SonicDICOM PACS User Manual

Version 5.0

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Contents

Introduction

SonicDICOM PACS is software that combines the capabilities of DICOM Server with web browser based DICOM Viewer.
This document describes how to use SonicDICOM PACS.

Revision History

Revision	Date	Description
1.0	2013/12/09	Initial version
2.0	2016/03/25	Update for software version 2
3.0	2019/02/08	Update for software version 3
4.0	2022/04/15	Add description of "Auto-Refresh" and "Share" feature
5.0	2024/11/13	Add description of "Note" and "Key Image" features. Revise "Delete" and "Capture" features.

List

Screen Layout

A) Toolbar

B) Searchbar

C) Study List

D) Thumbnailbar

E) Statusbar

A) Toolbar

In Toolbar, items that include name and icon of features are displayed.

You can execute each feature by clicking item.

You can set ON/OFF for each Toolbar item to be displayed and change order in:

User Settings > List > Toolbar

Reference Link

- User Manual > List > Toolbar features

B) Searchbar

In Searchbar, search features such as Quick Search, Search Shortcut, and others are displayed.
You can set ON/OFF for each Searchbar item to be displayed and change order in:
User Settings > List > Search

Reference Link

- User Manual > List > Searchbar features

C) Study List

Study List is displayed.
You can set ON/OFF for each List item to be displayed and change order and name in: User Settings > List > General

D) Thumbnailbar

In Thumbnailbar, thumbnail of selected Studies or Series are displayed.
When Study is selected, the first Instance of each Series is displayed.
When Series is selected, the first Instance of the Series is displayed.

E) Statusbar

On the left of Statusbar, following items are displayed.

Item	Description
Total	Total number of Study stored in the Database
Displayed	Number of Study currently displayed on the page / Total number of Study

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Item	Description
Selected	Number of selected Study, Series, or Instance

On the right of Statusbar, following items are displayed.

Item	Description
Data	Used capacity / Total capacity of the drive where "Data Path" is included
Backup1	Used capacity / Total capacity of the drive where "Backup Path 1" is included
Backup2	Used capacity / Total capacity of the drive where "Backup Path 2" is included

Basic Operation

Expanding Study List

Study List has tree structure of Study > Series > Instance.

By clicking ⊕ button in Study List, tree expands and Series List is displayed.

Also, by clicking ⊕ button in Series List, Instance List is displayed.

Viewing Image

1) Viewing 1 Study only

Double click List of the intended Study.

Viewer page opens and the Study image is displayed.

2) Viewing multiple Studies

1. Click checkboxes of the intended Studies.
2. Click ▦ Viewer in Toolbar.

3. Viewer page opens and the images of multiple Studies are displayed.

3) Viewing specific Series/Instance only

1. In Study List, expand Study that includes the intended item (Series/Instance).
2. Click checkbox of the intended item (Series/Instance).
3. Click ⊞ Viewer in Toolbar.
4. Viewer page opens and Series/Instance is displayed.

Displaying specific patient's Study only

Studies with the same Patient ID can only be displayed.

1. Click Patient ID in Study List.
2. Study List is filtered by Patient ID.

TIP

This feature can be switched ON/OFF in: User Settings > List > General > Study List > Link

Sorting Study List

Sort order of Study List can be rearranged.

1. In column header of Study List, click on the item to specify the sorting criteria.
2. Icon ▲ or ▼ is displayed next to the item.
   - If the icon is ▲ , Study List is arranged in ascending order of the specified item.
   - If the icon is ▼ , Study List is arranged in descending order of the specified item.

3. To reverse ascending and descending, click the same item again.

TIP

You can set the item for the sorting criteria, and a default value of ascending/descending in: User Settings > List > General > Study List > Sort Order

Toolbar Features

In Toolbar, items that include name and icon of features are displayed.
You can execute each feature by clicking item.
You can set ON/OFF for each Toolbar item to be displayed and change order in:
User Settings > List > Toolbar

Item	Description
Refresh	Refresh Study List
Auto-refresh	Automatically refresh Study List
Clear	Clear Study List
Search	Dialog of "Advanced Search" will appear
Viewer	View selected Study/Series/Instance
Report	Browse Report of selected Study
Add	Add JPEG/PNG/BMP/PDF file to selected Study as Series
Edit	Edit selected Study/Series/Instance
Delete	Delete selected Study/Series/Instance

Item	Description
☁ Forward	Forward selected Study/Series/Instance
⬆ Export	Export selected Study/Series/Instance
⬇ Import	Import selected DICOM/JPEG/PNG/BMP/PDF file
⬡ Share	Share selected study or patients
▪ Note	Enter a note for selected study.

⟳ Refresh

This feature is to refresh Study List.

⟳ Auto-Refresh

This feature is to refresh Study List automatically.

You can set ON/OFF this feature by clicking ⟳ Auto-Refresh on toolbar.

TIP

You can set ON/OFF this feature by default on: `User Settings > List > General > Auto-Refresh`

↺ Clear

Study List is cleared and no item will be displayed in Study List.

🔍 Search

Dialog of "Advanced Search" will appear.

Search is executed by following criteria.

Item	Label	Description
PatientID	ID	Enter a Patient ID
PatientName	Name	Enter a Patient Name
PatientBirthDate	DOB	Enter a Patient Birth Date
PatientAge	Age	Enter a Patient Age
PatientSex	Sex	Select Patient Sex from list
ModalitiesInStudy	Modality	Select Modality from list
StudyDescription	Description	Enter Study Description
BodyPartsInStudy	Body Part	Enter Body Part
StudyID	Study ID	Enter a Study ID
AccessionNumber	Accession No	Enter an Accession Number
PatientComments	Comments	Enter Patient Comments
SeriesDescription	Description	Enter Series Description
ReportStatus	Report	Select Report Status from list
InstitutionName	Institution	Select Institution Name from list
ReferringPhysicianName	Referring Physician	Select Referring Physician Name from list
PerformingPhysicianName	Performing Physician	Select Performing Physician Name from list
AETitle	AE Title	Select AE Title from list
StudyDate	Study Date	Select a Study Date from followings - None: Search by all Study Dates - Today: Search Studies whose Study Date is today - Yesterday: Search Studies whose

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Item	Label	Description
		Study Date is yesterday
		- Past Week: Search Studies whose Study Date is within 7 days including today
		- Past Month: Search Studies whose Study Date is within 31 days including today
		- Date Range: Enter "Start Date" and "End Date" to search studies whose Study Date is within the specified date range

Viewer

This feature is to view selected Study/Series/Instance on Viewer. 1. In Study List, click to select Study/Series/Instance on Viewer.

1. Click Viewer in Toolbar.

2. Viewer page is displayed.

Reference Link

- User Manual > Viewer > Screen Layout

Report

This feature is to browse a Report of the selected Study.

1. In Study List, click to select 1 Study to view the Report.

Reports of multiple Studies cannot be displayed at the same time.

2. Click Report in Toolbar.

3. Report page is displayed.

If there is a saved Report, a Report will be displayed.

If there is no saved Report, a page for creating a Report will be displayed.

Reference Link

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🔼 Add

This feature is to convert image file (JPEG/PNG/BMP/PDF) on hard disk, in CD/DVD media and others to DICOM file and add to Study as Series.

1. In Study List, click to select a Study.

2. Click 🔼 Add in Toolbar.

3. Select either "Select Folder" or "Select File" and click "Browse".

4. Select the location of folder or file and click "Add".

✏️ Edit

This feature is to edit selected Study/Series/Instance.

1. In Study List, click to select 1 item (Study/Series/Instance) to edit.

Multiple items cannot be edited at the same time.

2. Dialog of "Edit Study" or "Edit Series" or "Edit Instance" will appear.

3. Click ✏️ Edit in Toolbar.

4. Modify contents and click "Edit".

🗑️Delete

This feature is to delete selected Study/Series/Instance.

1. In Study List, click to select 1 or more items (Study/Series/Instance) to delete. 1. Click 🗑️ Delete in Toolbar.

2. Dialog of "Delete List" will appear.

3. Click "Delete" to execute delete.

Note: Deleted Study/Series/Instance will be moved to Recycle Bin: Admin Settings > Server > Recycle Bin. They can be restored within a set period of time. However, "Note" in Study cannot be restored.

☁ Forward

This feature is to forward image data to other DICOM Server.

1. In Study List, click to select item (Study/Series/Instance) to forward.

2. Click ☁Forward in Toolbar.

3. Dialog of "Forward" will appear.

4. Select the Forward Settings from the list and click "Forward".

TIP

Forward Settings can be set in: Admin Settings > Client > Connection > Forward

⬇ Export

This feature is to export DICOM file.

