2. Click [Protect] button or right-click the folder and select [Protect].
   A protection mark is displayed in the Protect column of the list view to indicate that protection is enabled.
   After protection is set, the data can no longer be deleted.

10.2.3 Unprotecting files
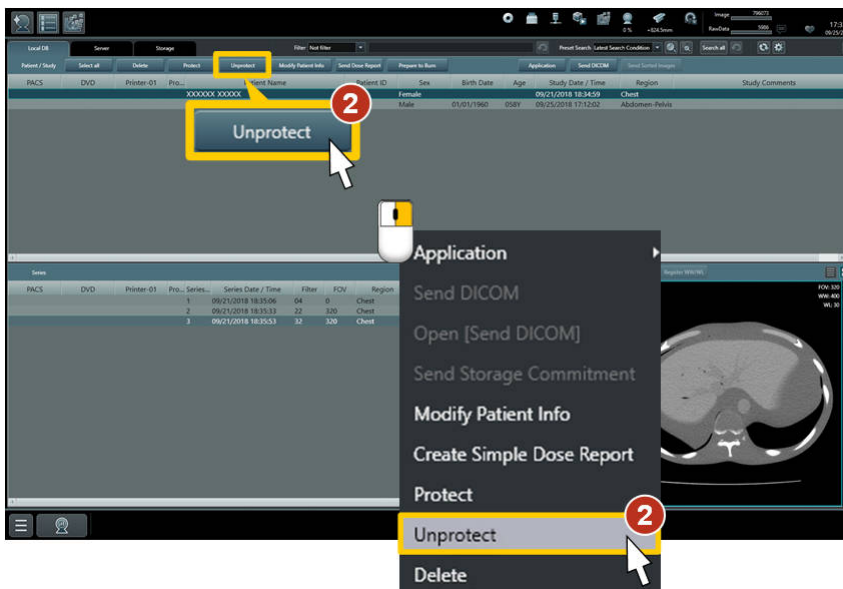
1. In the patient list, click the desired folder.

> 💡 For details on how to select folders, see *10.1.1 Patient list* on page 82.

A protection mark is displayed in the Protect column of the list view to indicate that protection is enabled.

2. Click [Unprotect] button or right-click the folder and select [Unprotect].
The protection mark is no longer displayed in the Protect column of the list view.

11

Image Analysis (Image Viewer B Type)

11.1 Image Viewer

This section describes how to start and close Analysis, and how to view images.

11.1.1 Starting the Analysis screen
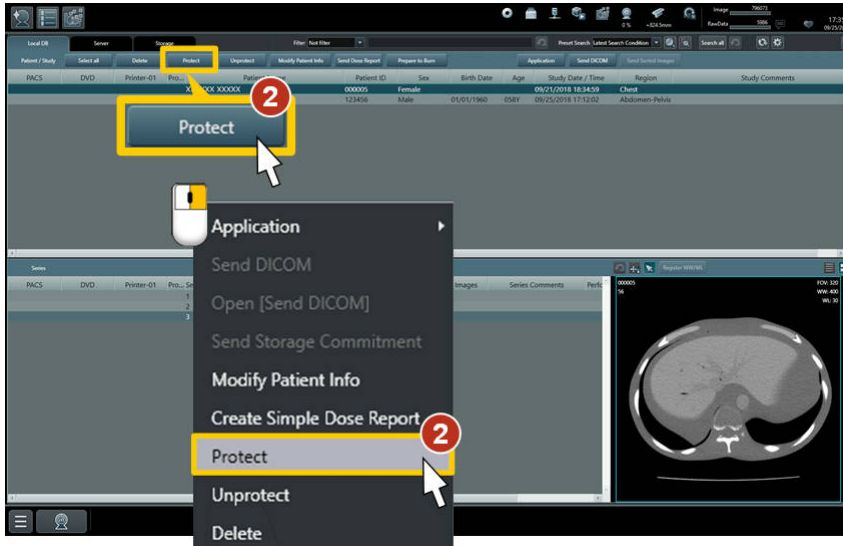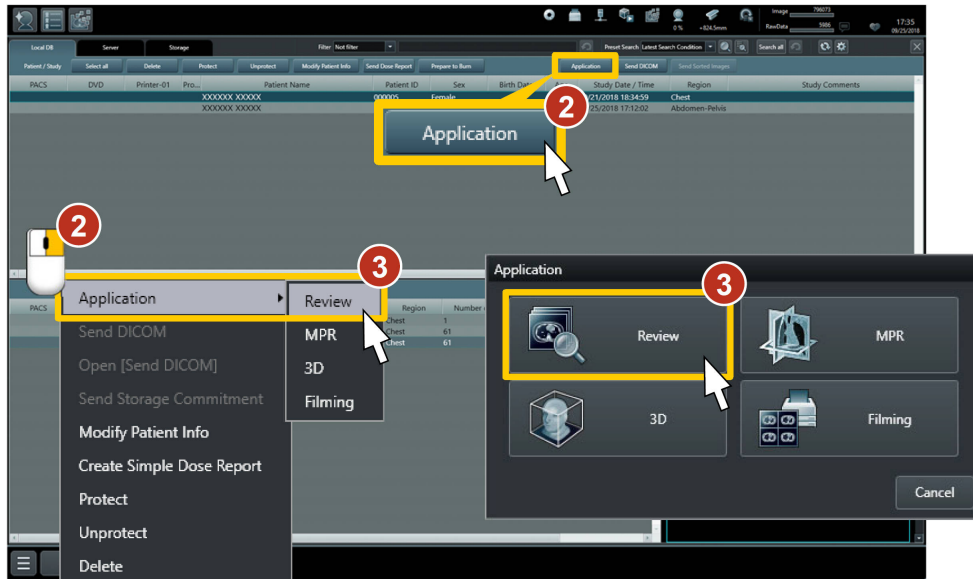

1. In the patient list, click the desired folder.

> For details on how to select folders, see *10.1.1 Patient list* on page 82.

2. Click [Application] button. Alternatively, right-click the folder and select [Application].

3. Select [Review] button.
   2D Viewer is displayed.

> You can also open the 2D Viewer screen by double-clicking it.

The operations after starting the 2D Viewer screen are shown below.

Image Analysis (Image Viewer B Type)

11.1.2 Viewing images
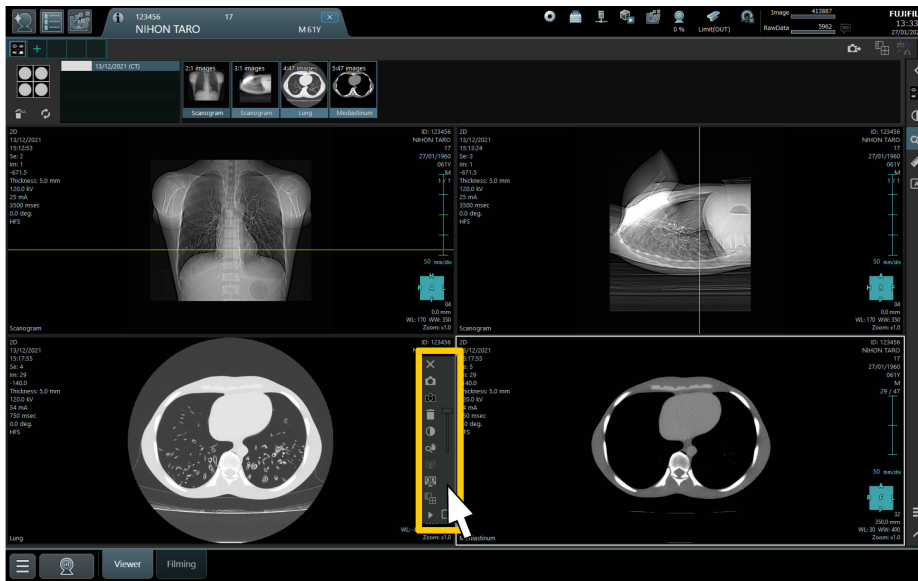
To view an image, either rotate the mouse wheel or drag the scroll bar on the shortcut bar.

11.1.3 Changing the series to be displayed
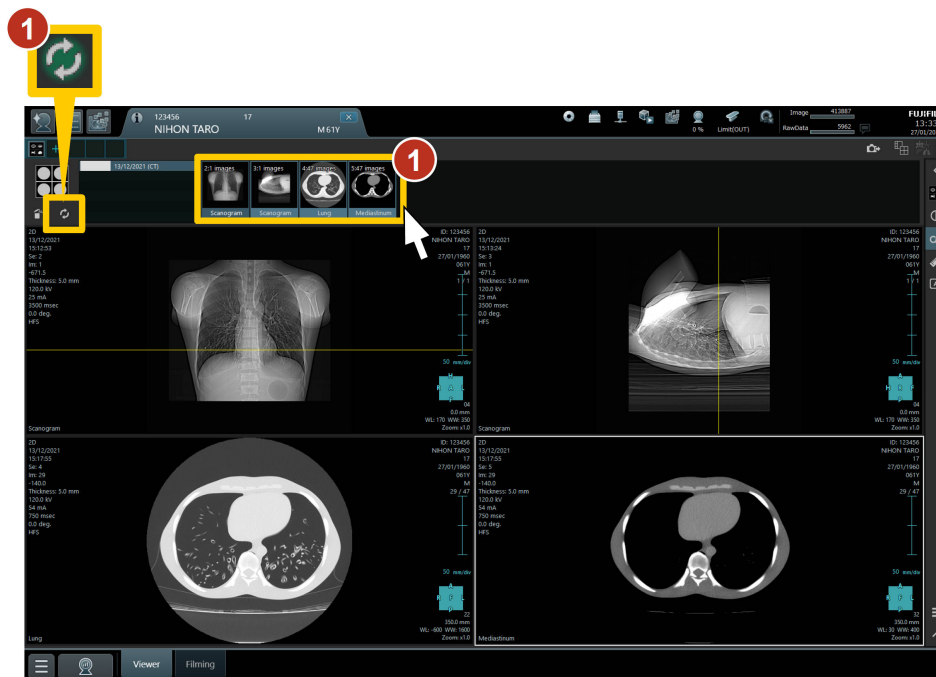
1.   Select the desired Series.

> 💡 If the desired image is not displayed, click [Refresh] button. If there is an updated image, [Refresh] button will light up in green.

2.   Drag and drop the thumbnail to the frame where you want it to display.

Image Analysis (Image Viewer B Type)

11.1.4 Adjusting window conditions
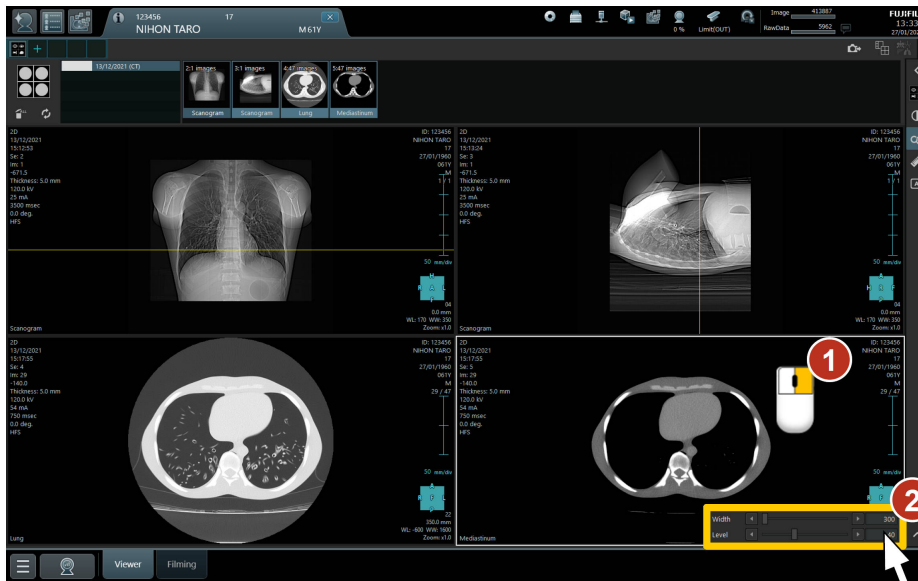
1. Drag the right mouse button up, down, left, or right on the image.

2. Alternatively, you can adjust it with the Window Width & Level tool that appears when you click on the WL/WW part in the lower right corner of the image.

> 💡 Adjustable by series.

11.1.5 Exiting the Analysis screen
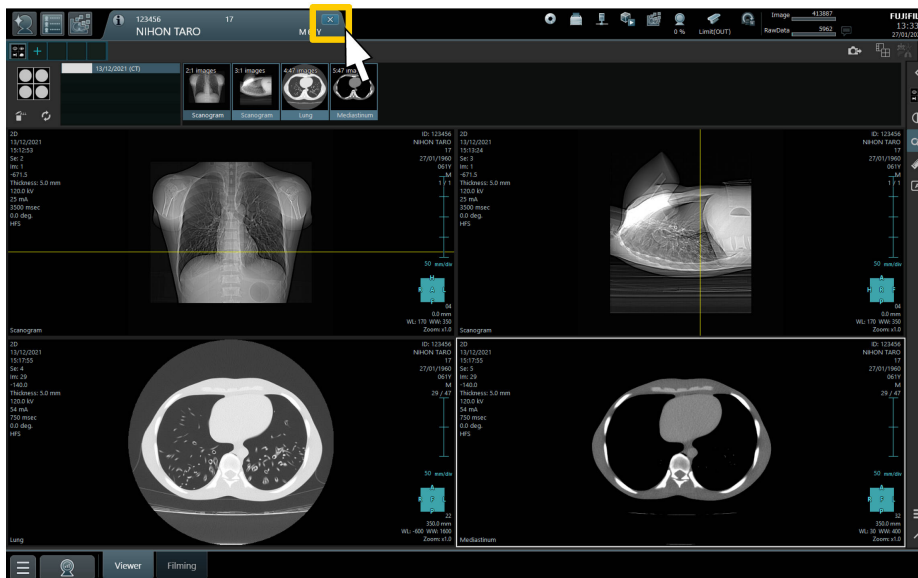
Click [X] button on the Study Tab.
[Viewer] tab is closed together with the Study Tab.

11.2 Layout settings

This section describes how to change the layout.
There are two types of layout settings: setting the number of frames in the screen and setting the number of images in a frame.

