

VIEWWORKS

QXLink User Manual



© Vieworks. 2022 All rights reserved.

Under copyright laws, this manual should not be reproduced, in whole or in part, without the written permission of Vieworks.

The specifications and related information in this manual may be changed without notice. Refer to Vieworks Download System (VDS) for the latest version of our manuals. This document is basically produced in English, and can be produced in the language of the relevant country upon request of the customer.

Contents

1. Instruction	9
1.1 Cautions	10
1.2 Document Guide	11
1.2.2 Symbols	11
1.2.3 Notations	11
1.3 Revision History	12
1.4 Intended Use	16
1.4.1 The Limits of Image Measurement Function	17
1.5 Use Environment	18
1.5.1 Installation Requirements	18
2. Getting Started.....	20
2.1 Executing the Program	21
2.1.1 Login	21
2.1.2 Setting Login Server	22
2.1.3 Change a Password	23
2.1.4 Switching to Viewer Window	23
2.1.5 Switching to Setup Window	23
2.1.6 Close	23
3. Study List	24
3.1 Composition of Study List	25
3.1.1 Database	25
3.1.2 User-Defined Screen Layout	25
3.1.3 Status Bar	26
3.1.4 DICOM Q/R	26
3.1.5 DICOM DIR	27
3.1.6 Changing the Size and Location of Window	28
3.2 Search Condition	29
3.2.1 Search Conditions of Database	29
3.2.2 Search Conditions of DICOM Q/R	29
3.2.3 Search Conditions of DICOM Directory	30
3.2.4 Setting Search Period	30
3.2.5 Initializing Search Condition	31
3.2.6 Clearing Search Result	31
3.2.7 Search Condition Template	32
3.3 Database Tab	34

3.3.1	Search.....	34
3.3.2	Thumbnail View.....	34
3.3.3	Preview Mode.....	35
3.3.4	Opening Images in Study Unit.....	35
3.3.5	Opening Images in Series Unit.....	36
3.3.6	Opening Key Image only.....	37
3.3.7	Opening with Reports.....	38
3.3.8	Opening Study Using Protocol (View with Protocol).....	39
3.3.9	Opening Study Using Custom Screen Layout.....	41
3.3.10	Searching the Recently Searched Images.....	42
3.3.11	Opening from the Print Mode Directly.....	42
3.3.12	Opening from the Stitch Mode Directly.....	43
3.3.13	Processing Auto Stitch.....	44
3.3.14	Editing Patient.....	44
3.3.15	Sending a Study.....	45
3.3.16	Exporting Study.....	47
3.3.17	Importing Study.....	49
3.3.18	Portable Viewer.....	51
3.4	DICOM Q/R Tab.....	53
3.4.1	Search.....	53
3.4.2	Queue List Toolbar.....	53
3.4.3	Searching Images in Study Unit.....	54
3.4.4	Opening Images in Series Unit.....	54
3.4.5	Opening in Image Units.....	55
3.5	DICOM DIR Tab.....	56
3.5.1	Opening in Study Units.....	56
3.5.2	Opening in Series Units.....	56
3.5.3	Opening in Image Units.....	56
3.6	DICOM Queue.....	57
3.6.1	Window to Check.....	57
4.	Viewer.....	58
4.1	Composition.....	59
4.1.1	Viewer Window.....	59
4.1.2	Thumbnail View.....	60
4.1.3	Simple Print View.....	60
4.1.4	Status Bar.....	62
4.1.5	Pixel Equivalent.....	63
4.1.6	Study Viewer.....	63

4.2	Ribbon Tools	65
4.2.1	Switching to the Study List Window	65
4.2.2	Saving Study Status	65
4.2.3	Opening DICOM File.....	66
4.2.4	Adding Non-DICOM Image.....	67
4.2.5	Print.....	69
4.2.6	DICOM Send.....	71
4.2.7	Checking DICOM Header Information.....	71
4.2.8	Selector.....	72
4.2.9	Select All.....	73
4.2.10	Reset.....	74
4.2.11	Rest All.....	75
4.2.12	Magnifying Glass	76
4.2.13	Zoom In / Out.....	77
4.2.14	Pixel Equivalent.....	78
4.2.15	Real Size.....	79
4.2.16	Panning Image	80
4.2.17	Fit to Window.....	81
4.2.18	Rotate Counterclockwise	82
4.2.19	Rotate Clockwise.....	83
4.2.20	Flip Image Horizontal	84
4.2.21	Flip Image Vertical.....	85
4.2.22	Free Rotation	86
4.2.23	Window Level	87
4.2.24	ROI W/L.....	89
4.2.25	Invert Image.....	90
4.2.26	Pseudo Color.....	91
4.2.27	Reset Filters	93
4.2.28	Emboss	94
4.2.1	Sharpen	95
4.2.2	Sharpen with Enhanced edge.....	96
4.2.3	Soften.....	97
4.2.4	Contrast Enhancement.....	97
4.2.5	Displaying the Image Information.....	98
4.3	Functional Description of Viewer.....	99
4.3.1	Checking the Opened Study List (Available Exams).....	99
4.3.2	Moving the Study.....	99
4.3.3	Closing the Study	99
4.3.4	Changing View Mode.....	100
4.3.5	DICOM SR.....	105

4.3.6	Changing the Study Layout	106
4.3.7	Changing the Image Layout.....	108
4.3.8	Sorting Images.....	109
4.3.9	Checking the Image in Real Size.....	110
4.3.10	Checking the Image Size (Window Size).....	111
4.3.11	Pop-up Menu	112
4.3.12	Specified Image Height	113
4.3.13	Specifying / Releasing the Key Image	114
4.3.14	Initializing All Study Data (State / Annotation)	115
4.3.15	Image Adjustment using Image information Text in Viewer	116
4.3.16	Sending E-mail.....	117
4.3.17	Configuring Custom Ribbon Tools	123
4.3.18	Copying Images.....	125
4.3.19	Key Image Note	126
5.	Annotation	129
5.1	Composition of Annotation	130
5.2	Annotation Tools	131
5.2.1	Delete Annotation	131
5.2.2	Hide Annotation.....	132
5.2.3	Calibration.....	132
5.2.4	Select all annotations	134
5.2.5	Check Annotation Information.....	135
5.2.6	Modify Annotation Properties.....	136
5.2.7	Magnifier.....	138
5.2.8	Guide Functionality.....	139
5.3	Shortcuts for Controlling Annotation	140
6.	Human Measurement	141
6.1	Composition of Human Measurement.....	142
6.2	Human Measurement Tools	143
7.	Veterinary Measurement.....	144
7.1	Composition of Veterinary Measurement	145
7.2	Veterinary Measurement Tools.....	146
8.	Report.....	147
8.1	Report.....	148
8.1.1	Composition of Report	148
8.1.2	Drawing Up Report.....	150

8.1.3	Save	150
8.1.4	Approve	150
8.1.5	Confirm Approval	150
8.1.6	Report Template	151
8.1.7	Print	152
8.1.8	Quick Print	152
8.1.9	Print Review	153
8.1.10	Change print layout	154
8.1.11	Command	156
8.1.12	Clipboard	156
8.1.13	Font	157
8.1.14	Paragraph	158
8.2	Report Builder	159
8.2.1	Composition of Report Builder	159
8.2.2	Layout	160
8.2.3	Report Summary	160
8.2.4	Clipboard	161
8.2.5	Inserting Text	161
8.2.6	Drawing a Figure	164
8.2.7	Inserting a Picture	164
8.2.8	Inserting Watermarks	167
8.2.9	Grid / Margin	168
8.2.10	Changing Font Type and Size	168
8.2.11	Applying the Figure Style	168
8.2.12	Arrangement of Objects	169
8.2.13	Setting Environment of Report Builder	169
9.	Print	171
9.1	Print Window	172
9.1.1	Moving to the Print Window	173
9.1.2	New Sheet	175
9.1.3	Sheet Layout	177
9.1.4	Print Layout	178
9.1.5	Closing the Print Window	179
9.2	Print Type	181
9.2.1	DICOM Print	181
9.2.2	Paper Print	181
9.2.3	Echo	181
9.3	Changing Printer	182

9.4	Changing Format.....	183
9.4.1	Changing Print Orientation.....	183
9.4.2	Changing Film Size.....	184
9.5	Adjusting Size.....	186
9.5.1	Full Size.....	186
9.5.2	Full Size Pages.....	187
9.5.3	Reset Full Size Pages.....	189
9.5.4	Setting Pixel Spacing.....	190
9.6	Changing Position.....	192
9.6.1	Moving images using Drag & Drop.....	192
9.6.2	Pasting Image in front of the Selected Location.....	194
9.6.3	Cutting and Pasting Image.....	196
9.6.4	Exchanging Location of Images.....	197
10.	Stitch.....	198
10.1	Creating Stitched Image.....	199
10.1.1	Auto Stitch.....	199
10.1.2	Create Image.....	199
10.1.3	Create and Send.....	200
10.2	Stitch Window.....	201
10.2.1	Mini View.....	201
10.3	Setting Auto Stitch Parameter.....	202
10.4	Image Manipulation.....	203
10.4.1	Crop.....	203
10.4.2	Reset.....	204
10.4.3	Zoom.....	204
10.4.4	Pan.....	204
10.4.5	Fit.....	204
10.5	Sorting and Changing the Order of Images.....	205
10.5.1	Sorting Images.....	205
10.5.2	Changing Order of Images.....	205
10.6	Setting Border.....	206
10.6.1	Manual Border.....	206
10.6.2	Auto Border.....	207
10.7	Applying Blend Effect.....	208
10.8	Adjusting Position.....	209
10.8.1	Set to Foreground.....	209

10.8.2	Set to Background.....	209
10.8.3	Selecting Interval of Movement	210
10.9	Adjusting Brightness	211
11.	Others	212
11.1	Stopping the Task.....	213
11.1.1	Stopping Image Loading.....	213
11.1.2	Stopping Print	213
11.2	User-Defined Toolbar.....	214
11.2.1	Original Size or Screen Size Toolbar.....	214
11.2.2	Study Toolbar.....	215
11.2.3	Viewer Access Toolbar.....	216
11.2.4	Print Access Toolbar	217
11.2.5	Stitch Access Toolbar	217
11.3	Changing the Position of Quick Access Toolbar	219
11.4	Quick Launch.....	220
11.5	Shortcut Keys	221
12.	Appendix	222
12.1	Appendix.....	223

1. Instruction

This chapter gives basic information of this manual and the intended use of program.

Cautions
Document Guide
Revision History
Intended Use
Use Environment

1.1 Cautions

If the user is not fully acquainted with this manual, the system can be malfunctioned or unsuspected problem can be happened due to carelessness. To prevent any medical accidents, the user should fully understand the instructions of this manual before operating the program.

When the user operates this software, take the following precautions. Otherwise, problems may occur or the product may not function correctly.

- 1 Roentgenography, image processing, reading of image, and data storage must be performed in accordance with the law of each country where the program is being used. Also, the user is responsible for protecting the privacy of image data.
- 2 In no event will Vieworks be liable for direct or indirect consequential damage arising out of the use of this program. Vieworks will not be liable for loss of image data due to any reason.
- 3 Before using this software, be sure to read this manual thoroughly. Also, read the manuals of relevant instruments in the system. Keep this manual where it is easily accessible.
- 4 Other systems and product names in this manual are the trademarks from their manufacturer.

1.2 Document Guide

This user manual explains about the **QXLink** viewer program, which performs transferring and adjusting the medical images.

This manual is provided in English. For other EU official languages, contact Vieworks for provision in other.

Target

This document is intended for the users who use **QXLink**. With this user manual, you can fully understand about the composition of **QXLink** and its various functions.

Contact Us

- This manual is provided in print format upon request by the customer.
- For comments or inquiries regarding this document and relevant products, contact via email below:

Item	Contents
Department	Customer Support Team at Vieworks
E-mail	CustomerSupport@vieworks.com



- You can download this manual from VDS (Vieworks Download System) website: <https://clouds.vieworks.com:5001/>. To obtain an ID and password for manual download, please contact the customer support team in Vieworks.

1.2.2 Symbols

Before / while attempting to use Vieworks' product, follow the safety instructions in this manual along with the warning or caution symbol. It is important for you to read and understand the contents with the following symbol for operating the products safely.

Caution



- This symbol is used to indicate a potentially hazardous situation that may cause death, physical injury or substantial property damage if the instructions are ignored. Users should be well acquainted with this symbol and the related contents.

Information



- This symbol is used for indicating product related references and supplementary information. Users are recommended to read the sentences with this notice carefully.

1.2.3 Notations

Bold Types

Words in bold indicate products terms, or the sentences which are needed to transmit clear meaning to the customers.

1.3 Revision History

Ver.	Date	Description	Applied (Viewer)	ver.
1.0	2012-10-15	<ul style="list-style-type: none"> Initial Release 	V3.0.0.5	
	2013-04-13	<ul style="list-style-type: none"> (Updated) Totally revised 	V3.0.0.6 – V3.0.0.10	
1.1	2013-04-18	<ul style="list-style-type: none"> (Added) 1.2.1 Login with a new edit server (Added) 17.1 Network properties check (Deleted) CE mark in the front cover 	V3.0.0.10	
	2013-04-22	<ul style="list-style-type: none"> (Deleted) 17. Troubleshooting (Move the contents to the Troubleshooting guide) 	V3.0.0.10	
2.0	2013-10-19	<ul style="list-style-type: none"> (Changed) Front cover/relevant pages (Added) FDA regulations 	V3.0.0.10	
		<ul style="list-style-type: none"> (Updated) 4 Study list UI layouts (Updated) 5.1.3 DICOM Directory 		
2.1	2014-02-21	<ul style="list-style-type: none"> (Updated) 5.3 Searching from database (Updated) 9 QXLink viewer (Updated) 10 Viewer 	V3.0.0.12	
		<ul style="list-style-type: none"> (Updated) 9.1.1 Thumbnail (Updated) 9.1.3 Study Viewer (Updated) 10.3 Opening DICOM file manually (Updated) 10.6.1 Selector 		
2.2	2014-07-14	<ul style="list-style-type: none"> (Updated) 10.7 Annotation common menu (Updated) 17.2.3 Query/Retrieve SCP (Updated) 17.5.3 Study viewer (Updated) 17.6.2 Image display format (Updated) 17.6.3 Custom image display format (Added) 10.6.16 Changing the location of study 	V3.0.0.15	
		<ul style="list-style-type: none"> (Changed) Title (Changed) Company address and logo (Changed) Document format (Added) 7 Veterinary Measurement 	V3.1.0.4	
3.1	2015-03-24	<ul style="list-style-type: none"> (Updated) Screen shots and icons (Added) 6 Human Measurement (Added) 13 Appendix 		
		<ul style="list-style-type: none"> (Changed) 7 Veterinary Measurement (Changed) Version format of a document file (Changed) 9 Print (Changed) 11.5 Viewer Option 	V3.2.0.14	
3.2.0.14	2016-08-30	<ul style="list-style-type: none"> (Updated) Full revision 	V3.3.0.15	
3.3.0.18	2018-01-05	<ul style="list-style-type: none"> (Updated) Full revision 	V3.3.0.18	

		<ul style="list-style-type: none"> • (Changed) Changed the European agent address and contact information. 	
3.3.0.21	2018-04-20	<ul style="list-style-type: none"> • (Changed) 1.4.1 Installation Requirements • (Changed) 3.3 Database Tab • (Changed) 4.1 Composition • (Changed) 4.2 Ribbon Tools • (Added) 4.3.4 Changing the Study Layout 	V3.3.0.21
3.3.1	2018-12-03	<ul style="list-style-type: none"> • (Changed) 3.1 Composition of Study List • (Changed) 3.2 Search Condition • (Changed) 3.3 Database Tab • (Changed) 4.1 Composition • (Changed) 4.2 Ribbon Tools • (Changed) 4.3 Functional Description of Viewer • (Changed) 12.1 Appendix 	V3.3.1
3.3.2	2019-03-26	<ul style="list-style-type: none"> • (Changed) 2.1 Executing the Program • (Changed) 3.1 Composition of Study List • (Changed) 3.3 Database Tab • (Added) 3.6 DICOM Queue • (Changed) 4.2.5 DICOM Send • (Added) 4.3.16 Sending E-mail 	V3.3.2
3.3.3	2019-08-07	<ul style="list-style-type: none"> • (Changed) 3.3.7 Opening Study Using Custom Screen Layout • (Changed) 3.3.13 Sending a Study • (Changed) 3.3.16 Portable Viewer • (Changed) 3.6.1 Window to Check • (Changed) 4.2.3 Opening DICOM File • (Changed) 4.3.13 Specifying / Releasing the Key Image • (Added) 4.3.17 Configuring Custom Ribbon Tools • (Added) 5.3 Shortcuts for Controlling Annotation • (Changed) 12.1 Appendix 	V3.3.3
3.3.4	2019-11-01	<ul style="list-style-type: none"> • (Changed) 2.1.1 Login • (Changed) 3.2.1 Search Conditions of Database • (Changed) 3.2.3 Search Conditions of DICOM Directory • (Changed) 3.3.5 Opening Images in Series Unit • (Added) 3.3.6 Opening Key Image only • (Added) 3.3.7 Opening with Reports • (Changed) 8.1 Report 	V3.3.4
3.3.5	2020-01-15	<ul style="list-style-type: none"> • (Changed) 5.3 Shortcuts for Controlling Annotation 	V3.3.5
3.3.7	2020-03-31	<ul style="list-style-type: none"> • (Changed) 1.4 Intended Use • (Changed) 1.5 Use Environment • (Changed) 3.3 Database Tab • (Added) 4.2.29 Contrast Enhancement 	V3.3.7

		<ul style="list-style-type: none"> • (Changed) 4.3 Functional Description of Viewer • (Changed) 5.1 Composition of Annotation • (Changed) 5.3 Shortcuts for Controlling Annotation • (Changed) 7.1 Composition of Veterinary Measurement • (Changed) 8.1.1 Composition of Report • (Added) 8.1.4 Approve • (Added) 8.1.5 Confirm Approval • (Changed) 9.1 Print Window • (Changed) 12.1 Appendix 	
3.3.7	2020-07-31	<ul style="list-style-type: none"> • (Changed) 1.2 Document Guide • (Changed) 1.4 Intended Use • (Added) 1.5 Contra-Indication • (Added) Front Cover 	V3.3.7
3.3.8	2020-10-12	<ul style="list-style-type: none"> • (Added) 4.3.18 Copying Images • (Changed) 8.2.5 Inserting Text 	V.3.3.8
3.3.9	2021-03-11	<ul style="list-style-type: none"> • (Changed) 4.3.4 Changing View Mode • (Changed) 4.3.16 Sending E-mail • (Added) Production plant address 	V3.3.9
3.3.10	2021-06-14	<ul style="list-style-type: none"> • (Changed) 4.2.14 Changed the name to Pixel Equivalent • (Added) 4.2.15 Planning Image • (Changed) 4.3.4 Changing View Mode • (Changed) 4.3.16 Sending E-mail • (Added) 8.1.11 Clipboard 	V3.3.10
3.3.11	2022-04-18	<ul style="list-style-type: none"> • (Changed) 3.1.4 DICOM Q/R • (Changed) 3.2.1 Search Conditions of Database • (Added) 3.2.7 Search Condition Template • (Changed) 3.3.14 Editing Patient • (Changed) 4.1.1 Viewer Window • (Changed) 4.1.2 Thumbnail View • (Changed) 4.1.5 Pixel Equivalent • (Changed) 4.2.5 Print • (Changed) 4.3.16 Sending E-mail • (Changed) 4.3.17 Configuring Custom Ribbon Tools • (Changed) 9.1.1 Moving to the Print Window • (Changed) 9.1.5 Closing the Print Window • (Changed) 9.2 Print Type • (Added) 9.3 Changing Printer • (Changed) 9.4 Changing Format • (Changed) 9.5 Adjusting Size • (Changed) 11.2.1 Original Size or Screen Size Toolbar • (Added) 11.4 Quick Launch • (Changed) 12 Appendix 	V3.3.11

3.3.12	2022-11-25	<ul style="list-style-type: none">• (Added) 4.2.22 Free Rotation• (Changed) 4.3.4 Changing View Mode• (Changed) 4.3.16 Sending E-mail• (Added) 4.3.19 Key Image Note	V3.3.12
---------------	------------	---	---------

1.4 Intended Use

QXLink is a Picture Archiving and Communications System (PACS) consists of a server and a viewer, which comprehensively processes functions necessary for obtaining and storing the patient's image information obtained through the medical imaging devices in digital format and transmitting, managing, inquiring (searching) and sharing the medical records together.

It transmits and stores medical images that generated with imaging devices such as X-Ray, MRI, CT, ultrasound, endoscopy, etc., for diagnosis in hospitals, in accordance with the medical standard (DICOM), and supports the diagnosis of a doctor from a patient's medical images without using films.

The viewer of QXLink should be used by qualified physicians/radiographers to diagnose patient and image information.

Modality	Description
CR	Computed Radiography
MR	Magnetic Resonance
US	Ultrasound
BI	Biomagnetic imaging
ES	Endoscopy
PT	Positron emission tomography (PET)
XA	X-ray Angiography
RTIMAGE	Radiotherapy Image
DX	Digital Radiography
IO	Intra-oral Radiography
GM	General Microscopy
XC	External-camera Photography
OP	Ophthalmic Photography
CT	Computed Tomography
MG	Mammography
NM	Nuclear Medicine
OT	Other
DG	Diaphanography
RG	Radiographic Imaging (Conventional film / Screen)
TG	Thermography
RF	Radio Fluoroscopy
PX	Panoramic X-ray
IVUS	Intravascular Ultrasound
BMD	Bone Densitometry (X-ray)

1.4.1 The Limits of Image Measurement Function

The image measurement function of **QXLink** is limited to the supplementary annotation.



- The accuracy of measurement functions for clinical and medical use can be affected by followings;
 - The quality of an image to be measured.
 - User's acquisition skill and comprehension of the tool.
- Therefore, it is recommended to use only the images of diagnosable quality. Also, a thorough understanding of the tool through provided user manual and guide function is highly recommended.
- Operation of the tool when lacking the comprehension of these information can lead to malfunctioning or unexpected accidents from misuse.

1.5 Use Environment

1.5.1 Installation Requirements

Workstation

Recommended/Minimum requirements of **QXLink** server

Item	Minimum	Recommended
CPU	Intel i3 Dual Core @1.2 GHz or higher	Intel i5 Quad Core @2.5 GHz or higher
RAM	4 GB or higher	8 GB or higher
HDD	500 GB HDD or higher	1 TB HDD or higher
LAN CARD	100Mbps	1Gbps

Recommended/Minimum requirements of **QXLink** viewer

Item	Minimum	Recommended
CPU	Intel i3 Dual Core @1.2 GHz or higher	Intel i5 Quad Core @2.5 GHz or higher
RAM	4 GB or higher	8 GB or higher
HDD	16 GB HDD or higher	32 GB HDD or higher
LAN CARD	100Mbps	1Gbps

Operating System (OS)

Item	Operating System
Microsoft Windows 7	<ul style="list-style-type: none"> • Microsoft Windows 7 Home Premium 32bit / 64bit • Microsoft Windows 7 Professional 32bit / 64bit • Microsoft Windows 7 Enterprise 32bit / 64bit • Microsoft Windows 7 Ultimate 32bit / 64bit
Microsoft Windows 8.1	<ul style="list-style-type: none"> • Microsoft Windows 8.1 32bit / 64bit • Microsoft Windows 8.1 Pro 32bit / 64bit • Microsoft Windows 8.1 Enterprise 32bit / 64bit
Microsoft Windows 10	<ul style="list-style-type: none"> • Microsoft Windows 10 Home 32bit / 64bit • Microsoft Windows 10 Pro 32bit / 64bit • Microsoft Windows 10 Enterprise 32bit / 64 bit
Microsoft Windows 11	<ul style="list-style-type: none"> • Microsoft Windows 11 Pro • Microsoft Windows 11 Enterprise



- **QXLink** server supports the following Microsoft Windows servers.
 - Microsoft Windows Server 2012 R2 64bit
 - Microsoft Windows Server 2016 64bit




- **QXLink** does not support Windows XP and Windows Vista.
- After January 14, 2020, Microsoft will no longer provide security updates or support for PCs running Windows 7. As this increases your chances of getting infected with new viruses or malware, we recommend upgrading to Windows 10, which continues to offer security updates.

2. Getting Started

This chapter explains about the composition and operation way of the program.

Executing the Program

2.1 Executing the Program

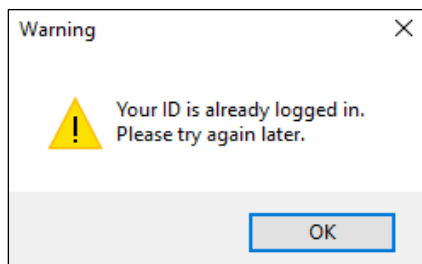
Icon	Location
	<p>On the wallpaper of PC or the starting program.</p>

2.1.1 Login

1 Select the pre-registered **QXLink** server you want to use, and input the registered user ID and password to log in.



2 If you try to log in with the ID you are currently using, the following warning appears, and you will not be able to log in.



- **QXLink** server does not have any limitation on the number of PCs in the **QXLink** viewer installation.
- The first time you log in, you should log in with your service account.
- If you log in with the same account on the same server, the viewer settings are retained even if you log in from another PC.



- The resistered user of **QXLink** server can log on to **QXLink** viewer only.
- **QXLink** server limits the number of concurrent users allowed by the license, and multiple access is not possible with the same ID.

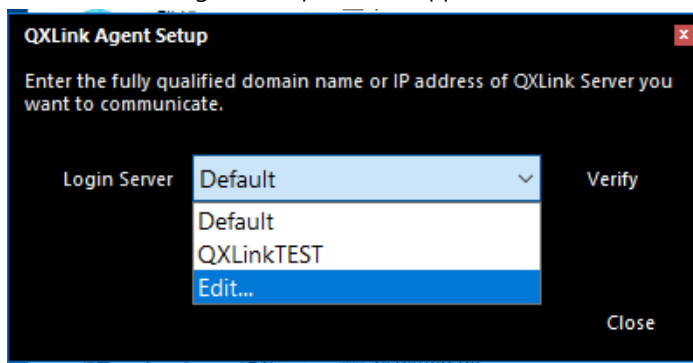
2.1.2 Setting Login Server

When connecting through another server of QXLink, you can change the server information by using the **Setting** menu.

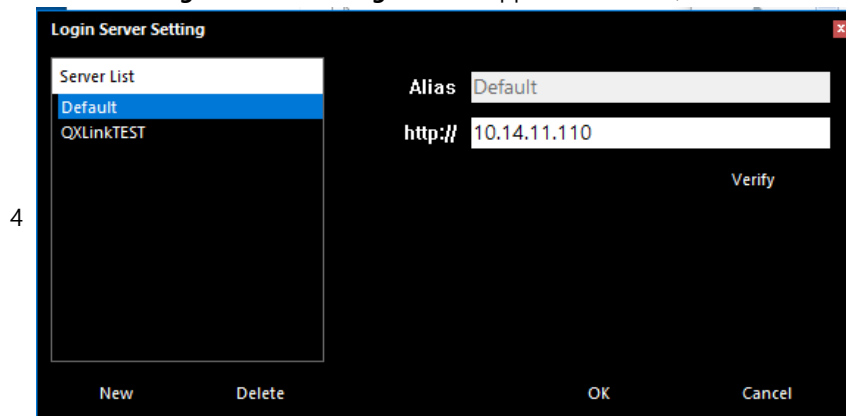
- 1 Right-click the QXLink agent icon and select **Settings**.



- 2 When the QXLink Agent Setup window appears as below, choose 'Edit' in the server list.

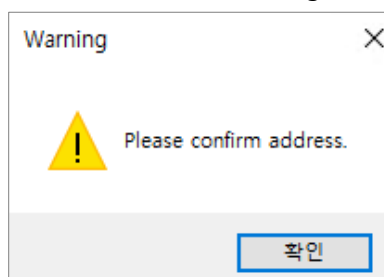


- 3 When the **Login Server Setting** window appears as below, add or delete the **QXLink** server you want.



- 5 Click the **Verify** button to check status of the **QXLink** server you want to use.


- 6 When the server is not running, the following popup '**Please confirm address**' is displayed.



2.1.3 Change a Password

- 1 Input the user ID.
- 2 Click on the **Change PW** button and input the old password and the new password to each field.
- 3 Enter the new password again in the **Confirm Password** field and click **OK** button.

2.1.4 Switching to Viewer Window

Click  button on the toolbar to move to the Viewer window from the study list window.



- Press F2 key to switch between the Viewer and Study List windows.



2.1.5 Switching to Setup Window

Click  button in the upper-right corner of any window.




- Refer to QXLink Service Manual for the detailed information about the settings of **QXLink** viewer.

2.1.6 Close

Click  button on the toolbar or  button at the right top of the Viewer window to close **QXLink** viewer.



- The close button () does not appear in a multi-viewer environment.

3. Study List

This chapter explains about the composition of Study List window in QXLink viewer.