1. In Study List, click to select item (Study/Series/Instance) to export.

2. Click ⬇ Export in Toolbar.

3. Dialog of "DICOM Export" will appear.

4. Select a File Format.

File Format	
ISO	ISO file is a format to write data to media such as CD/DVD. By using a Windows standard software such as "Windows Disc Burner", you can write ISO file on CD and DVD.
ZIP	ZIP file is a format to store multiple files and folders in 1 file.
ISO Volume Label	
It is displayed when "ISO" is selected as File Format. Enter a disc name.	

5. Select an Export Format.

Export Format	
DICOMDIR	Export data in DICOMDIR format.
Folder	Selected items (Study/Series/Instance) are sorted out to different folders to export.
File	Selected items (Study/Series/Instance) are not sorted out to different folders to export
Option	
Attach DICOM Viewer	It is displayed when "DICOMDIR" is selected in Export Format. Attach the DICOM Viewer available for free of charge

6. Click "Export".

7. Preparation for export starts.

8. Click "Download".

9. File will be downloaded and stored in any destination.

By default, this feature is in the

Reference Link

- Glossary > DICOMDIR

Import

This feature is to import DICOM file and JPEG/PNG/BMP/PDF file.

JPEG/PNG/BMP/PDF file is converted to DICOM file to import.

1. Click Import in Toolbar.

2. Dialog of "Import File" will appear.

3. Select either "Select Folder" or "Select File" and click "Import".

4. Select a folder or file to import.

5. In "Select File Format", select either "DICOM" or "JPEG/PNG/BMP/PDF".

6. Edit information as necessary.

File format	Information that can be edited
DICOM	You can edit the following items by putting a check mark on "Change this value" - ID - Name - Accession No - AE Title
JPEG/PNG/BMP/PDF	- ID *required - Name *required - Study Date *required - Study Time *required - DOB - Sex - Description - Body Part - Description - Study ID

File format	Information that can be edited
	- Accession No
	- Comments
	- Institution
	- Referring Physician
	- Performing Physician
	- AE Title

7. Click "Import".

` can also import by using PACS Manager.

Reference Link

- Starter Guide > On-Premises PACS > Import DICOM Files

Share

This feature is to share study or patient with a user who has an account or a guest who do not have an account.

Share study or patient

1. In Study List, click to select Study or patient to share.

2. Click Share in Toolbar.

3. Dialog of "Share Study/Patient" will appear.

4. Select who you want to share.

Share With	
Institution / Role / Account	Share study or patient with a user who has an account. You can also use "Select from Shortcut".

| Guest | Share study or patient with a guest who do not have an account |

5. Select Study/Patient.

Study/Patient	
Selected Study	Selected Patient's Study
Share selected study	Share all studies of selected patient You can also share only the study of a specific modality.

6. Enter expiration date.
7. Click "Share".
8. The process completes and dialog of "Information of Share" will appear.

Send the link of shared study or patient by using Gmail

In dialog of "Information of Share", you can send the link of shared study or patient by using Gmail.

1. Enter Email address.
   You can also use "Select from People".
2. Enter Subject.
   You can also use "Select from Shortcut".
3. Click ✉ Open Gmail .
4. The page will open for creating a new message in Gmail.
   The items entered in the dialog "Information of Share" are automatically inserted in the email body.

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Check shared study or patient

1. Click to select study that is displayed as "Shared" in Study List.

2. Click 🔗 Share on toolbar.

3. Dialog of "Share Study/Patient" will appear.

4. Click tab of "Shared".

TIP

You can also check shared study or patient in `Account name in the header > Menu "Share"`.

📝 Note

This feature is to enter a note for selected study.

1. Select the study you wish to enter a note for in the List.

2. Click 📝 Note on toolbar.

3. Enter texts.

4. Click "Save".

Searchbar Features

In Searchbar, search features such as Quick Search, Search Shortcut, and others are displayed.

You can set ON/OFF for each Searchbar item to be displayed and change order in: User Settings > List > Search.

Quick Search

You can execute Quick Search by entering the word you would like to search.

1. Enter word you would like to search in the form and press Enter key or click search button.

2. Studies that match the search criteria are displayed.

TIP

The intended item for search and match criteria (perfect, partial, etc.) can be set in:

User Settings > List > Search > Searchbar > Quick Search

Date Range Search

You can execute Search by date range with entering start date and end date of Study Date.

1. Click "Start Date" and the calendar is displayed. Select a Start Date from the calendar.

2. When "Start Date" is specified, the same date as the Start Date is automatically entered in "End Date".

3. If you would like to select a different date from the Start Date, click "End Date" from the calendar to select an End Date.

4. Search is executed with the selected "Start Date" and "End Date", and Studies for the specified date range are displayed in Study List.

Search Shortcut

Search criteria can be registered in advance and be displayed as button in Searchbar.

By clicking the registered button, you can execute search with any criteria.

TIP

Search Shortcut can be set in: User Settings > List > Search > Searchbar > Search Shortcut

Viewer

Screen Layout
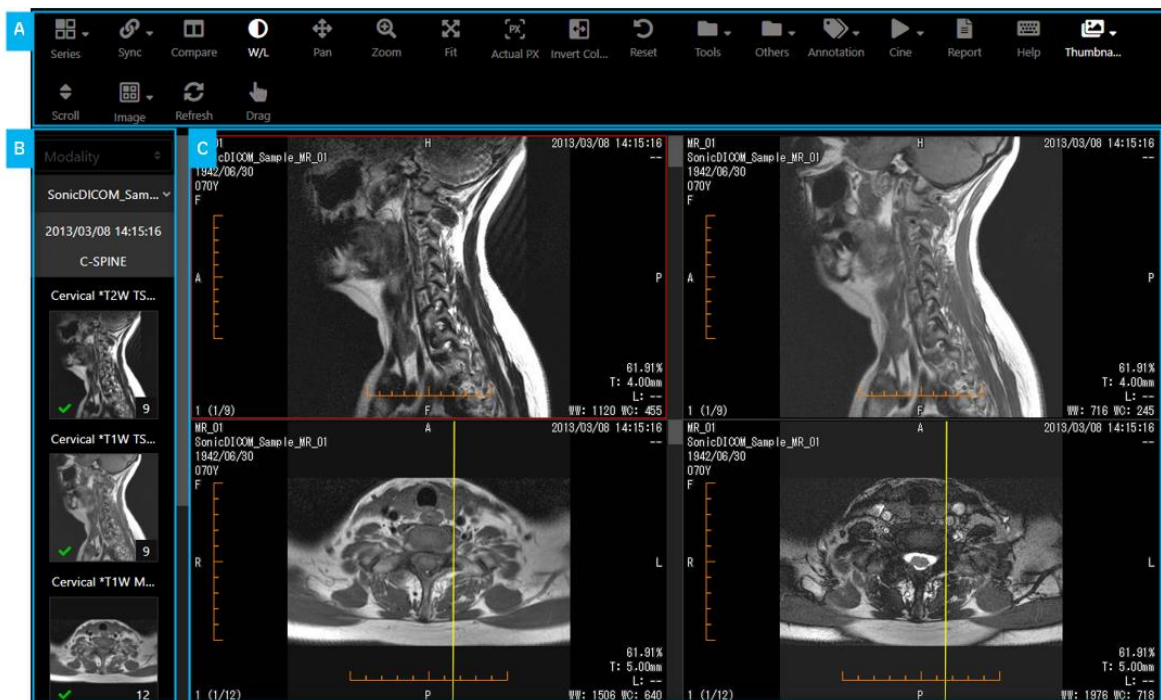
- A) Toolbar
- B) Thumbnailbar
- C) Viewer

A) Toolbar

In Toolbar, items that include name and icon of features are displayed.

You can execute each feature by clicking item.

TIP

You can set ON/OFF for each Toolbar item to be displayed and change order in:
User Settings > Viewer > Toolbar.

Reference Link

- User Manual > Viewer > Toolbar Features

B) Thumbnailbar

In Thumbnailbar, information of Study/Series, thumbnail list, and others are displayed.

Display location of Thumbnailbar can be changed to either left, right or top.

C) Viewer

In Viewer, image and information of Study/Series/Instance are displayed.

Basic Operation

Displaying Series on Viewer

Select Series from Thumbnailbar to display it on Viewer.

Displaying by drag-and-drop

Drag-and-drop a thumbnail of the intended Series on Viewer.