11.2.1 Changing the screen layout
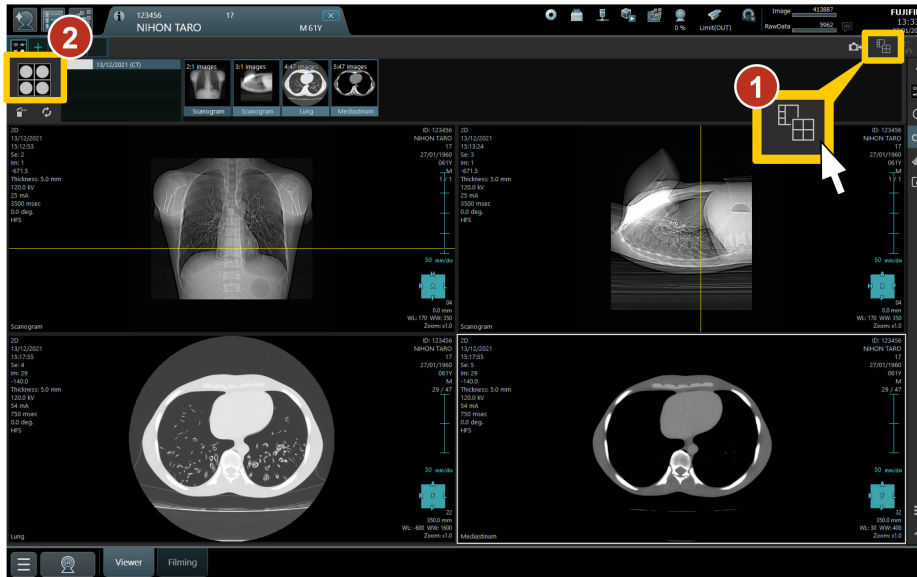
1. Click [Layout] button at the top right of the screen. Choose from four types of layouts: 2x2, 1x3, 1x2, and 1x1.

2. Alternatively, drag the left mouse button on [Layout] icon in the upper left corner of the screen to adjust.
   Set any layout from a maximum of 3x3 layouts.

Image Analysis (Image Viewer B Type)

11.2.2   Changing the layout within a frame
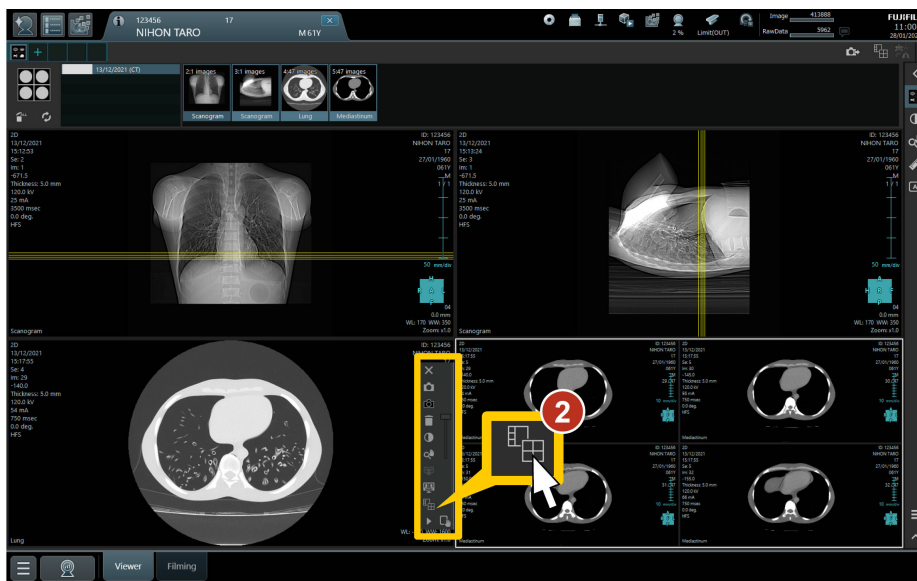
1.   Select the frame for which you want to change the layout.

2.   Drag the left mouse button on [Layout] button in the shortcut bar that appears next to the frame to adjust it.
     Set any layout from a maximum of 3x4 layouts.

11.3   Zoom/Pan

This section describes how to enlarge and shrink an image, and how to adjust the center position.
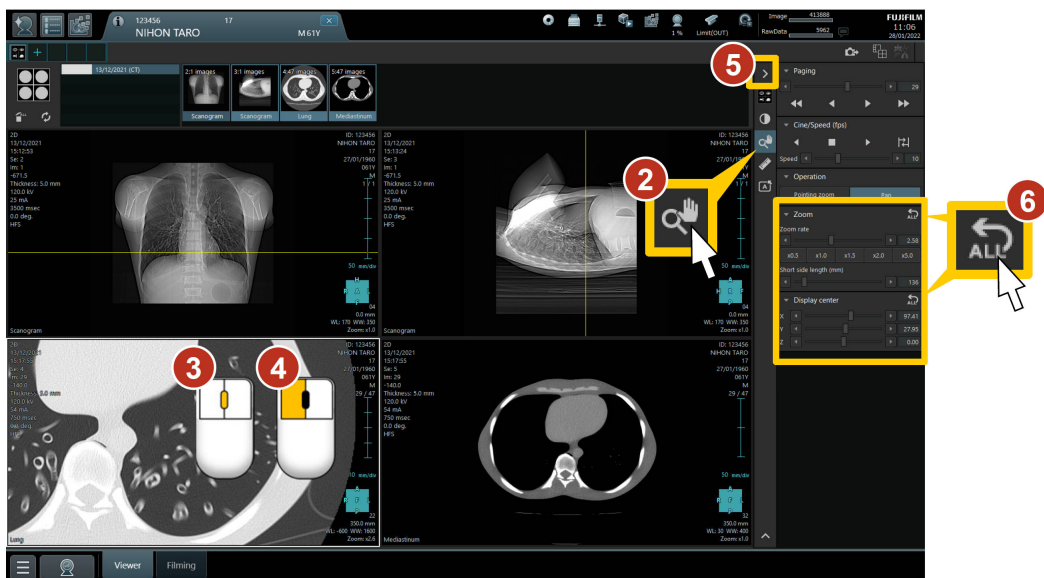
1.   Click the desired images on the Viewer.

2.   Click [Zoom and Pan] button.

3.   Rotate the mouse wheel on the image to zoom in or out.

Image Analysis (Image Viewer B Type)

4. Drag the mouse on the image to adjust the center position.

5. To return to the original state, click [<] button in the upper right corner of the screen to display the tool frame.

6. Click [Reset Zoom] button and [Reset Display Center] button.

11.4   Distance measurement/ROI measurements

This section describes how to measure distance and the ROI.
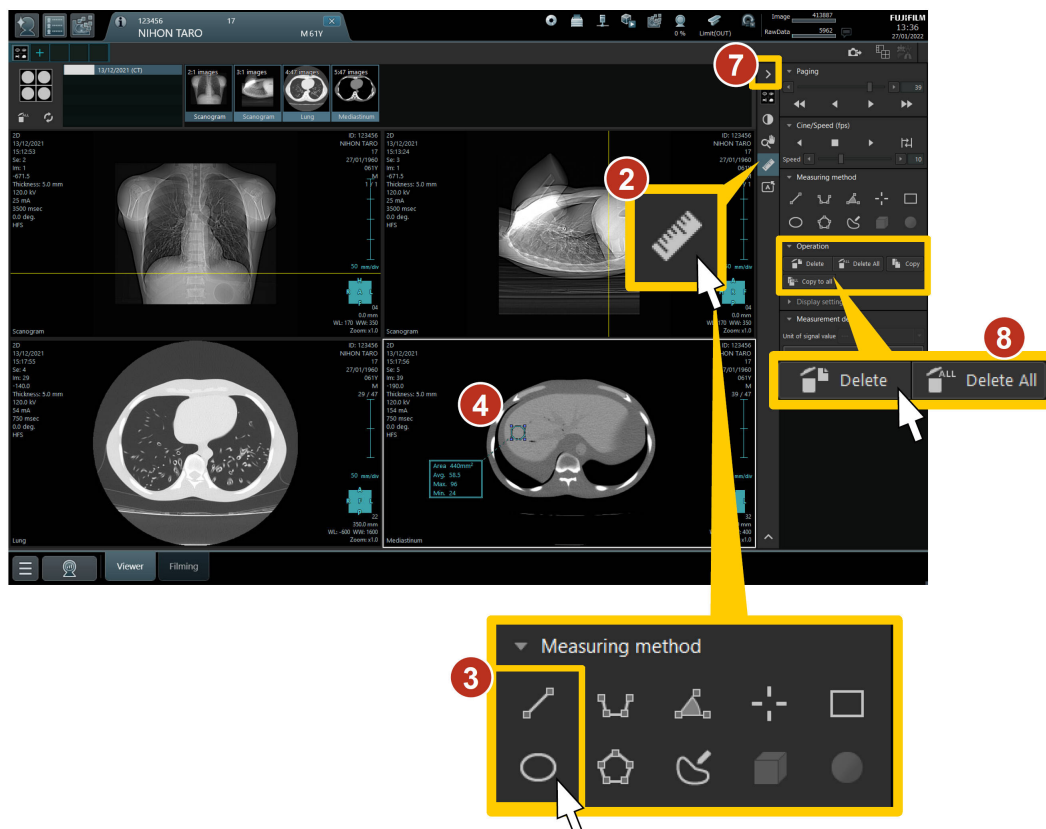
1. Click the desired images on the Viewer.

2. Click [Measurement] button.
    The Measurement Method dialog box will appear.

3. Click [Line measurement] icon or [Ellipse measurement] icon.

4. Draw a line/circle by dragging the mouse on the image where you want to measure.
    Correct the position and shape of the lines/circles if necessary.
    The measurement results will be displayed on the image.
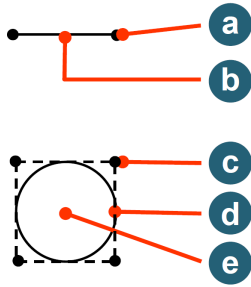
  a. Square handle: Changes the line length and angle

  b. On the line: Moves the line

  c. Handles at the four corners: Changes the size of the ROI

  d. Dotted line center: ROI rotation

  e. Inside the circle: Moves the ROI

5. The measurement results can also be dragged and moved.

> 💡 Example of measurement results
> Area 558mm^2: Area(mm^2)
> Avg. 58.9: Average CT value
> Max. 97: Maximum CT value
> Min. 24: Minimum CT value

6. If you want to measure multiple points, repeat steps 3 to 5.

7. If you want to delete the lines/ellipses, click [<] button in the upper right corner of the screen to display the tool frame.

8. Click [Delete] or [Delete All] button.

11.5 Saving images

This section describes how to save images. Images saved by using this method are saved in secondary-capture format and cannot be used for analysis processing.
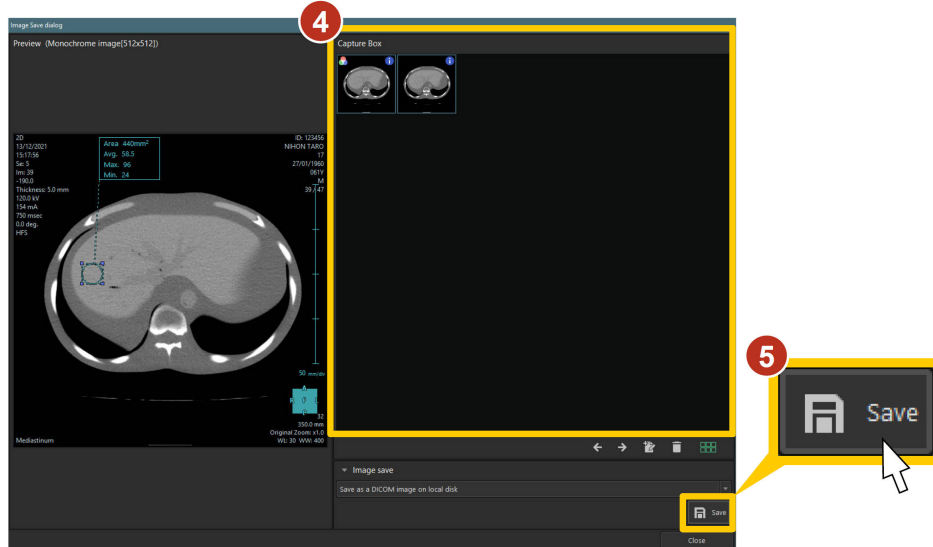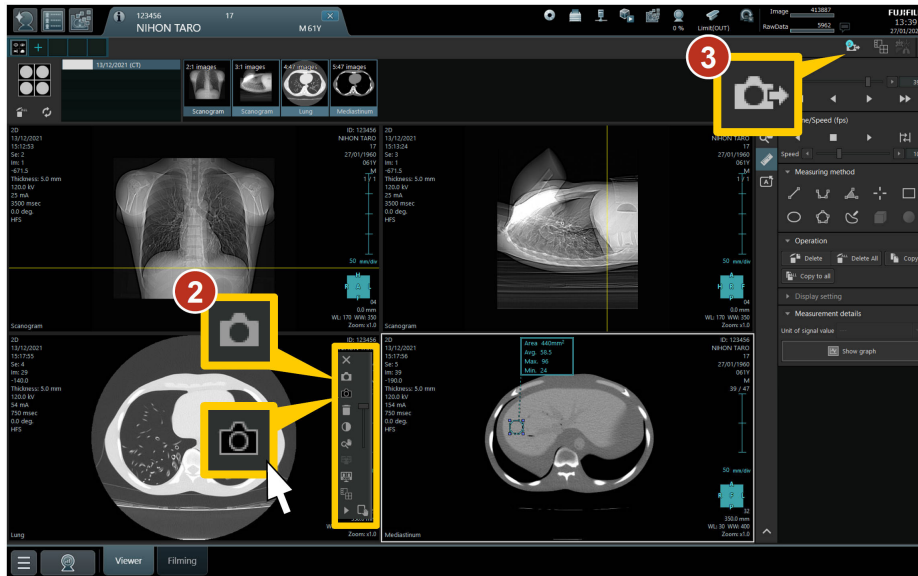
1. In the Analysis screen, click the desired images.

2. Click [Monochrome Capture] button or [Color Capture] button on the shortcut bar.

3. Click [Image save] button at the top right of the screen.
    The image save dialog is displayed.

4. Select the image you want to save from the Capture Box.

    When saving the measured image, check the preview image to make sure that the measured result is within the image.

5. Click [Save] button.
    A confirmation dialog is displayed.

6. Click [OK] button.

Image Analysis (Image Viewer B Type)

12

Image Analysis (Image Viewer A Type)

12.1 Image Viewer

This section describes how to start and close Analysis, and how to view images.

12.1.1 Starting the Analysis screen

1. In the patient list, click the desired folder.

> For details on how to select folders, see *10.1.1 Patient list* on page 82.

2. Click [Application] button. Alternatively, right-click the folder and select [Application].

3. Select [Analysis].
   The screen for the Analysis application is displayed.

> You can also open the Analysis screen by double-clicking it.

The operations after starting the Analysis screen are shown below.

12.1.2 Viewing images

To view an image, either rotate the mouse wheel or drag the scroll bar.