Composition of Study List

Search Condition

Database Tab

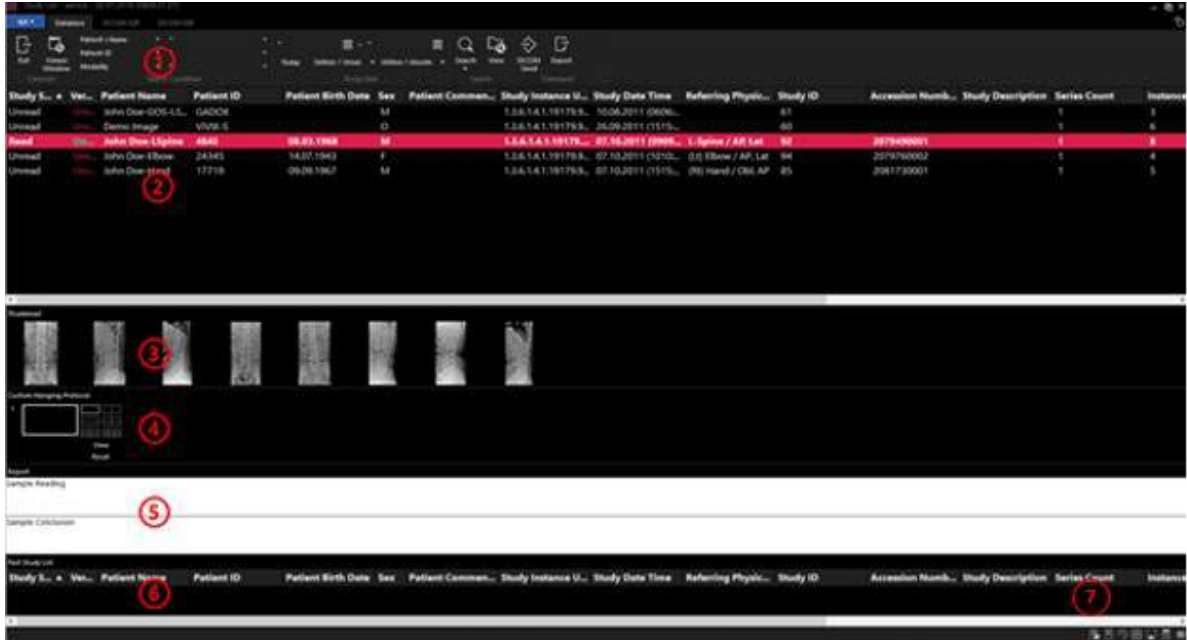
DICOM Q/R Tab

DICOM DIR Tab

DICOM Queue

3.1 Composition of Study List

3.1.1 Database




Item	Description
1	Database Ribbon Toolbar Displays a toolbar available in the Database tab of the Study List window.
2	Study List Displays a study list searched from the database tab.
3	Thumbnail List Displays thumbnails of the selected study.
4	User-defined screen layout Sets the view screen configuration for the selected study.
5	Report Displays report information of the selected study.
6	Past Study List Displays past study list for selected patients.
7	Status Bar Displays functions and their status used from the Database tab. (Refer to <3.1.3 Status Bar>)

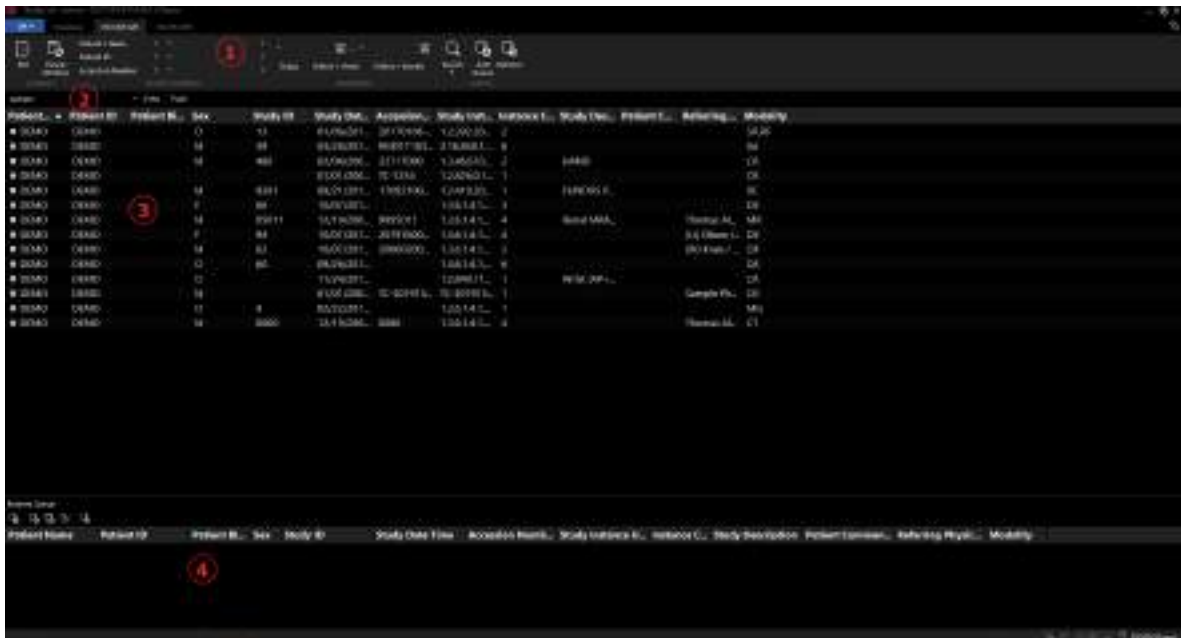
3.1.2 User-Defined Screen Layout

Image	Description
	<ul style="list-style-type: none"> Configures the view screen with the specified layout. Resets the layout.

3.1.3 Status Bar

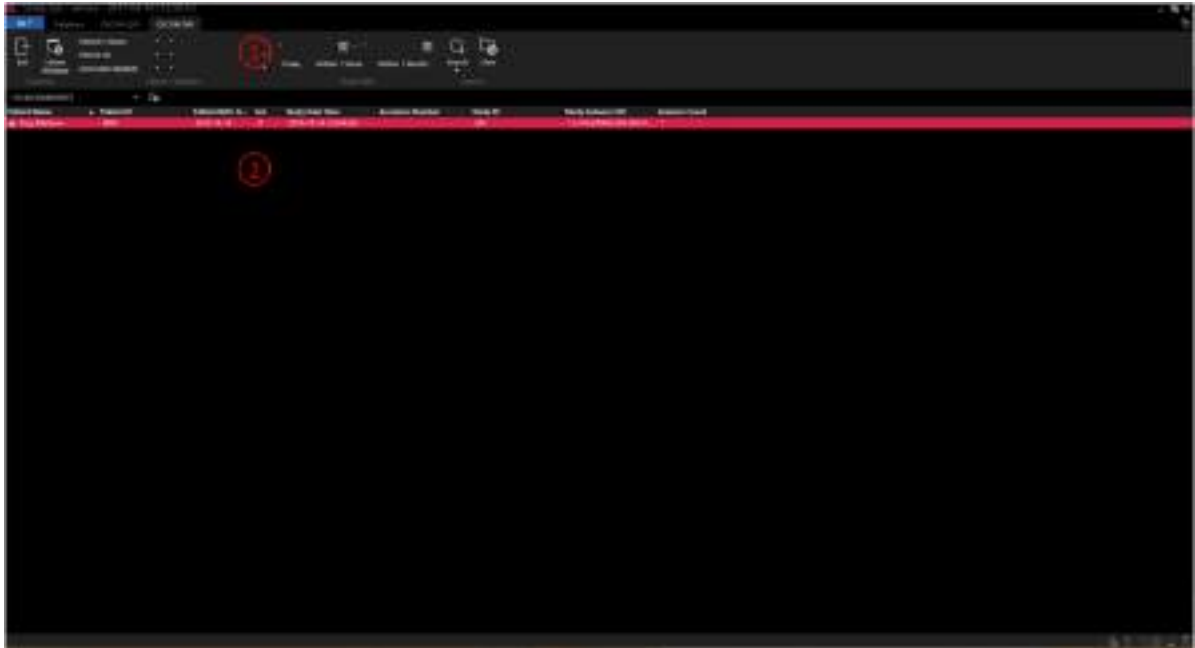
Image	Description (From the left)
	• Text mode
	• Preview mode
	• Show or Hide the past study list
	• Show or Hide thumbnail list
	• Show or Hide the setting of user-defined view layout
	• Show or Hide report
	• Show or Hide DICOM Queue

3.1.4 DICOM Q/R



Item	Description
1	DICOM Q/R Ribbon Toolbar Displays a toolbar available in the DICOM Q/R tab of the study list window.
2	DICOM Q/R Server List Displays DICOM Q/R server. Echo Checks connection with the server Push Imports the queried study to server.
3	Query List Displays a study list queried from the DICOM Q/R tab.
4	Retrieve Queue List Displays a Retrieve Queue list.

3.1.5 DICOM DIR



	Item	Description
1	DICOM DIR Ribbon Toolbar	Displays a toolbar available in the DICOM DIR tab of the Study List window.
2	Search Results	Displays search results from the DICOM DIR tab.

3.1.6 Changing the Size and Location of Window

You can adjust the size and location of windows composed the **Study List** window. The adjustable windows are as follows.

- Custom Hanging Protocol, Past Study List, Thumbnail, Report, Queue List

Change location of window

- 1 Press and hold the left mouse button on the title of window and drag it, then a placeholder which indicates location displays.



- 2 Press and hold the left mouse button and drag the pointer to the placeholder to relocate it in the desired place.
- 3 The window will be placed on the location after releasing the mouse left button.

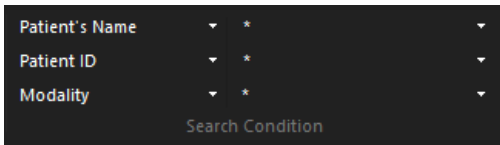


- 4 Resize the window size properly. The resized window and its location will be saved even though you restart the program.

3.2 Search Condition

3.2.1 Search Conditions of Database

You can search the stored studies flexibly by combining the search conditions. The supported conditions are as follows.

Image	Search Conditions
	<ul style="list-style-type: none"> • Study Status • Verification • Patient's Name, Patient ID • Patient Birth Date, Patient Sex, Patient Comments • Referring Physician • Study ID, Accession Number, Study Description • Modality, Body Parts, Operators • Institution, Source AE Title • Responsible Person (Demo & Veterinary License Only)

Study Status

The studies are classified into the following status.

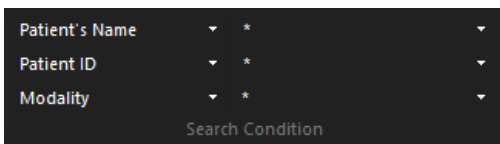
Name	Status
Unread	When no report exists.
Preliminary	If an unauthorized report exists. (Any user can change the report).
Approved	If an approved report exists.
Approval Confirmed	If an approved report exists that has been verified.

Verification

This item indicates the verification status of each study. The status of study is changed when you click on the **Save** button to save the status of image after you diagnosed it.

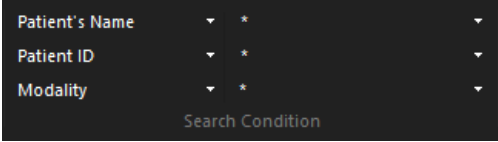
Name	Status
Unverified	The status of image is not changed since it has been stored in the server.
Verified	The status of image is changed after checking it.

3.2.2 Search Conditions of DICOM Q/R

Image	Search Condition
	<ul style="list-style-type: none"> • Patient's Name, Patient ID • Patient Birth Date, Patient Sex, Patient Comments • Referring Physician • Study ID, Accession Number, Study Description

- Modality

3.2.3 Search Conditions of DICOM Directory

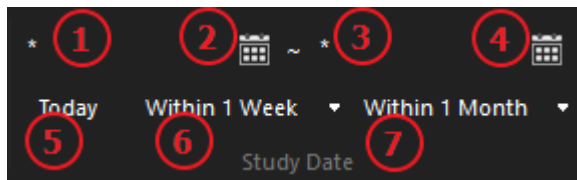
Image	Search Condition
	<ul style="list-style-type: none"> • Patient's Name, Patient ID, Patient Sex • Study ID, Accession Number



- You cannot select duplicated search conditions.
- The selected search conditions are maintained, even after you restart the program.
- The entered search values are recorded every time when you search the conditions. Fifteen (15) values are stored for each study temporarily.
- When you enter the following condition, a list of items containing the entered characters is displayed.
 - Patient Name, Patient ID, Referring Physician, Study ID, Accession Number, Body Part, Operators, Institution

3.2.4 Setting Search Period

You can configure a period of date for searching study records.



No.	Name	Description
1	Start date of search period	Input a start date manually.
2	Start date input calendar	Select a start date using a date picker calendar.
3	End date of search period	Enter the end date manually.
4	End date input calendar	Select the end date using a date picker calendar.
5	Studies within today	Search all studies performed today.
6	Studies within a week	Search all studies performed within a week including today.
7	Studies within a month	Search all studies performed within a month including today.



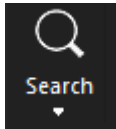
- Click on **Today**, **Within 1 Week**, or **Within 1 Month** to search each item without clicking on the **Search** button.
- You can set the default search period with the Preset (**Study List Options > Search Period**) setting.

3.2.5 Initializing Search Condition

Reset all search conditions including the changed condition or entered condition values.

How to reset search condition

- 1 Click on the bottom part of **Search** button.



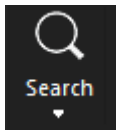
- 2 Click on the **Reset Search Condition** button.



3.2.6 Clearing Search Result

How to clear search result

- 1 Click on the bottom part of **Search** button.



- 2 Click on the **Clear** button.

- The search conditions are also initialized at the same time.



- The following lists become initialized on the **Database** window.
 - Study list
 - Thumbnail list
 - Past study list
 - User-defined screen layout



- The following lists become initialized on the **DICOM Q/R** window.
 - Retrieve List
 - Queue List



- The following list becomes initialized on the **DICOM DIR** window.
 - Search result

3.2.7 Search Condition Template

You can set search condition before use.

How to use a search condition template



No.	Item	Decription
1	List	Sets values of a template or selects the configured template.
2	Save	Saves the search condition as a template.
3	Favorites	Bookmarks a template.



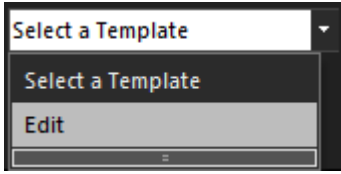
- You can use a template with a combobox, favorites button, and shortcut key.
- When using a template, search conditions for database and template appear.



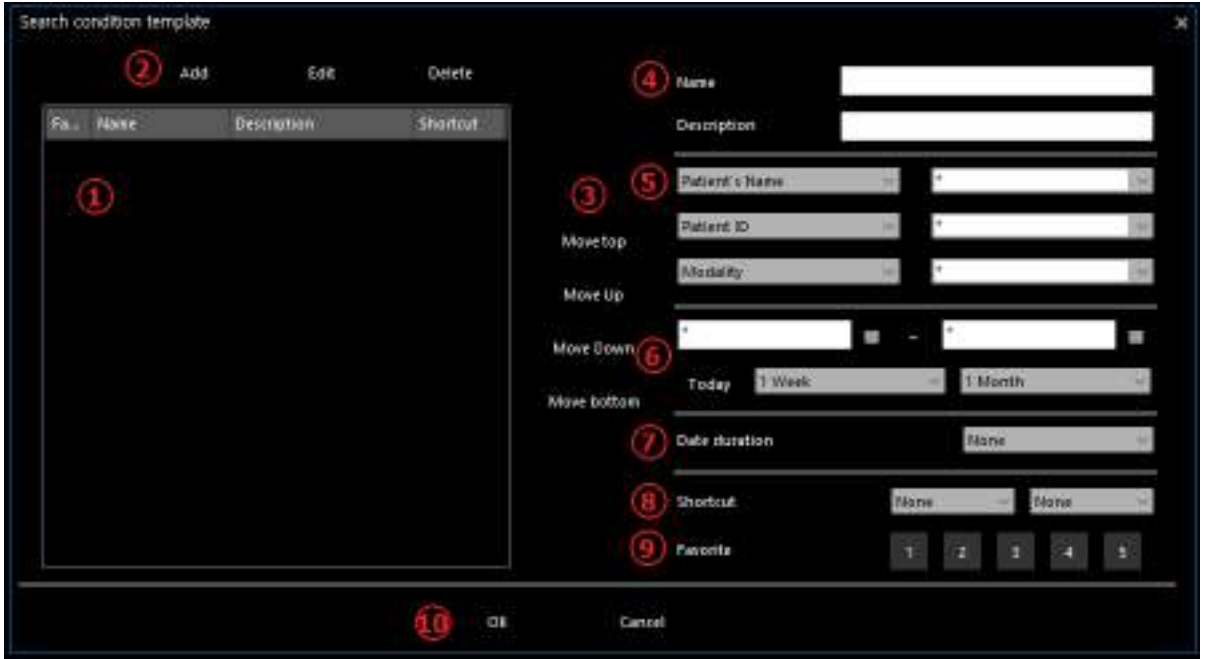
- When selecting one of Favorites, having an unestablished template, the following lists are initiated.
 - Study list
 - Thumbnail list
 - Study history
 - Customized screen composition

How to configure search condition template

1. Click the Edit button from the template list.



2. Configure the template from the setting in the search condition template.



No.	Item	Description
1	Template List	Shows the predetermined search template.
2	Add / Edit / Delete	Adds, edits, and deletes search template.
3	Template Move	Changes the order of templates from the list.
4	Template Name / Description	Specifies name and description of the search template.
5	Search Condition	Configures search condition.
6	Search Period (fixed)	Sets specific dates for search period.
7	Search Period (As of today)	Sets search period as of today.
8	Shortcut key	Sets shortcut keys for search template.
9	Favorites	Designates the template as a favorites button.
10	Okay / Cance	Cancels or saves the values in the template.




- Search period configured from the search condition template is irrelevant to the values from Preset > study list option > study date > search period.

3.3 Database Tab

3.3.1 Search

You can search studies stored in the database.

- 1 Select search conditions and input search values.
- 2 Set the search periods.
- 3 Click on the **Search**  button.



- Search conditions are case-insensitive.
- Wild-card characters (*) are available. The entered search values are recorded every time when you search the conditions. Fifteen (15) values are stored for each study temporarily.



- Click on **Today**, **Within 1 Week**, or **Within 1 Month** to search each item without clicking on the **Search** button.

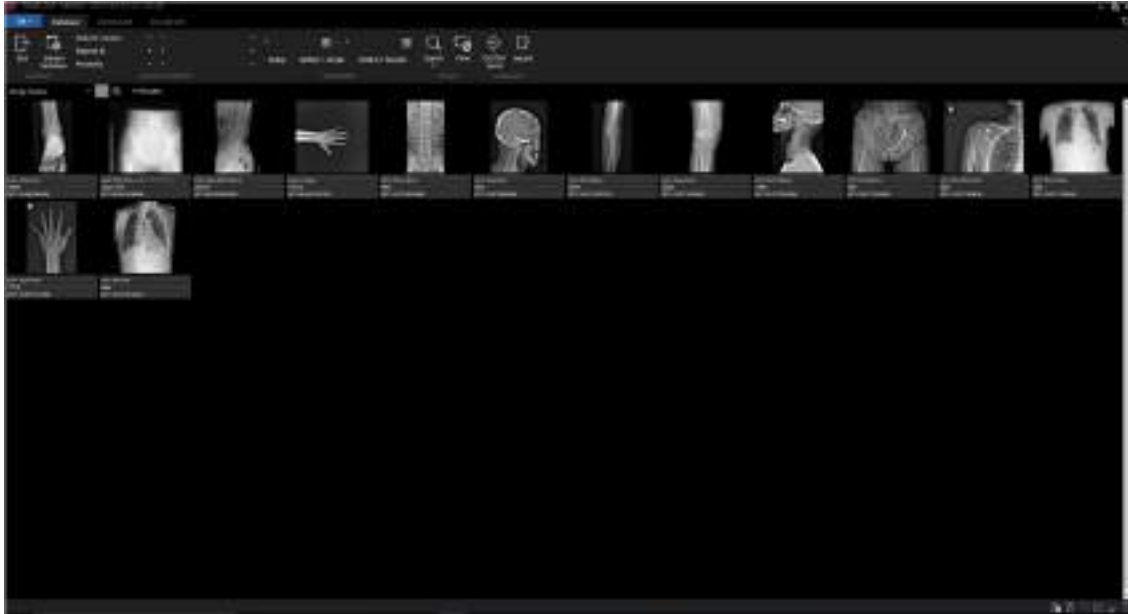
3.3.2 Thumbnail View

In the thumbnail list, thumbnail images included in the searched studies from database are displayed. If you select a searched study, the relevant thumbnail is displayed.



3.3.3 Preview Mode

Click the **Preview Mode** icon on the status bar to display representative images of searched studies in the preview mode. This function is useful when you check images of study in advance. (Refer to <3.1.3 Status Bar>.)



- Click on the **Text Mode** icon on the status bar to switch the mode from **Preview Mode**.
- The information indicated each study is as follows.
 - Patient's Name, Patient ID, Study Date Time
- The first image in the thumbnail is indicated as a representative one based on the series and instance numbers.

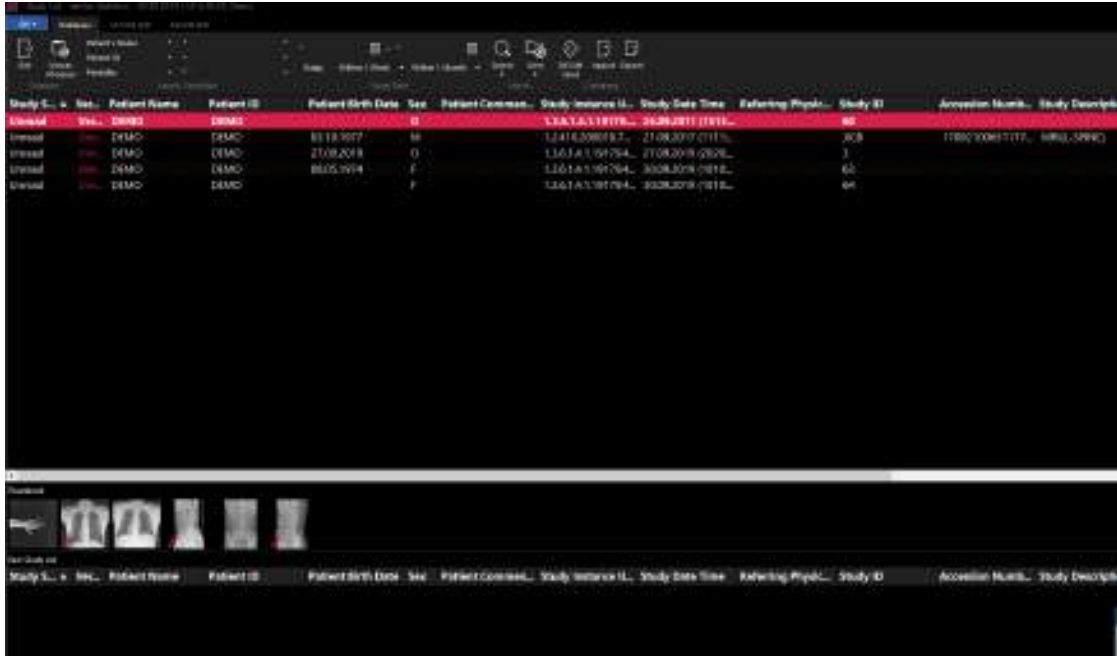
3.3.4 Opening Images in Study Unit

1 Select a study from the searched study list.

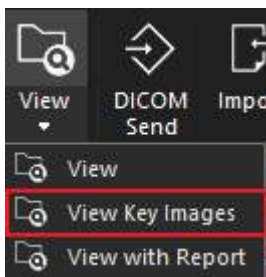


3.3.6 Opening Key Image only

- 1 Select a study from the list of searched studies.

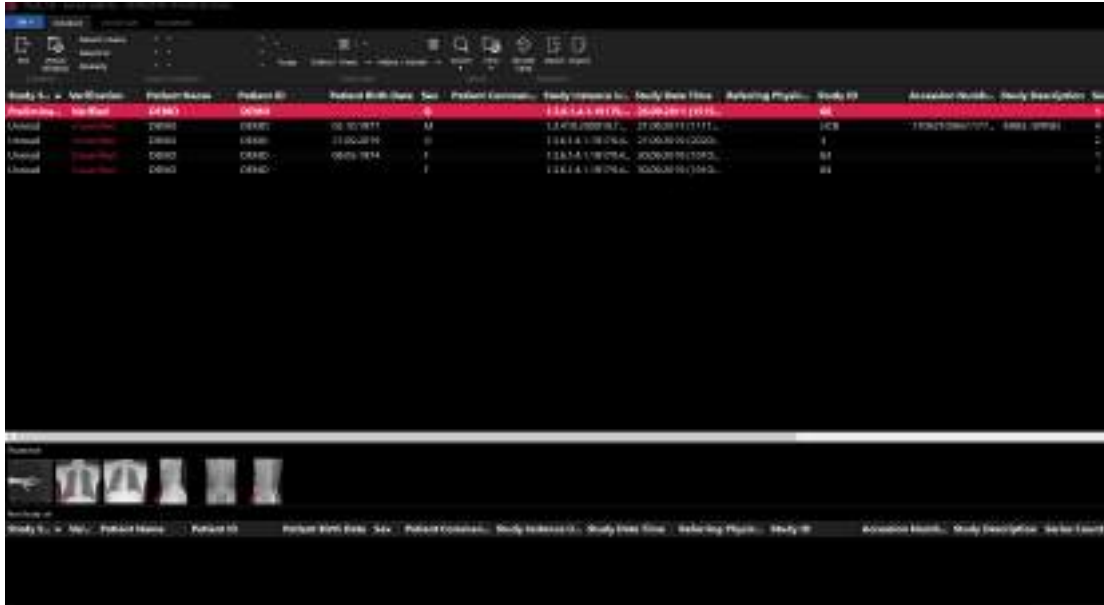


- 2 Expand the View icon on the toolbar and click 'View Key Images'.

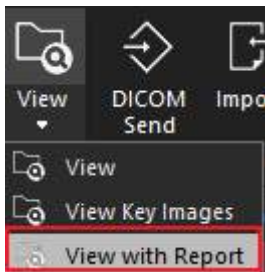


3.3.7 Opening with Reports

- 1 Select a study from the list of searched studies.




- 2 Expand the View icon on the toolbar and click 'View with Report'



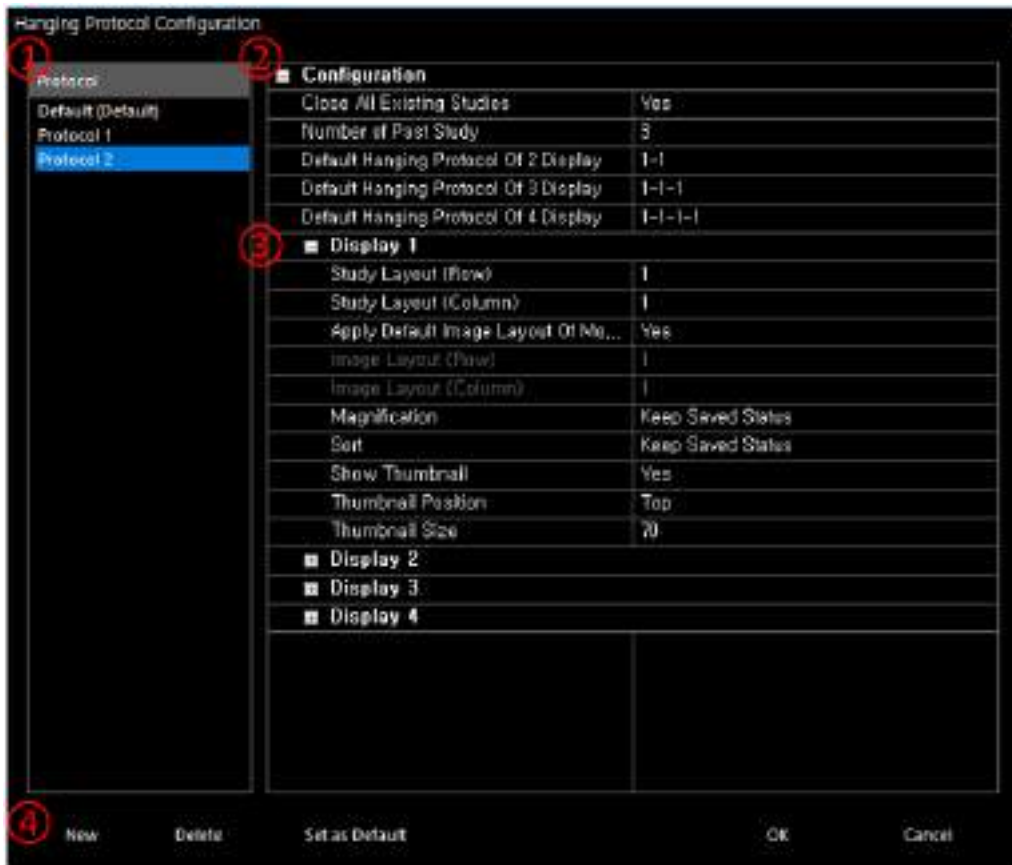
3.3.8 Opening Study Using Protocol (View with Protocol)

You can customize the screen using predefined protocols.

- 1 Click the text at the bottom of the **View with Protocol** button  to see the submenus.
- 2 You can set a new custom protocol by clicking the **Edit** button in the submenu.



- 3 You can add, modify, and delete protocols in your custom protocol configuration as follows.



No.	Function	Description
1	User-defined protocol	Displays a list of currently defined user-defined protocols.
2	Protocol configuration	Displays the functions applicable to the current protocol.
3	Configuration for screen	Displays the applicable configuration on the screen of the current number.
4	Apply button	You can create and delete protocols as well as specify a default protocol.

Protocol Configuration

Function	Description
Close All Existing Studies	When you open the exam, close all existing exams.
Number of Past Study	Specifies the number of past exams to display.
Default Hanging Protocol of 2 Display	Displays screen configurations that can be set when two monitors are connected.
Default Hanging Protocol of 3 Display	Displays screen configurations that can be set when three monitors are connected.
Default Hanging Protocol of 4 Display	Displays screen configurations that can be set when four monitors are connected.

Monitor Display

Layout	Description
1-1	A total of two screens, one screen for each monitor
1-1-1	A total of three screens, one screen for each monitor
1-1-1-1	A total of four screens, one screen for each monitor
1-2-1	Among the four monitors, two monitors in the middle are configured as one screen (three screens in total)


Screen Configuration (Based on monitor)

Function	Description
Study Layout (Row)	Sets the number of rows in the study layout.
Study Layout (Column)	Specifies the number of columns in the study layout.
Apply Default Image Layout of Modality	Sets whether to apply the default image layout set for the modality.
Image Layout (Row)	Sets the number of rows in the image layout.
Image Layout (Column)	Sets the number of columns in the image layout.
Magnification	Sets the magnification status of the image.
Sort	Sets the sort order of the image.
Show Thumbnail	Sets whether to display thumbnails.
Thumbnail Position	Sets the position to show the thumbnail.
Thumbnail Size	Sets the size of the thumbnail.



- The magnification options that can be set are **Keep Saved Status**, **Fit to Screen**, and **Real Size (1:1)**.
- The sort options that can be set are **Keep Saved Status**, **Image Number**, and **Acquisition Date Time**.