Before drag-and-drop

After drag-and-drop
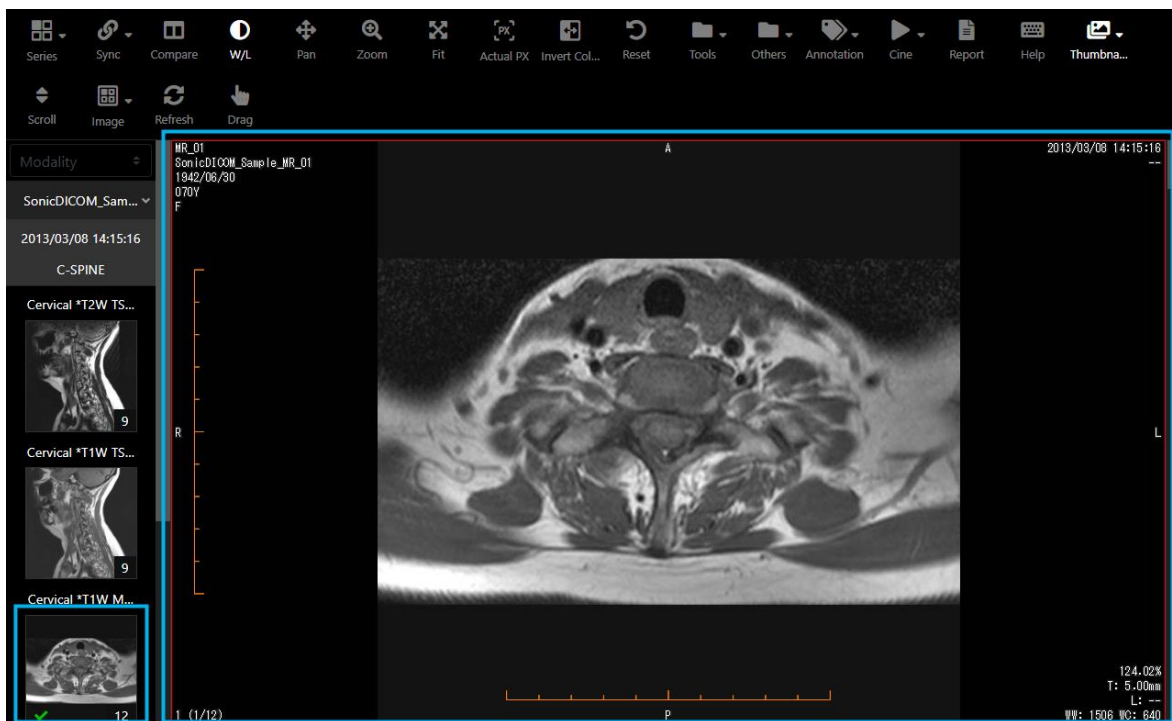
Displaying by double-click

Double-click a thumbnail of the intended Series on Viewer.

TIP

You can change behavior when a thumbnail is double-clicked in: User Settings > Viewer > General > Thumbnailbar

1) Adding new Series

Double-click a thumbnail of the intended Series, it will add new Series on Viewer.

Before double-click

After double-click

2) Replacing the currently selected Series
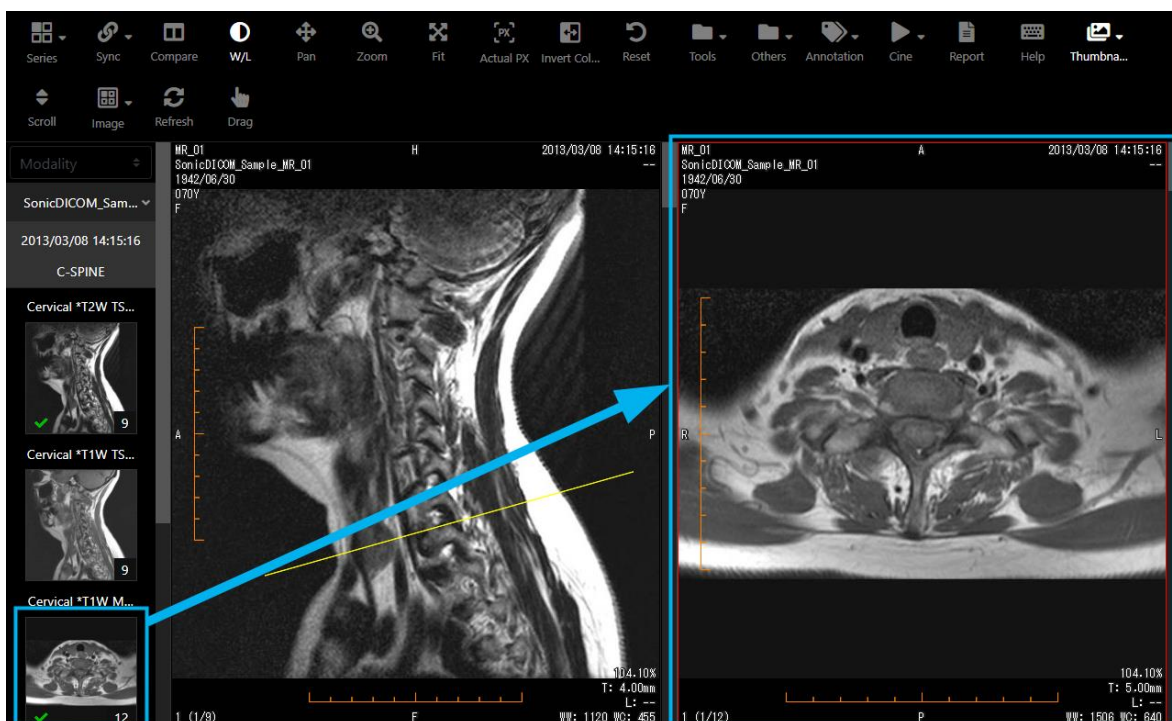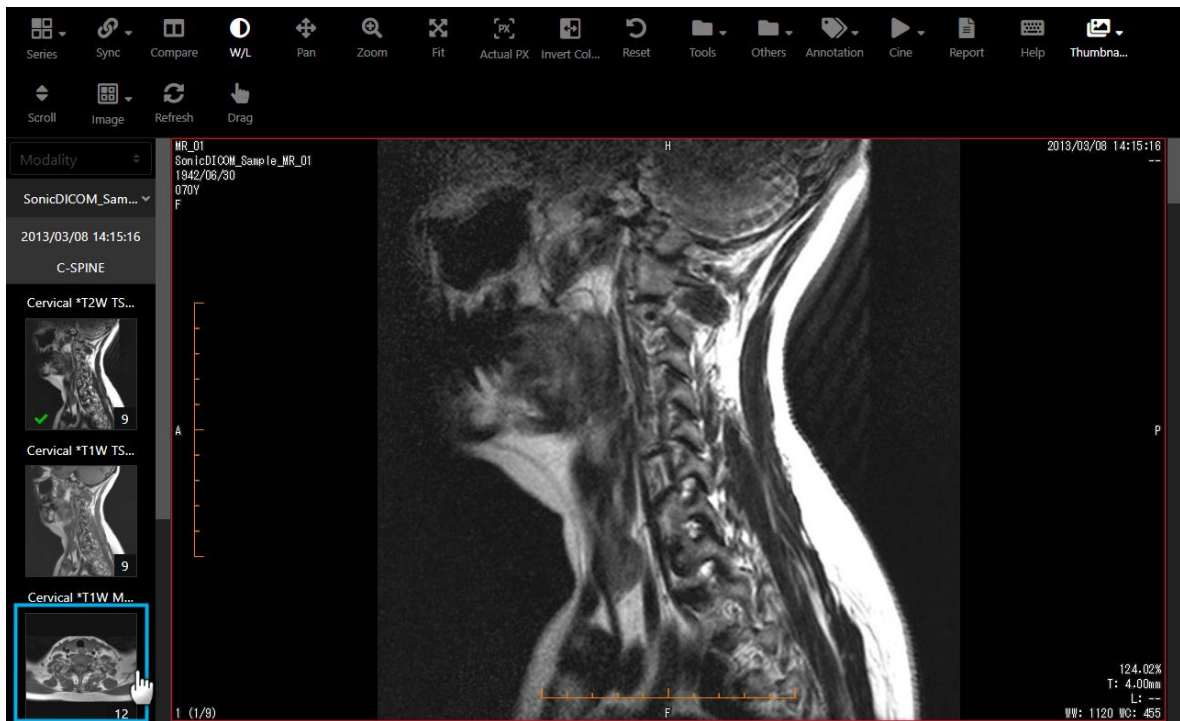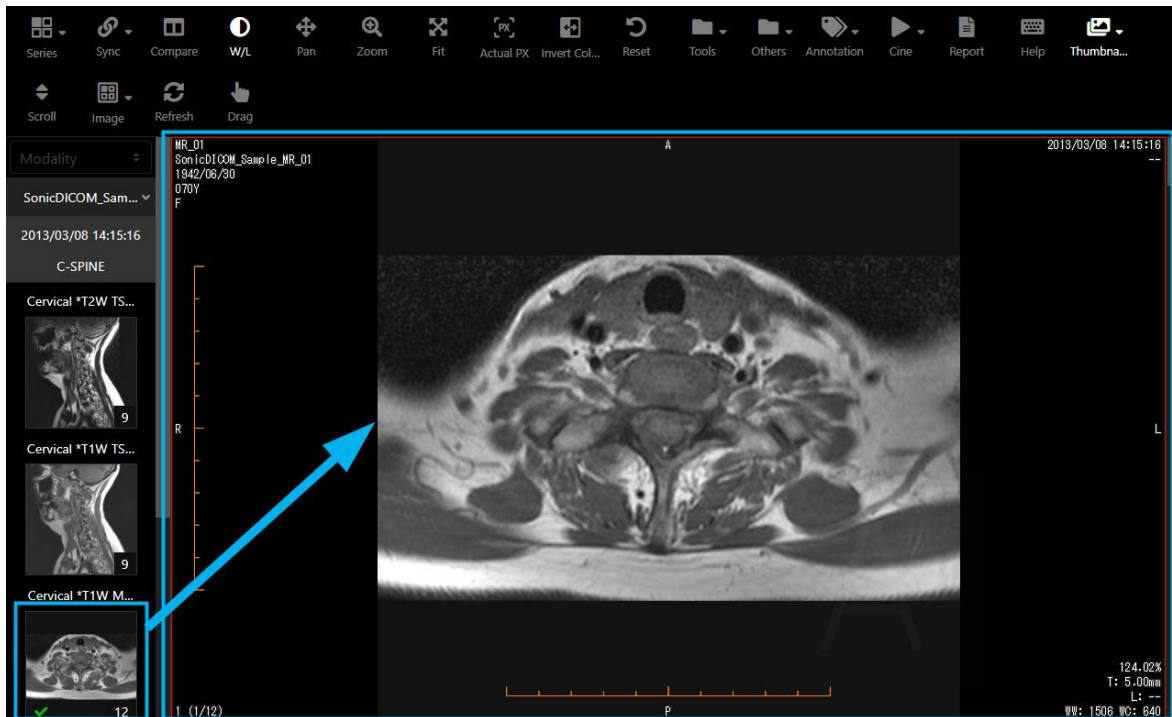
Double-click a thumbnail of the intended Series, it will replace the currently selected Series on Viewer.