12.1.3 Changing the series to be displayed
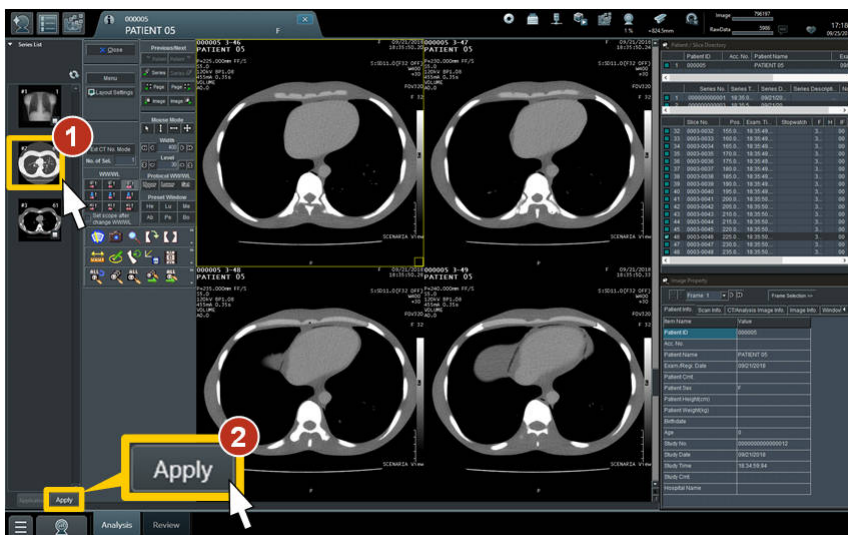
1. Select the desired Series.

2. Click [Apply] button.

> You can also open a series by dragging and dropping it.

Image Analysis (Image Viewer A Type)

12.1.4 Exiting the Analysis screen
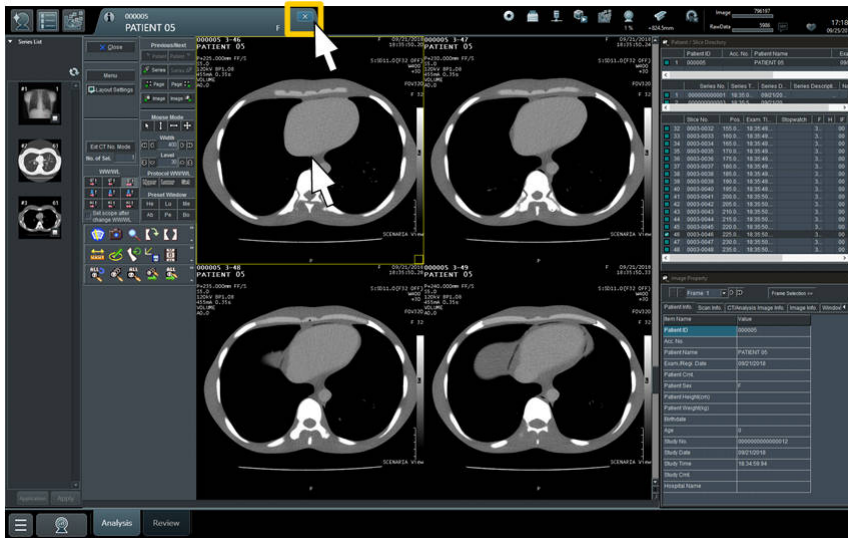
Click [X] button on the Study Tab.

[Analysis] tab is closed together with the Study Tab.

12.2 Adjusting window conditions

This section describes how to change the window conditions for images.
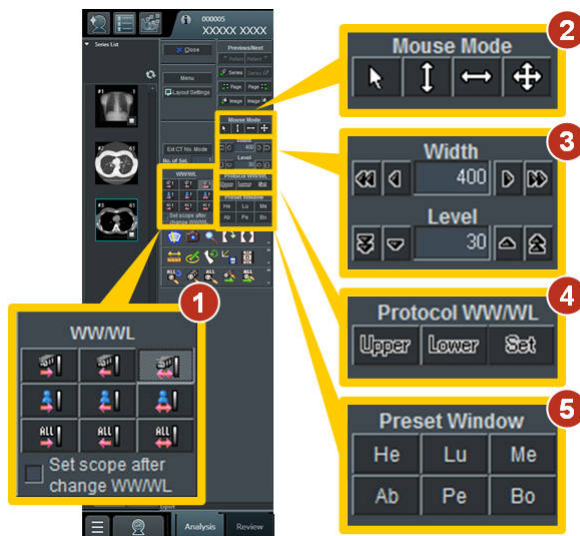
1. Select the range of images to which the change in window conditions will apply.

   ○ : Applies the changes to all images following the changed image.

   ○ : Applies the changes to all images in the same series.

2. To change WW/WL, drag the mouse on the frame showing an image.
   You can change the value of Level by dragging up and down, and change the value of Width by dragging left and right.

Image Analysis (Image Viewer A Type)

- ○ : Mouse Mode - OFF

- ○ : Mouse Mode - Level

- ○ : Mouse Mode - Width

- ○ : Mouse Mode - Level/Width

3. Use this area to make adjustments by using the buttons or by entering numeric values.

4. The values of the selected scan settings are applied to the image.

   - ○ Upper
     The image is displayed based on the Window1 scan settings (the initial window conditions used when Image Viewer starts).

   - ○ Lower
     The image is displayed based on the Window2 scan settings

   - ○ Set
     Width and Level specified by [Set Window Settings] function

5. The Width and Level specified by the Preset Window Setting function are applied to the image.

> 💡 To change the specified window conditions, from the menu bar, select [Width/Level] > [Preset Window Settings], and then change the settings.

12.3   Selecting images

This section describes how to set the image analysis scope.
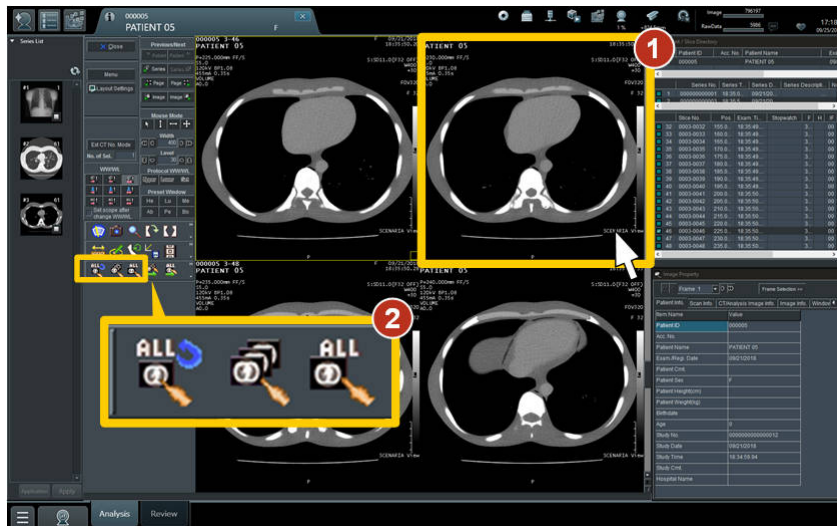
1. Click an image to select it.
   The selected image is surrounded by a yellow box.

2. Click one of [Selection Type] buttons. Consecutive images are selected.

Image Analysis (Image Viewer A Type)

○ : Selects all images in the same series as the selected image.

○ : Selects all images.

○ : Cancels the selection of all selected images.

12.4   Layout settings

Use this item to set how to display and the order of the images in the Image area, along with how to show or hide the image IDs.
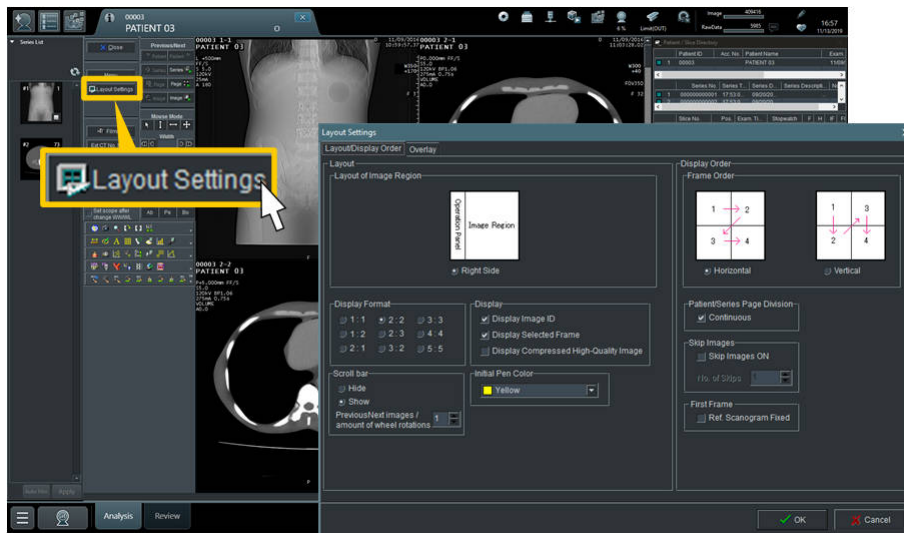
- [Layout/Display Order] tab

  ○ Display Format

  ○ Scrollbar

  ○ Display
    Display Image ID
    Display Selected Frame
    Display Compressed High-Quality Image

  ○ Initial Pen Color

  ○ Frame Order

  ○ Patient/Series Page Division

  ○ Skip Images

  ○ First Frame

- [Overlay] tab

  ○ Display Items
    Image ID
    Window Width/ Level
    50 mm Scale

Image Analysis (Image Viewer A Type)

Grayscale

◦ Display Image ID Information

12.5 Image Viewer start modes

The start mode of Image Viewer includes the Standard Mode and Ext CT No. Mode, and the extended CT number images can be displayed only in the Ext CT No. Mode. When Image Viewer is started with only the standard images selected, Image Viewer starts in the Standard Mode.
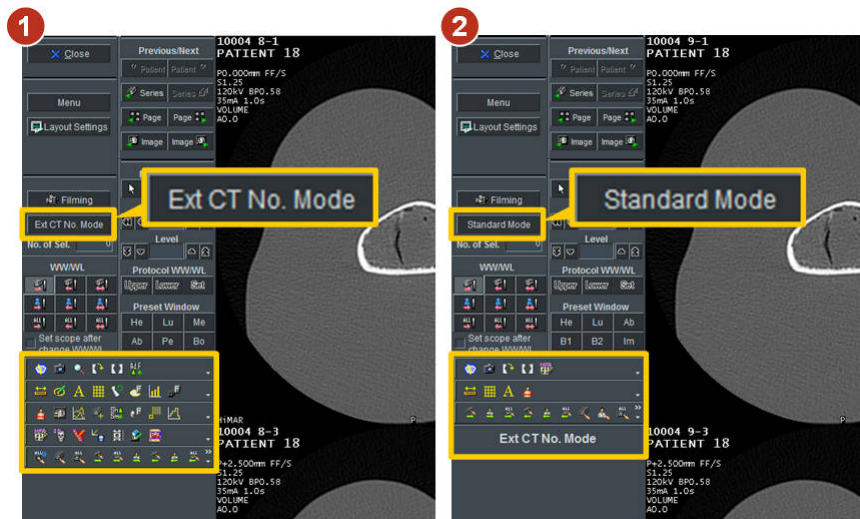
1. Standard Mode
   This mode displays standard images (12-bit and 13-bit).
   All analysis processing can be performed.

2. Ext CT No. Mode
   This mode displays both standard images and extended CT number images.
   Available analysis processing is restricted, but images can be displayed with the window width extended.

If you click [Standard Mode] button while the Ext CT No. Mode is active, the system transits to the Standard Mode, but the extended CT number images are automatically closed.

12.6 Image magnification and panning

This section describes how to enlarge and shrink an image, and how to adjust the center position.
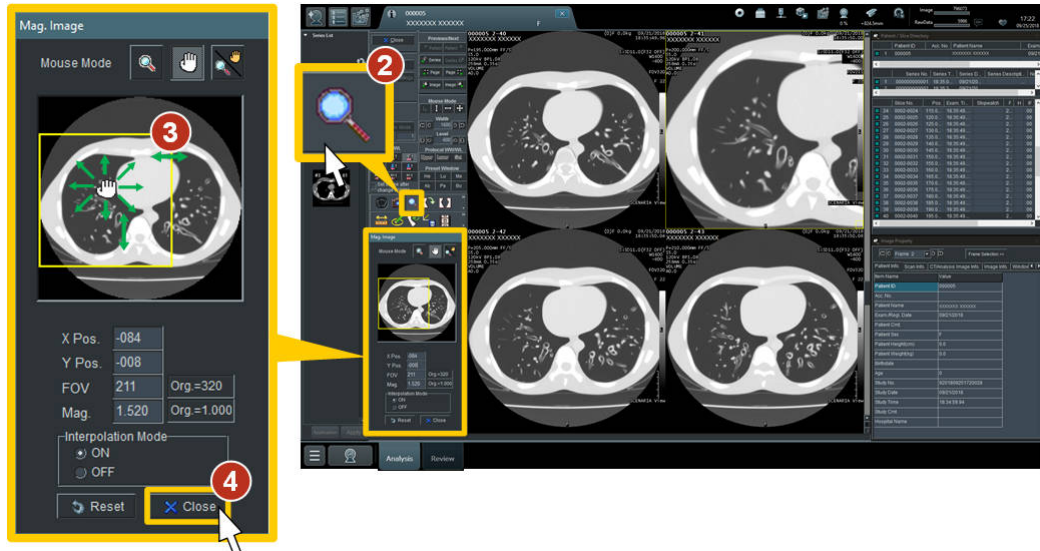
* The icon layout varies depending on the facility.

1. Click the desired images on the Analysis screen.

> 💡 For details on how to start the Analysis screen, see *12.1.1 Starting the Analysis screen* on page 100.
>
> For details on how to select an image, see *12.3 Selecting images* on page 103.

2. Click [Mag. image] button.
   The image magnification dialog box appears.

3. Drag the mouse on the yellow border box to change the size of the image.
   Drag the mouse inside the yellow box to adjust the center position.
   You can change the image size and adjust the center position.
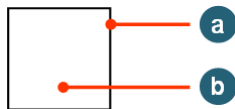
a. On the border box: Change the size of the image.

b. Inside the box: Adjust the center position of the image.

By changing the mouse mode, you can change the size of the image in the frame in the image region and adjust the center position of the image.

- Mag.

  Drag upward to reduce the image and drag downward to magnify the image.

- Move

  The image moves in the direction you drag.

- Compound mode

  In compound mode, you can magnify and move images on a frame without changing modes.

Image Analysis (Image Viewer A Type)

4. Click [Close] button.

This exits the magnification dialog box.

12.7 ROI measurement

This section describes how to measure the ROI.
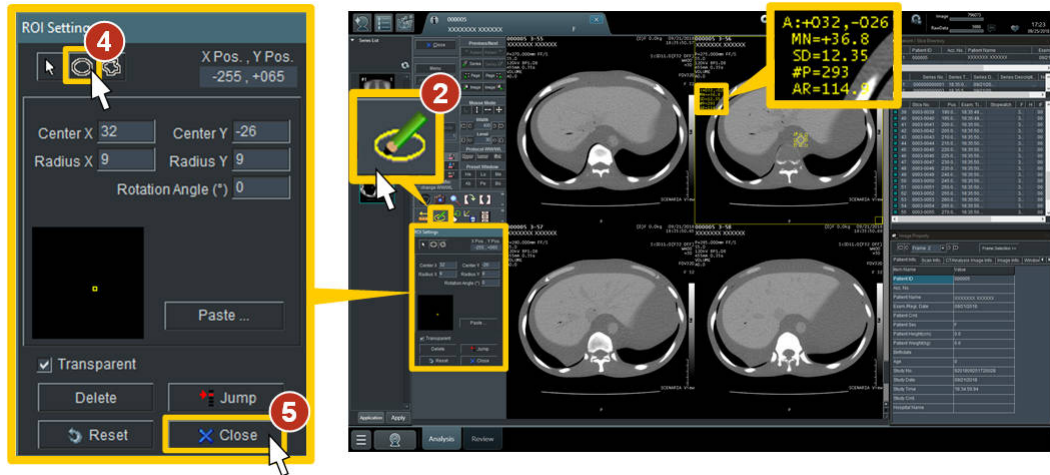
* The icon layout varies depending on the facility.