3.3.9 Opening Study Using Custom Screen Layout

- 1 Based on the number of layouts set in **Display Configuration** of the Viewer's setup () menu, you can open a study by setting placement of view to be applied to each layout.
- 2 You can select the layout of the view by dragging and dropping any study in the list of the layout you set to the user-specified view.

- Alternatively, you can right-click and add it by clicking the **Add to Custom view** button in the popup.

Add to Custom View


- 3 You can open the study by clicking the **View** button, or you can relocate it by clicking the **Reset** button.



- Alternatively click the **View with Custom** button to open the study.

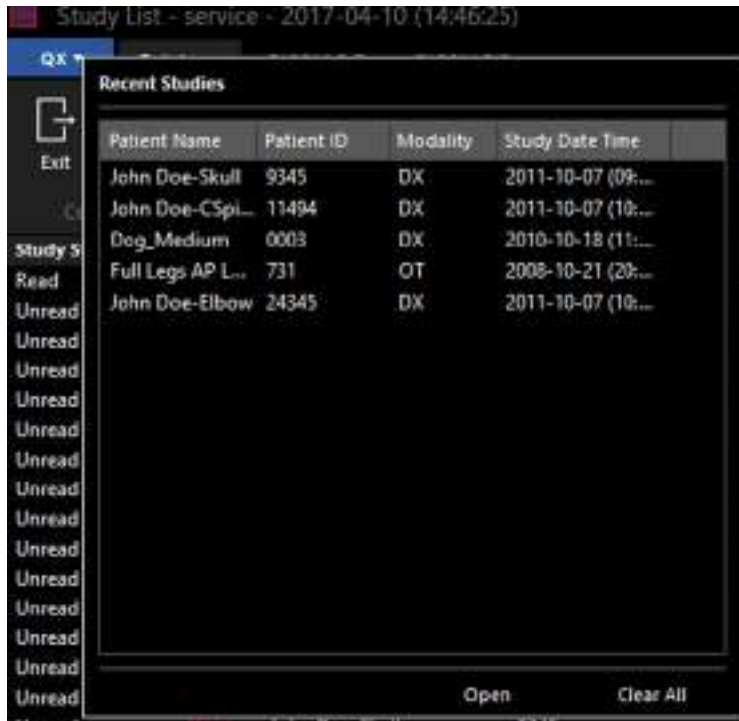
View with Custom



- In case of the study image, an icon () is displayed to distinguish it from the instance image.
- You can also configure the view layout with thumbnail images.

3.3.10 Searching the Recently Searched Images

- 1 Click the arrow of **QX** menu on the left top.



- 2 You can view the recently searched study list from the pop-up window of **Recent Studies**.
 - Select a desired study and click on the **Open** button to display the selected study on the viewer screen.
 - All searched lists of study are deleted by clicking on the **Clear All** button.



- Images that are directly displayed in the thumbnail list or stitch mode will not be displayed in the list of recently viewed images.

3.3.11 Opening from the Print Mode Directly

You can directly open the selected studies or images from the **Print** mode to print them. You can save more memory if you open the items from the **Print** mode without passing the **Viewer** window. You can also use the system more efficiently by skipping several procedures.

- 1 Select an image from the study or thumbnail list.
- 2 Click the right mouse button to display the popup menus.
- 3 Click the **Open as New Sheet** or **Add to Current Sheet** menu.

Add to Current Sheet



3.3.12 Opening from the Stitch Mode Directly

You can directly open the selected studies or images from the **Stitch** mode to stitch them. You can also get more memory available on your system by opening the items directly in Stitch mode without going through the Viewer window.

- 1 Select images from the study or thumbnail list.
- 2 Click the right mouse button to display pop-up menus.
- 3 Click the **Open Study to Stitch** menu to process stitching images.

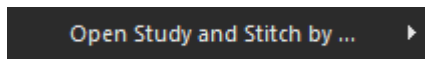
Open Study to Stitch



3.3.13 Processing Auto Stitch

You can open the selected study or image directly in the Stitch mode and perform stitching with the specified preset.

- 1 Select images from the study or thumbnail list.
- 2 Click the right mouse button to display pop-up menus.
- 3 Click a submenu (Preset) of the **Open Study and Stitch by** menu.



- Presets for automatic stitching can be set in Configure stitch parameters in the Stitch mode.

3.3.14 Editing Patient

The patient information of the selected exam can be edited.

- 1 Select an image from the study list.
- 2 Right-click to display a pop-up menu.
- 3 When you click the **Edit Patient** menu, the following window is displayed.



The 'Edit Patient' dialog box contains the following fields and controls:

- Patient Name:** Text input field with 'TestName'.
- Patient ID:** Text input field with 'IT-114'.
- Birth Date:** Date picker showing '1988-02-14' and a range 'MM-DD-YY'.
- Age:** Spin box showing '30' and a unit 'Year'.
- Patient Sex:** Dropdown menu showing 'Male'.
- Patient Comments:** Text area.
- Study Description:** Text area.
- Buttons:** 'Reset', 'OK', and 'Cancel' at the bottom.

4 After editing the patient information and selecting OK, the items edited in the Study List are displayed as follows.



- Modification of patient information can be performed in the popup menu displayed by right-clicking in the Viewer window.
- If a multiple number of various exams are mixed together, you cannot edit the patient information.

3.3.15 Sending a Study

Send the selected studies to the other DICOM applications. You can apply annotations stored in the image or change window level when sending study or series.

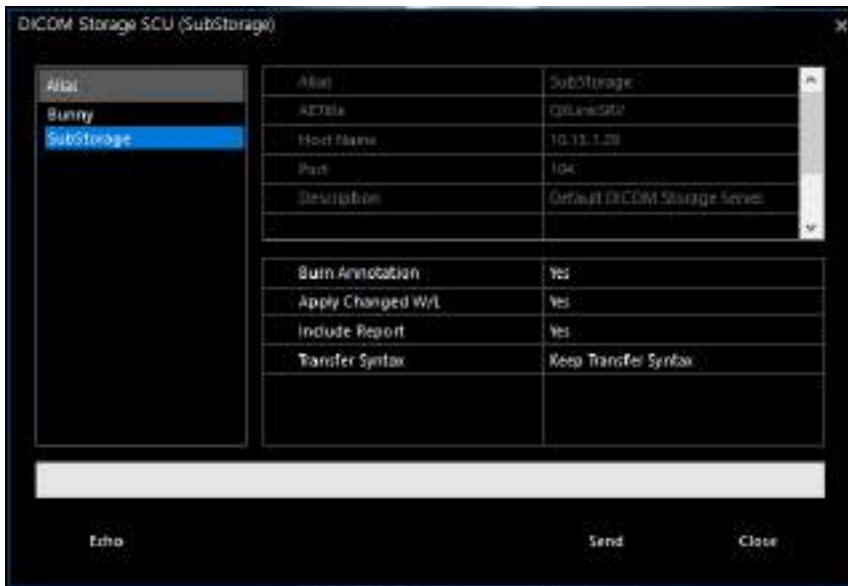
How to send study

- 1 Retrieve studies with the selected search conditions.
- 2 Select studies or series to send.



3 Click on  button on the toolbar.

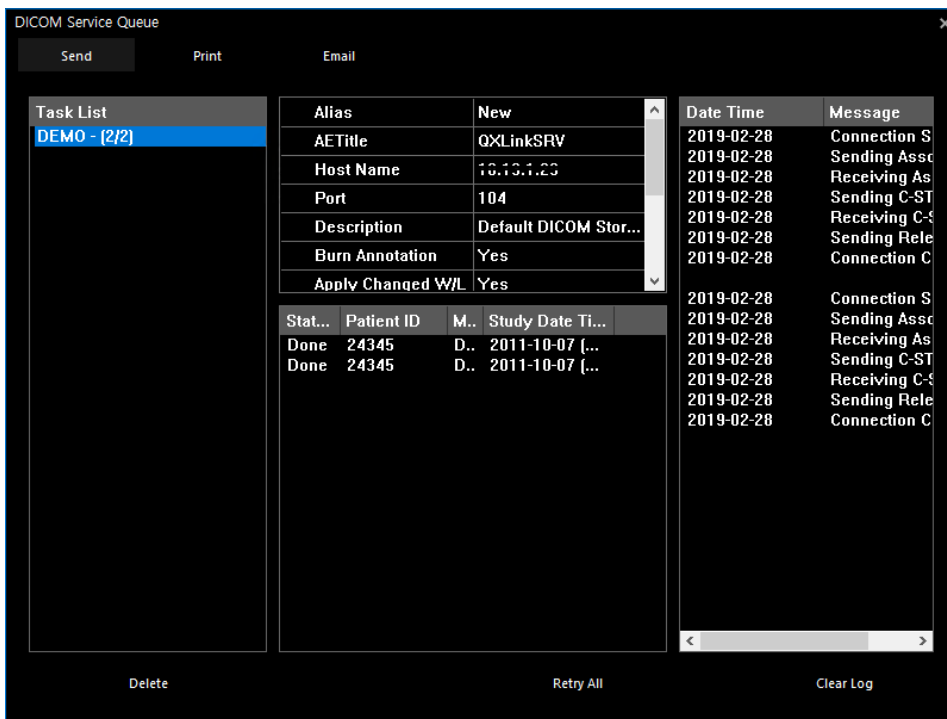
4 Select **Alias** of the application to send studies.



5 Change the sending option and click on the **Send** button.

6 Check the queue completion message or the error message.

7 Click the Show / Hide DICOM Queue button () on the status bar to check the transfer status.



Sending options

- **Burn Annotation:** Sends the study by applying annotation and shutter information into pixels.
- **Apply Changed W/L:** Applies the changing window level to the study.
- **Include Report:** Sends the report in DICOM SR format.

- **Transfer Syntax:** Sends the study by changing compression (transfer syntax).

Transfer Syntax	Description
Keep Transfer Syntax	Uses existing transfer syntax.
Uncompress	Decompresses the compressed image.
DICOM JPEG 2000 Lossless	Uses JPEG 2000 lossless compression.
DICOM JPEG 2000 Lossy (Maximum)	Lossy compression. (Maximum)
DICOM JPEG 2000 Lossy (High)	Lossy compression. (High)
DICOM JPEG 2000 Lossy (Medium)	Lossy compression. (Medium)
DICOM JPEG Lossless	Uses JPEG lossless compression.
DICOM JPEG Lossy (Maximum)	Lossy compression. (Maximum)
DICOM JPEG Lossy (High)	Lossy compression. (High)
DICOM JPEG Lossy (Medium)	Lossy compression. (Medium)

- **Security Mode:** Sends the study by applying the selected security mode.

Security Mode	Description
TLS 1.0 Secure Mode	Applied TLS 1.0

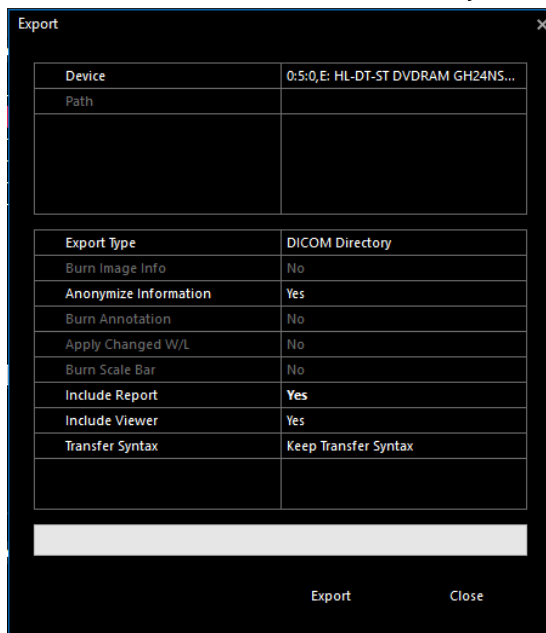



- The **Default** item set in the server as a default value cannot be modified.
- You cannot send studies searched from database to the **Default** server.

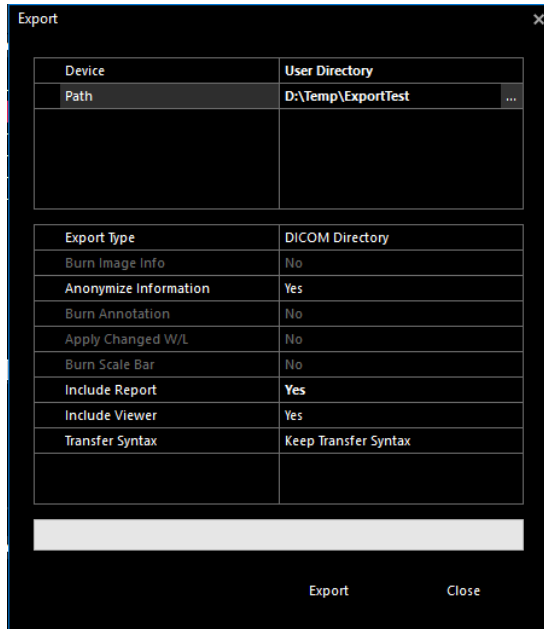
3.3.16 Exporting Study

Export

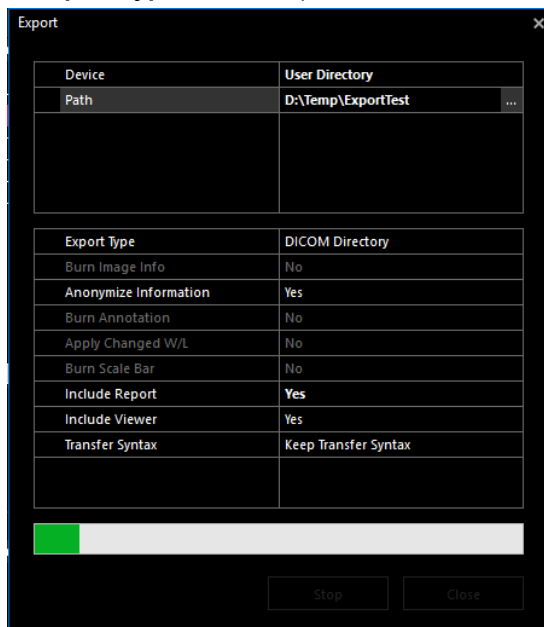
- 1 Select search conditions, and search studies you want.



- 2 Click on  button on the toolbar.
- 3 Insert CD/DVD or a USB drive.
- 4 Click **Device** menu to select a desired option. The **Path** menu becomes activated when you select the **User Directory** option, and you can specify a folder to export images.



- 5 Click **Export Type** to select options and click on the **Export** button.



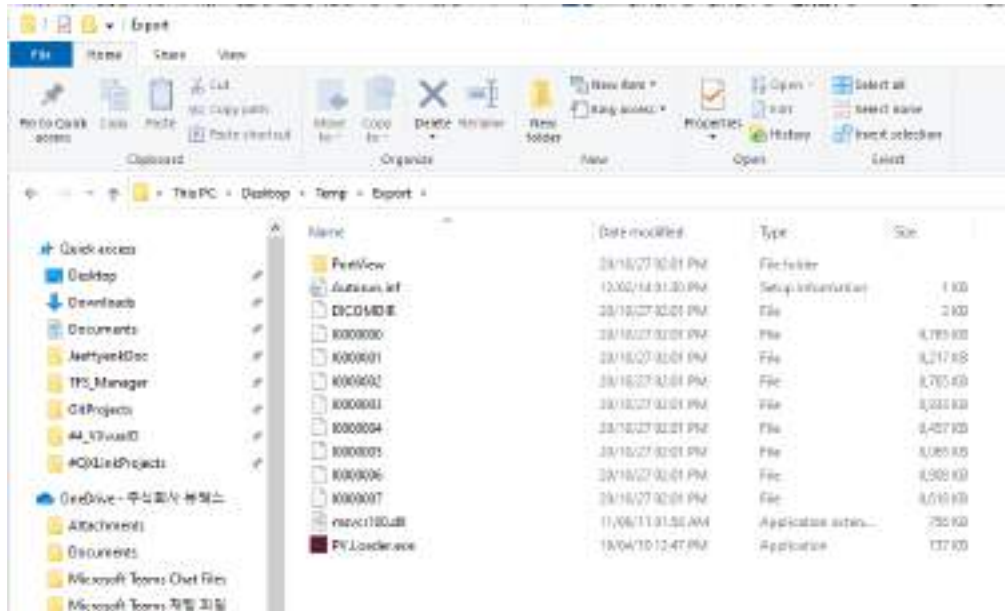
- 6 Check the completion message or the error message.



- The message asking whether to remove the USB device appears when the study is exported to USB.

- When selecting **Export** type to one of the Raster image format (PNG, BMP, JPEG, and TIF), the outcome of image filter application may be different for an image with multi-bytes per pixel.

7 If you specify the path for exporting files, the portable viewer is created. With this portable viewer, you can check the exported images without logging on to **QXLink** viewer.




- If you select **No** from the options in **Include Viewer** menu, the portable viewer cannot be created.
- If you select Yes in the Include Report menu option, the report is included in the study and exported to DICOM SR.

3.3.17 Importing Study



- Unlike the Import function of the Server, the Import function of the Viewer is affected by the network environment.

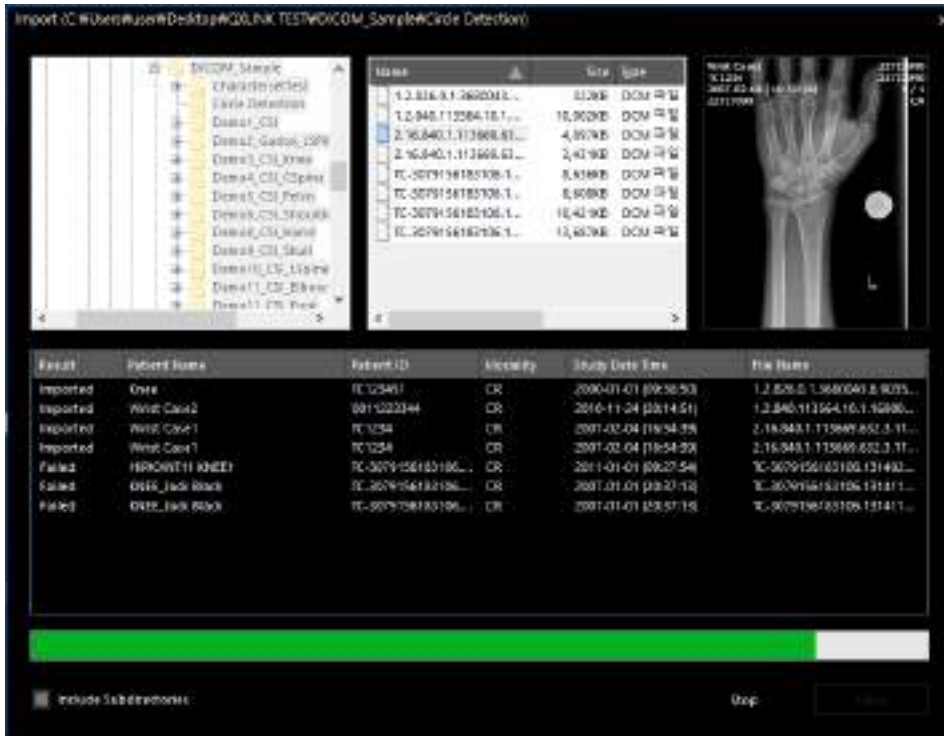
1 Click  button on the toolbar.

2 Select a study or the path to import a study.



- If you select the **Include Subdirectories** option, the studies in subfolders of the selected path are also imported.

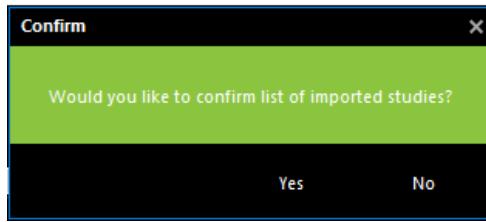
3 Click the Import button to import studies.



4 Check the completion message or the error message.

5

6 In the message below, check the study taken from the Study List.



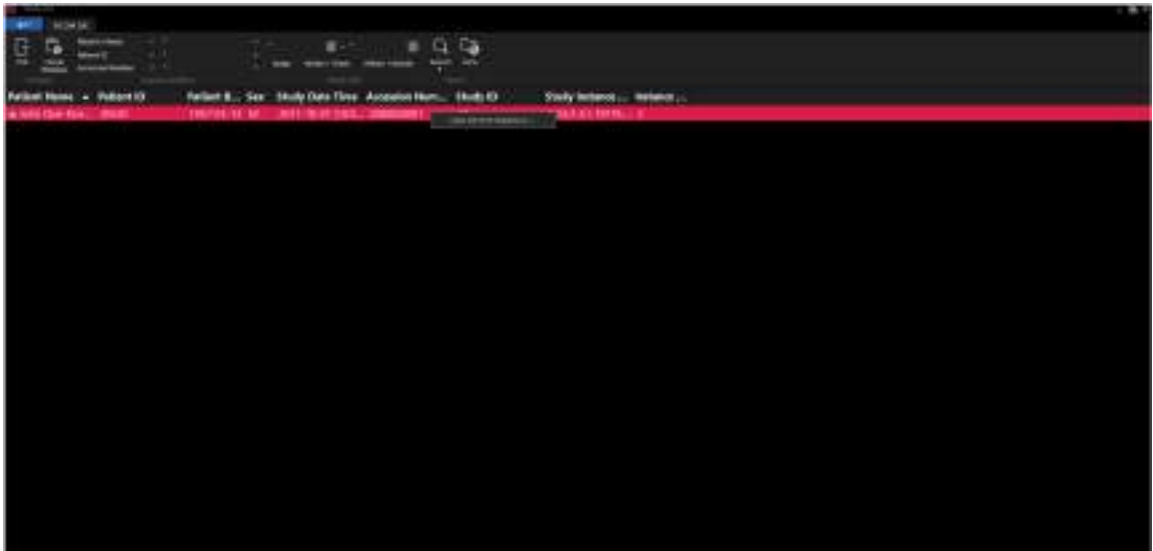
3.3.18 Portable Viewer

You can copy the desired study, series or images from the **Portable Viewer** study list to the specified folder.

1 Run **PV.Loader.exe** after exporting images.

Name	Date modified	Type
PortView	2021-02-25 오전 11:22	File folder
Autorun.inf	2012-02-14 오후 1:30	Setup Information
msvcr100.dll	2011-06-11 오전 1:58	Application exten.
PV.Loader.exe	2020-10-23 오전 8:15	Application

2 Choose a desired study and click the right mouse button. After that, select **Copy Selected Image(s) to**.



3 Specify the path and copy the selected images to the folder.

Export Options

Item	Description
Export Type	<ul style="list-style-type: none"> • DICOMDIR • BMP • JPEG • TIF • RAW • PNG
	Burn Image Info • Applies the patient or study information into pixels.
	Anonymize Information • Anonymizes patient information.
	Burn Annotation • Applies the annotation and shutter information to pixels.
	Apply Changed W/L • Applies the changing window level to pixels.
	Burn Scale Bar • Applies the scale bar to pixels.
Include Viewer • Includes a viewer to display the exported DICOM file.	
Include Report • Includes a report in DICOM SR format.	
Transfer Syntax • Same as the transfer syntax used for sending study.	




- Click on the **Stop** button to stop studies from being exported.



- The following options cannot be applied depending on the export type:
 - **DICOM DIR** - Burns Image Info., Burn Scale Bar
 - **BMP, JPEG, TIF, PNG** - Anonymizes Information, Include Viewer, Include Report, Transfer Systax
 - **Raw** – Not all options can be applied.

3.4 DICOM Q/R Tab

Click on the  button in the **DICOM Q/R** tab to query or retrieve studies in the DICOM server which supports DICOM Q/R service.



- The **DICOM Q/R** tab follows the standard of DICOM Q/R SCU Service. From this dialog, you can query studies or retrieve images by accessing to the server which supports DICOM Q/R SCP Service.



- From the **DICOM Q/R** tab, you can query or retrieve studies in **QXLink** server by using the standard way of **DICOM Q/R** service. However, this way is slower than the way of direct access from the database tab in **QXLink** viewer to the database in **QXLink** server. Therefore, it is recommended to use the database tab when you query or retrieve studies. (This way is called as a non-standard way or a direct way.)

3.4.1 Search

1 Select search conditions and enter the search values.






2 Configure the search period.

3 Click on the  button.



- The case-sensitive matching of search conditions may vary depending on the DICOM Server.

3.4.2 Queue List Toolbar

Icon	Name	Description
	Add Queue	Adds the selected study to queue.
	Clear	Deletes selected items from the queue list.
	Clear All	Deletes all items in the queue list.
	Select All	Selects all items in the queue list.
	Retrieve	Retrieves selected studies from the queue list.

3.4.3 Searching Images in Study Unit

- 1 Select studies from the Query list.

Patient Name	Patient ID	Patient Birth D...	Sex	Study ID	Study Date Time	Accession Num...	Study Instance ...	Instance Count	Study Descripti...	Patient Comme...	Referring Physi...	Modality
Demo Image	VVIX-S	1999-11-30	O	60	2011-09-26 (15:...		1.3.6.1.4.1.1917...	6				DX
John Doe-...	6258	1943-03-10	M	69	2011-10-07 (11:...	2080580001	1.3.6.1.4.1.1917...	7		Chest / PA		DX
John Doe-...	11494	1971-04-17	M	65	2011-10-07 (10:...		1.3.6.1.4.1.1917...	2				DX
John Doe-E...	24345	1943-07-14	F	94	2011-10-07 (10:...	2079760002	1.3.6.1.4.1.1917...	4		(Lt) Elbow / AP...		DX
John Doe-F...	30349	1988-07-18	M	93	2011-10-06 (09:...	2069170030	1.3.6.1.4.1.1917...	2		%28L1%29%20...		DX

- 2 Click on the **Add Queue** button.

- 3 Select added items in the **Queue** list.

Patient Name	Patient ID	Patient Birth D...	Sex	Study ID	Study Date Time	Accession Number	Study Instance UID	Instance Count	Study Description
John Doe-CSpine	11494	1971-04-17	M	65	2011-10-07 (10:20:58)		1.3.6.1.4.1.19179.9000000...	2	
John Doe-GOS-LSpine	GADOX	1999-11-30	M	61	2011-08-10 (06:39:33)		1.3.6.1.4.1.19179.9000000...	2	

- 4 Click on the **Retrieve** button from the Queue list toolbar.

3.4.4 Opening Images in Series Unit

- 1 Select the desired study series from the study list.

Series Number	Modality	Series Instance UID	Body Part Examined	Performed Status	Instance Count
Demo Image	VVIX-S	1999-11-30	O	60	2011-09-26 (15:37:32)
John Doe-Chest	6258	1943-03-10	M	69	2011-10-07 (11:05:46)
John Doe-CSpine	11494	1971-04-17	M	65	2011-10-07 (10:20:58)
John Doe-Elbow	24345	1943-07-14	F	94	2011-10-07 (10:05:13)
1	DX	1.3.6.1.4.1.19179.9000000...			
John Doe-Foot	30349	1988-07-18	M	93	2011-10-06 (09:45:05)
John Doe-GOS-LSpine	GADOX	1999-11-30	M	61	2011-08-10 (06:39:33)
John Doe-Hand	17719	1967-09-09	M	85	2011-10-07 (15:17:00)

- 2 Click on the **Add Queue** button.

- 3 Click on the **Retrieve** button from the **Queue** list toolbar.

3.4.5 Opening in Image Units

How to retrieve in image unit

- 1 Select instance of the desired series from the study list.

Instance Number	SOP Instance UID	SOP Class UID	Transfer Syntax UID	Retrieve AE
☒ Demo Image	ViVIX-S	1999-11-30	O	60
☒ John Doe-Chest	6258	1943-03-10	M	69
☒ John Doe-CSpine	11494	1971-04-17	M	65
☒ John Doe-Elbow	24345	1943-07-14	F	94
☒ 1	DX	1.3.6.1.4.1.19179.9000000...		
2	1.3.6.1.4.1.19179.9000000...		1.2.840.10008.1.2	
3	1.3.6.1.4.1.19179.9000000...		1.2.840.10008.1.2	
4	1.3.6.1.4.1.19179.9000000...		1.2.840.10008.1.2	
5	1.3.6.1.4.1.19179.9000000...		1.2.840.10008.1.2	
☒ John Doe-Foot	30349	1988-07-18	M	93

- 2 Click on the **Add Queue** button.
- 3 Select added items in the **Queue** list.

Patient Name	Patient ID	Instance Number	SOP Instance UID	SOP Class UID	Transfer Syntax UID	Retrieve AE
		2	1.3.6.1.4.1.19179.9000000...		1.2.840.10008.1.2	
		3	1.3.6.1.4.1.19179.9000000...		1.2.840.10008.1.2	

- 4 Click on the **Retrieve** button from the **Queue** list toolbar.

3.5 DICOM DIR Tab

You can display study information from DICOM Directory (DICOMDIR). To display study information, insert CD / DVD, local drive or USB drive and choose a specific folder where DICOMDIR exists. Click on the **Search** button after you complete setting the search conditions.

3.5.1 Opening in Study Units

- 1 Select studies from the searched list.

Patient Name	Patient ID	Patient Birth Date	Sex	Study Date Time	Accession Number	Study ID	Study Instance UID	Instance Count
John Doe-Foot	3049	1988-07-18	M	2011-10-06 (09:45:05)	28917000	95	1.3.6.1.4.1.19179.90000000...	2
John Doe-Pelvis	1403	1971-04-17	F	2011-10-07 (10:35:05)	28917000	81	1.3.6.1.4.1.19179.90000000...	3
John Doe-Skull	9345	1941-07-23	F	2011-10-07 (09:59:04)	28917000	81	1.3.6.1.4.1.19179.90000000...	4
Kashi Phantom= =カ...	Jikken-2011	1981-12-17	M	2011-03-28 (19:28:48)	28917000	39	2.16.840.1.13988.652.3.1...	7

- 2 Click on the **View** button.

3.5.2 Opening in Series Units

- 1 Select series of the desired study from the study list.