Before double-click

After double-click

Thumbnailbar Features

In Thumbnailbar, information of Study, information and thumbnail list of Series, and others are displayed.
Display location of Thumbnailbar can be changed to either left, right or top.
Displayed information and operation ways are slightly different in case they are displayed on "left/right" and in case of "top".

1) If the display location is either left or right

It displays not only the selected Study, but also list of all Studies for its patient. Information and thumbnail list of Series for each Study are also displayed.

Screen Layout
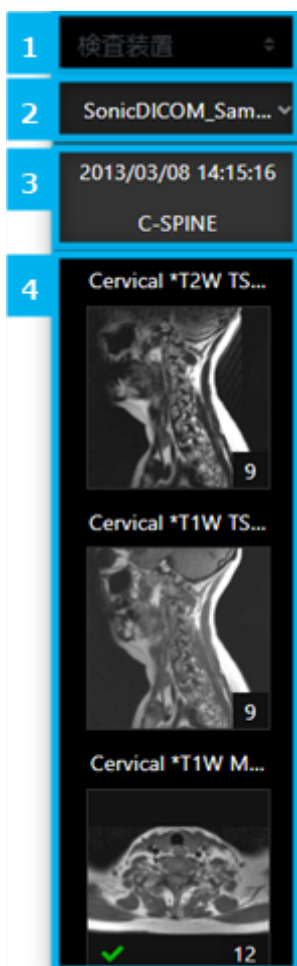
1. Modality list : It displays modality list.

2. Patient list : It displays patient list.

3. Study list : It displays Study list.

4. Series list : It displays information and thumbnail list of Series for each Study.

Selecting modality

By selecting modality from modality list, you can filter Studies displayed in Thumbnailbar.

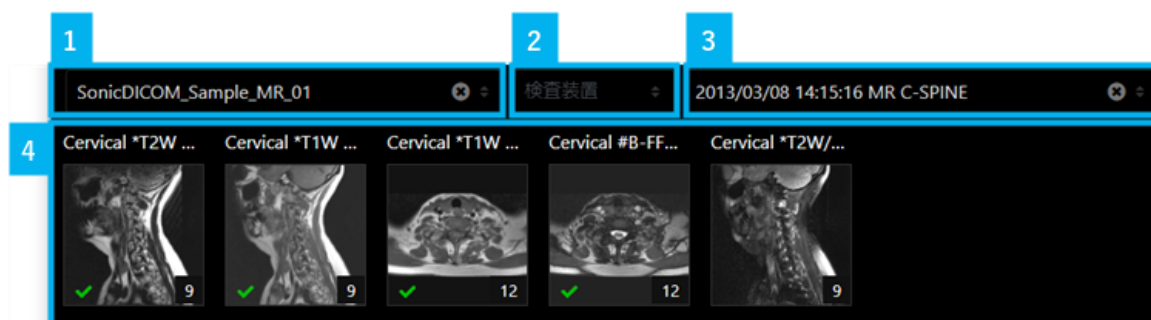More than one modality can be selected.

Reference Link

- User Manual > Viewer > Basic Operation > Displaying Series on Viewer

2) If the display location is top

It displays information and thumbnail list of Series for the selected Study.

Screen Layout

1. Patient list : It displays patient list.
2. Modality list : It displays modality list.
3. Study list : It displays Study list of the currently selected patient.
4. Series list : It displays information and thumbnail list of Series for the currently selected Study.

Selecting patient

When a patient is selected from patient list, all Studies of the patient are displayed in Study list.

Selecting modality

By selecting modality from modality list, you can filter Studies displayed in Study list. More than one modality can be selected.

Selecting Study

In Study list, all Studies of the currently selected patient in patient list are displayed.
When Study is selected from Study list, information and thumbnail list of Series for the selected Study are displayed in Thumbnailbar.

Reference Link

- User Manual > Viewer > Basic Operation > Displaying Series on Viewer

3) Changing the display location

You can change the display location by using Thumbnailbar of Toolbar or Keyboard Shortcuts.
You can also set the default display location in: User Settings > Viewer > Appearance > Display > Thumbnailbar.

Reference Link

- User Manual > Viewer > Toolbar > Thumbnailbar
- User Manual > Viewer > Keyboard Shortcuts > Display

Toolbar Features

In Toolbar, items that include name and icon of features are displayed.
You can execute each feature by clicking item.
You can set ON/OFF for each Toolbar item to be displayed and change order in: User Settings > Viewer > Toolbar.

Classification	Item	Description
	Series	Change Series layout
	Image	Change Image layout

	🔗	Sync	Operation executed to the selected Series or images can be applied to other Series and images
	▥	Compare	Compare the currently viewing Study and the most recent Study whose Modality and Body Parts match
	▶	Cine	Switch playback/stop Cine
Features - Mouse drag	◑	W/L	Drag to adjust Window/Level of image
	✥	Pan	Drag to move position of image
	🔍	Zoom	Drag to change magnification ratio
	⊕	Magnifier	Drag to magnify image around the mouse pointer
	◎	CT Value	Drag to display CT Value of image
	↻	Rotate	Drag to rotate image
	👆	Drag	Drag-and-drop to change position of Series

	Scroll	Drag-and-drop to scroll image
Features - Annotation	**Annotation**	Execute various operations related to Annotation
Features - Zoom	**Fit**	The Selected image is magnified to be displayed in the full frame
	Actual PX	Display the selected image as the actual pixel data size
	Zoom (submenu)	Specify magnification ratio to zoom out or zoom in image
Features - Flip / Rotate	**Flip Horizontal**	Flip image horizontally
	Flip Vertical	Flip image vertically
	Rotate (submenu)	Specify the angle to Rotate image
Features - Image processing	**Invert Colors**	Invert black and white of image
	Pseudo Color	Apply Pseudo Color to image

		Change way of Image Interpolation
	Image Interpolation	
	MPR	Based on axial image, coronal image and sagittal image are reconstructed and displayed
	W/L Presets	Apply preset Window/Level to image
Features - Others	Report	Browse Report of the selected Study
	Reset	Image of the selected Series will return to the default display status
	Refresh	Reload the page
	Export	Export image as JPEG/PNG/BMP format
	Capture	It enables to paste image on the desktop and copy it to the clipboard
	Anonymize	Switch show/hide personal information
	DICOM Header	Display DICOM Header of the selected image

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	⬤ Display	Switch show/hide various items on Viewer page
	🖼 Thumbnailbar	Change the display location of Thumbnailbar
	⌨ Help	Display Keyboard Shortcuts

▦ Series

This feature is to change Series layout.