1. Click the desired images on the Analysis screen.

> For details on how to start the Analysis screen, see *12.1.1 Starting the Analysis screen* on page 100.
>
> For details on how to select an image, see *12.3 Selecting images* on page 103.

2. Click [ROI Settings] button.

The ROI Settings dialog box appears.

3. Drag the mouse and create a circle at the position in the image you want to measure. If necessary, correct the circle position and shape.

The measurement results are shown to the left side of the image.

You can correct the ROI by dragging each part.
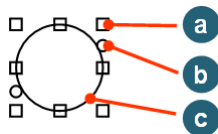
a. Square handle: Changes the ROI size

b. Round handle: Rotates the ROI

c. On circle line: Moves the ROI

> 💡 Example of measurement results
> A:+032,-026: Coordinates of ROI center
> MN=+36.8: Average CT value
> SD=12.35: Standard deviation
> #P=293: Number of pixels
> AR=114.9: Area (mm^2)

4. To measure multiple ROIs, click [Ellipse] button and draw a circle in the same way as above.

> 💡 You can measure the ROI and distance at a maximum of 4 locations.
> If you measure a 5th item, the 1st item is deleted.

5. Click [Close] button.
   This exits the ROI Settings dialog box.

12.8 Distance measurement

This section describes how to measure distance.
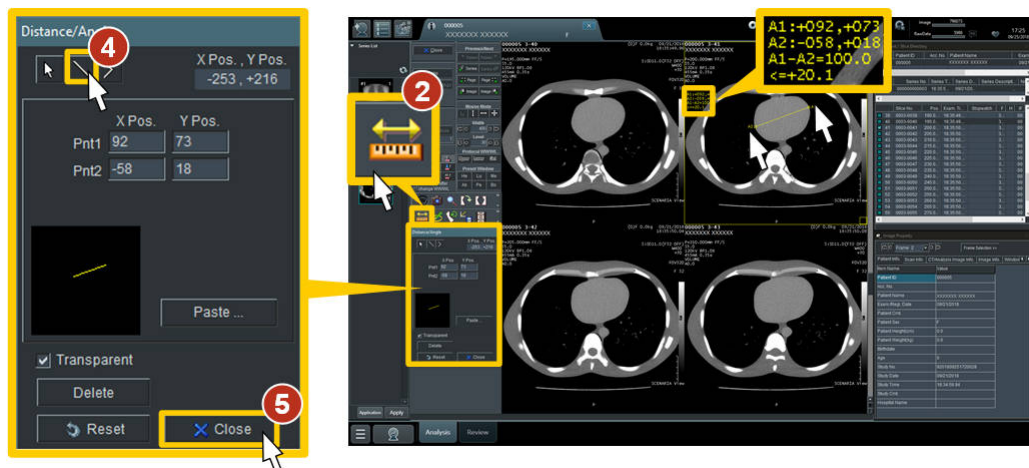
* The icon layout varies depending on the facility.

1. Click the desired images on the Analysis screen.

> 💡 For details on how to start the Analysis screen, see *12.1.1 Starting the Analysis screen* on page 100.
> For details on how to select an image, see *12.3 Selecting images* on page 103.

2. Click [Measured Distance/Angle] button.
   The Distance/Angle dialog box appears.

3. Drag the mouse to draw a line at the location you want to measure in the image.
   If necessary, correct the line position.
   The measurement results are shown to the left side of the image.
   You can correct the line by dragging each part.

Image Analysis (Image Viewer A Type)
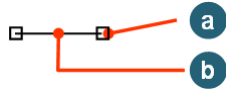
a. Square handle: Changes the line length and angle

b. On the line: Moves the line

💡 Example of measurement results
A1:+092,+073: Line coordinates 1
A2:-058,+018: Line coordinates 2
A1-A2=100.0: Distance between 2 points (mm)
<=+20.1: Angle from horizontal axis (°)

---

4. To measure distances at multiple locations, click [Between 2points] button and draw a line in the same way as above.

💡 You can measure the ROI and distance at a maximum of 4 locations.
If you measure a 5th item, the 1st item is deleted.

---

5. Click [Close] button.
This exits the Distance/Angle dialog box.

12.9   Real Time MPR

Use the images in the specified series to display the following section images along vertical, horizontal, oblique, and curved lines in real time.
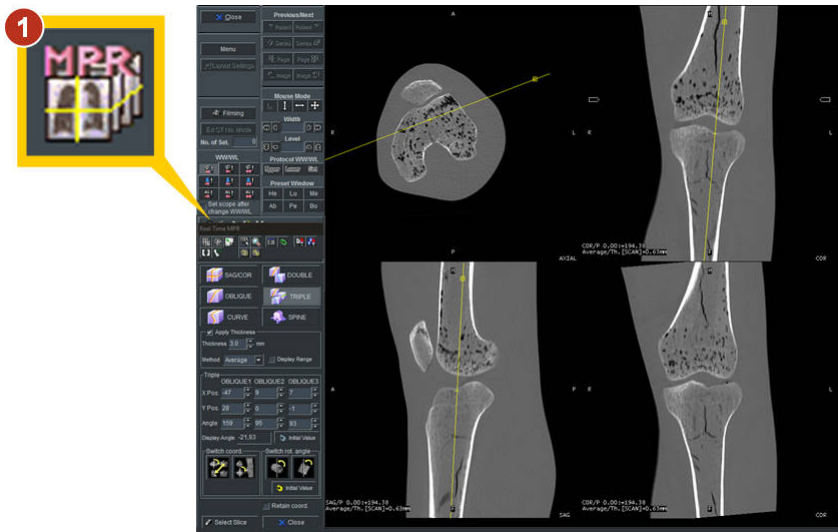
1. You can create an MPR image by clicking [Real Time MPR] icon in Image Viewer.

2. Adjust the lines on the Axial, Coronal and Sagittal images to display the desired cross sections.

12.10   3D Display

This function reconstructs 3D (three dimensional) images using Axial images obtained by scanning.
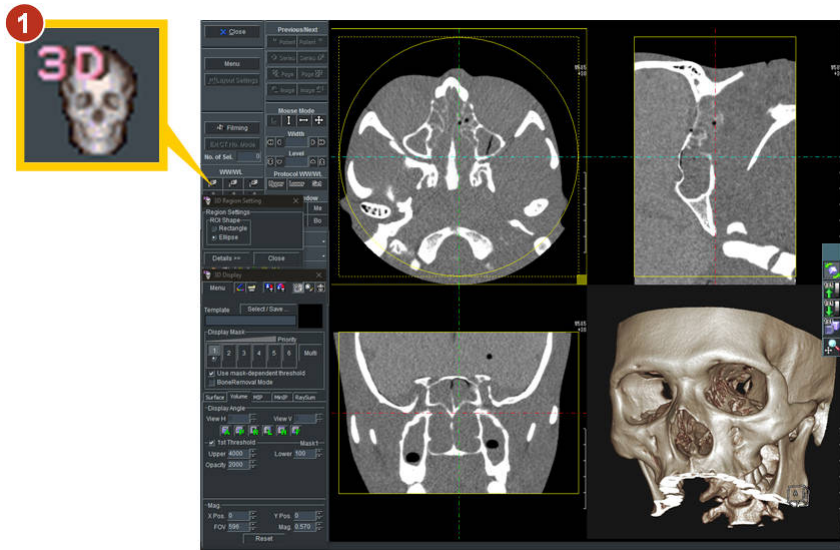
1. You can create a 3D image by clicking [3D Display] icon in Image Viewer.

2. Drag the mouse over the 3D image in the lower right corner of the screen to adjust the angle.

12.11   Rotation

You can correct the orientation of an image that was scanned while the patient was in an incorrect position.

1. Click [Rotation] button. Alternatively, in the menu bar, click [Analyze] and then [Rotation].

2. The image can be processed via the following functions:

Image Analysis (Image Viewer A Type)

- ◦ Rotate (by 90 degrees or by any arbitrary angle)

- ◦ Flip

- ◦ Zoom in or out

- ◦ Correct image position

12.12 Cine Display

You can use this function to cycle though multiple images so as to show them like a movie.
You can also create interpolative images for the Cine Display function or modify the interval
between switching images.

1. Click [Cine Display] button. Alternatively, in the menu bar, click [Analyze] and then [Cine
    Display].

2. Every series is allocated to a frame.
    Click the image in the first series. Then, while holding down [Ctrl] or [Shift] key, click the
    second or later series. The Multiple Frame Selection dialog appears.
    You can also select multiple frames to show multiple series simultaneously via Cine
    Display.

3. Click [OK] button.

12.13 Level Detection

You can use this function to add a desired color to any zone that falls in or deviates from a
specified range of CT values. For an image with ROIs, you can perform level detection for
those ROIs.

Image Analysis (Image Viewer A Type)

1. Click [Level Detection] button. Alternatively, in the menu bar, click [Analyze] and then [Level Detection].

2. Specify the range of CT values in which the level detection is executed.

12.14   Histogram

You can use this function to display the number of pixels for a CT value as a histogram. Not only a whole image, but also a ROI can be processed for a histogram if the ROI has been set.
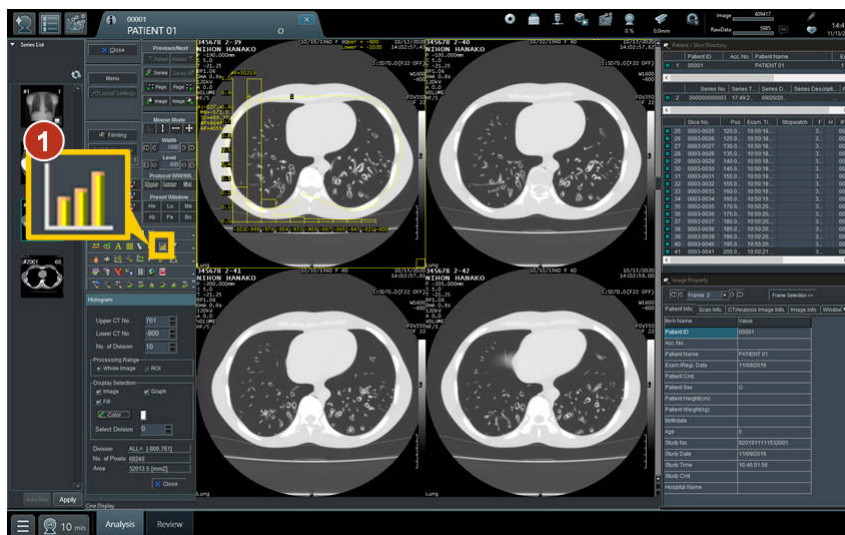
1. Click [Histogram] button. Alternatively, in the menu bar, click [Analyze] and then [Histogram].

2. Specify the upper and lower limits of the CT for making a histogram.

Image Analysis (Image Viewer A Type)

12.15   Image Calculation

For image calculations, the series addition and series subtraction functions are available.

1.   Click [Image Calculation] button. Alternatively, in the menu bar, click [Analyze] and then [Image Calculation].

2.   Select [Calculation Type].

    ◦   Series Addition
        Use this function to create and display an additional image that combines two images (the original and calculated images).

    ◦   Series Subtraction
        Use this function to create and display a subtracted image between two images (the original and calculated images).

3.   Select the series you want to add by using [Series] button.

12.16   Image Filter

The filter sharpens or smoothens the image to be displayed.

1. Click [Filter] button. Alternatively, in the menu bar, click [Analyze] and then [Filter].

2. You can specify the degree of sharpening and smoothing by setting a value between 1 and 5. If you set this to 0, the filter is reset.

12.17 Non-linear Window

Normally, images are displayed with CT values in the range set with Width and Level corresponding to the 256-level grayscale. In general, the 256-level grayscale varies from black (0) to white (255) linearly (in a straight line). For nonlinear windows, the 256-level grayscale varies from black (0) to white (255) nonlinearly (not in a straight line) for images to be displayed. Also, you can set a nonlinear shape that is a variation of the grayscale.
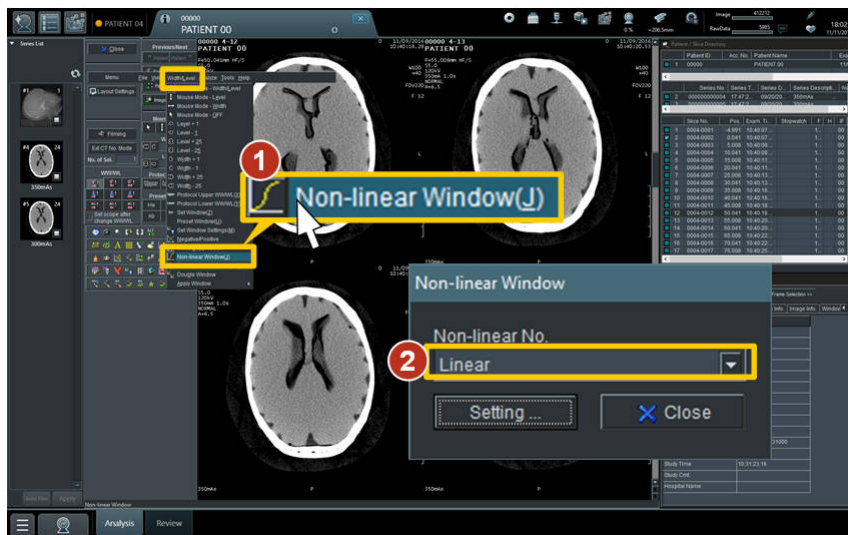
1. Click [Menu] button, and then select [Width/Level] and then [Non-linear Window].

2. Select [Non-linear No.]
   Select a non-linear shape to display an image according to the non-linear variation in the grayscale.

Image Analysis (Image Viewer A Type)

12.18 Calculation Volume and Volume Ratio

You can use these functions to draw a ROI, and then calculate and display the volume based on the area of the ROI and pitch. Also, you can use these functions to calculate and display the ratio of the volume to the volume of another ROI.

1. Click [Calculation Volume/Volume Ratio] button. Alternatively, in the menu bar, click [Analyze] and then [Calculation Volume/Volume Ratio].

2. Click or drag the mouse to set a ROI on the frame.
   Click to set a straight line connecting the clicked points.

3. Click [Set] button to confirm the ROI (making the ROI a closed area). You can also confirm the ROI by double-clicking.
   When the ROI is confirmed, the serial number and volume ID are displayed.

12.19 Double Window

Use this function to set two values each for Width and Level (upper and lower windows) for displaying images. For example, you can use these settings to simultaneously observe both lungs (which have low CT values) and muscles (which have high CT values), as seen in the image of the chest.