Series Number	Series Date Time	Modality	Series D...	Series Instance UID
John Doe-Foot	30349	1988-07-18	M	2011-10-06 (09:45:05)
John Doe-Pelvis	1403	1971-04-17	F	2011-10-07 (10:35:05)
↑		DX		1.3.6.1.4.1.19179.900000000000...
John Doe-Skull	9345	1941-07-23	F	2011-10-07 (09:59:04)
Kashi Phantom= =カ...	Jikken-2011	1981-12-17	M	2011-03-28 (19:28:48)

- 2 Click on the **View** button.

3.5.3 Opening in Image Units

- 1 Select images of the desired study from the study list.

Instance Number	SOP Instance UID	SOP Class UID	Transfer Syntax UID
John Doe-Foot	30349	1988-07-18	M
John Doe-Pelvis	1403	1971-04-17	F
1		DX	
5	1.3.6.1.4.1.19179.90000000...	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2
6	1.3.6.1.4.1.19179.90000000...	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2
7	1.3.6.1.4.1.19179.90000000...	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2
John Doe-Skull	9345	1941-07-23	F
Kashi Phantom= =カ...	Jikken-2011	1981-12-17	M

- 2 Click on the **View** button.

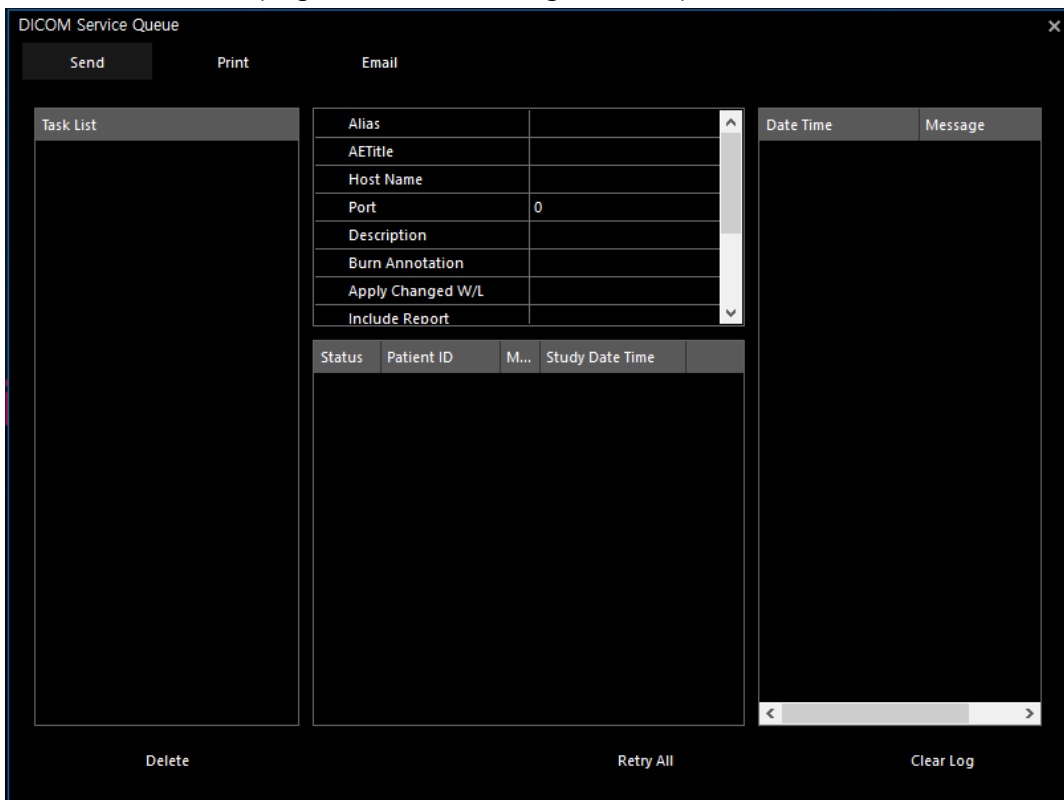
3.6 DICOM Queue



This function allows the Send, Print, and Email functions to be performed sequentially through the queue without waiting for their operation to complete.

3.6.1 Window to Check

1 Click the DICOM Queue Show / Hide button () on the status bar to display the following window.

2 In the window, check the progress of the Wait / Progress / Complete command.



- If the DICOM Queue icon () has a red background as follows, it indicates that there is a failed action, so check the transmission status.
- If you put the mouse over DICOM Queue icon (), you can check every current status of DICOM Queue as follows.



4. Viewer

This chapter explains about the composition and functions of the Viewer program.

Composition

Ribbon Tools

Functional Description of Viewer


4.1 Composition

4.1.1 Viewer Window



No.	Name	Function
1	Image manipulation toolbar	Displays the tools used for image manipulation.
2	Study Viewer	Displays the image of a selected study.
3	Thumbnail View	Displays the thumbnail image of a selected study.
4	Simple Print View	Displays a simple print preview of the selected study.
5	Guide	Displays a guide to the selected tool
6	Status Bar	Displays or hides Thumbnail / Print / Magnifying glass / Guide functions and DICOM queue status window.
7	Viewer Function Searcher	Searches the functions of the viewer.





- Using the icon  displayed on the image, you can drag the image of the study viewer and add it to the Simple Print view.
- The settings for Print SCP can be set in the preset window.

4.1.2 Thumbnail View



No.	Name	Function
1	Previous page / Next page	Displays the previous or next thumbnail image based on the current thumbnail image.
2	Page Count	Displays the page of the currently displayed thumbnail image
3	Show All Images	Displays all images.
4	Show First Image	Groups images in series unit and shows the first image.
5	Thumbnail Layout	Adjusts the layout of thumbnail view.



- When displaying thumbnails in the first image view, the number of the series number / image is displayed in the upper right corner.
 - Displays view type and number of images on Mammography mode.
- Click  displayed on the image to expand the bound images.
- Click  displayed on the image to group the images.


4.1.3 Simple Print View



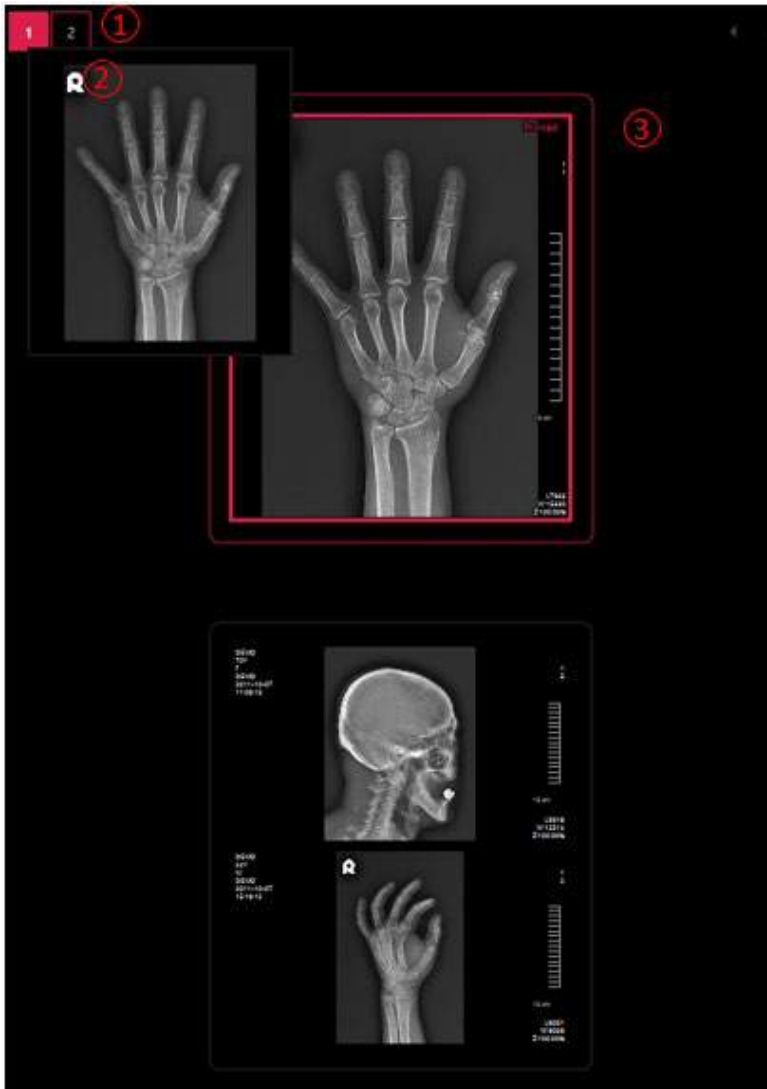
No.	Name	Function
1	New Sheet	Creates a new sheet.
2	Sheet Layout	Set the layout for the created sheet in the Output window.
3	Print Layout	Sets the layout of the output window for the selected sheet.
4	Clear All Sheets	Deletes all images in the output window and moves to the viewer window.
5	Clear Current Sheet	Deletes the selected sheet in the Output window.
6	Clear Selected Image(s)	Deletes the selected image in the output window.
7	Print All Sheets	The images of all the sheets in the output window are transferred to the DICOM printer. DICOM output can be stopped during output.
8	Print Current Sheet	The image of the currently selected sheet is sent to the DICOM printer.
9	Print SCP	Displays the currently set print SCP.

10	Film Orientation	Sets the orientation of the output paper. (Portrait / Landscape)
11	Film Size	Set the film size.
12	Show / Hide option	Sets the printing information. (Image Information / Annotation / Scale bar)



- Using the icon  displayed on the image, you can drag the image of the study viewer and add it to the Simple Print view.
- The settings for Print SCP can be set in the preset window.

Simple Print View Layout



No.	Name	Function
1	Sheet Number	Displays the number of the created sheet.
2	Sheet Preview	If you put the mouse on the sheet number, you can preview the sheet.
3	Sheet List	Displays a list of generated sheets.




- The sheet sent to Print SCP will show 'Printed' mark on the top right corner.

Add / change images using Icon

With the simple print view displayed, you can add / change images through the icons displayed by hovering the mouse over the image of the Viewer.

Image	Functions (from left)
	<ul style="list-style-type: none"> • Adding and moving images using drag and drop <ul style="list-style-type: none"> ▫ See <9.5.1 Moving images using Drag & Drop>. • Adding images to a new sheet • Adding images after the last image of the selected sheet.



- When you add an image by  to a Custom Sheet, and if there is not enough blank space after the last image to add, a warning message will be generated and no image will be added.
 - For more information on Sheet, please refer to <9.1.2 New Sheet>.

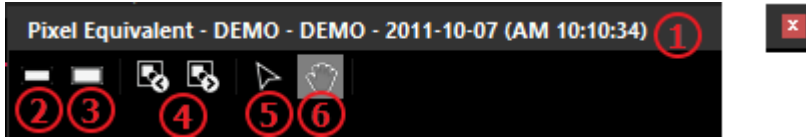
4.1.4 Status Bar

Image	Function (from the left)
	<ul style="list-style-type: none"> • Shows or hides thumbnail list. • Shows or hides simple print view. • Shows or hides magnifying glass. • Shows or hides the guide function. • Shows or hides DICOM Queue



- You can change the location and size of the functions in the status bar. Refer to <3.1.6 Changing the Size and Location of Window> for the information.

4.1.5 Pixel Equivalent



No.	Name	Function
1	Image Information	Indicates a patient name and ID, the date and time of image.
2	Fit Window to Screen	Maximizes the study viewer to fit to the current monitor screen.
3	Restore Window	Restores the study viewer to the previous size.
4	Previous page / Next page	Moves to the previous or next image based on the current image.
5	Selector	Default status of a mouse pointer. Double click on the image to move to the viewer screen.
6	Pan	Moves the image to desired location in the viewer window.
7	Close the Real Size Pane	Closes the Real Size window.



- Double-click the left mouse button to display the Real size window.
 - Refer to 'Viewer Option' in the QXLink Service Manual for the detailed information.

4.1.6 Study Viewer




No.	Name	Function
1	Close all studies	<ul style="list-style-type: none"> • Closes all opened studies.
2	Study layout	<ul style="list-style-type: none"> • Changes the study layout up to four columns and four rows.
3	Opened studies	<ul style="list-style-type: none"> • Lists the currently opened studies.
4	View past studies	<ul style="list-style-type: none"> • You can view the checklist with the patient ID and open it in the viewer window
5	Open the previous / next study	<ul style="list-style-type: none"> • Opens the previous or next study in the Viewer window based on the current study.

6	Move to the previous next study	<ul style="list-style-type: none"> Moves to the previous or next study based on the currently activated study.
7	Order information of the current study	<ul style="list-style-type: none"> Current order of study / Total open studies
8	Image layout	<ul style="list-style-type: none"> Changes the layout of images included in the activated study up to 10 columns and 10 rows.
9	View mode	<ul style="list-style-type: none"> Changes the way exams are displayed
10	Series list	<ul style="list-style-type: none"> Series list of the current study.
11	View selected images only	<ul style="list-style-type: none"> Only selected images are displayed. It is activated only when the image display method is 'Image'.
12	View key images only	<ul style="list-style-type: none"> Displays only key images. It is activated only when the image display method is 'Image'.
13	Apply to this series / Apply to selected images	<ul style="list-style-type: none"> Applies effects such as window level, zoom, pan, counterclockwise rotation, clockwise rotation, mirror, flip and invert to all or selected images. The default value is Apply to Selected Images.
14	Page information of the current exam	<ul style="list-style-type: none"> Page of current exam / Full page of open exam.
15	Series and image information of the current study	<ul style="list-style-type: none"> Displays the total number of series and images of the currently activated study.

4.2 Ribbon Tools


4.2.1 Switching to the Study List Window

Button	Name	Description
	Study List	Moves to the Study List window.



- Press the F2 key to switch between the windows of **Viewer** and **Study List**.

4.2.2 Saving Study Status

Button	Name	Description
	Save	Saves the status of image. The saved information is as follows. <ul style="list-style-type: none"> • Annotation • Window Level • Zoom • Pan • Image Layout


How to reset image status information


- 1 Choose selected or all images.
- 2 Click on the **Reset** button to initialize the status information of image.
- 3 Click on the **Save** button to save the initialized information of image.

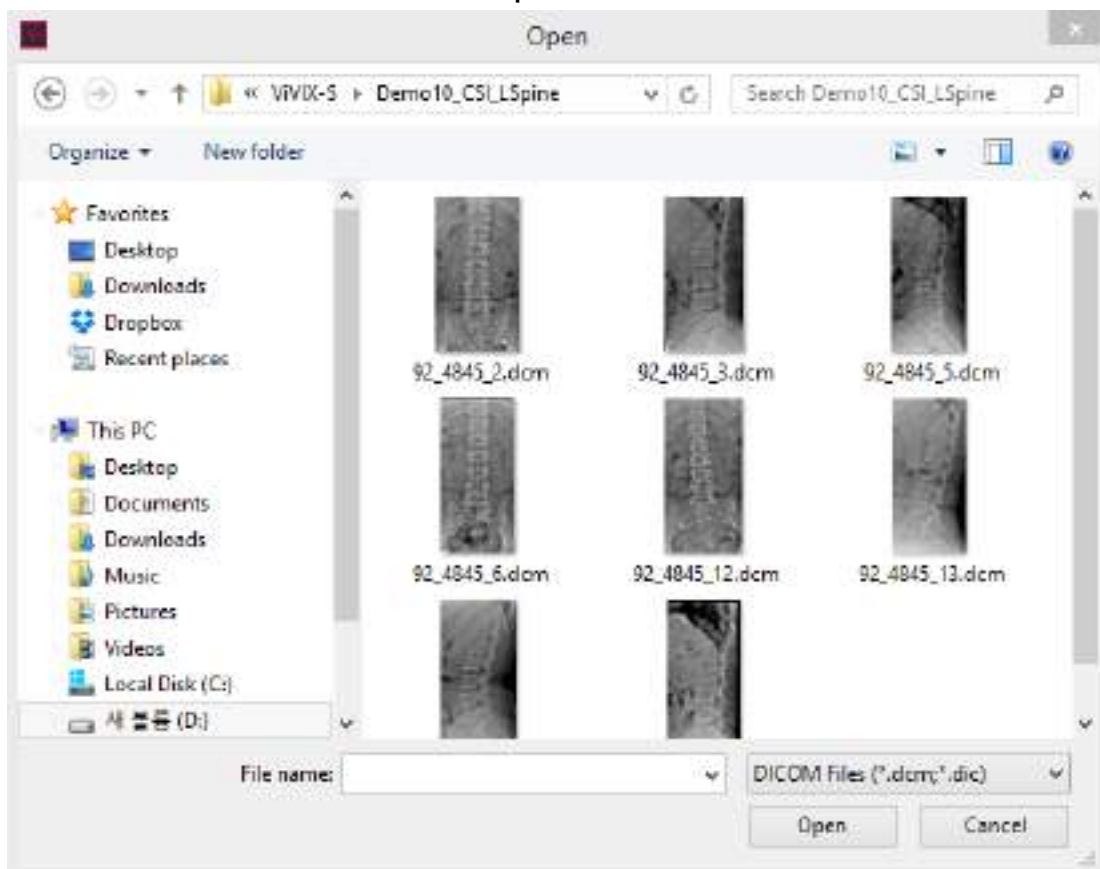


- Status information of all images included in the relevant study is saved.
- Image layout information is not initialized.
- The **Save** button becomes deactivated if the study has a stitched image which is not sent to the server.
- The **Save** button becomes deactivated if the study is being retrieved by opening DICOM files.

4.2.3 Opening DICOM File


Button	Name	Description
	Open	Opens the DICOM file in the local drive manually.

- 1 Click on the **Viewer Window** button () to switch **Study List** to **Viewer** window.
- 2 Click on the **Open** button on the toolbar.
- 3 Select desired files to retrieve and click on the **Open** button.



- You can also open images by selecting DICOM files from Windows Explorer and drag them to **Viewer** window.
- If you drag and drop with the right mouse button pressed, you can add an existing study to the study. (Storage, report making, transmission and stitching are not allowed.)

4.2.4 Adding Non-DICOM Image

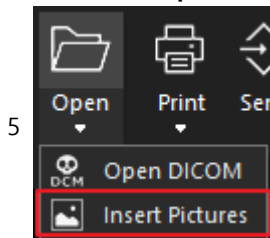
Button	Name	Description
	Insert Pictures	You can add a non-DICOM image file in the local drive to the current test.

1 Open the test you want to add an image to



3

4 Extend the **Open** button to click the **Insert Picture** button.



5

6 Select the Non-DICOM Image you want to add to.

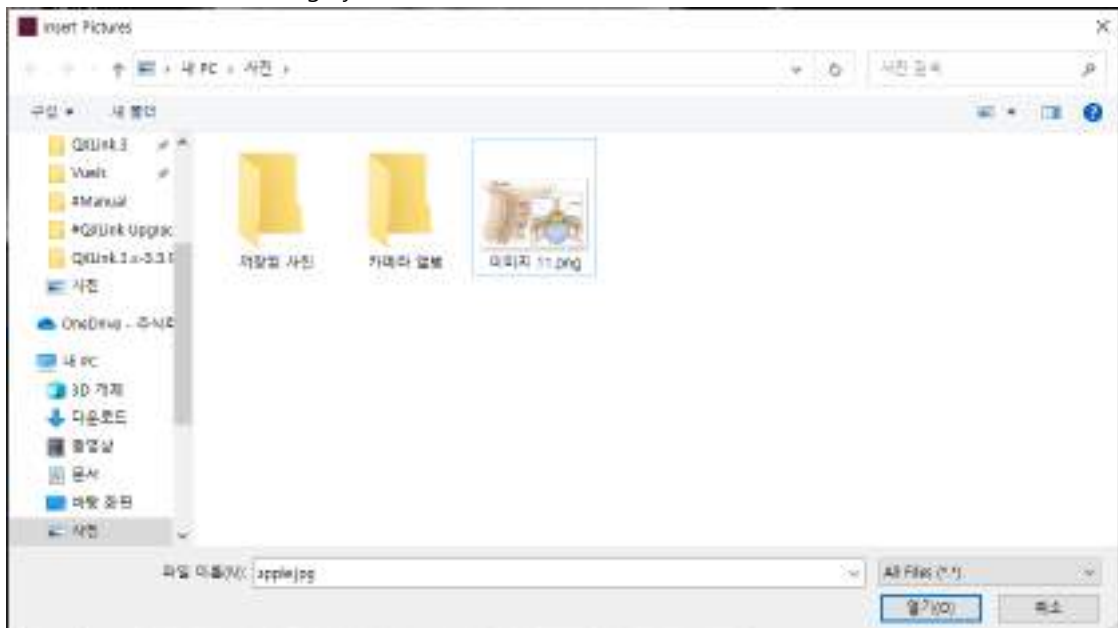




Image formats available to add are as follows:


- JPEG
- PNG
- BMP
- TIFF

7 Confirm the image added to the test.



4.2.5 Print

Sending new sheet to the print window

Button	Name	Description
	Open as New Sheet	Pastes the image selected in the viewer window to a new sheet.


- 1 Select an image from the desired study.



- 2 Click the bottom of the **Print** button on the toolbar and select the **Open as New Sheet** menu.



Sending the existing sheet to the print window

Button	Name	Description
	Add to Current Sheet	Adds the selected image to the existing sheet selected in the print window.

3 In the print window, select an existing sheet.




4 In the viewer window, click on the bottom of the print button on the toolbar, then choose **Add to Existing Sheet**.



- The information of Window Level, Annotation, Zoom In/Out ratio and Pan will be maintained even if you copy an image from the **Viewer** window to the **Print** window.
- In the case of multi-frame format, the image displayed on the current screen is copied to the output window.


4.2.6 DICOM Send

Button	Name	Description
	Send	Sends the selected images to the other DICOM server.

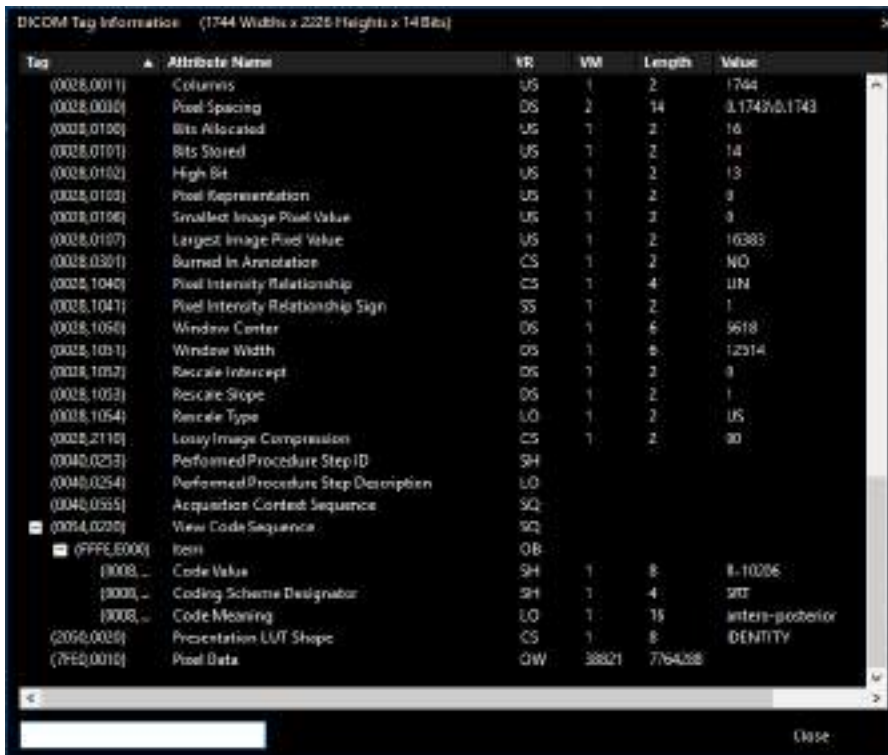


- The sending process is the same as <3.3.14 Exporting Study>.
- Images can also be transmitted through aliases that appear in the submenu of DICOM Send.

4.2.7 Checking DICOM Header Information


Button	Name	Description
	Header	Checks the DICOM header information of the selected image.

- 1 Select an image from the desired study.
- 2 Click on the **Header** button on the toolbar.



- You can search for the desired item through the search window.

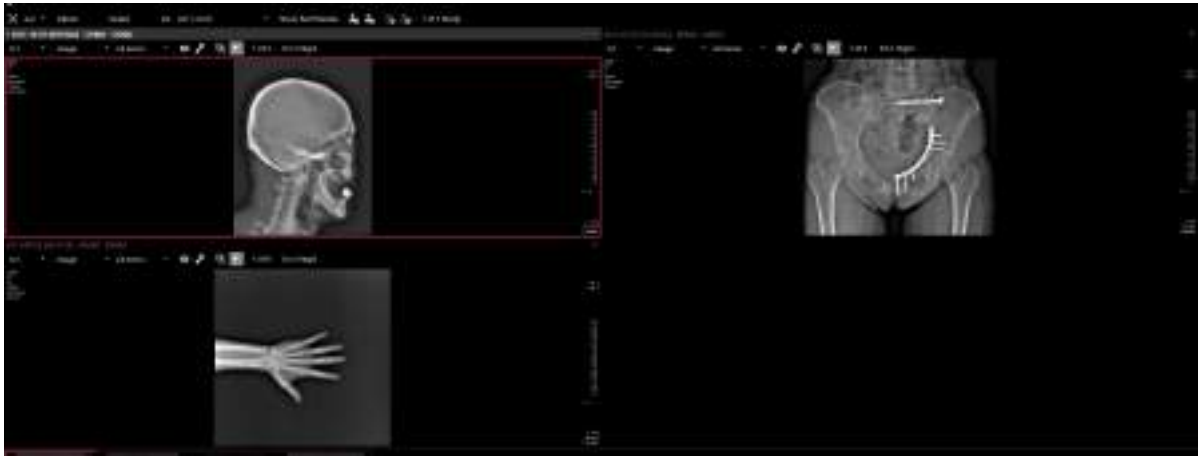
4.2.8 Selector

Button	Name	Description
	Selector	<ul style="list-style-type: none"> • Default status of a mouse pointer. • When you click on the Selector button on the toolbar, the activated functions are deactivated. You can also select or deselect an image as well as multiple images by using Ctrl or Alt key.

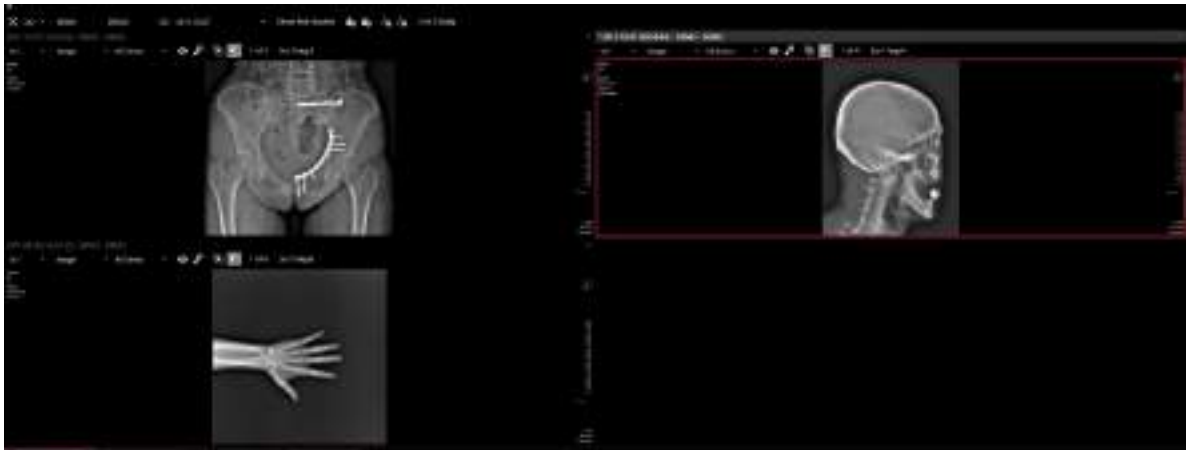


- Hold down the Shift key and drag the title bar at the top of the image corresponding to each exam to change the position of the images.

Before changing position




After changing position




- You can choose multiple images by putting a left mouse button on the thumbnail and dragging images you want.

4.2.9 Select All

Button	Name	Description
	Select All	<ul style="list-style-type: none"> To select all images in the current study, click on the Select All button on the toolbar. To deactivate the Select All function, click an image with a left mouse button.



4.2.10 Reset

Button	Name	Description
	Reset	Resets status information of the selected image.


- 1 Select an image from the desired study. (e.g. Applies **Mirror** and **Pan** tools)



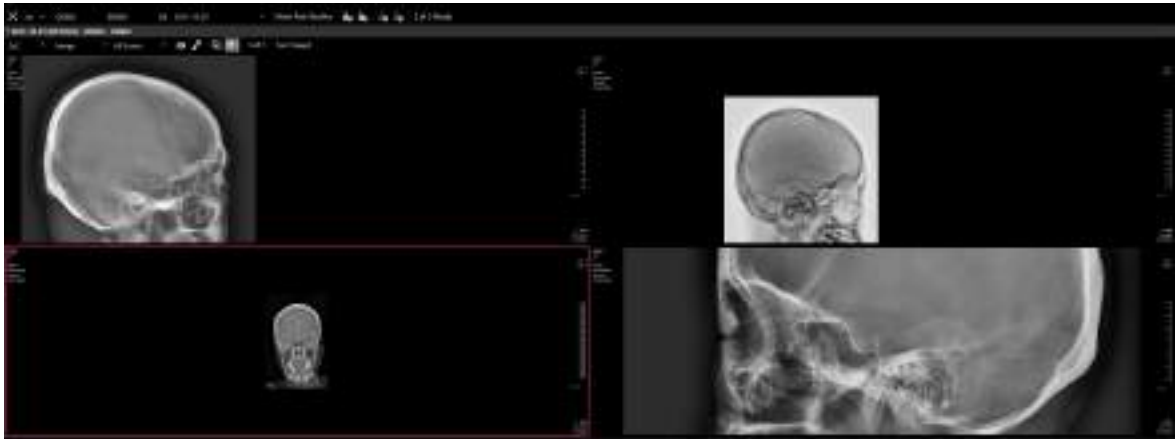
- 2 Click on the **Reset** button on the toolbar. All status information except annotation will be reset.