1. Place the mouse pointer onto Series.

2. Move the mouse pointer and click at any location.

3. Series layout is changed.

▦ Image

This feature is to change Image layout.

1. Place the mouse pointer onto Image.

2. Move the mouse pointer and click at any location.

3. Image layout of the selected Series is changed.

🔗 Sync

Operation executed to the selected Series or images can be applied to other Series and images.

Place the mouse pointer onto Sync to show a menu.

Item		Description
Enabled/Disabled		Select enable/disable of Sync
Scroll	Slice Location	If you scroll on the selected Series, scrolling will be executed on other Series based on Slice Location
	Ratio	If you scroll on the selected Series, scrolling will be executed on other Series based on a location of scrollbar
	Normal	If you scroll on the selected Series, scrolling will be executed on other Series as many as the number of images that were scrolled
Zoom	mm	Magnification ratio is changed so that the width (mm) of the selected image becomes the same as the width (mm) of images in other Series
	px	Magnification ratio is changed so that the width (px) of the selected image becomes the same as the width (px) of images in other Series

	%	The same magnification ratio of the selected image is applied to image of other Series
Rotate		When the selected image is rotated, image of other Series will be rotated in the same way
Flip		When the selected image is flipped, image of other Series will be flipped in the same way
W/L		When Window/Level of the selected image is changed, image of other Series will be changed accordingly
Invert Colors		When Invert Colors is applied to the selected image, it will be applied to image of other Series as well
Pseudo Color		When Pseudo Color is applied to the selected image, it will be applied to image of other Series as well

Compare

This feature is to compare the currently viewing Study and the most recent Study whose Modality and Body Parts match.

Click Compare to switch ON/OFF of this feature.

▶ Cine

Images of selected Series are displayed continuously like a video playback.

Click ▶ Cine to switch playback/stop.

Operation	Description
Click ▶ Cine	Images are displayed continuously like a video playback Click again to stop
Click Playback	Images are displayed continuously like a video playback
Click Reverse Playback	Images are displayed continuously in the reverse order
Click Stop	Stop the continuous display of images
Move Slider	Adjust the playback speed (1 to 60 fps)

Features - Mouse drag

Item	Description
W/L	Drag to adjust Window/Level of image
Pan	Drag to move position of image
Zoom	Drag to change magnification ratio
Magnifier	Drag to magnify image around the mouse pointer

Item	Description
⦿ CT Value	Drag to display CT Value of image
↻ Rotate	Drag to rotate image
👆 Drag	Drag-and-drop to change position of Series
↕ Scroll	Drag-and-drop to scroll image

◑ **W/L**

After clicking ◑ W/L, dragging on image to change Window/Level of the image of that Series.

Operation	Description
Drag upward	WC value increases
Drag downward	WC value decreases
Drag leftward	WW value decreases
Drag rightward	WW value increases

✛ **Pan**

After clicking ✛ Pan, dragging on image to move the position of the image of that Series.

Zoom

After clicking Zoom, dragging on image to zoom the image of that Series.

Operation	Description
Drag upward	Zoom out
Drag downward	Zoom in

Magnifier

After clicking Magnifier, dragging on image to magnify image around the mouse pointer.

*By default, this feature is in the Tools

CT Value

After clicking CT Value, dragging on CT image to display CT Value.

*By default, this feature is in the Tools

Rotate

After clicking Rotate, dragging on image to rotate the image of that Series.

Operation	Description
Drag upward	Rotate counter-clockwise
Drag downward	Rotate clockwise

*By default, this feature is in the

Drag

After clicking Drag, dragging Series and dropping it to other Series, it switches the position of both Series.

Scroll

After clicking Scroll, dragging on image to scroll the image of that Series.

Operation	Description
Drag upward	Scroll to prev image
Drag downward	Scroll to next image

Features - Annotation

Annotation

Execute various operations related to annotation.

 Place the mouse pointer onto Annotation to show a menu.

Item	Description
Arrow	Draw Arrow
Text	Enter Text

Length	Draw straight line and measure the Length
Ellipse	Draw Ellipse and measure the area etc.
Rectangle	Draw Rectangle and measure the area etc.
Polygon	Draw Polygon and measure the area etc.
Angle	Measure Angle
Cobb Angle	Measure Cobb Angle
CTR	Measure CTR
VHS	Measure VHS
Save Annotation	Save Annotation
Delete Selected Annotations	Delete the selected Annotations drawn in the selected image
Delete All Annotations	Delete all Annotations drawn in the selected image
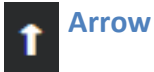
⬆ Arrow

This feature is to draw Arrow.

1. Click ⬆ Arrow.
2. Move the mouse while clicking on image to start drawing Arrow.
3. While clicking, move the mouse pointer to the position of the Arrow tail.
4. Release the mouse button to finish drawing Arrow.

Changing the position of Arrow head

1. Place the mouse pointer on Arrow head and click.
2. Move the mouse pointer while clicking to change the position of Arrow head.
3. Release the mouse button to determine the position of Arrow.

Changing the position of Arrow tail

1. Place the mouse pointer on Arrow tail and click.
2. Move the mouse pointer while clicking to change the position of Arrow tail.
3. Release the mouse button to determine the position of Arrow.

Moving Arrow

1. Place the mouse pointer on any part of Arrow other than its ends and click.
2. Move the mouse pointer while clicking to move Arrow.
3. Release the mouse button to determine the position of Arrow.

✏ Text

This feature is to enter Text.

1. Click Text.

2. Click where you want to enter Text.

3. Dialog of "Annotation:Text" will appear.

4. Enter "Text" and "Font Size".

5. Click "OK".

6. Entered Text is displayed at the position you clicked.

Changing Text contents and Font Size

1. Click Text.

2. Dialog of "Annotation:Text" will appear.

3. Change Text and Font Size, and click "OK".

4. Text is edited.

Moving Text

1. Place the mouse pointer on Text and click.

2. Move the mouse pointer while clicking to move Text.

3. Release the mouse button to determine the position of Text.

 Length

This feature is to draw straight line and measure the Length.

1. Click Length.

2. Move the mouse while clicking on image to start drawing straight line.

3. While clicking, move the mouse pointer to the position where drawing finishes.

4. Release the mouse button to finish drawing straight line, and the Length is measured.

Changing length and direction of straight line

1. Place the mouse pointer on the end of straight line and click.

2. Move the mouse pointer while clicking to change the length and direction of the straight line.

3. Release the mouse button to determine the length and direction of the straight line.

Moving straight line

1. Place the mouse pointer on any part of the straight line other than its ends.

2. Move the mouse pointer while clicking to move the straight line.

3. Release the mouse button to determine the position of the straight line.

Ellipse

This feature is to draw Ellipse and measure the area etc.

1. Click Ellipse.

2. Move the mouse while clicking on image to start drawing Ellipse.

3. Release the mouse button to finish drawing Ellipse, and the area and other information are displayed.

Changing width and height of Ellipse

1. To change width of Ellipse, place the mouse pointer on either left or right end of Ellipse and click.
   To change height of Ellipse, place the mouse pointer on either top or bottom end of Ellipse and click.

2. Move the mouse pointer while clicking to change the width and height of Ellipse.

3. Release the mouse button to determine the width and height of Ellipse.

Moving Ellipse

1. Place the mouse pointer on any part of Ellipse other than its right or left end and top or bottom end, and click.

2. Move the mouse pointer while clicking to move Ellipse.

3. Release the mouse button to determine the position of Ellipse.

▣ Rectangle

This feature is to draw Rectangle and measure the area etc.

1. Click ▣ Rectangle.

2. Move the mouse while clicking on image to start drawing Rectangle.

3. While clicking, move the mouse pointer to the position where drawing finishes.

4. Release the mouse button to finish drawing Rectangle, the area and other information are displayed.

Changing width and height of Rectangle

1. Place the mouse pointer on a corner of Rectangle and click.

2. Move the mouse pointer while clicking to change the width and height of Rectangle.

3. Release the mouse button to determine the width and height of Rectangle.

Moving Rectangle

1. Place the mouse pointer on any part of Rectangle other than its corners and click.

2. Move the mouse pointer while clicking to move Rectangle.

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3. Release the mouse button to determine the position of Rectangle.

⬛ Polygon

This feature is to draw Polygon and measure the area etc.