Image Analysis (Image Viewer A Type)
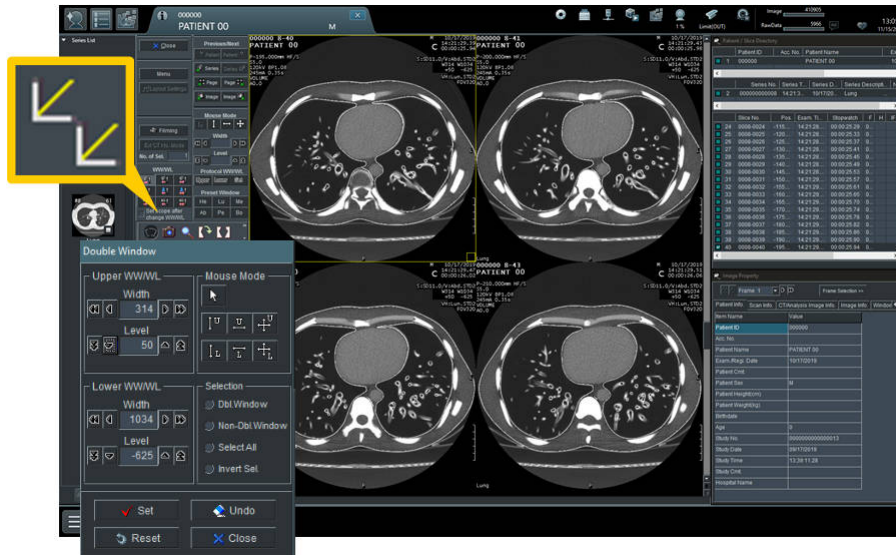
Click [Double Window] button. Alternatively, from Menu, select Width/Level and then [Double Window].

The right side of the image shows the applied Widths and Levels of both upper and lower windows. (The values to the left are for the upper window, and the values to the right are for the lower window.)

12.20 Adaptive Filter

The Adaptive Filter function suppresses deterioration in resolution while reducing noise. Image quality generally deteriorates when low-level radiography is performed. However, using the Adaptive Filter for images made with low-level radiography can improve image quality without any deterioration in resolution; therefore, you can use the Adaptive Filter to reduce the level of exposure.
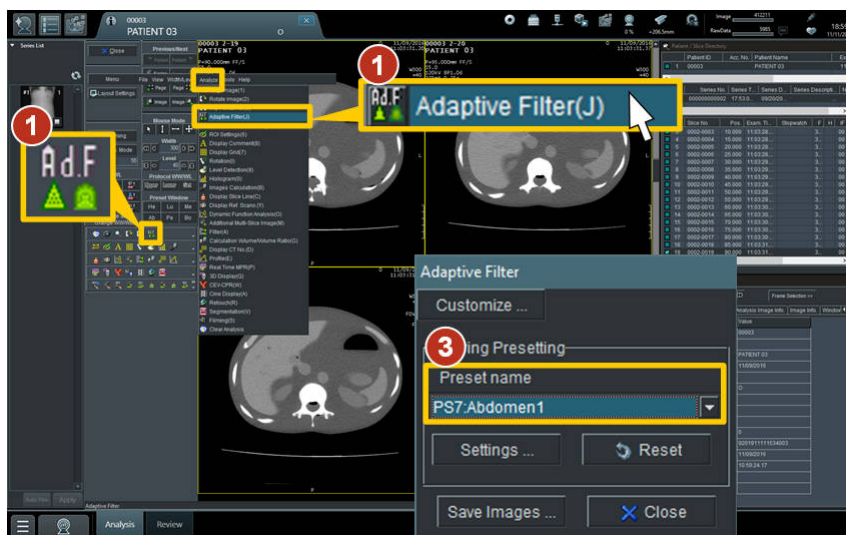
1. Click [Adaptive Filter] button. Alternatively, in the menu bar, click [Analyze] and then [Adaptive Filter].

2. Select the target image items.

Image Analysis (Image Viewer A Type)

3. Select a preset to display an image according to the smoothness level and the sharpness level.

12.21   Retouch

You can use this function to manually convert the CT values for images. With this function, you can select any of three CT conversion modes:
Regular Mode, in which the CT values targeted for conversion are limited by upper threshold values and lower threshold values; Bone Mode, in which only bone areas are removed; and Eraser Mode, in which minute areas on the image are deleted as if erased by an eraser.

Figure 12-1 Example of Eraser Mode

1. Click [Retouch] button. Alternatively, in the menu bar, click [Analyze] and then [Retouch].

2. Select the conversion mode, set the area to be converted and the CT values, and then execute the process.

12.22   Segmentation

Segmentation uses multiple images to extract continuous areas in three dimensions based on the specified coordinate points, the upper CT value, the lower CT value, and the extended threshold, and converts the CT values of the extracted areas or other areas.
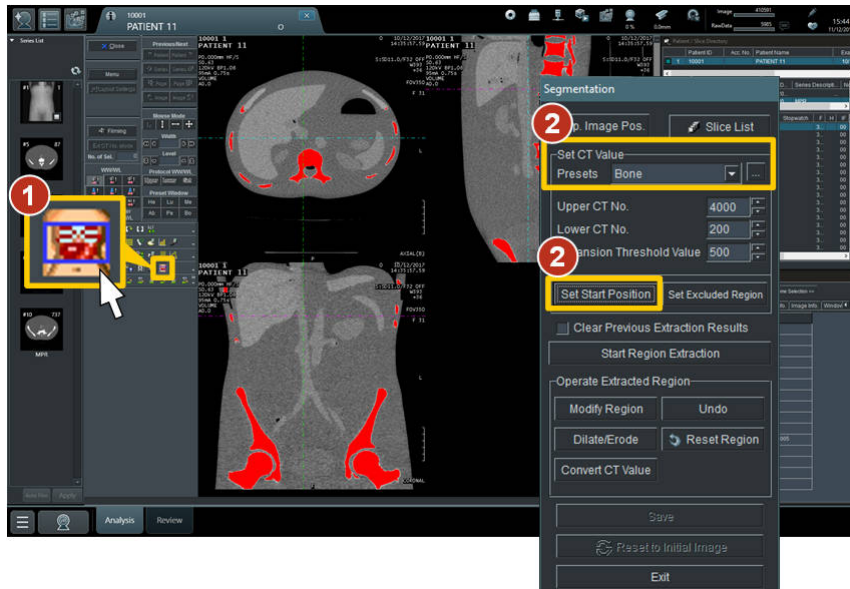
1. Click [Segmentation] button. Alternatively, in the menu bar, click [Analyze] and then [Segmentation].

2. Select the preset in [Set CT Value], and then set the start position with [Set start position].

3. Click [Start Extraction].

You can also use segmentation to create images for 3D Display by extracting or excluding specific parts (for example, bone).

12.23 CEV-CPR

CEV-CPR (CEV: CRUISING EYE VIEW, CPR: Curved Planar Reconstruction) creates CEV images, which are 3D images of the lumen, such as the inside of bronchial tubes or contrast-enhanced blood vessels, as if you were examining them through an endoscope.
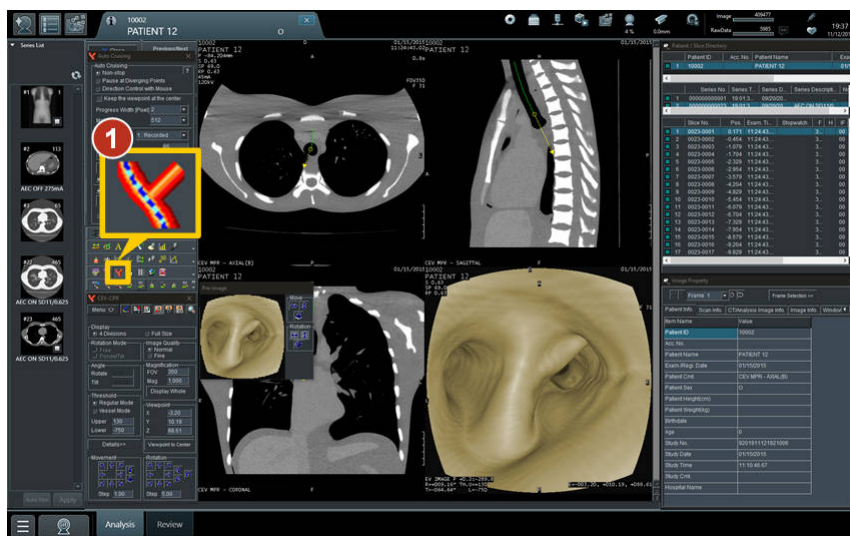
1. Click [CEV-CPR] button.

2. Using the mouse, drag the CEV image on the Pre-image dialog box to adjust the angle.

Image Analysis (Image Viewer A Type)

3. When creating a CPR image, record the route and then click [CPR] button.

12.24　Dynamic Function Analysis

The Dynamic Function Analysis function displays the mean CT value over time in a ROI or a newly specified region, in the form of graphs and lists. The graphs and lists generated by this function allow the operator to see changes in the contrast medium over time.
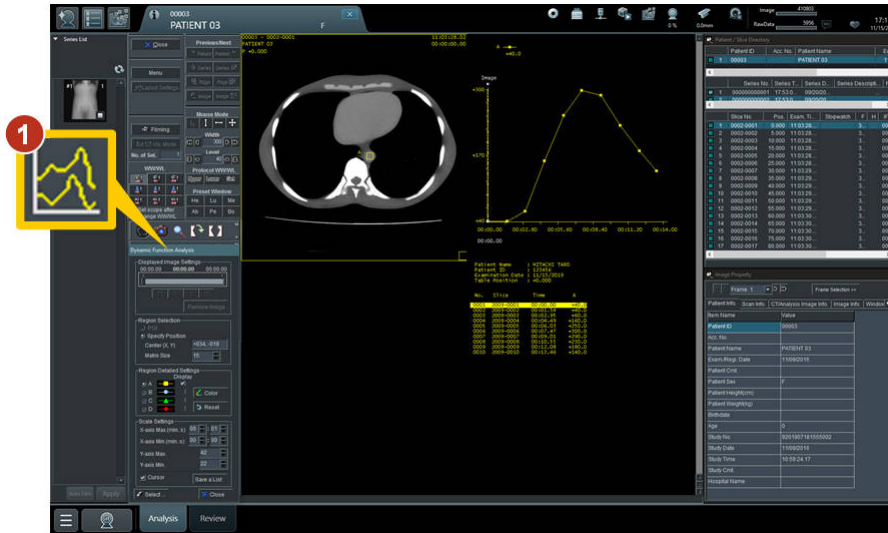
1. In the Examination window, click [Test Injection] button. Alternatively, click [Dynamic Function Analysis] button in [Analysis] navigation tab.

2. When the ROI is set on the image, the time density curve is displayed.

12.25　Additional Multi-Slice Image

You can use the Additional Multi-Slice Image function to add multiple images measured with a thin slice thickness, and create and display images with a thick slice thickness.
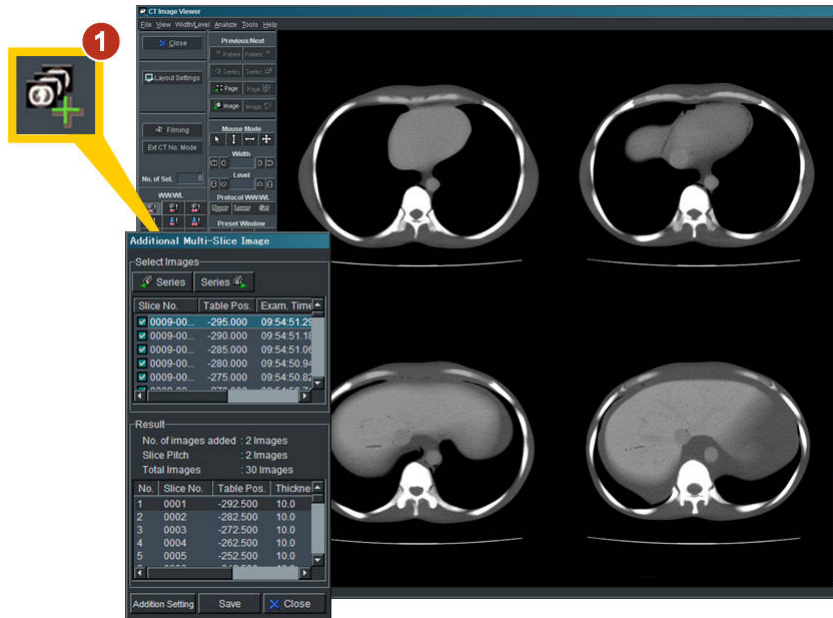
1. Click [Additional Multi-Slice Image] button. Alternatively, in the menu bar, click [Analyze] and then [Additional Multi-Slice Image].

2. In [Addition Setting], set the number of added images or slice thickness.

12.26 Saving images

This section describes how to save images. Images saved using this method are saved in secondary-capture format and cannot be used for analysis processing.

Image Analysis (Image Viewer A Type)
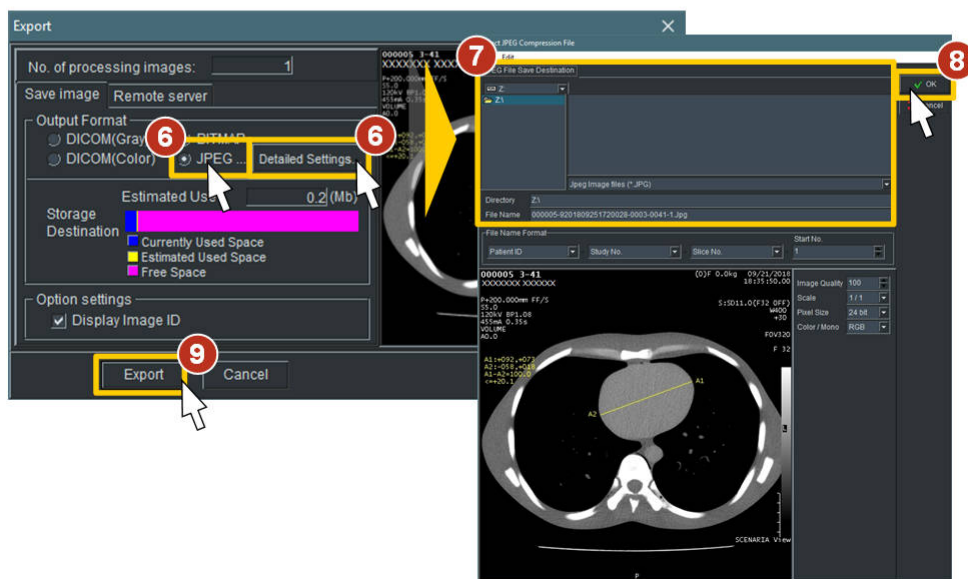
1. In the Analysis screen, click the desired images.

> 💡 For details on how to start analysis, see *12.1.1 Starting the Analysis screen* on page 100.
> For details on how to select an image, see *12.3 Selecting images* on page 103.

2. Click [Export] button.
   The Export dialog box appears.

3. Switch to [Save image] tab.

4. Select the image format in the Output Format area.
   To save the image to the hard disk in DICOM (grayscale), or DICOM (color), go to step 5. To save the image to storage media in JPEG format, go to step 6.