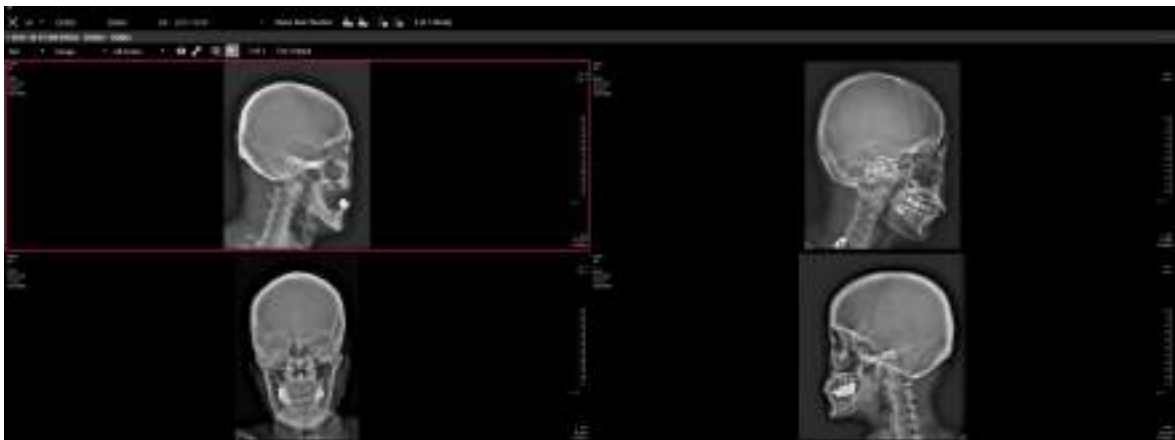
4.2.11 Rest All

Button	Name	Description
	Reset All	<ul style="list-style-type: none"> Initializes the status information of all images included in the selected series. To reset status information of all images included in the current series, click on the Reset All button on the toolbar.

Before Reset All (e.g. zoom image)




After Reset All



- All status information except annotation will be reset.
- This function is the same as selecting all images and click on the **Reset** button.

4.2.12 Magnifying Glass

Button	Name	Description
	Magnifying Glass	Magnifies a region of interest partially.


- 1 Select an image from the desired study.
- 2 Click on the **Magnifying Glass** button on the toolbar.



- 3 Move the mouse pointer to the region of interest to be magnified.
- 4 Press and hold the left mouse button to enlarge the area to four (4) times comparing to the current screen scale.



4.2.13 Zoom In / Out

Button	Name	Description
	Zoom	Zooms in or zooms out the image by a specific ratio.

- 1 Select an image from the desired study and click on the **Zoom** button on the toolbar.
- 2 Move the mouse pointer to the selected image.



- 3 Press and hold the left mouse button, and then drag the mouse upward or downward.




- 4 The zoom ratio is displayed on the right bottom of the image.



- The minimum zoom ratio is 10% from the current image size.
- The maximum zoom ratio is 2000% from the current image.

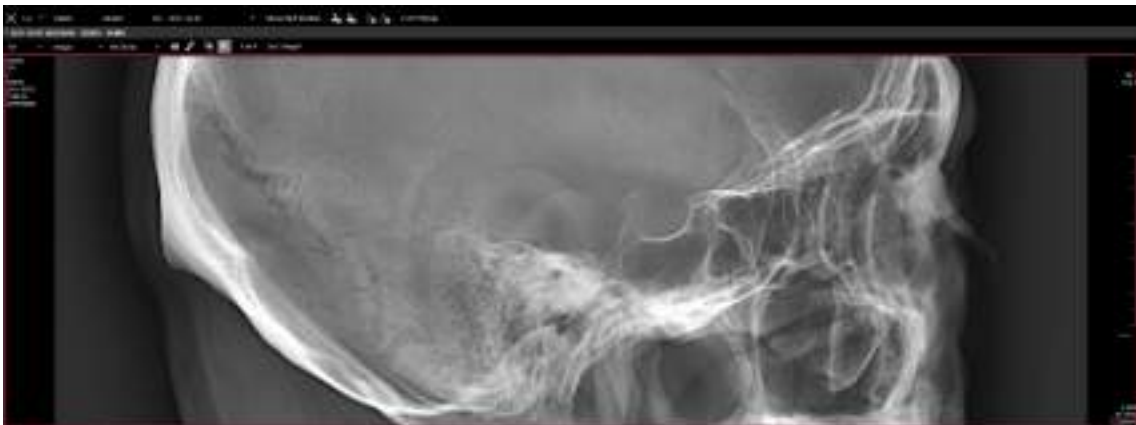
4.2.14 Pixel Equivalent

Button	Name	Description
	1:1	Displays the image in which the pixels of the selected image and the display are resized to a 1:1 ratio.


- 1 Select an image from the desired study.



- 2 Click on the **1:1** button from the toolbar.



4.2.15 Real Size

Button	Name	Description
	Real Size	Displays the selected image to an actual size.

1 Select an image you want to examine.




2 Click the Real Size button from Toolbar.



- **Preset → Display Configuration → Physical Monitor Size** to check that the exact measurements of the display are input.

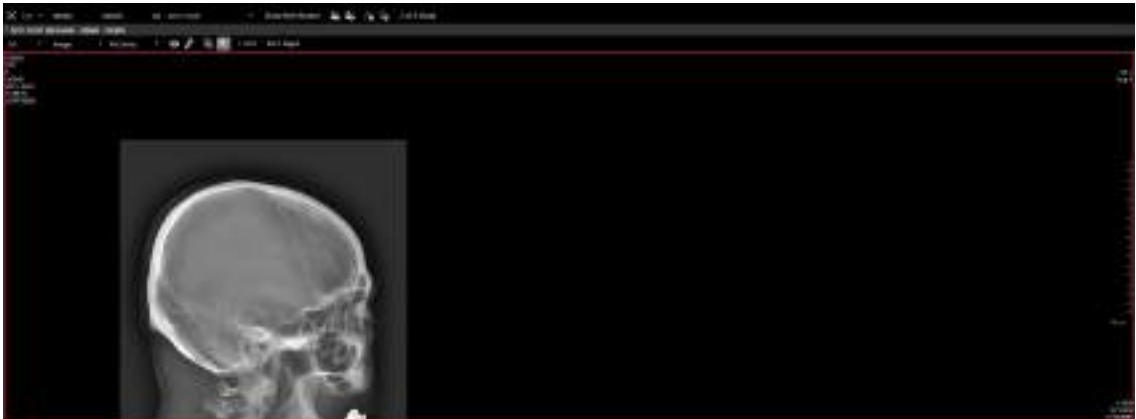
4.2.16 Panning Image

Button	Name	Description
	Pan	Moves the selected image to desired position.


- 1 Select an image from the desired study.
- 2 Click on the **Pan** button on the toolbar.
- 3 Press and hold the left mouse button while dragging the image to the desired position.



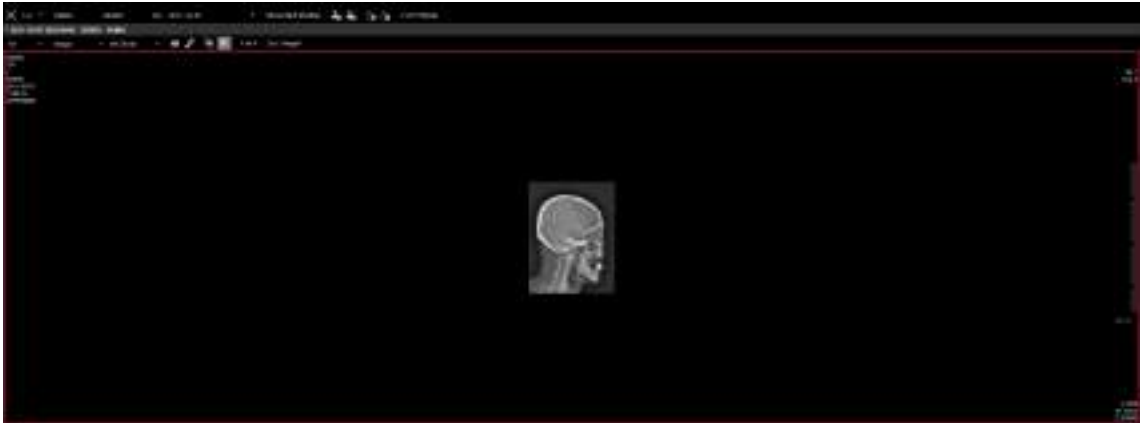
- 4 Release the left mouse button to complete moving the image.



4.2.17 Fit to Window

Button	Name	Description
	Fit	Fits the selected image to the main window size.

- 1 Select an image from the desired study.



- 2 Click on the **Fit** button on the toolbar.



4.2.18 Rotate Counterclockwise

Button	Name	Description
	CCW	Rotates an image by 90° counterclockwise.


- 1 Select an image from the desired study.



- 2 Click on the **CCW** button on the toolbar.



4.2.19 Rotate Clockwise

Button	Name	Description
	CW	Rotates an image by 90° clockwise.


- 1 Select an image from the desired study.



- 2 Click on the **CW** button on the toolbar.



4.2.20 Flip Image Horizontal

Button	Name	Description
	Mirror	Flips an image horizontally.


- 1 Select an image from the desired study.



- 2 Click on the **Mirror** button on the toolbar.



4.2.21 Flip Image Vertical

Button	Name	Description
	Flip	Flips an image vertically.


- 1 Select an image from the desired study.



- 2 Click on the **Flip** button on the toolbar.



4.2.22 Free Rotation

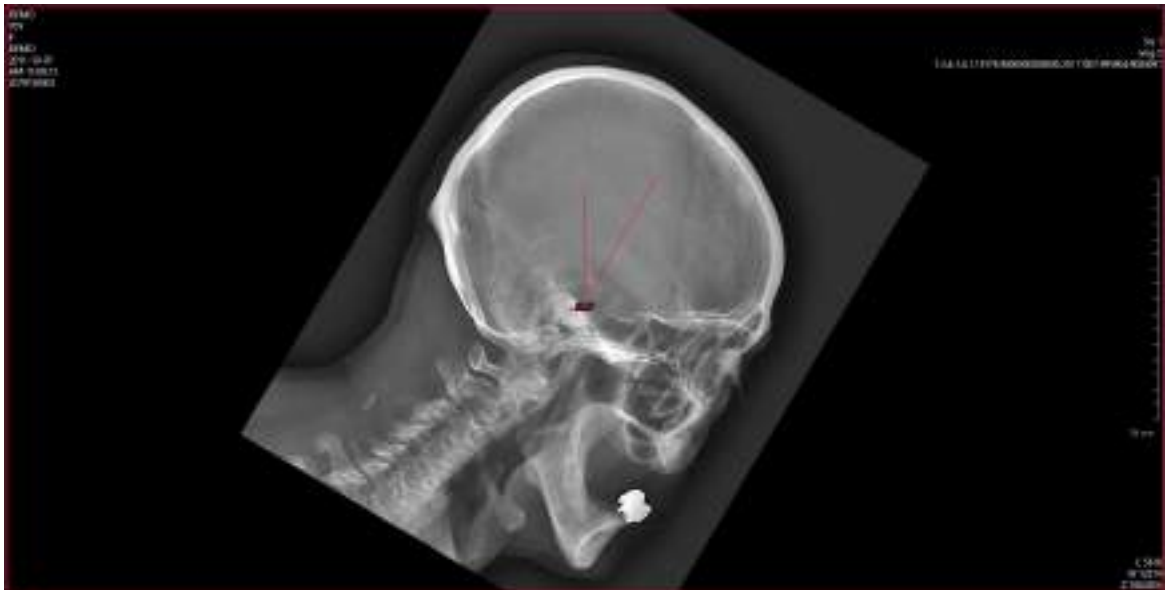
Button	Name	Description
	Free	Arbitrarily rotates the angle.

1 Select the image you want to rotate.




2 Click the **Free** button in the Tool group.

3 Rotate the image with drag and drop.

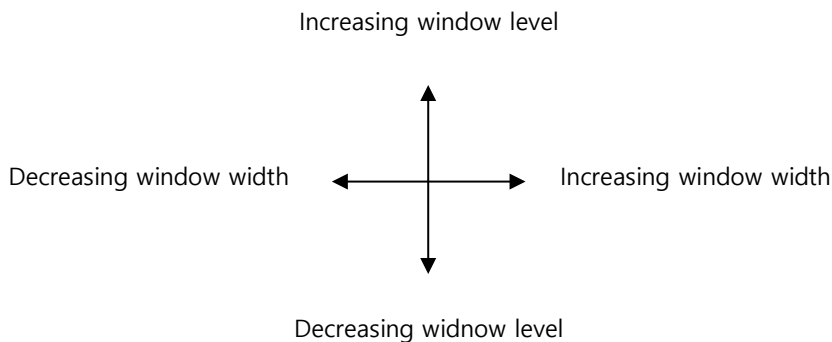


- Shutter and Fragment Measuring tools cannot be added on the free-rotated image.
- Free Rotation is unavailable on the image that has Shutter and Fragment Measuring tools.
- It is unapplicable to Save As, Send, and Export.
- Once the Free Rotation is applied, the indicator of Free Rotation disappears in the image in Print Mode.
- When creating a stitch with the image, in which Free Rotation is applied, the indicator of Free Rotation does not show in the image.

4.2.23 Window Level

Button	Name	Description
	Window Level	Adjusts the window level (image density and contrast).

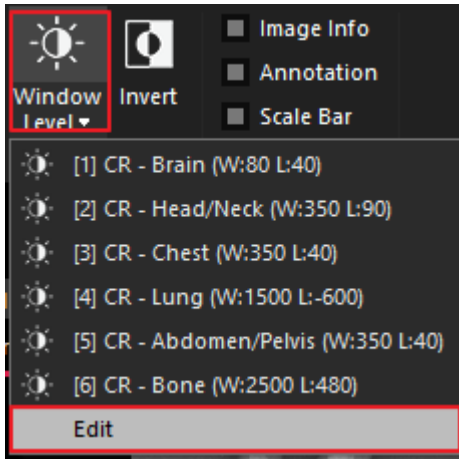
- 1 Select an image from the desired study.
- 2 Click on the **Window Level** button on the toolbar.
- 3 Press and hold the left mouse button while dragging the mouse to the following direction.



- You can also adjust window level by pressing and holding the right mouse button, then drag the mouse button on the image window.
- Press and hold the **Ctrl** key, then drag the mouse to adjust the window width only.
- Press and hold the **Alt** key, then drag the mouse to adjust the window level only.
- You can adjust the brightness more precisely by pressing the **Shift** key with **Ctrl** or **Alt** key.
- If you click the bottom of the Window Level button and then select the Edit option, you can preset the window level value according to the modality

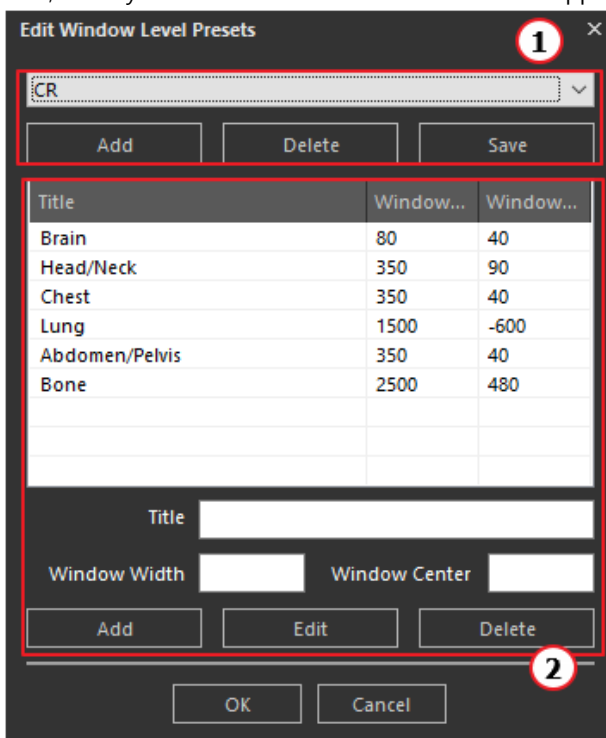
How to Register Window Level Settings

4 To register the Window level setting according to Modality, click on the bottom of the Window Level button and select **Edit**.



5 When selecting the corresponding item, the following window appears.


- In ①, select / add / delete / save Modality.
- Add, modify or delete the window level list to be applied to images taken in Modality selected in ②.



- Up to 10 modalities can be added.

6 When you open the added images of modality in Viewer, you can check the list of window level setting which was added from the bottom of the window Level button.

4.2.24 ROI W/L

Button	Name	Description
	ROI W/L	Automatically adjusts the tone width and level of the image based on the data of the area of interest.

1 Select an image from the desired study.



2 Click the ROI W/L button on the toolbar.

3 Choose an option to select ROI.




4 Draw ROI.



5 The Window Level of the selected image is adjusted based on the ROI data.



4.2.25 Invert Image

Button	Name	Description
	Invert	Inverts black and white pixels of the image.

1 Select an image from the desired study.




2 Click on the **Invert** button on the toolbar.



3 To restore the image, click on the **Invert** button again.

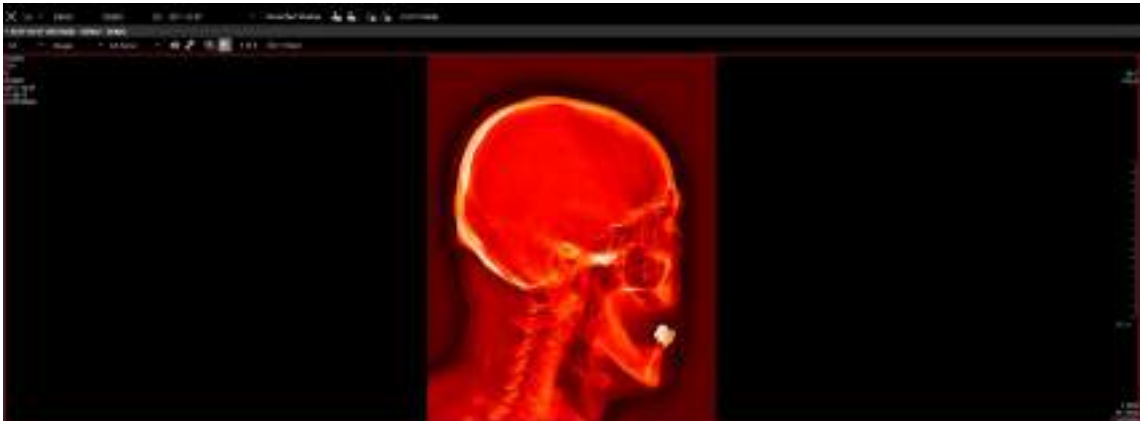
4.2.26 Pseudo Color

Button	Name	Description
	Pseudo Color	The predefined color table is matched to the black and white image.

- 1 Select an image from the desired study.



- 2 Click on the **Pseudo Color** button on the toolbar.

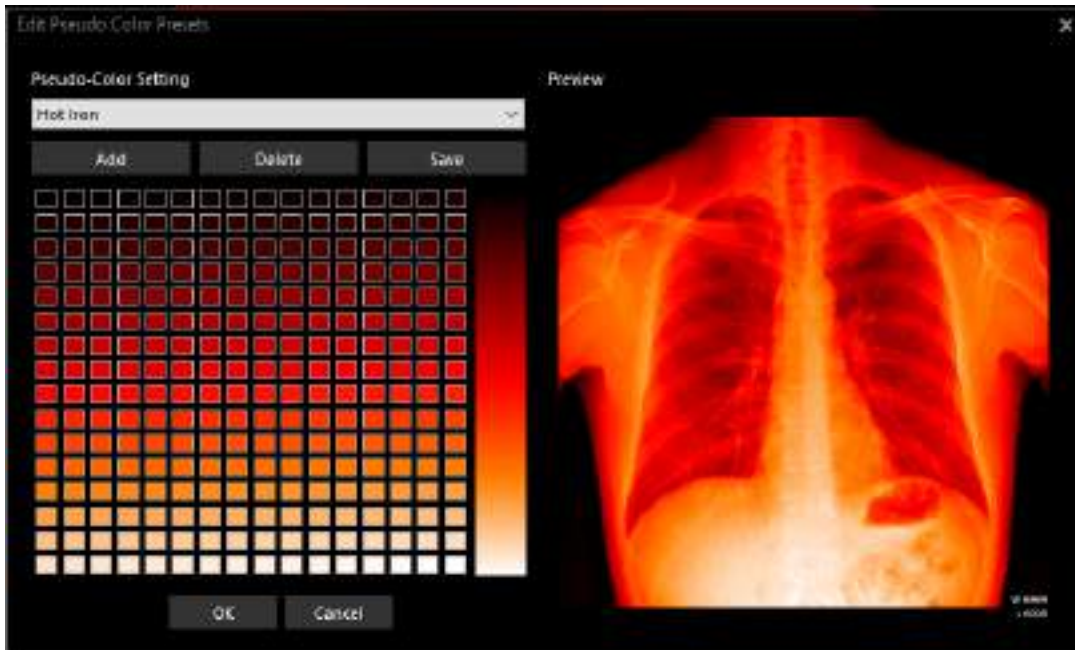


How to register color table


3 Click on the bottom of the Pseudo Color button and select **Edit**.



4 You can add, change or delete the Color Table in the dialog below.



4.2.27 Reset Filters

Button	Name	Description
	Reset Filters	Initializes the filter applied to the image.


- 1 Select the image you want to initialize.



- 2
- 3 Click the Reset button on the toolbar.



4.2.28 Emboss

Button	Name	Description
	Emboss	Applies an Emboss filter to the image.

1 Select an image from the desired study.



2 Click the Emboss button on the toolbar.




3



- If you apply a duplicate filter, it will be applied to the image redundantly.
- The applied status of the filter can be displayed by setting Preset.
 - Add Image Filter Tag in **Preset > Display / Print Image Info Layouts**.

4.2.1 Sharpen

Button	Name	Description
	Sharpen	Applies a Sharpen filter to the image.

1 Select an image from the desired study.




2 Click the Sharpen button on the toolbar.



- If you apply a duplicate filter, it will be applied to the image redundantly.
- The applied status of the filter can be displayed by setting Preset.
 - Add Image Filter Tag in **Preset > Display / Print Image Info Layouts**.

4.2.2 Sharpen with Enhanced edge

Button	Name	Description
	Sharpen with Enhanced Edge	Applies a Sharpen filter that emphasizes edge to the image.

1 Select an image from the desired study.



2 Click the Sharpen with Enhanced edge button on the toolbar.




4



- If you apply a duplicate filter, it will be applied to the image redundantly.
- The applied status of the filter can be displayed by setting Preset.
 - Add Image Filter Tag in **Preset > Display / Print Image Info Layouts**.

4.2.3 Soften

Button	Name	Description
	Soften	Applies soften filter to the image.

1 Select an image from the desired study.




2 Click the Soften button on the toolbar.



- If you apply a duplicate filter, it will be applied to the image redundantly.
- The applied status of the filter can be displayed by setting Preset.
 - Add Image Filter Tag in **Preset > Display / Print Image Info Layouts**

4.2.4 Contrast Enhancement

Button	Name	Description
	Contrast Enhancement	Applies Contrast enhancement filter to the image.

1 Select the image of the desired study.



2 Click the Contrast enhancement button on the toolbar.

3



- When performing a duplicate filter, the filter is applied to the image in duplicate.
- The application status of the filter can be displayed by setting the preset.
 - Add Image Filter tag in **Preset > Display / Print Image Info Layouts**

4.2.5 Displaying the Image Information

The **Show / Hide** menus are applied to the **Viewer** and **Print** windows separately.

Item	Description
Image Info.	Show or hide image information such as patient, study and image information displayed on the image.
Annotation	Show or hide annotations added to the image.
Scale Bar	Show or hide a scale bar on the image.



- This function is applied to the all images included in the currently-opened study.
- The scale bar is indicated by referring to the pixel spacing value (0028, 0030) first.

4.3 Functional Description of Viewer






4.3.1 Checking the Opened Study List (Available Exams)

You can verify the currently opened studies or select other study.

- The exam list is consisted of **Patient's Name, Patient's ID, Modality, Study Date Time**.

John Doe-Pelvis 1403 DX 2011-10-07 ▾


4.3.2 Moving the Study

Item	Description
	Opens a study among the list of previous studies the patient has had.
	Opens the previous study.
	Opens the next study.
	Activates the previous study.
	Activates the next study.


4.3.3 Closing the Study

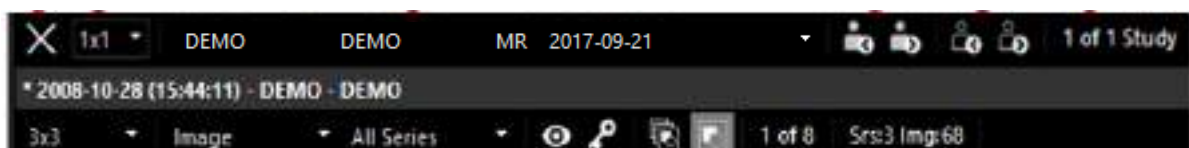
Close the study which is being retrieved.

Close the selected study

- Click on  button on the top right corner of the **Viewer** window to close the selected study.

Close all studies

- To close all studies opened in the **Viewer** window, click on  button on the left top of the study toolbar.



4.3.4 Changing View Mode

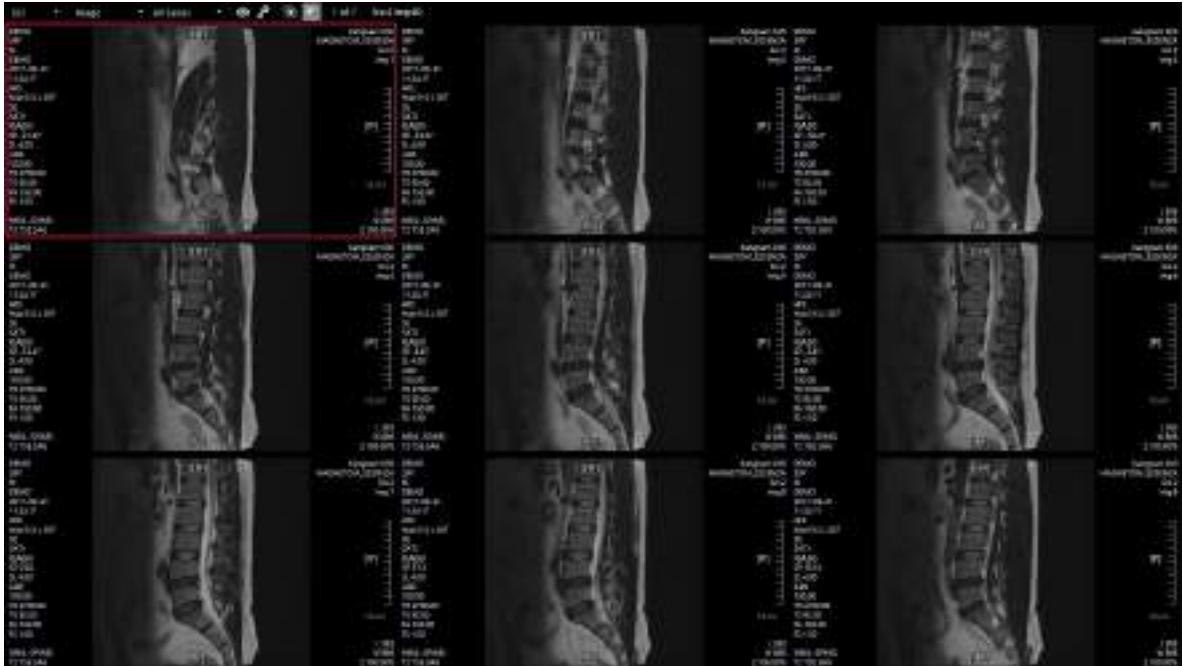
You can change how the exam is displayed by changing the View mode on the toolbar.



- When saving an exam, the display method is also saved. Therefore, when you open the saved exam again, it is displayed with the saved display method.

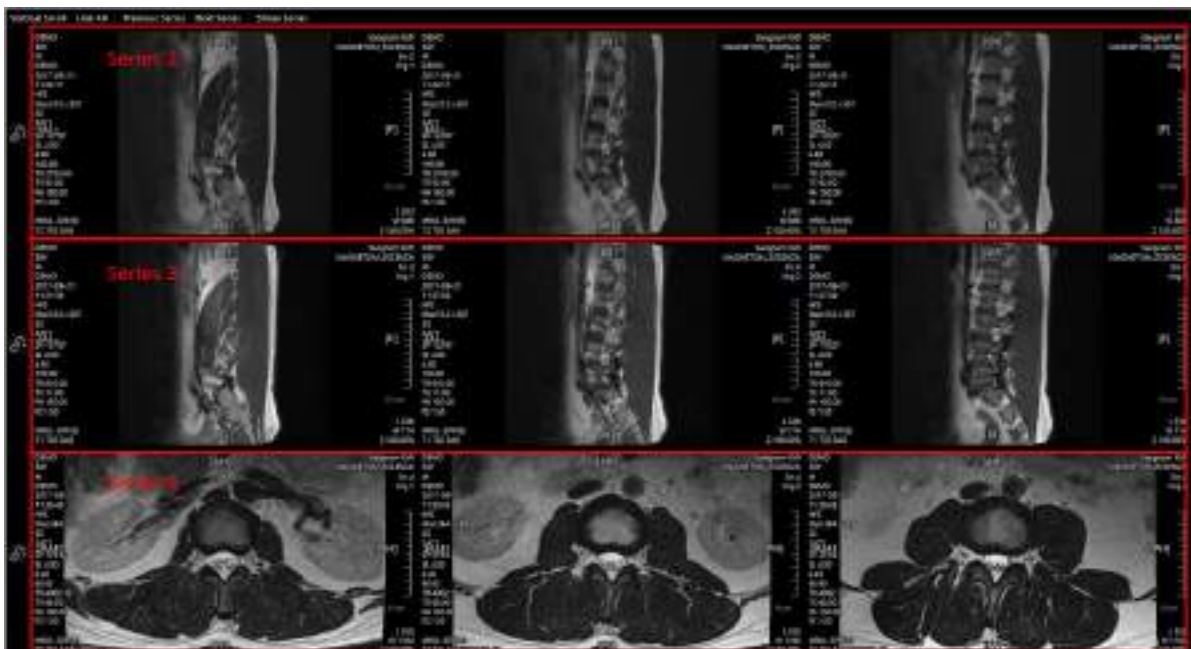
Image mode

Displays all the images of the current exam in the same way as sorted by 'Image Alignment'.