1. Click ⬛ Polygon.
2. Move the mouse while clicking on image to start drawing Polygon.
3. Move the mouse pointer and click again to finish the first straight line of Polygon.
4. Repeatedly move the mouse pointer and click to draw new lines.
5. Place the mouse pointer on the start point of the drawing and click to finish Polygon, then the area and other information are displayed.

Deforming Polygon

1. Place the mouse pointer on a corner of Polygon and click.
2. Move the mouse pointer while clicking to deform Polygon.
3. Release the mouse button to finish deforming.

Moving Polygon

1. Place the mouse pointer on any part of Polygon other than its corners and click.
2. Move the mouse pointer while clicking to move Polygon.
3. Release the mouse button to determine the position of Polygon.

⬛ Angle

This feature is to measure Angle.

1. Click ⬛ Angle.

2. Move the mouse while clicking on image to start measuring Angle.

3. Move the mouse pointer to the position where drawing of the first straight line completes.

4. Release the mouse button to finish drawing the first straight line.

5. Move the mouse pointer to the position where drawing of the second straight line finishes.

6. Click to finish drawing of the second straight line, then Angle is measured.

Adjusting Angle

1. Place the mouse pointer on the end or intersection of the straight line, and click.

2. Move the mouse pointer while clicking to move the end or intersection of the straight line.

3. Release the mouse button to determine Angle.

Moving Angle

1. Place the mouse pointer on any part of the straight line other than its end or intersection, and click.

2. Move the mouse pointer while clicking to move Angle.

3. Release the mouse button to determine the position of Angle.

Cobb Angle

This feature is to measure Cobb Angle.

1. Click Cobb Angle.

2. Move the mouse while clicking on image to start measuring Cobb Angle.

3. Move the mouse pointer to the position where drawing of the first straight line finishes.

4. Release the mouse button to finish drawing the first straight line.

5. Move the mouse pointer to the position where drawing of the second straight line finishes.

6. Move the mouse while clicking on image to start drawing the second straight line.

7. Move the mouse pointer to the position where drawing of the second straight line finishes.

8. Release the mouse button to finish drawing the second straight line, and Cobb Angle is measured.

Adjusting Cobb Angle

1. Place the mouse pointer on the end of the straight line and click.

2. Move the mouse pointer while clicking to move the end of the straight line

3. Release the mouse button to determine Cobb Angle.

Moving Cobb Angle

1. Place the mouse pointer on any part of the straight line other than its end or intersection, and click.

2. Move the mouse pointer while clicking to move Cobb Angle.

3. Release the mouse button to determine the position of Cobb Angle.

CTR

This feature is to measure CTR (Cardio-Thoracic Ratio).

1. Click CTR.

2. While clicking the start point of medial line, move the mouse pointer to the
    end point of the medial line.
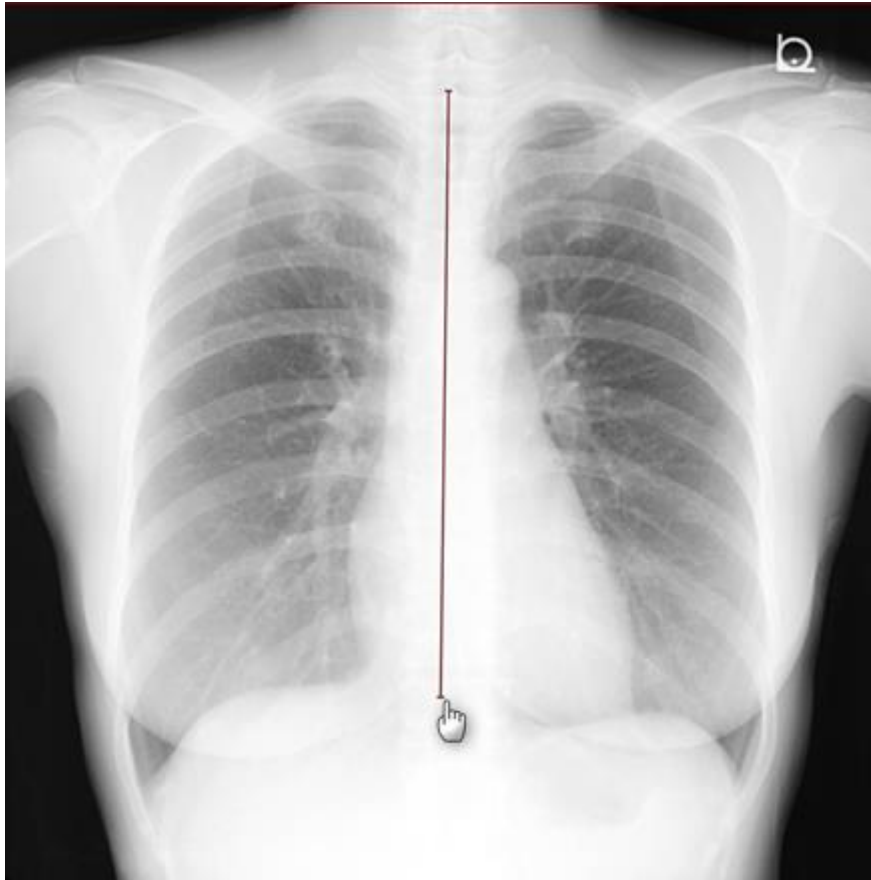
3. Release the mouse button to finish the medial line, and four lines parallel to the line are displayed.
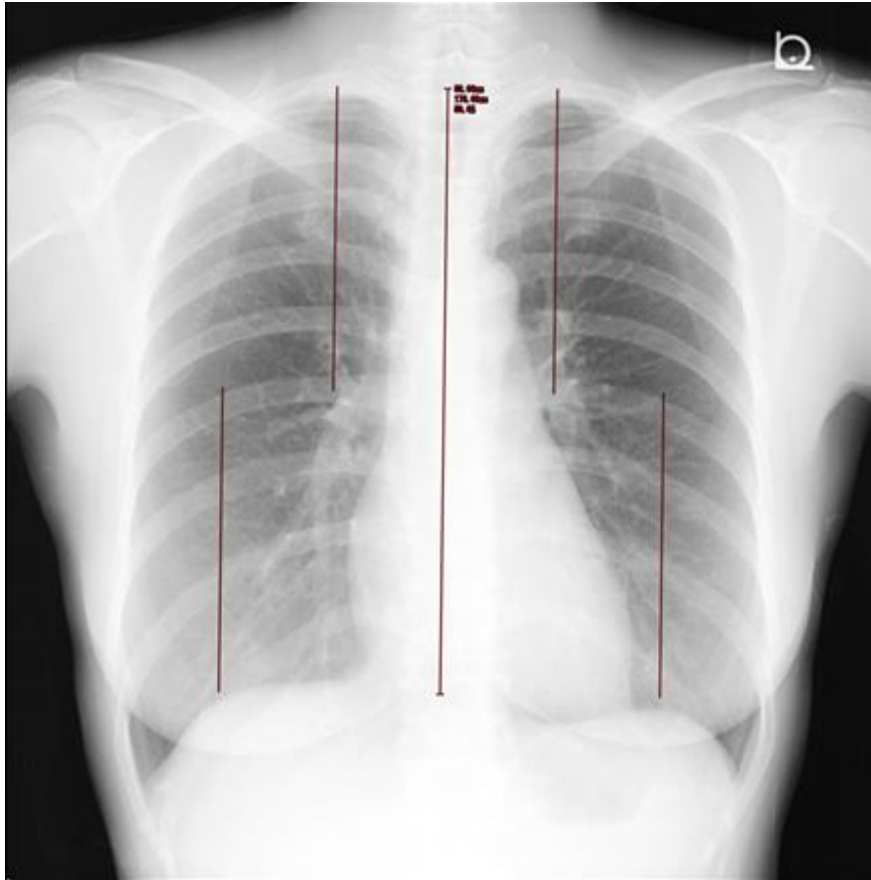
4. Measure heart width using lines A and A'. And, measure thorax width using lines B and B'.
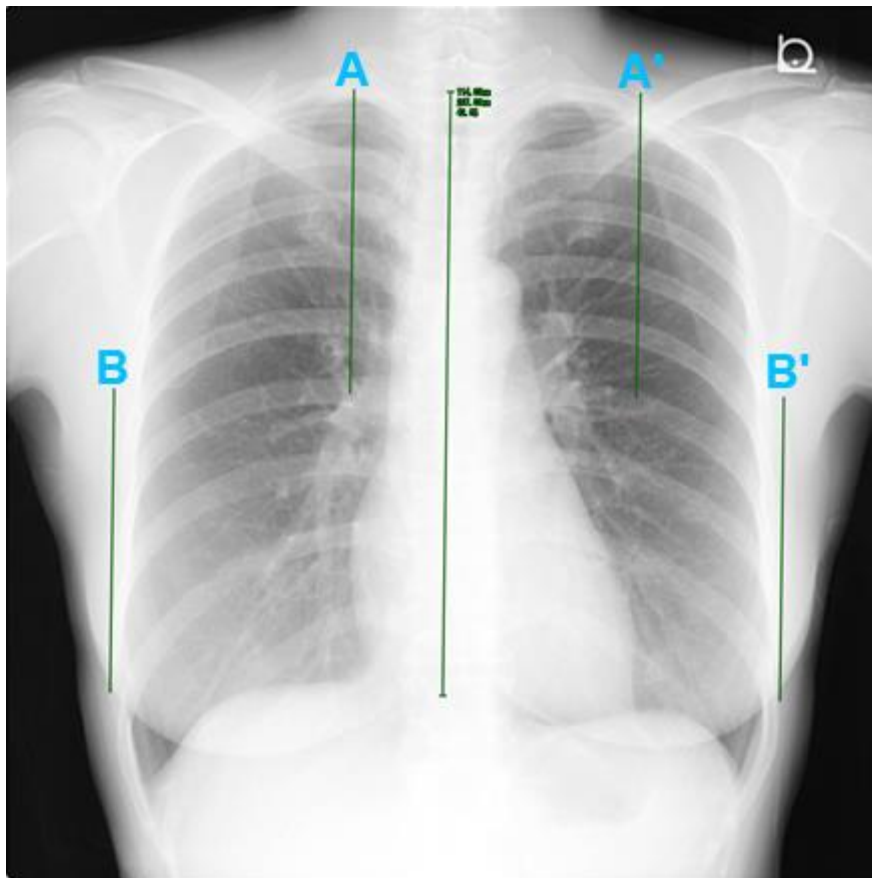
5. To move four lines, place the mouse pointer on each line and move the mouse pointer while clicking.