5. In the Export dialog box, click [Export] button.
   The image is saved in the selected format.

6. If you selected JPEG for the output format, click [Detailed Settings] button.

Image Analysis (Image Viewer A Type)

The JPEG Compression File dialog box appears.

7. Set the parameters for the JPEG images to be exported.
    Ensure that the save destination, JPEG file name format, image quality, and scale are
    set appropriately.

8. Click [OK] button.

9. In the Export dialog box, click [Export] button.
    The image is saved to the selected storage destination in JPEG format.

> To perform operations by using the CT device, use storage media
> previously formatted using [Media Formatter].

13

Sending Data

13.1 DICOM transfer

13.1   DICOM transfer

This section describes how to transfer images to the DICOM transfer destination.
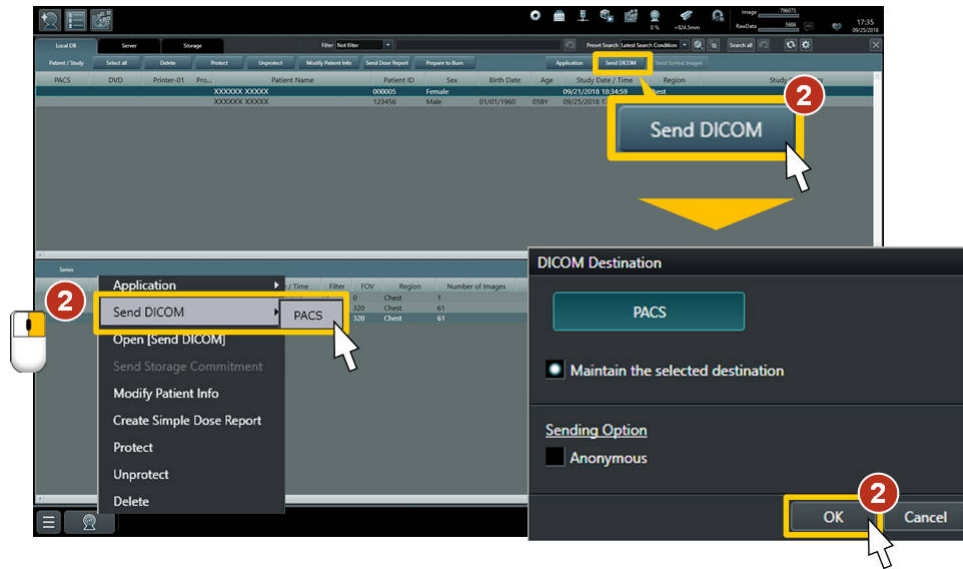
1.   In the patient list, click the desired folder.

> 💡 For details on how to select folders, see *10.1.1 Patient list* on page 82.

2.   Click [Send DICOM] button. Select the transmission destination, and then click [OK] button.
Alternatively, right-click the relevant folder, click [Send DICOM], and then select the transmission destination.
Data is sent in the background. The transmission progress is shown in the "DICOM transmission status" area at the top of the screen.

Sending Data

14

Filming

14.1 Filming

14.1 Filming

This section describes how to create a film.
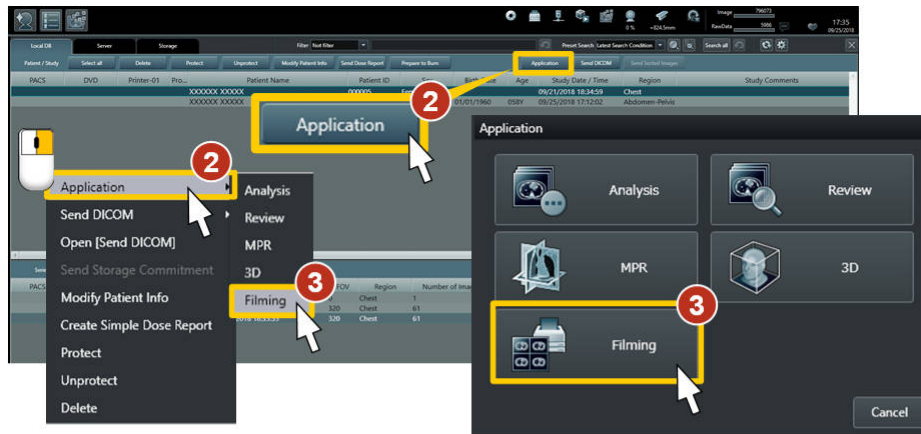
1. In the patient list, click the desired folder.

> 💡 Select only one patient.

2. Click [Application] button. Alternatively, right-click the folder and select [Application].

3. Click [Filming].
   The Snap Shot window appears.

4. To change the film frame layout, click [Layout] button and select the desired layout.

5. Click [All] (add all images) button.
   The images are added to the Snap Shot window.

> 💡 After adding the images, click A [Change sheet] button and check the film. If any unnecessary images have been added, click B [Del. Sheet] or C [Del. Frame] button to delete the images.
> To cancel filming, close the window by clicking [x] button at the top right of the Snap Shot window.

6. Click [Filming] button.
   The filming confirmation window appears.

7. Click [OK] button.
   Data is sent to the imager, and after some time the film is ejected.

   The film transmission progress is shown in the "Filming Status" area at the top of the screen.

Filming

15

Writing Data to Media

15.1 Writing to a CD or DVD

15.1 Writing to a CD or DVD

This section describes how to save image data to storage media.
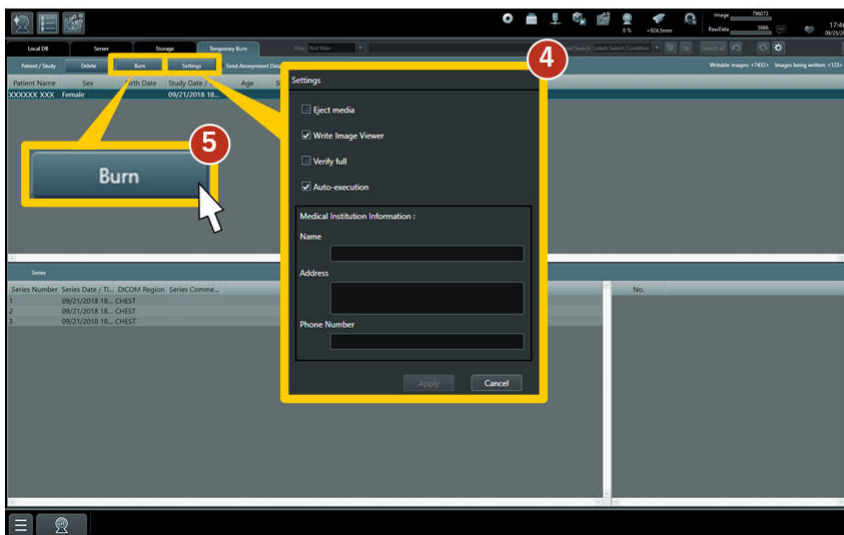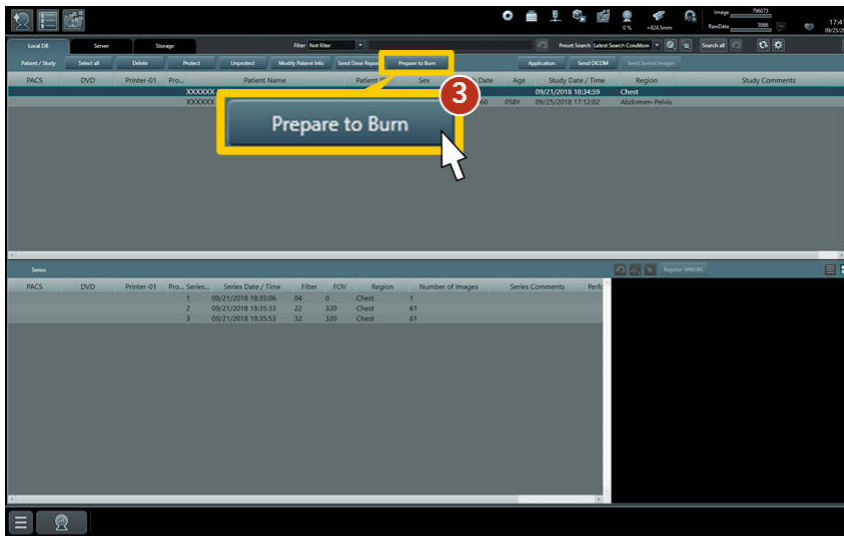
1. In the patient list, click the desired folder.

For details on how to select folders, see *10.1.1 Patient list* on page 82.

2. Insert a CD-R or DVD-R disc into the drive.
   You can use either CD-R or DVD-R.

3. Click [Prepare to Burn] button.
   [Temporary Burn] tab appears.

4. If necessary, change the selection of items in [Settings].

If the check box for [Write Image Viewer] is selected, Image Viewer is added along with the image data that is written. If the check box for [Auto-execution] is selected, the system is set to automatically start Image Viewer each time a disk is inserted into the computer.

If the check box for [Verify full] is selected, after the data is written to the storage medium, all data in the medium is checked. This operation takes a long time.

5.   Click [Burn] button.

The writing process starts.

The progress of writing the data to the medium is shown in the "Media written Status"

 area at the top of the screen.

16

Remote Services

This section describes how to perform the following operations when an acquired image is abnormal: performing a "remote server transmission" to transfer images from the CT device to a remote server, and using the "remote desktop" function so that the CT device can be operated from a PC in the FUJIFILM Corporation service site.
The following operations can be performed while the remote service functions are active.

16.1 Remote server
16.2 Remote desktop

16.1   Remote server

1. In Filming / Image Viewer A Type, click the desired images.

2. Click [Export] button.
   The Export dialog box appears.

3. Switch to [Remote server] tab.

4. In the [Output Format] area, select the image format.

5. Click [Export] button.

> Image IDs and simple IDs are not saved into transfer images.
> To protect personal information, images that might retain individual information cannot be transferred.

16.2   Remote desktop
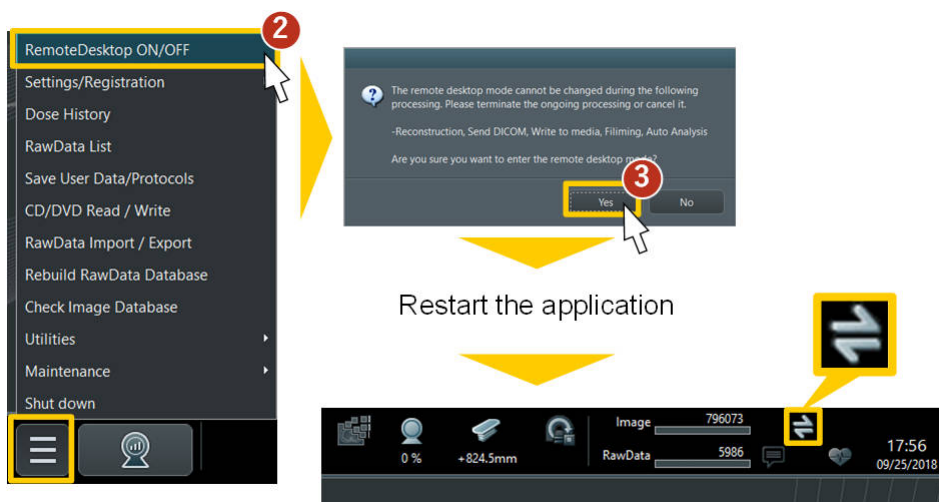
1. Contact your service personnel.

2. Click [Menu] button on the main screen, and then click [RemoteDesktop ON/OFF].
    A confirmation message appears.

3. Click [Yes] button.
    After the application restarts, the status of the remote desktop connection in the system information area will change to "Remote Desktop Waiting". Our service personnel will then connect to your CT device by using the remote desktop function.

The patient's personal information is hidden in Remote Desktop mode. If you want a specific patient's image to be analyzed, note down the examination date and time in advance.

17

Shutting Down the System

17.1 Shutdown

17.1 Shutdown

This section describes how to shut down SCENARIA View.
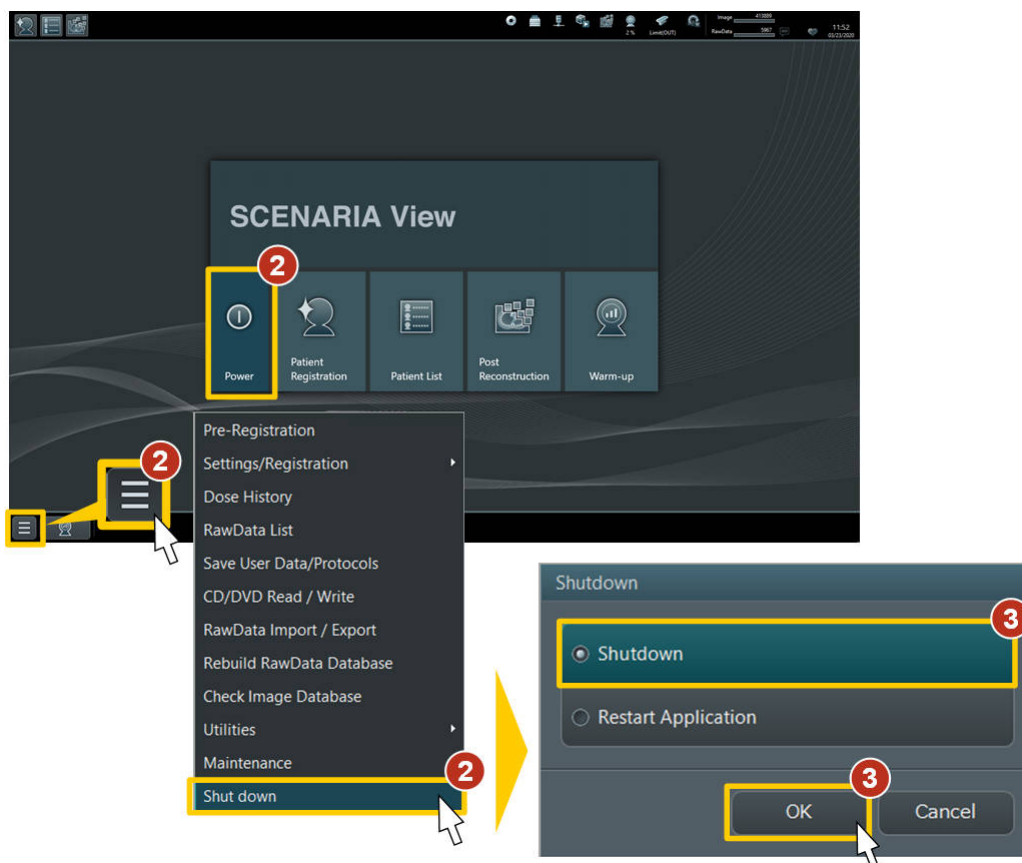
1. Make sure that no processes are currently operating.
   If the scanner is rotating, stop the rotation before performing shutdown.
   Always perform shutdown after the tube has cooled (guideline: HU30% or below).