Series mode


Displays the images of the current exam in the same column or row in series.



The functions available in the series mode are as follows.

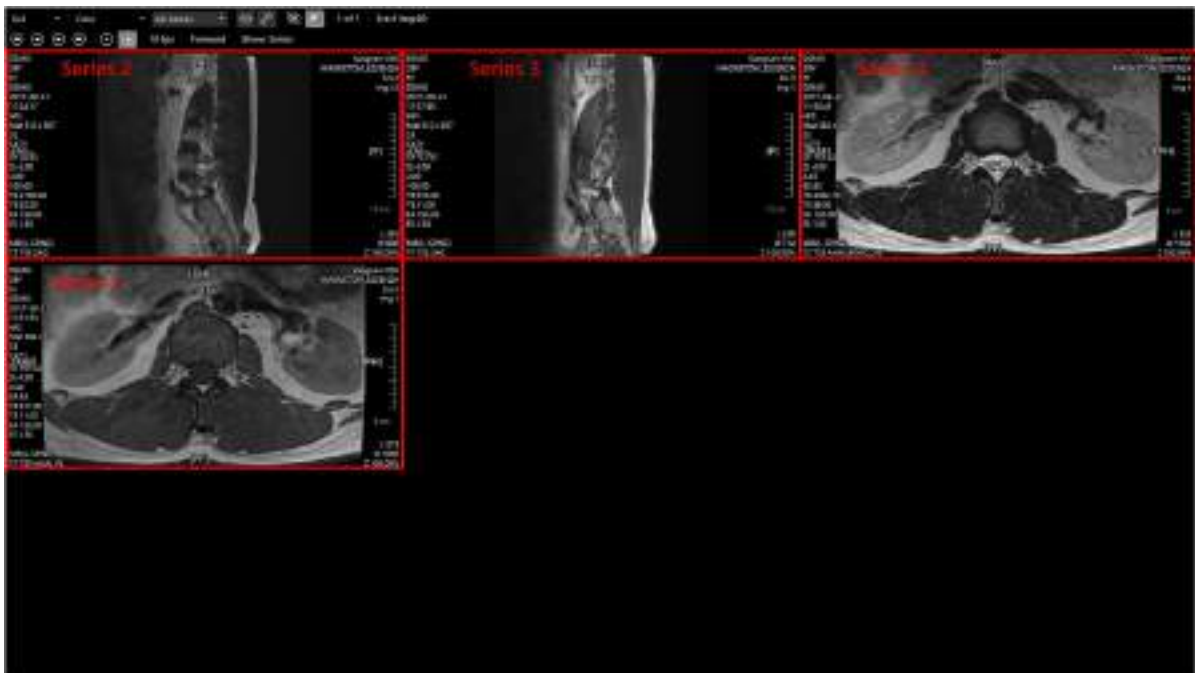
Item	Description
1	Vertical Scroll Aligns series vertically. (Default: landscape alignment)
2	Link All Connects all series and scroll together.
3	Previous Series Moves to previous series.
4	Next Series Moves to next series.
5	Show Series Shows or hides the series. • If there is a hidden series, *Show Series is displayed.



- You can link individual series and scroll them together by clicking  icon displayed on the left or top of the image.

Cine mode

Assigns one series to one view. Each assigned video is played back in one frame of the series.



The functions available in the cine mode are as follows.

Item	Description
1	First Frame Moves to the first frame.
2	Previous Frame Moves to the previous frame.
3	Next Frame Moves to the next frame
4	Last Frame Moves to the last frame
5	Play Continuous playback.
6	Stop Stops continuous playback.
7	Frame Rate Sets the playback speed (frames per second).
8	Play Style Sets the playback type.

- Forward: Repeat playback in the forward direction.
- Backward: Repeat playback in reverse direction.
- Yoyo: Repeat playback by changing direction every cycle.

Cross-Reference mode

Assigns one series to one view.

- A cross-reference line is displayed to indicate which position the selected cross-sectional image is displaying in the other series image (Scout image or Localizer image).



The functions available in the cross-reference mode are as follows:

Item	Description
1 Split Scout Image	Assigns Scout images to other views. <ul style="list-style-type: none"> • The image with the overlay is judged as a scout image.
2 Synchronize Slice Position	Displays images at the same image position as the current exam.
3 All Lines	A cross-reference line corresponding to all images of the selected series is displayed on the scout image.
4 3D Cursor	Activates and drags the 3D Cursor tool to search for and display the position in the current image from the other series
5 Show Series	Shows or hides the series. <ul style="list-style-type: none"> • If there is a hidden series, *Show Series is displayed

Mammography

Provides an image arrangement function specialized in mammographic image.

- Only the image taken on 'MG' Modality is indicated with the corresponding mode.
- View Code Sequence Tag(0054, 0220) arranges the same punctures on the same line.
- View Code Sequence Tag(0054, 0220) folds and unfolds the same image in Thumbnail.
- Images are arranged based on Image Laterality Tag(0020, 0060).
 - 'R': Locates an image on the right side of the port.
 - 'L': Locates an image on the left side of the port.
 - Others: Locates an image in the center.



- Image information is displayed as follows:
 - Top-left setting: Displays the information on the top side opposite to where the image is displayed.
 - Bottom-left setting: Displays the information on the bottom opposite to where the image is displayed.
 - Top-right setting: Displays the information in the center.
 - Bottom-right setting: Displays the information at the bottom center.

Functions you can use on the Mammography mode are as follows:

Item	Description
1 Previous view	Moves to the previous view type.
2 Next View	Moves to the next view type.
3 Apply to All Selected View Type	Applies to all selected view type when manipulating images.
4 Show View Type	Shows or hides view type <ul style="list-style-type: none"> • Hidden view type is displayed as 'Show View Type'.
5 Show Series	Shows or hides series. <ul style="list-style-type: none"> • Hidden series is displayed as 'Show Series'.

FMX (Full Mouth Xray) Mode

Arranges oral images in accordance with the tooth code.

- Only the images captured in 'IO' Modality can be displayed on the FXM mode.
- Images classified to the same Tooth code are arranged in the same image port.

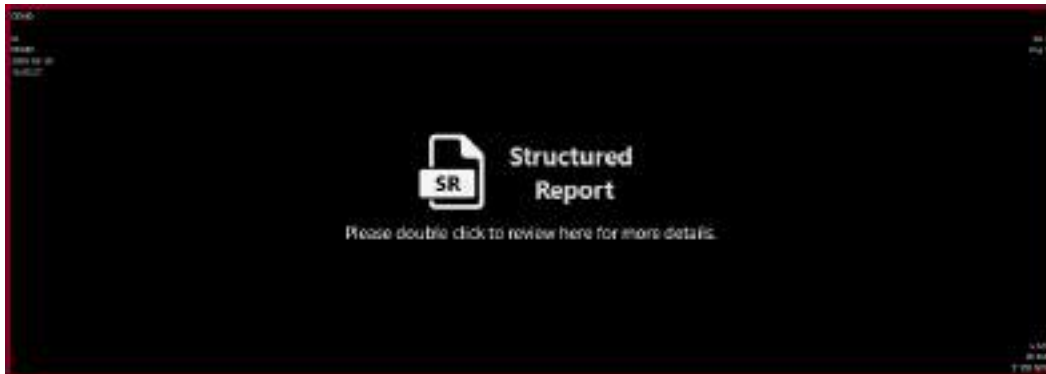


Functions available on the FMX mode are as follows:

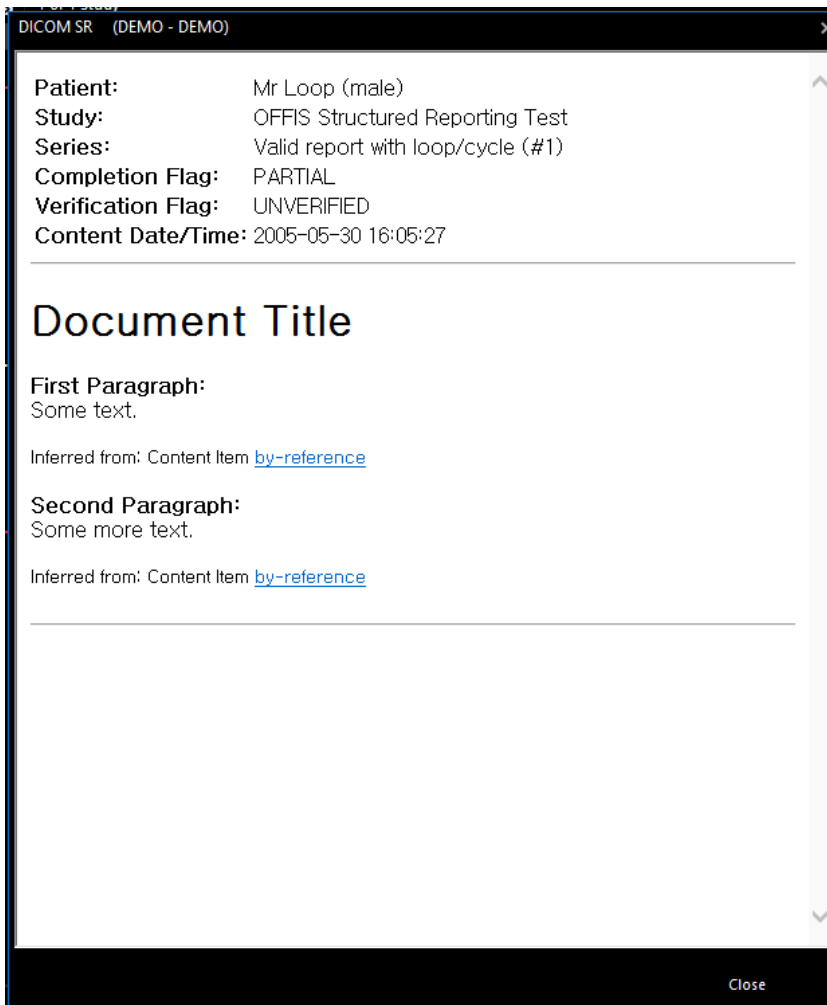
Item	Description
1 FMX16	Displays a layout divided into 16. (Excluding camera image)
2 FMX20	Displays a layout divided into 20. (Including camera image)
3 Show Tooth Code	Displays the Tooth Code above at the top of the image.
4 Show Image Info	Displays the image information at the top of the image.

4.3.5 DICOM SR

- 1 Open the DICOM SR study.



- 2 Double-click DICOM SR to open it, and it will be displayed in web form in the pop-up window as follows.



4.3.6 Changing the Study Layout

You can change the study layout as displaying more than one study on the screen. It is useful when you compare images from different studies. The allowed layout number of study is up to four columns and four rows.

- 1 Select and open one or more studies from the study list.
- 2 Select a layout from the **Study Layout** options in the study viewer.



- 3 Check if the study layout is changed successfully.

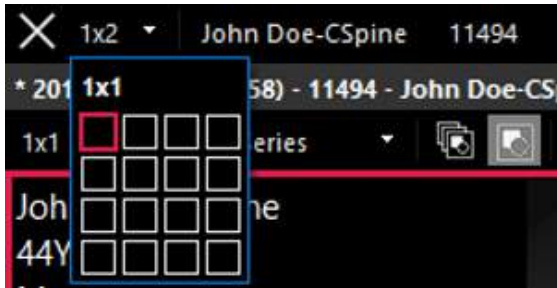


- The changing study layout is maintained even if you restart the **QXLink** viewer program.
 - The settings are not maintained in a multi-monitor environment.

How to maximize Study Layout

If the study layout is not one column and one row, maximize it to one column and one row.

- 4 Change the layout of selected study as follows. (1x1)



- 5 Or, double click the study information bar.



- To maximize the window by double-clicking the check information display area with the left mouse button, change the **Mouse Events** item in the Viewer's **Presets > Viewer Options** tab to **Fit image to Window**.

How to activate study

You can activate another study from the screen where the layout is not organized with one column and one row.

- 6 Click the study information bar with the left mouse button to activate.

- 7 Otherwise, select an image in the deactivated study to activate it.

4.3.7 Changing the Image Layout

You can change the image layout of the study up to ten columns and ten rows.

- 1 Select the image layout option as follows.



- 2 Check if the layout is changed successfully.



- You can preset the favorite image layout to each modality from **Presets > Viewer Option** tab > **Image Layout**.
- Click the **Save** button of the viewer program to save the changing image layout.

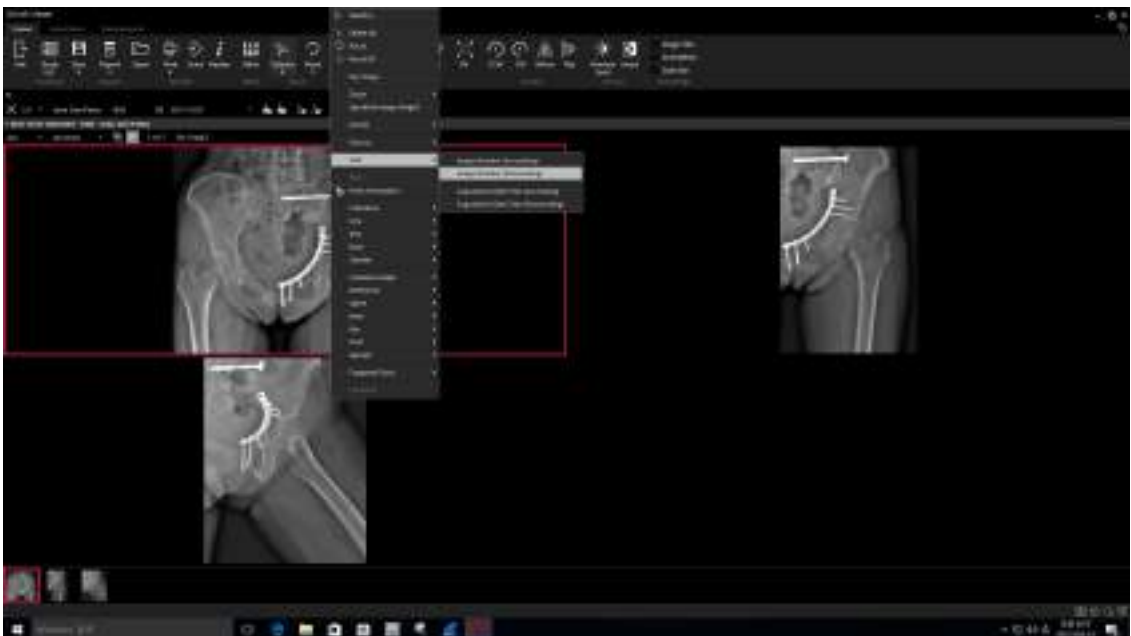
4.3.8 Sorting Images

You can sort images in the selected study. The images are sorted according to the series and instance number.

- 1 Select a desired study.

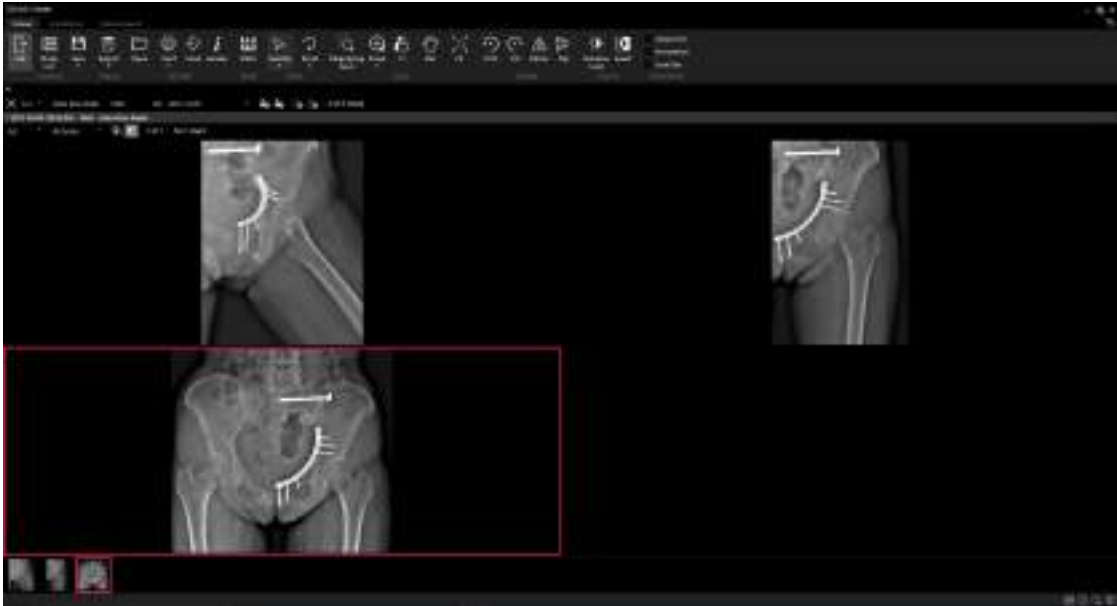


- 2 Click the right mouse button to display popup menus and select the **Sort** menu.



- 3 Select a sort type from the options (**Ascending / Descending**)

4 Check the sorted images.




4.3.9 Checking the Image in Real Size

Enlarge and display the selected image to its original size.

1 Double-click the selected image with a left mouse button to enlarge the image to its original size.



2 To close the **Real Size** window, double click the selected image or click  on the top right corner.




- From **Presets**, you can set whether you use the **Real Size** function or not.
- The **Real Size** function is not available to use for the multi-frame image.
- When switching a window to **Print** or **Stitch**, the **Real Size** window will be closed.
- If you modify the following items from the **Real Size** window, they will be applied to the original image when you close the window.
 - **Window Level, Mirror, Flip, Invert, Rotation, Annotation**

4.3.10 Checking the Image Size (Window Size)

Resize the selected image to fit to the screen.

- 1 Double click the selected image with a left mouse button to fit the image to the screen.



- 2 Double click the selected image or click on the  button on the top right corner to close the **Screen Size** window.



- In **Presets**, you can set whether to use the **Fitted Size** function or not.
- The **Screen Size** function is not available to use for the multiple frame image.
- When you switch to the **Print** or **Stitch** window, the **Screen Size** window will be closed.
- If you modify the following items from the **Real Size** window, they will be applied to the original image when you close the window.
 - **Window Level, Mirror, Flip, Invert, Rotation, Annotation**

4.3.11 Pop-up Menu

Click the right mouse button on the image window to display the popup menus.



- The pop-up menus are available from the **Viewer** window only.
- When selecting **Save As...**, the outcome of image filter application may be different for an image with multi-bytes per pixel.

4.3.12 Specified Image Height

You can display an image by a user-defined height. This feature is useful when you diagnose the stitched image by displaying it as a fixed size.

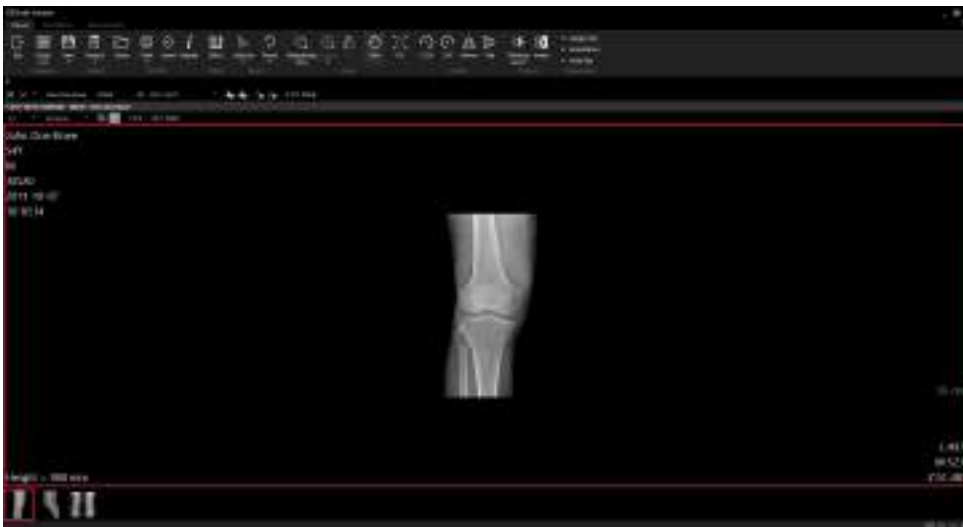
- 1 Select an image from the desired study.



- 2 Click the right mouse button and choose **Specified Image Height** from the popup menus.
- 3 Input the height of image.



- 4 Check if the height of relevant image is changed successfully.

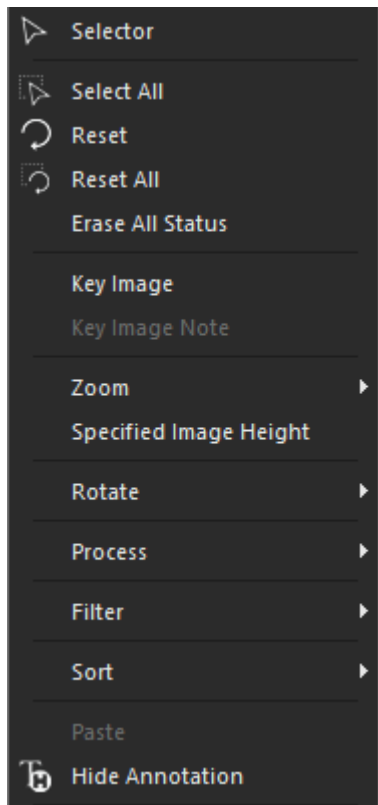


- If you want to display the image at a specific height, the **Zoom** and **1:1** functions cannot be used.
- Click on the **Save** button to save the height you entered.

4.3.13 Specifying / Releasing the Key Image

You can specify an image with clinical comments as a key image. Key When you print out a report, the key image will be automatically attached to the **Picture** field.


- 1 Select an image from the desired study.
- 2 Click the right mouse button to display popup menus and select **Key Image**.



- 3 Check a mark on the top right corner to see whether a key image is specified or not.



- Save the study to maintain settings of the key image.

- Key images can be distinguished from other images by displaying an icon () on the thumbnail.

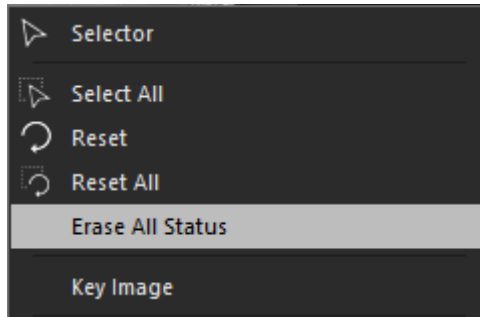
4.3.14 Initializing All Study Data (State / Annotation)

The state and annotation saved in all images of the study are initialized and saved as the original state.



- All data (status / annotations) stored in DB are also initialized.

- 1 Select the image of the desired study.
- 2 Right-click and select **Erase All Status** from the pop-up menu.



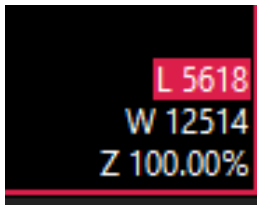
4.3.15 Image Adjustment using Image information Text in Viewer

You can use image control function by using specific image information text in Viewer.

- 1 Select the image of the desired study.



- 2 Click on the desired text to adjust it.



- The following items are supported for this feature:
 - Zoom In/Out, Window Level, Window Width, Window Center
 - You can show or hide the above information on the image in Preset > Display info.

4.3.16 Sending E-mail

You can send specific images in Viewer via E-mail.

- 1 Select the image of the desired study. (Multiple selections available)



- 2 Right-click and select 'Send Email' from the pop-up menu.



- 3 Fill in the blanks of To, Cc, Subject, and Content in the following window.



- Refer to <4.14.1 SMTP Server Settings> in the Service Manual for SMTP server settings.

From

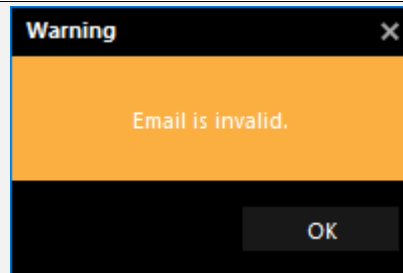


- Sender indicated as **From** is automatically set to the email address of the logged-in user.
 - If email address is not registered in the User setting, the email address, combined with User ID in the SMTP server setting and host name, is automatically created in the **From** box.
 - Display form: user name<Email>
 - Tooltip form: user level / user description

Manual Input of To and Cc



- Click the blank area for manual input.
- Press Enter or Tab key after tapping in Email address. Then, underlined email address will appear.
- If incorrect email address is entered, the warning message pops up and the further process is not proceeded.



- If you want to add other email address, click either end of the previously-registered email address to open the edit area.

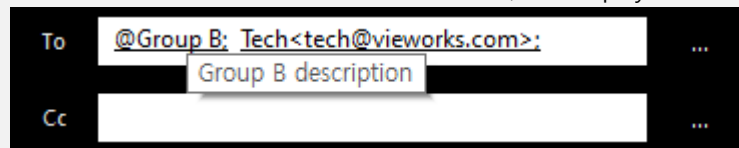


- The input window closes if pressing the esc key or moving to another window while entering email address.

To and Cc Input with Address Book

- Click the [...] button to open the address book.

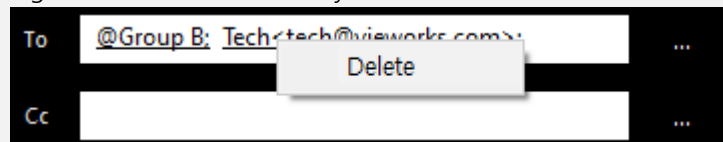
Once To and Cc is set from the address book, it is displayed as below:



- Group
 - Display form: @group name
 - Tooltip form: group description
- User
 - Display form: user name<Email>
 - Tooltip form: user level / user description

Deletion of To and Cc

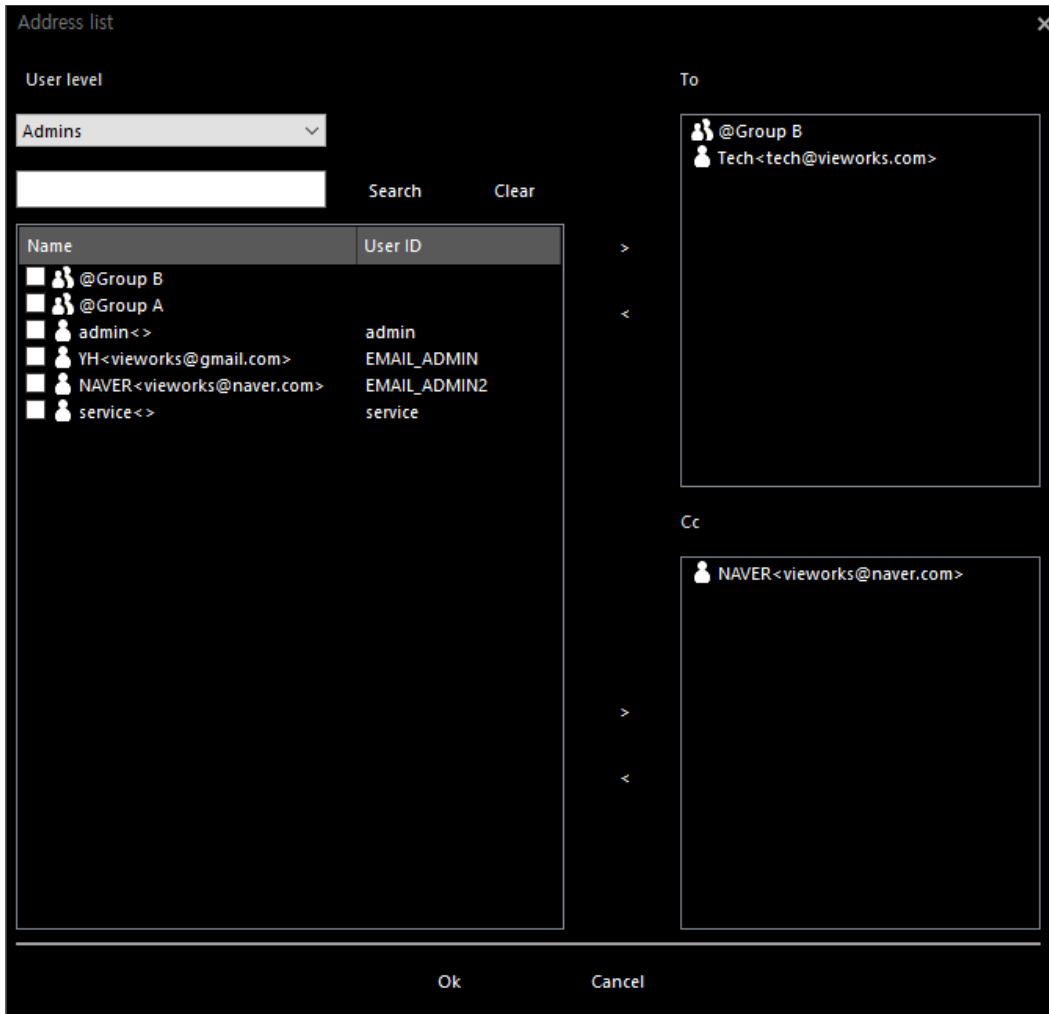
Right-click the email address you want to delete and click Delete.



- You can delete it from the address book by clicking the [...] button.

Address Book

Search users from the address book and add to the boxes under To and Cc.