6. Release the mouse button to calculate CTR.

Adjusting CTR angle

1. Place the mouse pointer on the end of medial line and click.

2. Move the mouse pointer while clicking to adjust the angle of the medial line.

3. Release the mouse button to calculate CTR.

Moving CTR

1. Place the mouse pointer on the medial line and click.

2. Move the mouse pointer while clicking to move the medial line.

3. Release the mouse button to determine the position of CTR.

 VHS

This feature is to measure VHS (Vertebral Heart Size).

1. Click VHS.

2. Draw a vertical line to match the height of the heart by dragging a mouse. While clicking the start point, move the mouse pointer to the end point of the heart.

3. Draw a horizontal line to match the width of the heart by dragging a mouse. While clicking the start point, move the mouse pointer to the end point of the heart.

4. Two straight lines of the same length as the lines drawn will appear at the top of the screen.

5. Move the starting point of both lines to the fourth thoracic vertebra by dragging a mouse. While clicking the lines, move the mouse pointer.

6. To adjust the angle of the lines, click and hold the start or end point of the line and move the mouse.

7. Click "??" that displayed at the end of the straight lines. And enter the number of vertebrae.

8. VHS value will be displayed.

TIP

VHS is not displayed by default. You can add VHS to toolbar in: User Settings > Viewer > Toolbar > Add Item to Toolbar

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Save Annotation

This feature is to save all Annotations drawn in the selected image.

Delete Selected Annotations

This feature is to delete the selected Annotations.

Delete All Annotations

This feature is to delete all Annotations drawn in the selected image.

Features - Zoom

Fit

The Selected image is magnified to be displayed in the full frame.

Actual PX

This feature is to display the selected image as the actual pixel data size.

Zoom (submenu)

This feature is to specify magnification ratio to zoom out or zoom in image.

 Place the mouse pointer onto Zoom to show a menu.

Item	Description
+1%	Increase magnification ratio by 1%
-1%	Decrease magnification ratio by 1%
+10%	Increase magnification ratio by 10%

-10%	Decrease magnification ratio by 10%
25%	Change magnification ratio to 25%
50%	Change magnification ratio to 50%
100%	Change magnification ratio to 100%
150%	Change magnification ratio to 150%
200%	Change magnification ratio to 200%
400%	Change magnification ratio to 400%
800%	Change magnification ratio to 800%
Enter optional value	Click to display dialog of "Enter optional value" Enter a value within the range of 0 to 1,000 in the form

*By default, this feature is in the ![Tools]

Features - Flip / Rotate

![icon] **Flip Horizontal**

This feature is to flip image of the selected Series horizontally.

*By default, this feature is in the ![Tools]

![icon] **Flip Vertical**

This feature is to flip image of the selected Series vertically.

*By default, this feature is in the ![Tools]

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Rotate (submenu)

This feature is to specify the angle to Rotate image.

Place the mouse pointer onto ⟳ Rotate to show a menu.

Item	Description
+1°	Rotate 1° to the right
-1°	Rotate 1° to the left
+10°	Rotate 10° to the right
-10°	Rotate 10° to the left
0°	Change the angle of the image to 0°
90°	Change the angle of the image to 90°
180°	Change the angle of the image to 180°
270°	Change the angle of the image to 270°
Enter optional value	Click to display dialog of "Enter optional value" Enter a value within the range of 0 to 360 in the form

*By default, this feature is in the [Tools]

Features - Image processing

Invert Colors

This feature is to Invert black and white for image of the selected Series.

Pseudo Color

This feature is to apply Pseudo Color to image of the selected Series.

Place the mouse pointer onto Pseudo Color to show a menu.

Item	Description
Grayscale	Apply Pseudo Color "Grayscale"
Hot Iron	Apply Pseudo Color "Hot Iron"
Hot Metal Blue	Apply Pseudo Color "Hot Metal Blue"
PET	Pseudo Apply Color "PET"
PET 20 Step	Apply Pseudo Color "PET 20 Step"

Image Interpolation

This feature is to change way of image interpolation for image of the selected Series.

Place the mouse pointer onto Image Interpolation to show a menu.

Item	Description
Nearest Neighbor	Apply "Nearest Neighbor"
Bilinear	Apply "Bilinear"
Bicubic	Apply "Bicubic"

MPR

Based on axial image, coronal image and sagittal image are reconstructed and displayed.

Select Series of axial image and click MPR.

*By default, this feature is in the [Tools]

W/L Presets

This feature is to apply preset Window/Level to image.

Place the mouse pointer onto W/L Presets to show a menu.

Item	Shortcut Key	Description
Default	0	Change the values of WW and WC to the values described on DICOM tag of the image
Preset	1 to 8	Change the values of WW and WC to preset values
Full Dynamic	9	Decide the values of WW and WC using "Smallest Image Pixel Value" and "Largest Image Pixel Value" of DICOM tag. In the absence of necessary tag information, Window/Level is determined and displayed using the minimum and maximum values of the actual pixel values.
Enter optional value	None	After clicking, Dialog of "Enter optional value" will appear.- WW: Enter a value within the range of 1 to 99,999 in the form.- WC: Enter a value within the range of -99,999 to 99,999 in the form.

*By default, this feature is in the [Tools]

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Features – Others

Item	Description
Report	Browse Report of the selected Study
Key Image	Insert selected image into a Report.
Reset	Image of the selected Series will return to the default display status
Refresh	Reload the page
Export	Export image as JPEG/PNG/BMP format
Capture	It enables to paste image on the desktop and copy it to the clipboard
Anonymize	Switch show/hide personal information
DICOM Header	Display DICOM Header of the selected image
Display	Switch show/hide various items on Viewer page
Thumbnailbar	Change the display location of Thumbnailbar

🖮 Help	Display Keyboard Shortcuts

📄 **Report**

This feature is to browse Report of the selected Study.

If there is a saved Report, the Report will be displayed.

If there is no saved Report, the page for creating a Report will be displayed.

Reference Link

- User Manual > Report > Screen Layout

📎 **Key Image**

This feature is to insert selected image into a Report.

1. Select an image to insert into a report.

2. Click 📎 Key Image in the toolbar.

3. The selected image will be inserted in to a report.

If there is a saved report, the selected image will be inserted into that report.

If there is not any saved report, the selected image will be inserted into the page for creating new report.

↺ **Reset**

Images of selected Series will return to the default display status.

Type	Description
Items to be Reset	- Window/Level - Invert Colors

	- Pan
	- Zoom
	- Rotate
	- Flip Horizontal
	- Flip Vertical
Items not to be Reset	- Series Layout
	- Image Layout
	- Annotation

Refresh

This feature is to Reload the page.

Export

This feature is to Export image as JPEG/PNG/BMP format.