2. Click [Menu] on the bottom left of the screen and then [Shut down] , or click [Power] button on the main screen.

3. Select [Shutdown], and then click [OK] button.

If the Off-time mode is set, the check box "Off-time mode" appears in the shutdown selection dialog box.
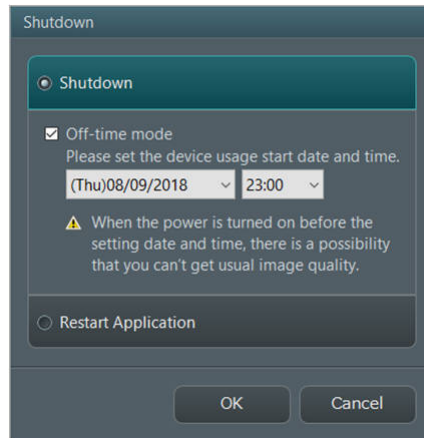
The Off-time mode function controls the time power is consumed by the X-ray detection machine, which consumes power even in the standby mode in order to stabilize characteristics. The off-time mode function can thereby reduce power consumption up to 70% compared to when the mode is not used.

To use the Off-time mode, register the device usage start time for each day on the week. You can register the start time after selecting [menu], [Settings / Registration], and then [Off-time mode settings].

Shutting Down the System

18

Troubleshooting

18.1 When the CT system freezes-up

18.1.1 When the Image Viewer B Type freezes-up

Image Viewer B type will be restarted by one of the following operations. There is no need to shut down or restart the system.

1. Click anywhere and select the end of the program in the displayed message.

2. Click [Filming] tab. After displaying [Filming] tab, click [Viewer] tab again.

18.1.2 In case that [Menu] button can be selected by using a mouse

At the bottom left of the window, click [Menu] button and select [Shut down]. Select [Restart Application], and click [OK] button. If the troubles are not fixed even after restart, follow normal power shutdown procedure to shut down and restart the system.

18.1.3 In case that [Menu] button cannot be selected

Press [Ctrl] + [Shift] + [SPACE] keys. The window for shutting down appears. Press [Tab] key to move the cursor over [Restart Application] button, and then press [Enter] key. The software restarts. If the troubles are not fixed even after the restart, shut down the system and then power on the system again.

18.1.4 When the system cannot be controlled with either of the mouse or keyboard

Hold down [CPU] power button of the intercom box to shut down the CT system.
The operation described above could damage files inside. Be sure to contact a sales agent before execution.

18.2 When the DICOM transfer fails

1. Confirm that other modalities can transfer to the server. If other modalities cannot transfer too, check the server.

2. Confirm that the unpermitted letters for server do not be contained in patient number or patient name. If it has some mistakes, modify them by using the [Modify Patient Info] function.

3. Confirm that the patient name does not contain both half-width and full-width characters. If the patient name contains both half-width and full-width characters, modify the patient name by using the [Modify Patient Info] function.

4. Click [Send DICOM Status] button to delete errors, then retry sending the images from Patient List. If the error message is displayed after retransferring, please contact a sales agent.

18.3 Correction of deficient image/body motion image/ Observation of Metals image

18.3.1 Correction of deficient image/body motion image

Please refer to *9.1 Post Reconstruction (Image Post Recon.)* on page 78.

18.3.2 Restore a deleted images

If RawData has not been deleted, scan images can be restored by using [RawData Post Recon.] at the top of the Post Reconstruction screen.
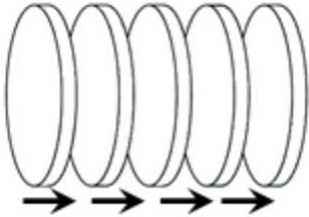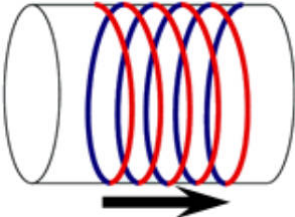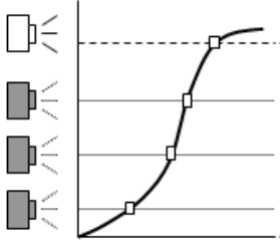
18.3.3 Observation of Metals image

By enabling the MAR function (Metal Artifact Reduction) in the post reconstruction process, you can reduce the metal artifacts on images. In addition, by increasing the CT value (to 16-bit), images can be displayed in an extended window width, and you can observe the interior of materials with a high CT value. MAR and Extended CT Number can be used at the same time.

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Appendix

19.1   Types of scans

Type of scan	Description	
Normal	Scans and table movements are repeated alternately to perform an intermittent scan. A normal scan is mainly used to scan the head.	
Volume	Scans and table movements are performed continuously to perform a spiral-shaped scan. A volume scan is mainly used to scan the chest and abdomen.	
Dynamic	A scan is performed on the same position as the table, whose position is fixed. A dynamic scan is mainly used for perfusion examinations.	
Predict	A predict scan is used to perform real-time monitoring of contrast density states by using low-dose scans on the same slice position. Then, when the optimal contrast effect is achieved, the main scan (normal scan, volume scan, dynamic scan) begins.	

19.2   Information displayed in images

Information such as patient information and scan conditions are displayed in the image display area. You can configure which items to display in this area.
In Image Viewer, in [Overlay] tab in Layout Settings, you can set whether to display or hide the image ID and set the layout of the image ID.
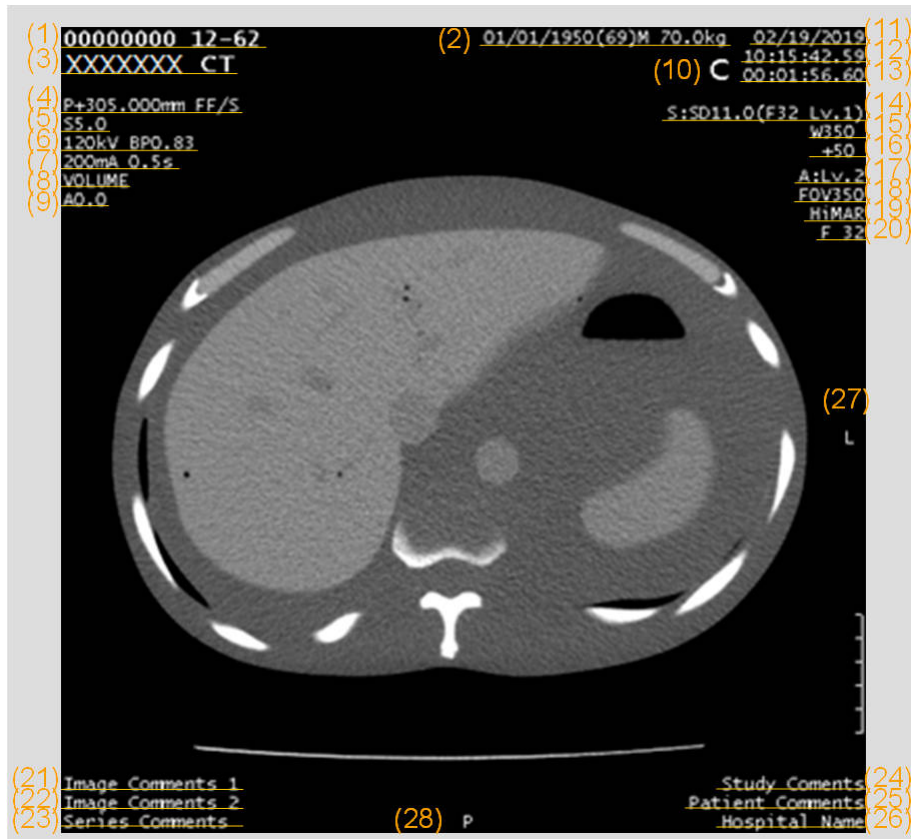
1. Patient ID, series number- slice number

2. Birthdate (Age), patient sex, patient weight

3. Patient name

4. Table position, patient direction (FF: Feet first, HF: Head first), patient posture (S: Supine, P: Prone)

5. Thickness (mm)

6. Tube voltage, volume scan helical beam pitch

7. Tube current, scan time

8. Scan type, option scan (Volume, Normal, Dynamic, Predict)

9. Tilt angle(°)

10. Contrast media

11. Examination date

12. Examination time

13. Stopwatch

14. IntelliEC mode (S: SD mode, C: CNR mode, IntelliEC Target SD, (IntelliEC Filter No.))

15. (E: Extended CT number mode) window width

16. Window level

17. Intelli IP

18. FOV or Bow Tie (S: Small)

19. HiMAR

20. Filter number

21. Image comment 1

22. Image comment 2

23. Series comment

24. Studycomment

25. Patient comment

26. Hospital name

27. Right display

28. Down display

💡
- • A: Anterior
- • P: Posterior
- • R: Right
- • L: Left
- • H: Head to feet
- • F: Feet to head

19.3   Dose history

You can use the Dose History function to display a list showing the history of exposure doses.
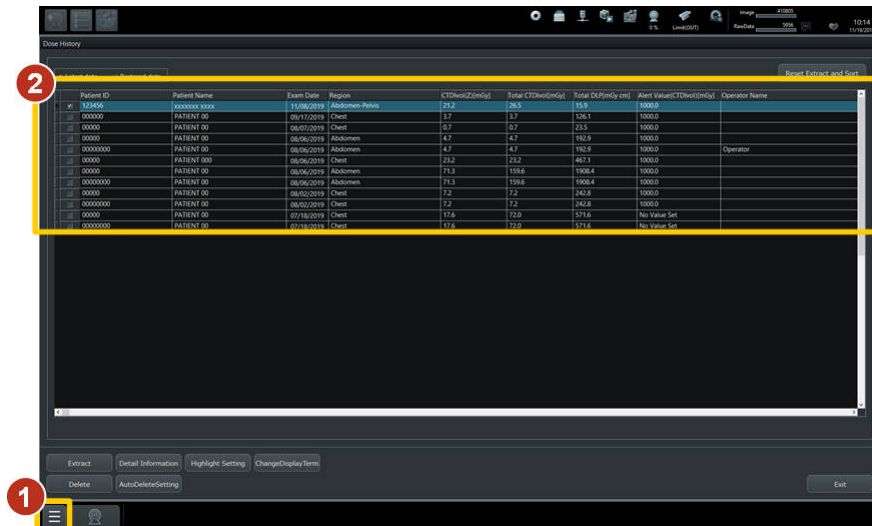
1. In the menu, click [Dose history].

2. The following information is displayed for Dose History:
Patient ID, Patient Name, Exam Date, Region, CTDIvol(Z)[mGy], Total CTDIvol [mGy], Total DLP[mGy cm], Alert Value (CTDIvol) [mGy], Operator Name, Reason of Exceeded Dose, Archive

19.4 RawData List

You can use the RawData List function to select and perform operations on RawData.
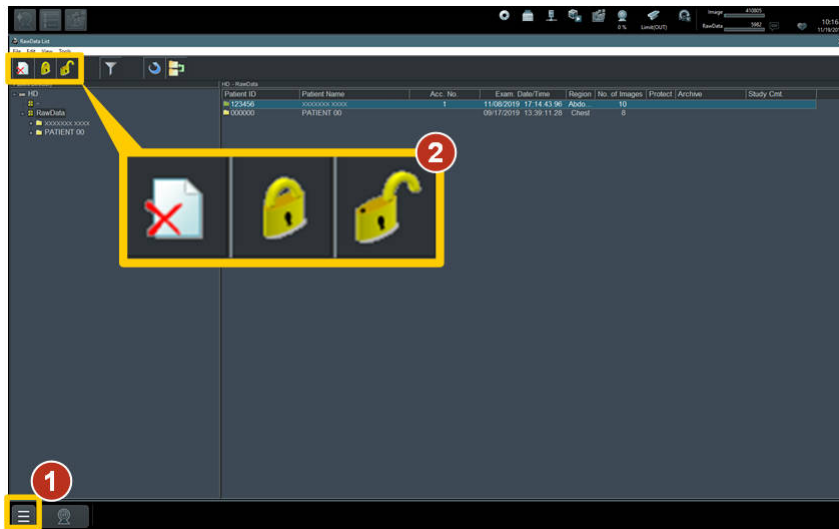
1. In the menu, click [RawData List].

2. Click the button on the top left of the screen to delete, protect, or unprotect the RawData.

19.5 Media formatter

If storage media is formatted in packet-writing format, analysis data can be recorded for each file.
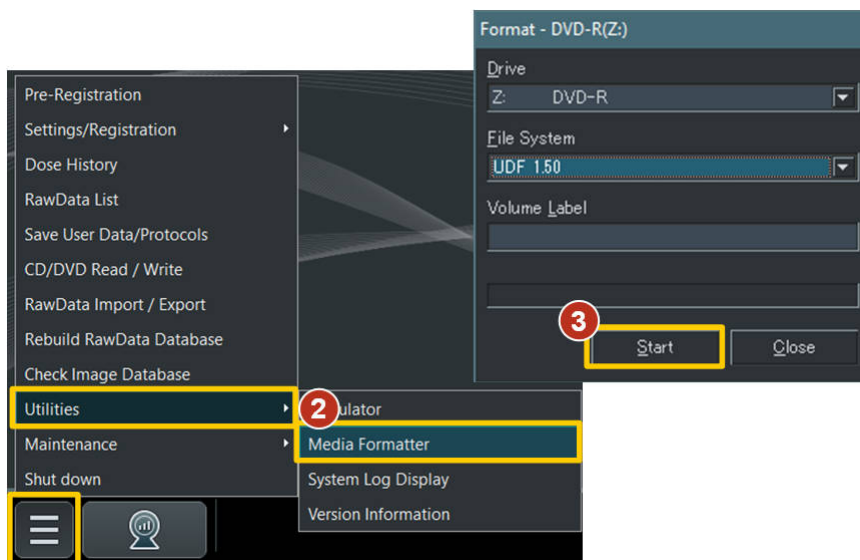
1. Set a DVD in the drive.

2. Select [Menu] button, [Utilities], and then [Media Formatter].

3. The message warning about deletion of data is displayed, Click [Start] button.

19.6 Daily inspection (scanning water phantoms)

Before starting actual work to acquire images, you can confirm the constancy of the system by performing water phantom scanning. In this way, you can check daily changes in CT numbers, SD values, and whether artifacts are occurring.
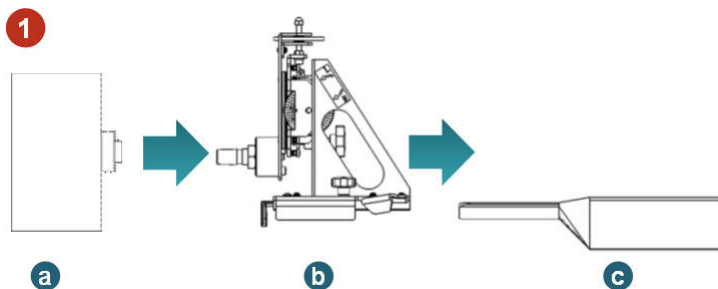
1. On the tabletop, set the phantom mounting bracket and phantom.

   a. Water phantom Φ 165 mm, Φ 305 mm

   b. Phantom mounting bracket

   c. Tabletop

2. Perform a scan according to the conditions shown in the following table.

Radiography conditions	Φ 165 mm water phantom	Φ 305 mm water phantom
Scan type	Normal scan	Normal scan
Bow tie	Standard	Standard
Tube voltage (kV)	120	120
Tube current (mA)	300	400
Scan time (s)	1.0	0.5
FOV (mm) The values shown in parentheses [( )] are the center coordinates.	210 (0, 0)	350 (0, 0)
Collimation (mm) Thickness (mm), Image mode	0.625 x 32 10.0 [mm], 2 [i]	0.625 x 32 10.0 [mm], 2 [i]
Reconstructed filter	F12	F32
B.H.C. / B.G.C.	OFF / OFF	OFF / OFF

3. For the acquired images, specify ROI settings by entering the specified settings shown in the following table into the ROI information area.