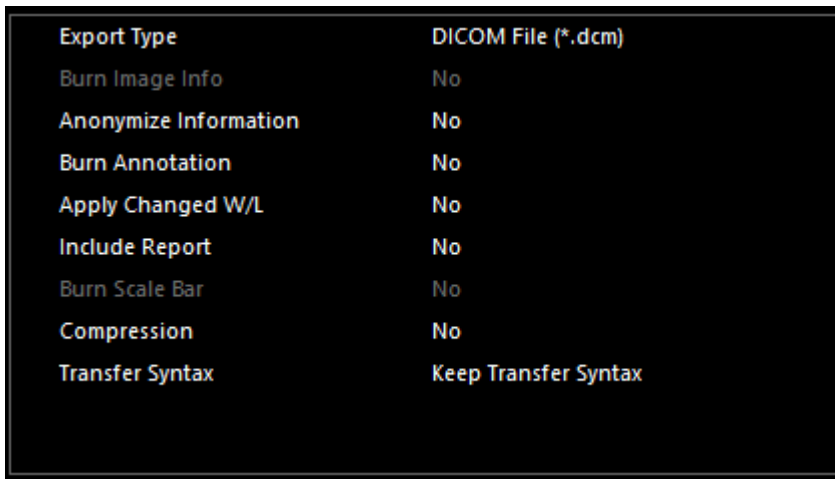


Item	Description
User level	<ul style="list-style-type: none"> • Displays user corresponding to User level in the list. • The user level of logged-in user is selected as default. = • When selecting '*', all users are included in the list.
Search Box	<ul style="list-style-type: none"> • You can search user or group included in the list. • Press Enter or click search button for further process.
Search Button	<ul style="list-style-type: none"> • Searches users with the condition you entered in the search box.
Clear Button	Initiates the previous search condition and list.
List	<ul style="list-style-type: none"> • Displays users selected from the User level. • Displays the group first at the top of the list and then the user involved in User level.
'>' Button	Adds the selected user to To and Cc.
'<' Button	Deletes the selected user from To and Cc.
Cancel Button	Canceles the setting.



• For Group Setting, refer to <3.8 Group Setting>from QXLink Service manual.

4 Click the **Options** button to select the option for the attached image.



Email Option

Item	Description
Export Type	<ul style="list-style-type: none"> • DCM • BMP • JPEG • TIF • RAW • PNG
Burn Image Info	Burns Information of patient and test to picture element.

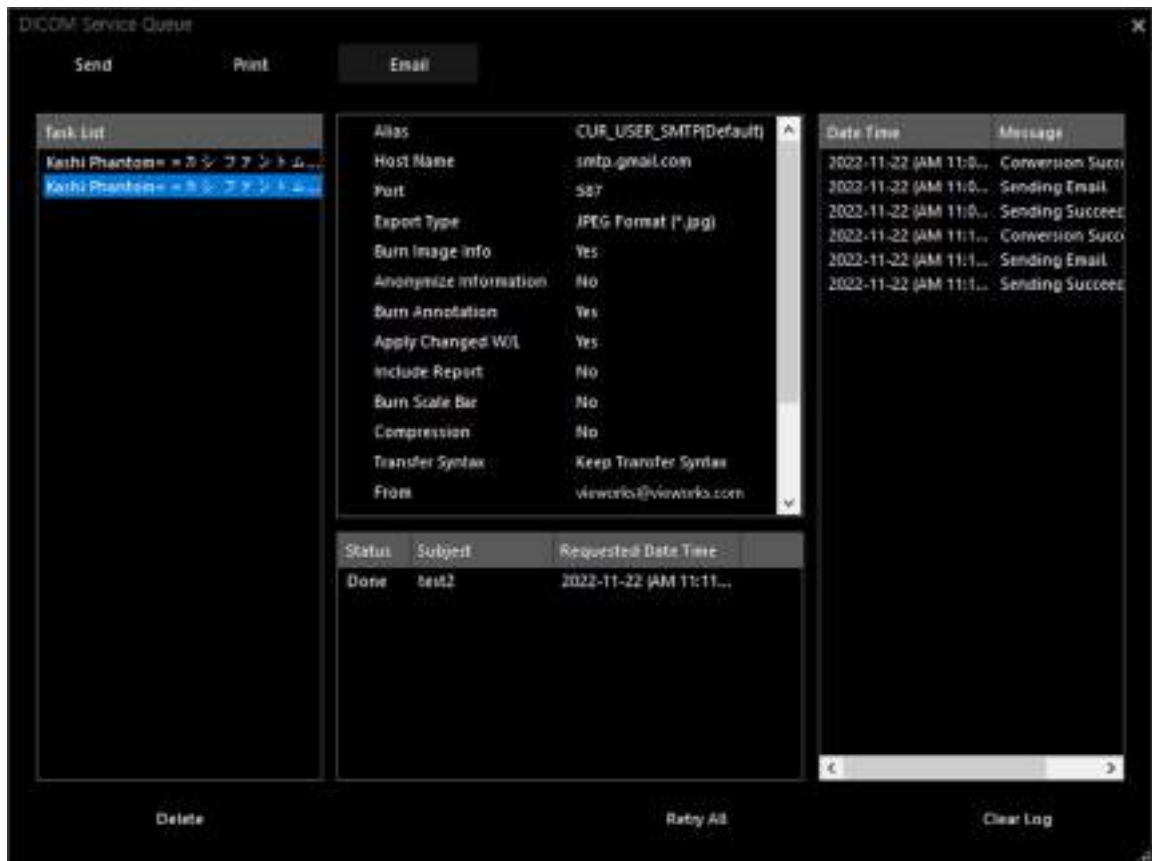
Anonymize Information	Anonymizes the patient information.
Burn Annotation	Burns annotation information to picture element.
Apply Changed W/L	Applies the changed values of W/L to picture element.
Include Report	Includes the report in the form of DICOM SR.
Burn Scale Bar	Burns scale bar to picture element.
Compress Image	Compresses the image and attach it.
Transfer Syntax	Identical with the transfer syntax in use when transmitting test.



- The following options are unavailable depending on the **Export Type**.
 - **DCM** - Burn Image Info., Burn Scale Bar
 - **BMP, JPEG, TIF, PNG** - Anonymize Information, Transfer Systax
 - **Raw** – Burn Image Info., Anonymize Information, Burn Annotation, Apply Changed W/L, Burn Scale Bar, Transfer Systax
- When selecting **Export** type to one of the Raster image format (PNG, BMP, JPEG, and TIF), the outcome of image filter application may be different for an image with multi-bytes per pixel.

5 Click the Send button to put it in the queue (DICOM Queue).

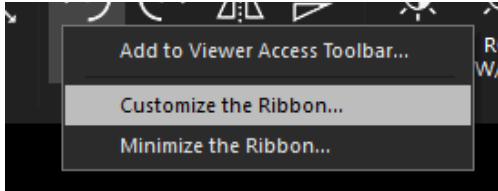
6 Check the transmission status in the DICOM Queue window.



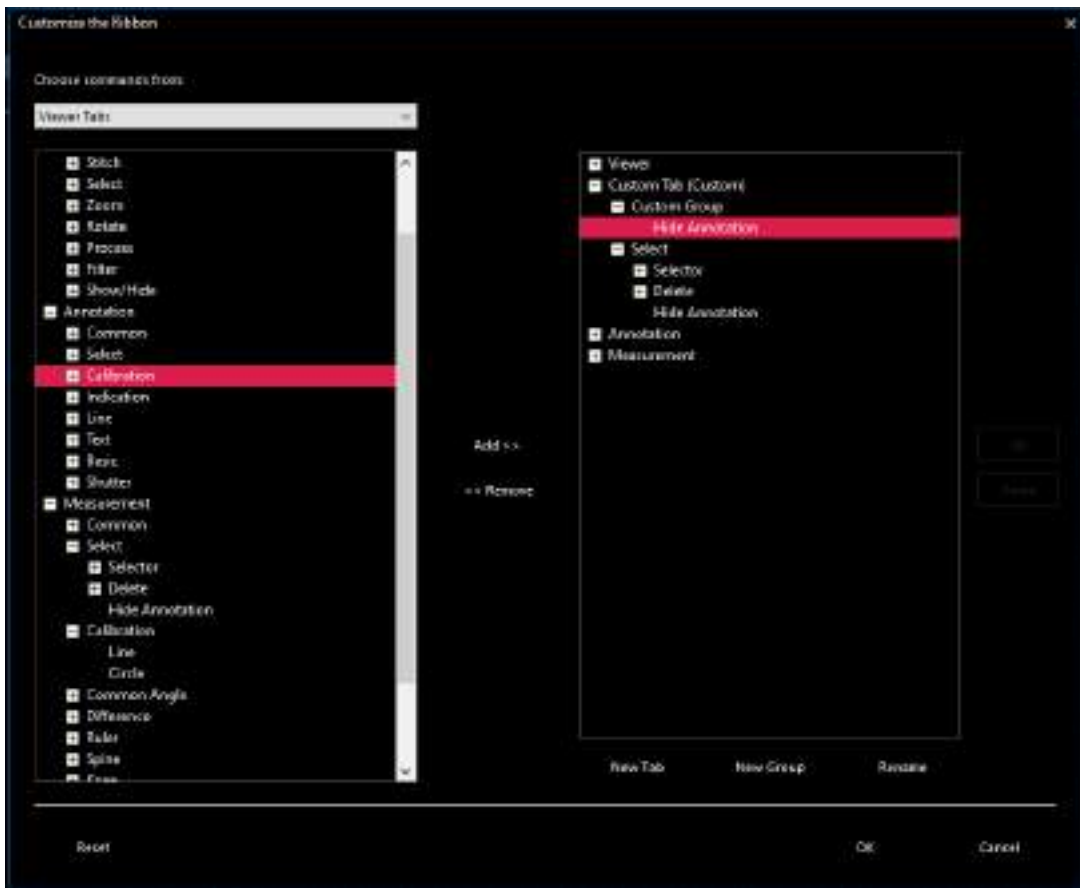
4.3.17 Configuring Custom Ribbon Tools

You can customize the configuration of ribbon tools in Viewer.

- 1 Right-click the ribbon tool window and select '**Customize the Ribbon..**' from the pop-up menu.



- 2 You can edit configuration of ribbon tools in the following menus.



Buttons

	Name	Description
1	New Tab	Adds a tab.
2	New Group	Adds a group.
3	Rename	Renames a tab or a group.
4	Add	Adds tools or groups.
5	Remove	Removes tools or groups.
6	Reset	Initializes all configuration of ribbon tools.



- You cannot remove the groups and tools of the tab provided by default.
- You cannot add a new group to the tab provided by default.

4.3.18 Copying Images

You can copy the specific images.

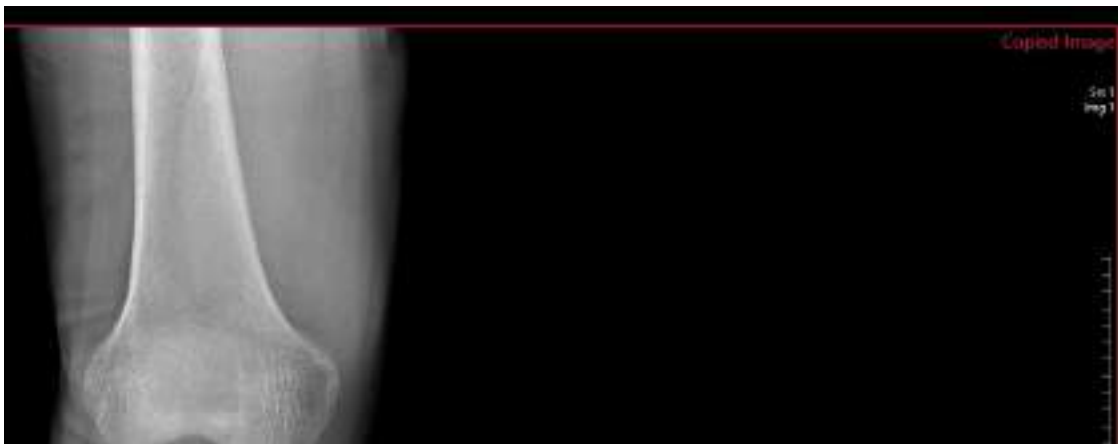
- 1 Select the image you want to examine. (Multiple selection is available)



- 2 Click on the right mouse button and click the **Copy DICOM** from the pop-up menu.



- 3 **Copied Image** will be displayed as below in the upper right of the copied image.



- You can only copy the images saved in database.
- You cannot copy the copied images.
- New SOP Instance UID is issued.
- Image manipulated information (W/L, Annotation, etc.) cannot be copied.

4.3.19 Key Image Note

With Key Image Note, you can add the relative memo in the selected image and communicate with people concerned.

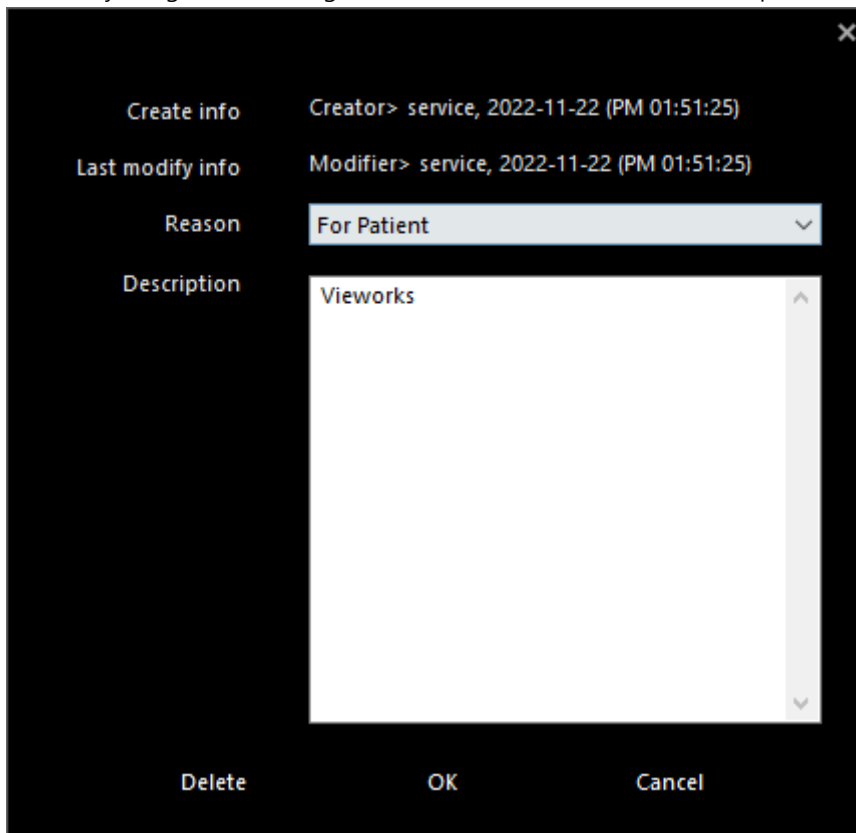
Adding Key Image Note

- 1 Open and rightclick the image set to Key Image and click the Key Image Note.




- Key Image Note can be added only to the Image set to Key Image.

- 2 In the Key Image Note setting, fill in the boxes of Reason and Description and click the Save button.



Item	Description
Create info	<ul style="list-style-type: none"> • Displays the created information. • User ID and creation date are indicated.
Last modify info	<ul style="list-style-type: none"> • Displays the latest modified information. • User ID and modification date are indicated.
Reason	Displays the reason for addition of Key Image Note.
Description	Includes detailed content.
OK	Temporarily saves the note.
Cancel	Cancels editing.

- In clicking the OK button in the Ribbon bar, the temporarily saved Key Image Note is permanently saved to DB.
- If image is temporarily saved, Not saved yet message pops up in the Key Image Note window.



3 You can check whether the Key Image Note is added at the top right corner of the image.



- If you want to keep the setting of Key Image Note, save the study.

Editing Key Image Note

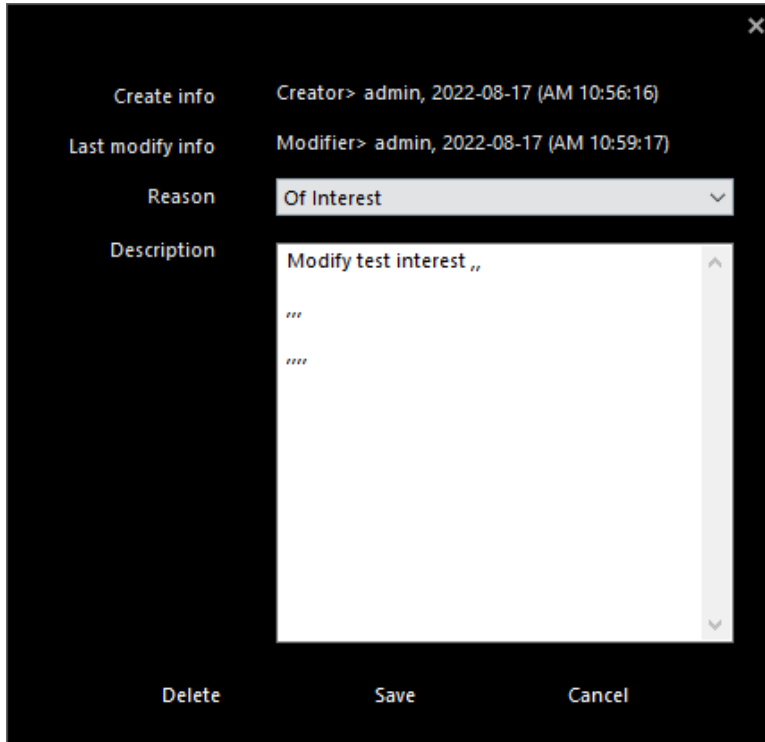
- 1 Open and right click the image with Key Image Note and either click the Key Image Note or double-click Key Image(Note) located on the right side of the image.
- 2 In the Key Image Note setting, edit Reason and Description and press OK button.

- To keep the setting of Key Image Note, the study should be stored.

Deleting Key Image Note

- 1 Open and right click the image with Key Image Note and either click the Key Image Note or double-click Key Image(Note) located on the right side of the image.

2 In the Key Image Note setting, edit Reason and Description and press Delete button.



3 You can check whether the Key Image Note is deleted at the top right corner of the image.



- To keep the setting of Key Image Note, the study should be stored.

5. Annotation

This chapter explains about the composition of annotation window and its functions.

Composition of Annotation

Annotation Tools

Shortcuts for Controlling Annotation


5.1 Composition of Annotation



No.	Name
1	Annotation Tools
2	Thumbnail
3	Study Viewer

5.2 Annotation Tools

5.2.1 Delete Annotation

Button	Description
	Deletes the selected annotation.

- 1 Select an image from the desired study.
- 2 Select the annotation with the left mouse button. You can use the Ctrl key to select multiple annotations.



- 3 Or, drag an area with the left mouse button where the annotation to be selected is included.




4 Click on the bottom of **Delete** button from the toolbar and choose the desired option.

- **Delete All Annotations / Delete Selected Annotation(s)**



• You can delete all annotations by clicking on the **Delete** button.



5.2.2 Hide Annotation

Button	Description
	Shows or hides annotations on the image.



• If you hide annotations, the related annotation tools will be deactivated.

5.2.3 Calibration

Button	Description
	Draw a line on the object of the image and enter the measured distance to correct the image length information.
	Automatically detect objects in circles to calibrate the length information

1 Open the image that requires calibration in the viewer.



- 2 Correct the image length information by selecting **Circle** from the **Calibration** menu at the top.



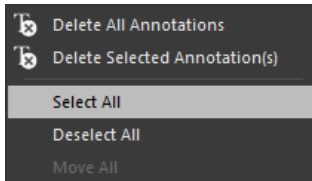
- **Calibration** is to find out the exact length information by measuring the length of an object that knows its actual length without the (0028, 0030) Pixel Spacing DICOM tag.
- **Circle Calibration** is preset to automatically detect spherical objects with a diameter of 25.4mm and to calibrate the length information.
- If **Circle Calibration** cannot detect a spherical object automatically, you can calibrate it by manually measuring the spherical object.
- Either line calibration or circle calibration can be applied to the calibrated image.
- If you delete the measured calibration object, it will return to the previous measurement value that the image had.

5.2.4 Select all annotations

- 1 Select an image of the desired study and choose an annotation.



- 2 Click a right mouse button to display the pop-up menu and click **Select All**.



- 3 Check the selected annotations.



5.2.5 Check Annotation Information

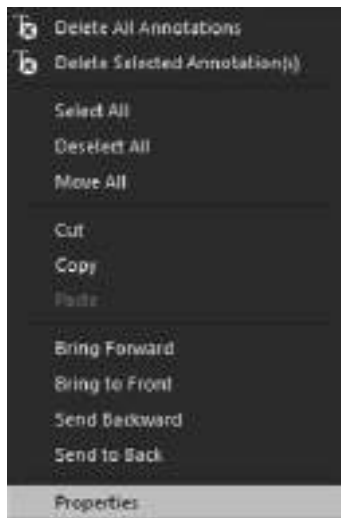
You can verify the following annotation properties.

- Creator, Date, Time

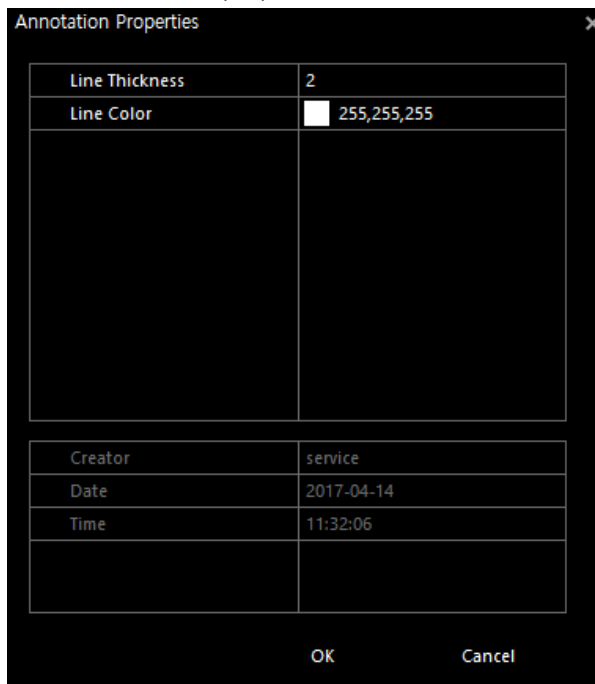
1 Select an image from the desired study.

2 Select an annotation to verify its property.

3 Click the right mouse button to display a popup window and select **Properties**.



4 Check the annotation properties.



5.2.6 Modify Annotation Properties

You can modify the annotation properties such as sequence, font color, size, etc.

How to modify the order of annotation

- 1 Click an annotation to change its order with a right mouse button.
- 2 A popup window displays as below. You can move the selected annotation forward or backward by selecting relevant menus.



How to copy annotation

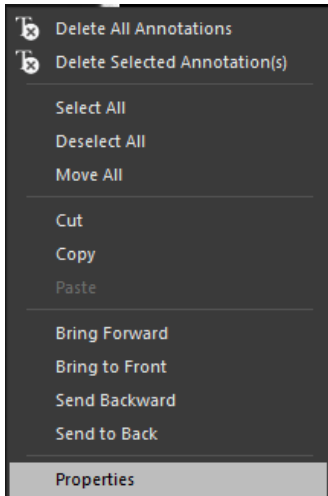
You can also cut, copy or paste the selected annotation by selecting relevant menus.

How to change properties of annotation

- 3 Select an image from the desired study and elect an annotation to modify its properties.



4 Click a right mouse button to display the popup window and select **Properties**.




5 Change the annotation properties as you want.

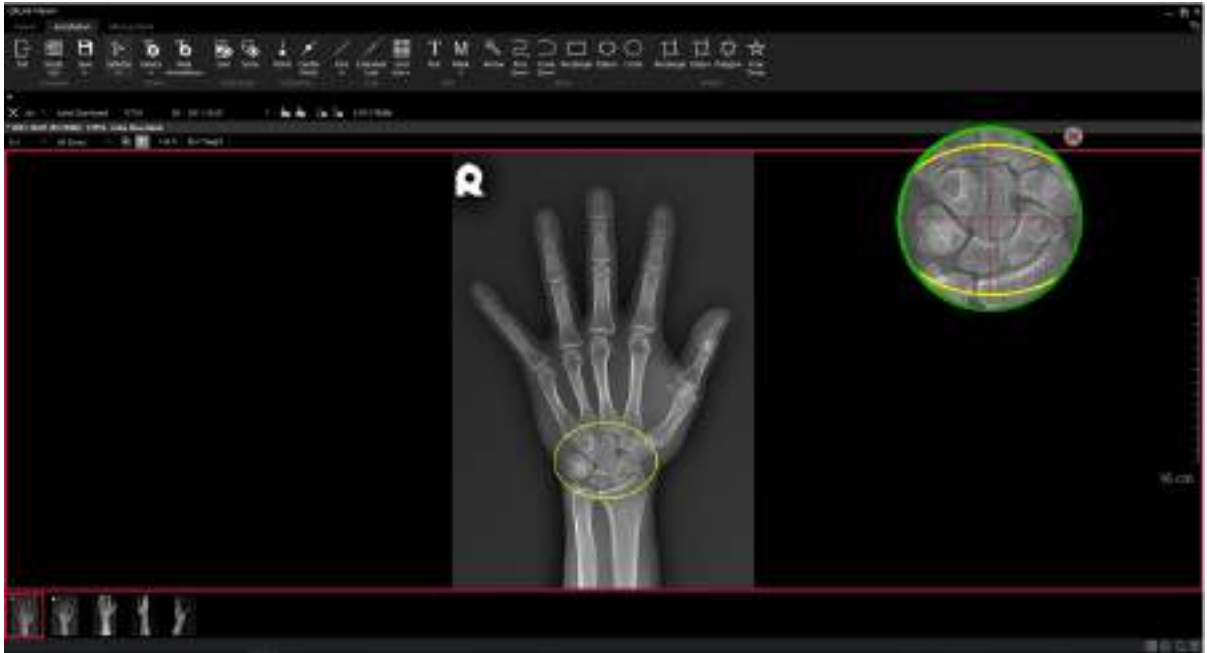


6 Click **OK** button.

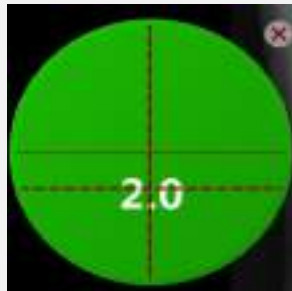


5.2.7 Magnifier


Image	Function
	<p>Click the magnifying glass icon in the status bar to activate the magnifying glass.</p>



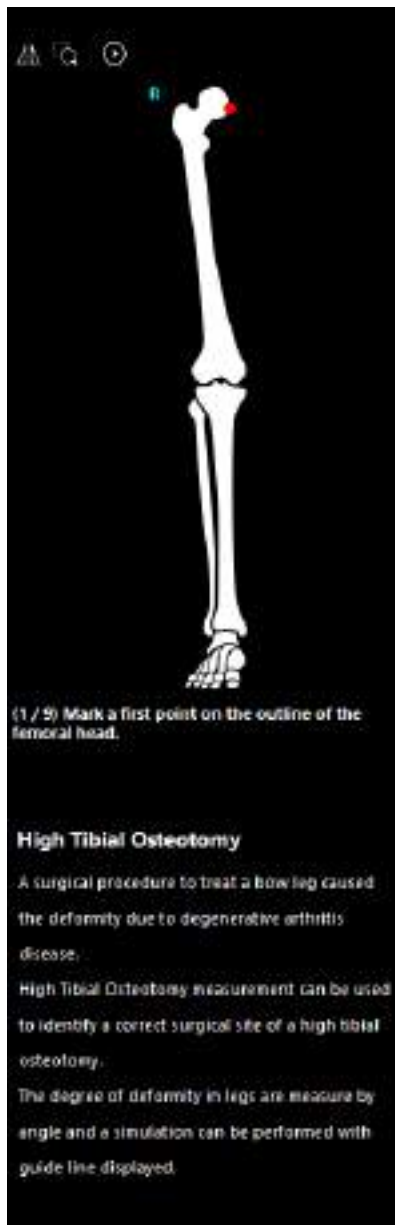
- When you put a mouse cursor on the magnifier window, the cursor turns to a cross line and the location of the magnifier window can be moved.
- Adjust the rate of enlargement by moving a mouse wheel.



5.2.8 Guide Functionality

Image	Function
	<p>Click the Guide icon in the status bar to activate the Guide feature.</p>

- Example (High Tibial Osteotomy)



- A detailed description of the measurement functions can be found in the Guide function.
- The blinking red dot in the image above is a marker that used as a guide.
- When you measure the image, use this function by clicking mouse points on the image according to the order of markers.
- The information displayed at the bottom of the guide is a detailed description of the selected measurement function.

5.3 Shortcuts for Controlling Annotation

Name	Description
Arrow keys	Moves the selected annotation.
Shift + Left or Up Arrow key	Enlarges the selected annotation.
Shift + Right or Down Arrow key	Reduces the selected annotation.
Ctrl + Z	Undo annotation
Ctrl + Y	Redo annotation
Delete	Removes the selected annotation. Or removes the previously measured step when measuring an image.
Alt + Right Arrow key	Rotates the selected annotation clockwise (CW).
Alt + Left Arrow key	Rotates the selected annotation counterclockwise (CCW).
Space	(When creating annotation) Left click
Enter	(When creating annotation) Double click

6. Human Measurement

This chapter explains about the composition and functions of measurement for human.

Composition of Measurement for Human
Measurement Tools for Human

6.1 Composition of Human Measurement

The measurement function in use can be converted to the other one or turned it to the previous condition.



No.	Function
1	Measurement tools for human
2	Study viewer
3	Thumbnail
4	Status bar

6.2 Human Measurement Tools



- The range of maximum tolerance for angle measurement is $\pm 0.5^\circ$.
- The range of maximum tolerance for length measurement is $\pm 0.5\text{mm}$.



- If the distance cannot be measured because the value such as (0028, 0030) pixel spacing does not exist, the distance is indicated as 'OO pt'.
- If there is no Pixel Spacing value, you can use the calibration function to correct the length information.



- Refer to <5.2.8 Guide Functionality> for the detailed information about each measurement tool.

7. Veterinary Measurement

This chapter explains about the composition and functions of veterinary measurement.

Composition of Veterinary Measurement
Veterinary Measurement Tools

7.1 Composition of Veterinary Measurement

The measurement function in use can be converted to the other one or turned it to the previous condition.



No.	Function
1	Measurement tools for animals
2	Study Viewer
3	Thumbnail
4	Status Bar

7.2 Veterinary Measurement Tools



- The range of maximum tolerance for angle measurement is $\pm 0.5^\circ$.
- The range of maximum tolerance for length measurement is $\pm 0.5\text{mm}$.



- If the distance cannot be measured because the value such as (0028, 0030) pixel spacing does not exist, the distance is indicated as 'OO pt'.
- If there is no Pixel Spacing value, you can use the calibration function to correct the length information.



- Refer to <5.2.8 Guide Functionality> for the detailed information about each measurement tool.

8. Report

This chapter explains about the composition of report window and its functions.