1. Click Export in Toolbar.
2. Dialog of "Export" will appear.
3. Select File Format.

File Format
JPEG
PNG
BMP

4. Select Series to Export.

Series	
Current Series	Export the current Series only
Displayed Series	Export the displayed Series only
All Series	Export all Series

5. Specify Size of the image.

Size	
Current Size	Export image as current Size
Original Size	Export image as the actual pixel data size
Specify Size	Specify height and width to Export

6. Select item to display on the image.

Display	
Overlay	Display Overlay
Annotation	Display Annotation
Orientation	Display Orientation
Ruler	Display Ruler

7. Specify Option.

Option	
Anonymize Overlay	Anonymize personal information (Patient ID, Patient Name, and Patient Birth Date) to be displayed on Overlay

8. Click "Export".

9. File is downloaded and saved in arbitrary location.

📷 **Capture**

This feature is to enable to copy and paste image to desktop, folder, other applications.

By default, this feature is in the 📁 Tools

1. Select an image to copy.

2. Click 📷 Capture or press [p] key.

3. The selected image is copied

4. Paste it on other applications.

Note: If your web browser security restricts the use of the clipboard, you will not be able to copy images to the clipboard with a single click or pressing [p] key.

In this case, the following operation is performed.

1. Click 📷 Capture to switch to capture mode.

2. Drag and drop the image to paste it into another application. Or right-click on the image and select "Copy Image" to copy it to the clipboard.

To end Capture, press [ESC] key or click a part outside Viewer (grayed-out part).

Anonymize

This feature is to switch show/hide personal information.

1. Click Anonymize.
2. Anonymize personal information (Patient ID, Patient Name, and Patient Birth Date) and all will be displayed as ****.
3. Click Anonymize once again to cancel Anonymize.

DICOM Header

Dialog of "DICOM Header" will appear and it displays DICOM Header of the selected image.

Display

This feature is to switch show/hide various items on Viewer page.

Place the mouse pointer onto Display to show a menu.

Item	Description
Annotation	Switch show/hide Annotation
Overlay	Switch show/hide Overlay
Orientation	Switch show/hide Orientation
Ruler	Switch show/hide Ruler
Reference Line	Switch show/hide Reference Line

Scrollbar	Switch show/hide Scrollbar
Toolbar	Switch show/hide Toolbar
Thumbnailbar	Change the display location of Thumbnailbar

Thumbnailbar

This feature is to switch display location of Thumbnailbar.

Place the mouse pointer onto ![icon] Thumbnailbar to show a menu.

Item	Description
Left	Display Thumbnailbar on left screen
Top	Display Thumbnailbar on top screen
Right	Display Thumbnailbar on right screen

Reference Link

- User Manual > Viewer > Thumbnailbar Features

Help

Dialog of "Keyboard Shortcuts" will appear and it displays list of Keyboard Shortcuts.

Reference Link

- User Manual > Viewer > Keyboard Shortcuts

Keyboard Shortcuts

Features

By pressing a key, following feature is executed.

Key	Features
s	Sync
c	Compare
i	Invert Colors
f	Fit
a	Actual PX
h	Flip Horizontal
v	Flip Vertical
u	Reset
d	DICOM Header
x	Export
m	MPR
p	Capture

`r`	Report
`[0-9]`	W/L Presets

Features - Annotation

By pressing a key combination, following feature is assigned to left mouse button.

Key	Features
`Shift + w`	Arrow
`Shift + t`	Text
`Shift + l`	Length
`Shift + e`	Ellipse
`Shift + r`	Rectangle
`Shift + p`	Polygon
`Shift + a`	Angle
`Shift + b`	Cobb Angle
`Shift + c`	CTR
`Shift + s`	Save Annotation

`Shift + d`	Delete All Annotations

Features - Mouse drag

Behavior differs according to key combination.

If `Ctrl + <key>` :
Press `Ctrl` with pressing `<key>`, following feature is assigned to left mouse button.
If `<key> + Mouse drag` :
Only while pressing `<key>` with Mouse drag, following feature is executed temporally.

Key	Features
`Ctrl + v` or `Alt + Mouse drag`	W/L
`Ctrl + p` or `Ctrl + Mouse drag`	Pan
`Ctrl + z` or `Shift + Mouse drag`	Zoom
`Ctrl + r` or `Ctrl + Alt + Mouse drag`	Rotate
`Ctrl + m` or `Ctrl + Shift + Mouse drag`	Magnifier
`Ctrl + d` or `Shirt + Alt + Mouse drag`	Drag
`Ctrl + s` or `Ctrl + Shift + Alt + Mouse drag`	Scroll
`Ctrl + c`	CT Value

Navigation

By pressing a key or key combination, following operation is executed.

Key	Operation
↑ or `k`	Scroll to prev Image
↓ or `j`	Scroll to next Image
← or `Ctrl + h`	Select left Series
→ or `Ctrl + l`	Select right Series
`PgUp`	Scroll to prev Images
`PgDn`	Scroll to next Images
`Home`	Scroll to first Image
`End`	Scroll to last Image

Actions

By pressing a key, following operation is executed.

Key	Operation

`Enter`	Same as double-click
`Delete`	Delete selected Series or Annotation
`Esc`	Anonymize
`Space`	Cine
`+`	Magnification +1%
`-`	Magnification -1%
`?`	Show Keyboard Shortcuts

Actions - While running Cine Playback

By pressing a key, following operation is executed.

Key	Operation
`↑`	Reverse Playback
`↓`	Playback
`←`	FPS -1
`→`	FPS +1

Space	Stop

Actions - While selecting Annotation: Text

By pressing a key, following operation is executed.

Key	Operation
+	Font size +1px
-	Font size -1px

Display

By pressing key combination, switch ON/OFF for following item to be displayed.

Key	Item
Alt + a	Annotation: Show All
Alt + m	Annotation: Show Only Mine
Alt + i	Annotation: Hide All
Alt + o	Overlay
Alt + d	Orientation

`Alt + r`	Ruler
`Alt + l`	Reference Line
`Alt + s`	Scrollbar
`Alt + t`	Toolbar
`Alt + w`	Thumbnailbar: Left
`Alt + n`	Thumbnailbar: Top
`Alt + e`	Thumbnailbar: Right

Report

Screen Layout

- A) Toolbar
- B) Report
- C) History
- D) Template

A) Toolbar

In Toolbar, items that include name and icon of features are displayed.

You can execute each feature by clicking item.

TIP

You can set ON/OFF for each Toolbar item to be displayed and change order in:

User Settings > Report > Toolbar

Reference Link

- User Manual > Report > Toolbar features

B) Report

You can create, edit and browse Report.

TIP

You can set ON/OFF for items of Patient/Study/Report to be displayed and change order and name in: User Settings > Report > General

C) History

List of Report update history is displayed.

D) Template

List of registered Template is displayed.

Template is registered in: User Settings > Report > Template

Basic Operation

Create and edit Report

1. You can create and edit Report.

   Enter a Title.

   Click form to select a Title or enter a new Title

2. Enter Findings/Impression/Comments.

3. Click 💾 Save.

4. Dialog of "Save Report" will appear.

Select Status and Option and click "Save".

Reference Link

- User Manual > Report > Toolbar Features > Save

Insert Template

You can insert created Template in Findings/Impression/Comments.

1. Create Template in: User Settings > Report > Template

2. Click to select item to insert from list of 📋 Template.

3. Dialog of "Insert Template" will appear.

4. Change contents of Template as necessary.

5. Click "Insert".

6. Entered contents are inserted in Findings/Impression/Comments of Report.

Toolbar Features

In Toolbar, items that include name and icon of features are displayed.

You can execute each feature by clicking item.

You can set ON/OFF for each Toolbar item to be displayed and change order in:

User Settings > Report > Toolbar

Item	Description
💾 Save	Save Report

🗑 Delete	Delete Report
🎞 Viewer	View the Study of currently displayed Report on Viewer
📄 PDF	Convert Report to PDF file to display

💾 Save

This feature is to save Report.

1. Click 💾 Save in Toolbar.

2. Dialog of "Save Report" will appear.

Status	Option
Draft	Overwrite
Draft	Not Overwrite
Final	Overwrite
Final	Not Overwrite

3. Select Status and Option and click "Save".

TIP

You cannot edit Report when its Status is "Final".

🗑 Delete

This feature is to delete Report.

1. In list of 🕐 History, click to select Report that you would like to delete.
2. Click 🗑 Delete in Toolbar.
3. Dialog of "Delete Report" will appear.
4. Click "Delete" to execute delete.

🎞 Viewer

This feature is to view the Study of currently displayed Report on Viewer.

1. Click 🎞 Viewer in Toolbar.
2. Viewer page is displayed.

📄 PDF

This feature is to convert Report to PDF file to display.

1. Click 📄 PDF in Toolbar.
2. Report is converted to PDF file and displayed.