Item	Φ 165 mm water phantom				Φ 305 mm water phantom			
	ROI A	ROI B	ROI C	ROI D	ROI A	ROI B	ROI C	ROI D
Center (X, Y): [pix]	0, 0	0, 135	135, 0	0, 0	0, 0	0, 155	155, 0	0, 0
Radius (X, Y):	21, 21	21, 21	21, 21	89, 89	21, 21	21, 21	21, 21	89, 89
Angle: [°]	0	0	0	0	0	0	0	0
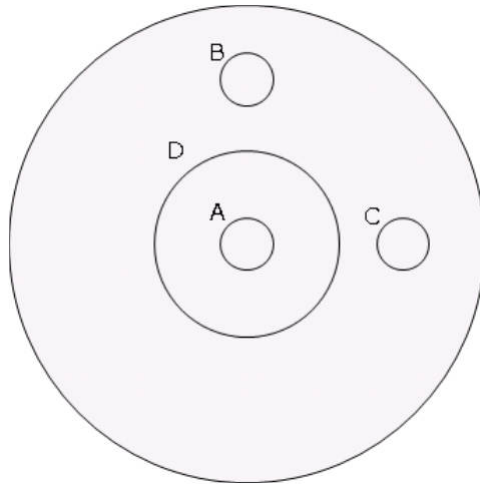
Figure 19-1 Image displayed after ROI settings are specified

For details on ROI operations, see *12.7 ROI measurement* on page 107.

19.7 Quality Exam (option)

You can use the Quality Exam funtcion to evaluate image uniformity, image noise in images scanned by using the water phantom, and to evaluate CT number accuracy, slice thickness, positioning accuracy, spatial resolution, low contrast detectability for images scanned by using the QA phantom. You can also use this function to display results, output them into reports, and confirm the changes in equipment performance over time.

19.7.1 Measurement
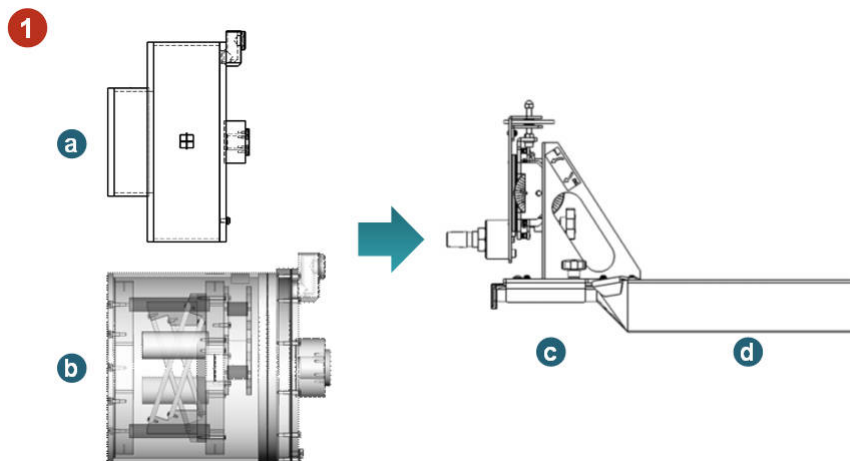
1. On the tabletop, set the phantom mounting bracket and QA phantom.

   a. Water phantom (this is used in step 3)

   b. QA phantom

   c. Phantom mounting bracket

   d. Tabletop

2. Select the QA protocol for Daily, Monthly, or Semi-Annual, and then perform the scan.

3. Mount the water phantom onto the phantom mounting bracket.

4. Select the QA protocol for Water phantom, and then perform the scan.

19.7.2   Analysis
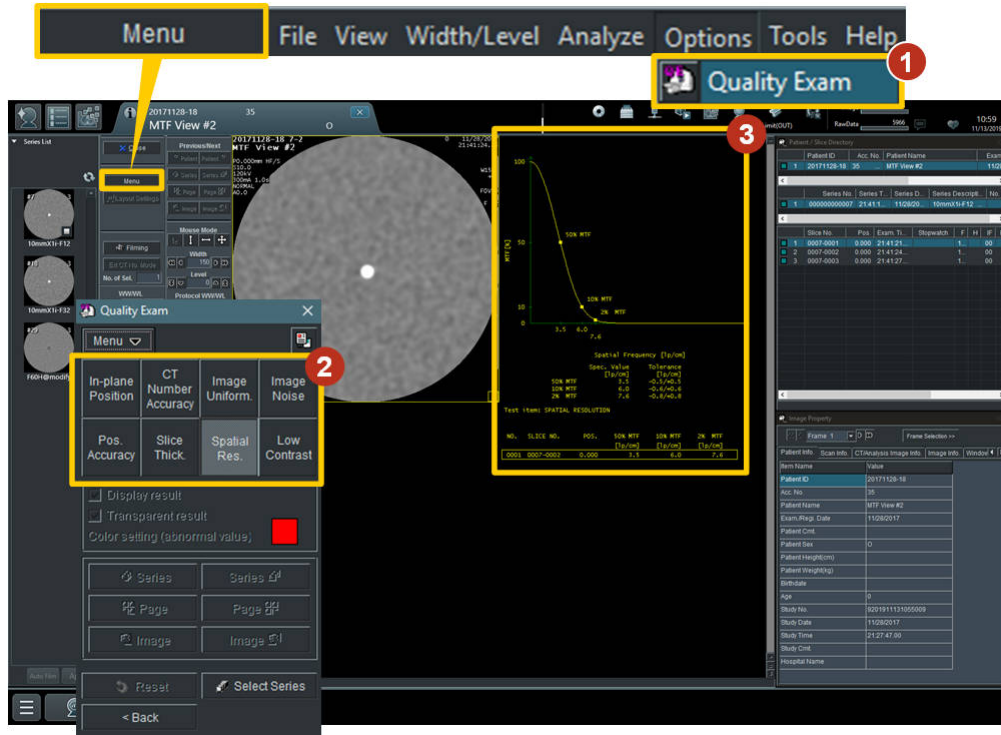
Figure 19-2 Example of spatial resolution analysis

1. In Image Viewer, select [Menu], [Options], and then [Quality Exam].

2. Select the item to be analyzed and the image corresponding to it.

3. The analysis result is displayed.

19.8   Specifications

Scanner gantry

Item	Specifications
Scan scope	Full body
Scan method	Continuous rotation
Rotational speed	0.35, 0.4, 0.5, 0.75, 1.0, and 2.0 seconds/rotation
Collimation width	1.25, 5, 10, 20, and 40 mm (measured from the center of rotation)
Number of slices	64 slices/scan*
Effective field of view	500 mm
Scanner gantry tilt angle	-30° to +30° (The tilt angle might be limited by the size and position of the patient's body and the height of the patient table.)

Item	Specifications
Light localizer	Laser radiations

*: This number indicates the number of measured slices and differs from the number of reconstruction image slices.

Patient table CT-WT-22

Item	Specifications
Type	Cantilever supporting mass
Tabletop material	Carbon fiber
Patient table height	From 490 mm (at the lowest position) to 970 mm
Tabletop width	475 mm
Tabletop range of motion	2,110 mm
Maximum effective radiography range	1,750 mm When the optional leg rest tabletop is attached: 2,000 mm
Maximum load	250 kg When the optional leg rest tabletop is attached: 220 kg

Patient table CT-WT-23

Item	Specifications
Type	Cantilever supporting mass
Tabletop material	Carbon fiber
Patient table height	From 490 mm (at the lowest position) to 970 mm
Tabletop width	475 mm
Tabletop range of motion	2,110 mm
Upper frame lateral range of motion	100 mm to the left and right
Maximum effective radiography range	1,750 mm When the optional leg rest tabletop is attached: 2,000 mm
Maximum load	250 kg When the optional leg rest tabletop is attached: 220 kg

X-ray emission system

Item		Standard	Option
X-ray emission type		Continuous X-rays (high-frequency inverter control)	
X-ray tube assembly heat capacity		7.5 MHU	
Maximum output		72 kW (120 kV, 600 mA)	84 kW (120 kV, 700 mA) (140 kV, 600 mA)
Tube voltage and tube current (Tube current steps up at 5 mA intervals.)	80 kV	10 mA-600 mA	10 mA-670 mA
	100 kV	10 mA-600 mA	10 mA-700 mA
	120 kV	10 mA-600 mA	10 mA-700 mA
	140 kV	10 mA-510 mA	10 mA-600 mA
Tube voltage precision		Within ±5%	

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Item	Standard	Option
Tube current precision	If the tube current exceeds 30 mA: within ±6% If the tube current is less than or equal to 30 mA: within ±2 mA	

X-ray detectors

Item	Specifications
Element composition	912 ch × 64 rows
Element output	888 ch × 64 rows
Detector width (slice direction)	40 mm (measured from the center of rotation)

Operator console/image processing

Item	Specifications
CPU	Multiple processors
Display monitor	24 inch liquid crystal display
Magnetic disk units	1 TB or greater × 5 for 600,000 or more saved images
DVD drive unit	4.7 GB for 7,000 or more saved images (depending on the file type)
Image reconstruction resolution	512 × 512
Image display resolution	1,920 × 1,200
Window width adjustment	1 to 6,000 (1 to 32,767 when using extended CT values)
Window level adjustment	-2,000 to +4,000 (-32,768 to +32,767 when using extended CT values)

Radiography system

1. Scanogram

Item	Specifications
Scan length	150, 250, 350, 500, 750, 1,000, 1,250, 1,500, 1,750 mm
Slice thickness	0.625 mm × 8

2. Normal scan

Item	Specifications
Scan time	0.35, 0.4, 0.5, 0.75, 1.0, and 2.0 seconds/rotation
Reconstruction slice thickness	0.625, 1.25, 2.5, 5.0, or 10 mm

3. Volume scan

Item	Specifications
Scan time	0.35, 0.4, 0.5, 0.75, or 1.0 seconds rotation
Reconstruction slice thickness	0.625, 1.0 1.25, 2.5, 3.75, 5.0, 7.5, or 10 mm

Item	Specifications	
Table feed rate	For 20 mm (0.625 × 32) collimation	11.875 to 31.875 mm/rotation
	For 40 mm (0.625 × 64) collimation	23.125 to 63.125 mm/rotation
Table pitch	For 20 mm (0.625 × 32) collimation	0.594, 0.844, 1.094, 1.344, 1.594
	For 40 mm (0.625 × 64) collimation	0.578, 0.828, 1.078, 1.328, 1.578

4.   Dynamic scan

Item	Specifications
Scan time	0.35, 0.4, 0.5, 0.75, 1.0, and 2.0 seconds/rotation
Continuous scan time	Maximum of 100 seconds

5.   Predict scan

6.   Preview scan

7.   Orbital synchronization

Image reconstruction calculations

1.   CORE Plus

2.   Intelli IP Advanced

3.   HiMAR

Radiography conditions settings

1.   IntelliEC

2.   IntelliEC Plus

3.   Dose Check

4.   AutoPose

Data management and information management

1.   Patient information registration

2.   Examination information display

3.   Dose management

4.   Film output

5.   DICOM transmissions

6.   Writing to media

7.   Saving images

8.   User settings

9.   Storage commitment

10.   Data security

Appendix

Image display and image processing

1. Image information display

2. Slice image display

3. Film image display

4. Density gradation

5. Annotations

6. Image filtering

7. Test injections

8. Quality Exam

3D image processing

1. Orthogonal Three Sections display

2. MPR image display

3. 3D image display

4. Mask extraction and editing

5. CEV-CPR image display

19.9   Guidelines on network connections

1. Introduction
   The performance of the DICOM application (for tasks such as transferring images, filming and MWM) greatly depends on the network environment of the facility. Building and maintaining the network environment, therefore, is very important. The following describes guidelines and points to be checked when building and maintaining a network environment.

2. Guidelines
   The following are guidelines for building a network environment.

   ◦ We recommend contracting the building and maintenance of the facility's network to a professional service provider.

   ◦ Ask the service provider to evaluate the capability of your network design, including the installed equipment and the connection topology.

   ◦ In addition, have the service provider verify the capability of your network performance.

   ◦ When building a network, introduce security measures such as a VPN or a firewall, according to the security policy of the facility.

3. Points to be checked when building a network environment
   The following lists points to be checked when building a network environment.

   ◦ Do the cables that are used comply with the applicable standards?

   ◦ Does the total length of cables meet the applicable standards?

- ◦ Are the laid cables adequately protected without being left exposed?
- ◦ Is any heat-generating equipment or any noise sources, such as a power supply, located near the patient table?
- ◦ Does the cascade arrangement of the repeater hub meet the applicable standards?
- ◦ Does the arrangement of the routers, switches, and hubs take traffic considerations into account?
- ◦ Is network equipment installed in positions that make maintenance easy?
- ◦ Is network equipment fixed in place by using clasps, brackets or other suitable devices?

The following table shows restrictions imposed by the major standards.

Standard	10BASE-T	100BASE-TX	1000BASE-T
Distance between a repeater hub and a terminal	100 m	100 m	100 m
Distance between repeater hubs	100 m	5 m	5 m
Maximum number of repeater hubs	4	2	2
Distance between a switching hub and a terminal	100 m	100 m	100 m
Distance between switching hubs	100 m	100 m	100 m
Maximum number of switching hubs	7 (in ideal circumstances)	7 (in ideal circumstances)	7 (in ideal circumstances)

19.10   Connecting to a network

When connecting this system to a network*, pay attention to the following points.

- • Connecting this system to a network that also contains other types of equipment might cause unforeseen problems for the patient, the operator, or a third party.
- • The user must identify, analyze, assess, and control such problems.
- • Continuous changes made to network connections can result in new risks that require additional analysis.

* "Connecting this system to a network" refers not only to the act of connecting the system to a network that was already in place when the system was installed, but also to modifications made to the network connection. These modifications include the following:

- • Changing the network connection settings
- • Adding new equipment to be connected to the network
- • Removing equipment currently connected to the network
- • Updating equipment connected to the network (for example, updating the software used on equipment connected to the network)
- • Upgrading equipment connected to the network (for example, adding functionality to equipment connected to the network by replacing the software used on such equipment)

19.11   Cyber Security

The Cyber Security software provides the following security functions:

- Encryption of image files and database files on the hard disk

- Encryption of packet data sent via a network using IPsec technology

If you would like to start or stop using these functions, please contact the service personnel of FUJIFILM Corporation.

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