Report
Report Builder

8.1 Report

In the **Report** window, you can draw up a study report as well as print it as a user-defined format. In addition, you can print the report with attaching the image of the relevant study or an external file for reference.

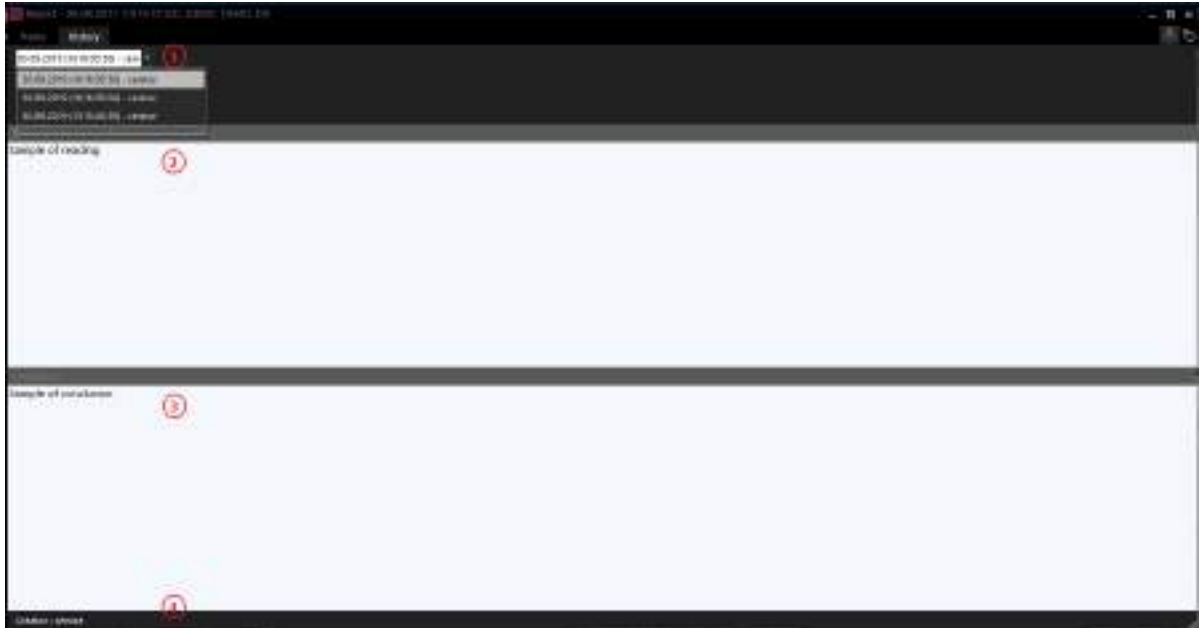
8.1.1 Composition of Report

Home (Viewer > Report)



No.	Item	Description
1	Toolbar	Displays the tools needed to create reports.
2	Report Template	You can create custom templates for your reports.
3	Reading	Input the reading contents of image. 4,096 letters in max.
4	Conclusion	Input the results of reading contents. 4,096 letters in max.

History



No.	Item	Description
1	History List	Displays the history of the report. (The created date and creator are displayed.)
2	Reading	Displays the previous contents of reading.
3	Conclusion	Displays the previous result of reading.
4	Status bar	Displays creators, approvers, and verifiers.

Report Preset

You can change the font name and font size, and the changed values will be reflected in the Report Home.






- The changed values in Report Preset will be applied from the time of re-opening the Report window.
- The values changed in Report Preset are retained even if you restart the program.


8.1.2 Drawing Up Report

- 1 Select a study in the **Study List** window to open it.
- 2 In the **Viewer** window, click **Report** button.
- 3 Input the reading contents and the reading conclusion by using the report tools.
- 4 Save the reading contents and conclusion.

8.1.3 Save

Button	Description
	Saves the report being written currently. You can modify and save the existing contents of report. The past contents can be checked in the History tab.


8.1.4 Approve

Button	Description
	An authorized user approves the created report.

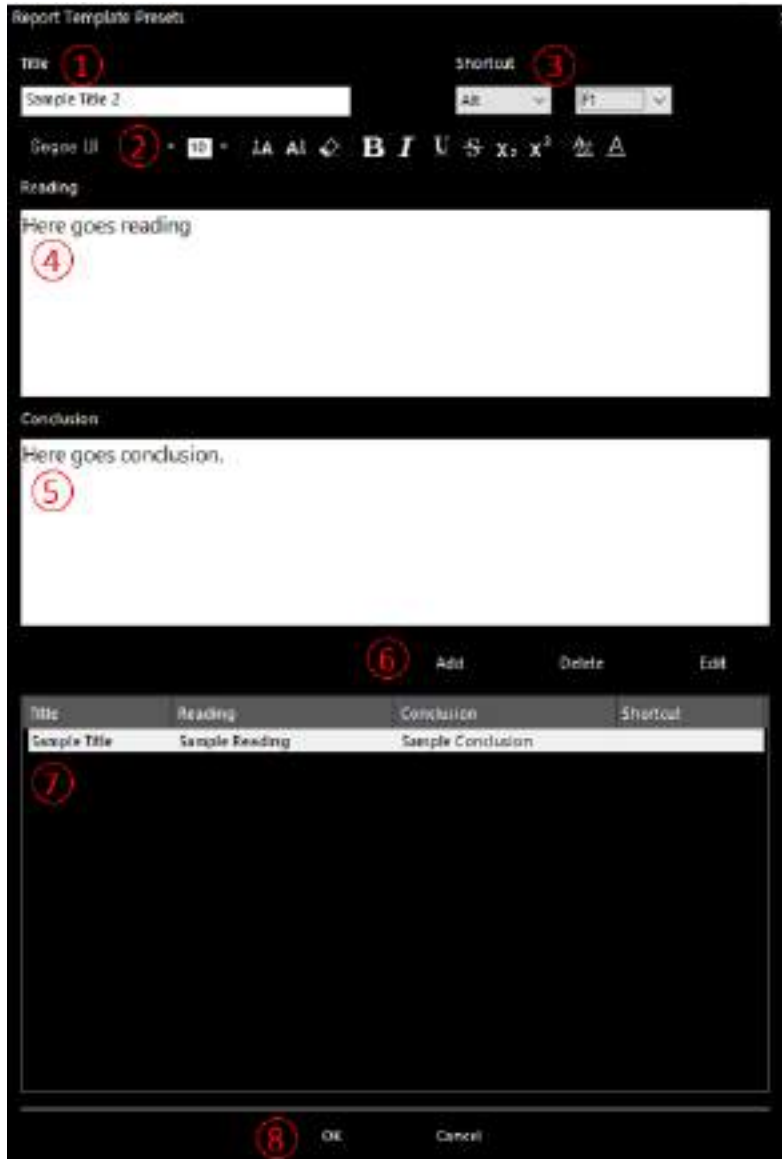


- The saved reports are not editable by other users who log on to the other account.

8.1.5 Confirm Approval

Button	Description
	An authorized user finally confirms the approved report.

8.1.6 Report Template




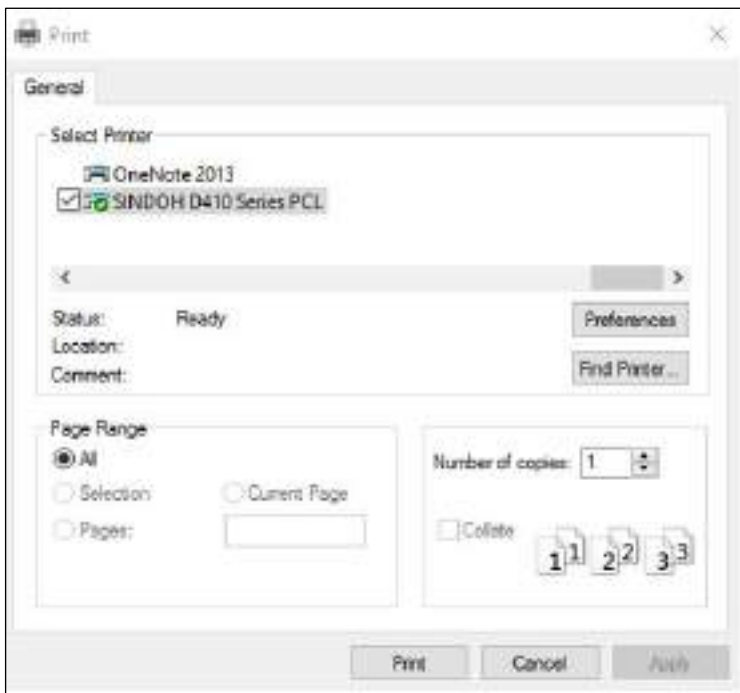
No.	Item	Description
1	Title	Specifies the title of the report template
2	Toolbar	Displays the toolbar of the report template.
3	Shortcut	Specifies the shortcut for the report template.
4	Reading	Writes a reading of the report.
5	Conclusion	Writes the conclusion of the report.
6	Add / Delete / Edit	Adds, edits, or deletes a report that has been created.
7	Template List	Displays a list of previously created report templates.
8	OK / Cancel	Saves or cancels the addition, modification, or deletion of a report template.




- For report templates designated as a shortcut key, you can quickly load them using the shortcut key in the report input window.

8.1.7 Print


Button	Description
	Prints out a report as a default layout format. Specifies a printer to print out a report.

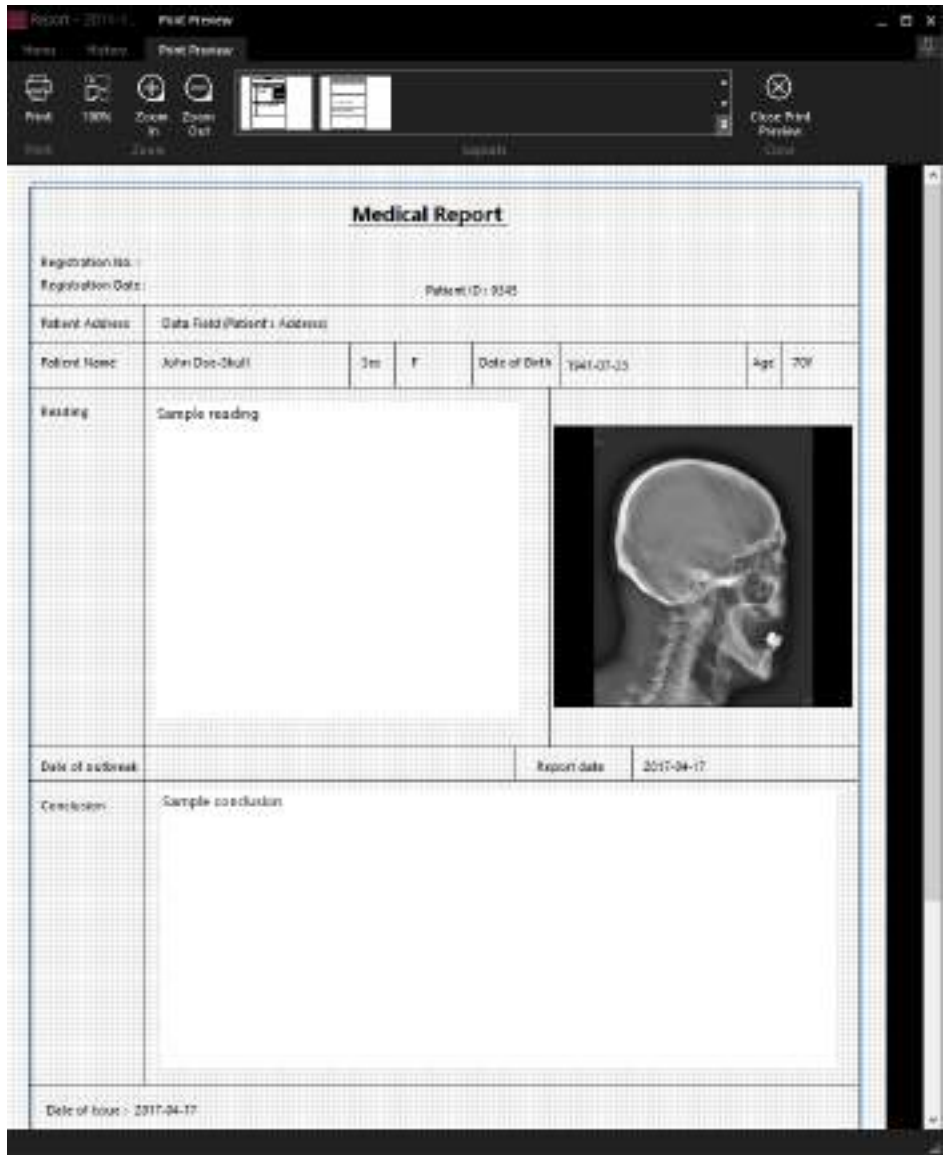


8.1.8 Quick Print

Button	Description
	Prints out a report with a printer defined as a default one.

8.1.9 Print Review

Button	Description
	Previews the layout of a report before printing and remove unnecessary areas from the layout or modify the layout properly.



8.1.10 Change print layout


Print out a report by selecting a pre-defined layout.

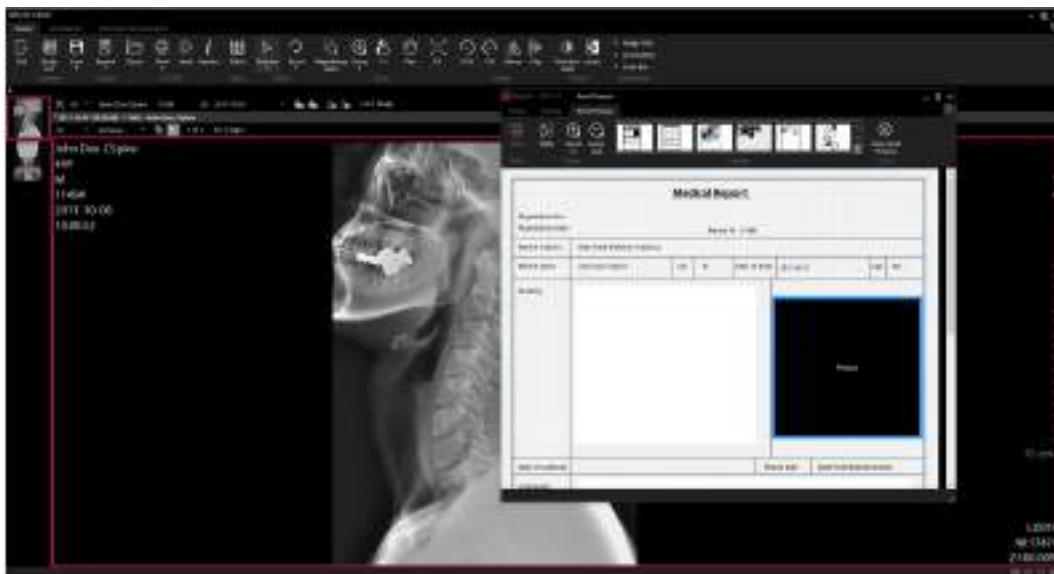
- Select a layout to be used from the **Layout** panel.



Attach image

Attach a selected image to the **Picture** field. This function is useful when you attach an image which is not specified as a key image or when you change the order of the attachments.

- 1 Select an image from the desired study.
- 2 You can move the image to the Picture area of the Medical Report through the icon  displayed on the image by holding down the left mouse button and dragging the image.



3 Check the attached image.

Medical Report

Registration No.:
Registration Date: Patient ID: 11494

Patient Address: Data Field (Patient's Address)

Patient Name: John Doe-OSpine Sex: M Date of Birth: 1971-04-17 Age: 44

Reading: Sample reading

Date of outbreak: Report date: 2017-04-17

Conclusion: Sample conclusion


DATE of Issue: 2017-04-17



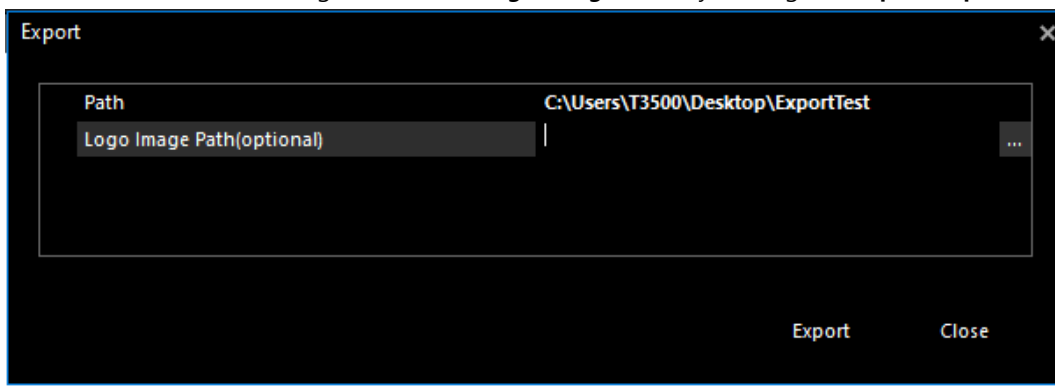
- If you already set an image as the key image, it is inserted in the report layout automatically.
- Make sure that there should be the **Picture** area in the report layout to attach the image or video registered as a key image by dragging a mouse button.
- Double-click the currently set Data Field item in Print Preview to modify the item value. (The possibility of modifying the Data Filed value can be specified through the Edit Data Field value in the option item of Preset in the specified Report Builder.)

8.1.11 Command

You can use available commands.




Button	Name	Description
	Report Export	Exports the saved report in HTML format.

- 1 Make out the Report.
- 2
- 3 Click the **Save** button to save the Report.
- 4
- 5 Enter the information relating to **Path** and **Logo Image Path** by clicking the **Report Export** button.















- 6
- 7 Click the **Export** button to export the Report.
- 8
- 9 Check if the Report is exported to the selected path.

8.1.12 Clipboard







Button	Name	Description
	Cut	Cuts out a selected area and store it in the clipboard temporarily.
	Copy	Copies a selected area and store it in the clipboard temporarily.
	Paste	Pastes the contents in the clipboard into a desired location.

8.1.13 Font

Change the current font type / size or those of the selected text.

Button	Name	Description
	Grow font	Increases the text size.
	Shrink font	Decreases the text size.
	Clear formatting	Clears every format of the selected area and leaves the plain texts only.
	Bold	Indicates the selected text in bold style.
	Italic	Indicates the selected text in Italic style.
	Underline	Draws a line under the selected text.
	Strikethrough	Draws a line through the middle of selected text.
	Subscript	Creates a small letter below the baseline of text.
	Superscript	Creates a small letter above the line of text.
	Change case	<ul style="list-style-type: none"> • Changes the first character of the selected text to uppercase. • Changes the selected text to lowercase. • Changes the selected text to uppercase. • Capitalizes each word of the selected text. • Toggles between the uppercase and lowercase.
	Text highlight color	Applies a specific color to mark the text or change the background color.
	Font color	Changes the text color.

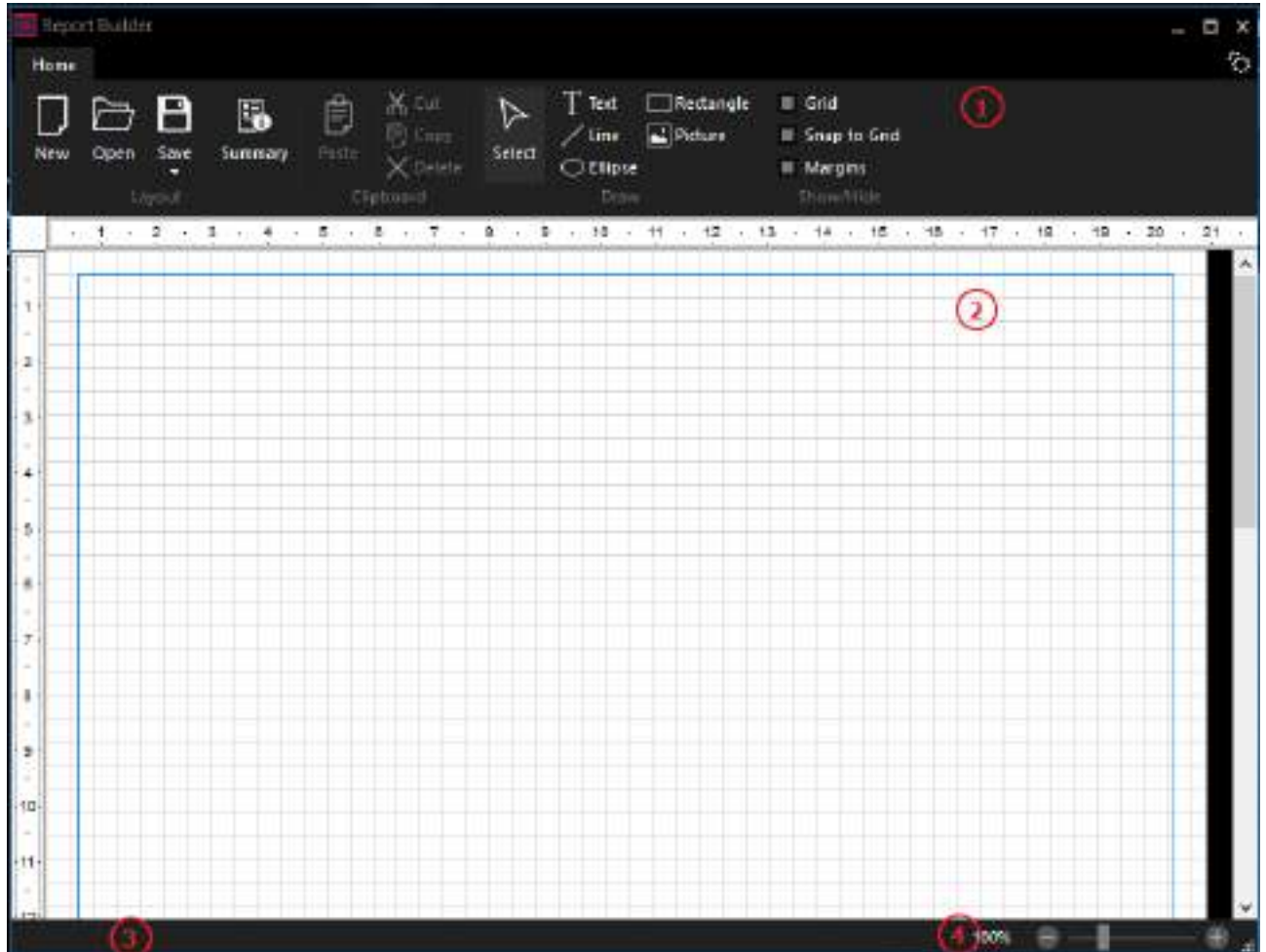
8.1.14 Paragraph

Button	Name	Description
	Decrease indent	Decreases the indent level of the paragraph.
	Increase indent	Increases the indent level of the paragraph.
	Align Text Left	Aligns the text to the left.
	Center	Aligns the text to the center.
	Align Text Right	Aligns the text to the right.
	Justify	Aligns the text to both the left and right margins, adds extra space between words as necessary.

8.2 Report Builder






8.2.1 Composition of Report Builder

Home



No.	Item	
1	Toolbar	Shows the toolbars required to create a Report form
2	Report form area	Fill out the Report form
3	Status Bar	Displays the status of the window.
4	Zoom In / Out slider	You can zoom in / out by operating the slider


8.2.2 Layout

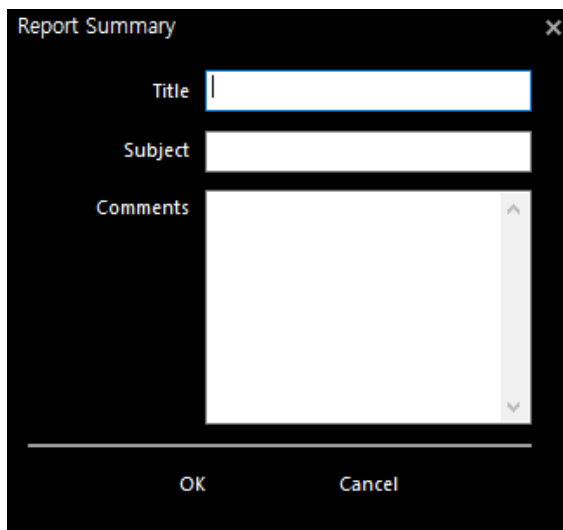
Button	Name	Description
	New layout	Closes the currently edited layout and create a new one. If you did not save the current layout, a confirmation message will appear before closing the layout.
	Open Layout	Opens the stored layout file.
	Save Layout	Saves the currently edited layout to the external file.
	Save As	Saves a layout as a different name.
	Save As Default	Specifies a layout as a default one.







- Be sure to save a report layout file to the folder **C:\Program Files\Viewworks\Viewer\Report**.
- Check if the file extension is **.RPT**.

8.2.3 Report Summary


Button	Name	Description
	Report Summary	Inputs summary information of the current report layout such as the title, subject and brief description.



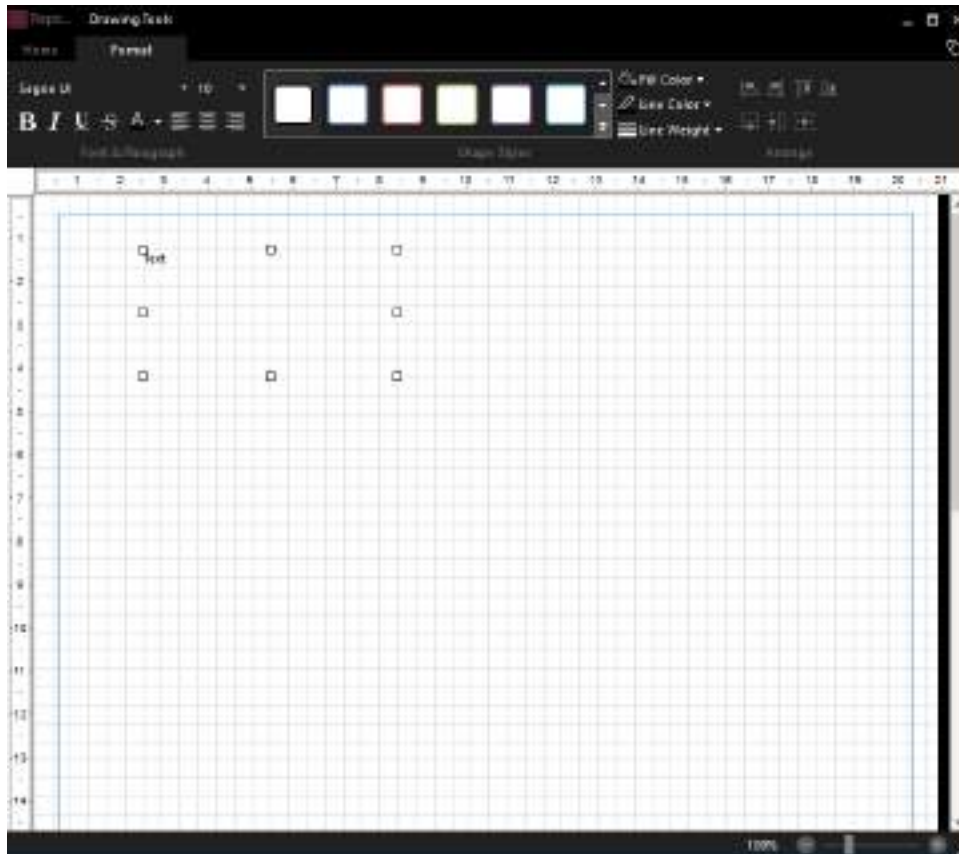
8.2.4 Clipboard

Button	Name	Description
	Cut	Cuts out the selected part and store it in the clipboard temporarily.
	Copy	Copies the selected part and store it in the clipboard temporarily.
	Delete	Deletes the selected object.
	Paste	Pastes the contents in the clipboard to a desired location.

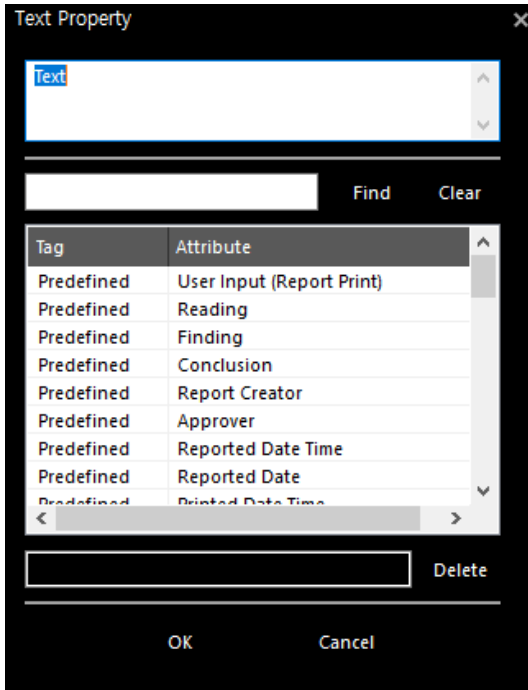
8.2.5 Inserting Text

Button	Name	Description
	Text	Adds text to the report to print out. You can input the text directly or import and indicate the specific information of study.

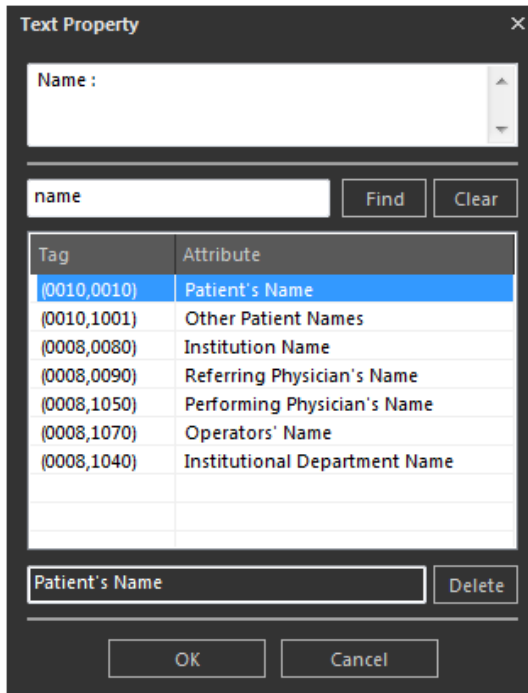
- 1 Click on the **Text** button.
- 2 Press and hold the left mouse button and draw a text input field by dragging the mouse.



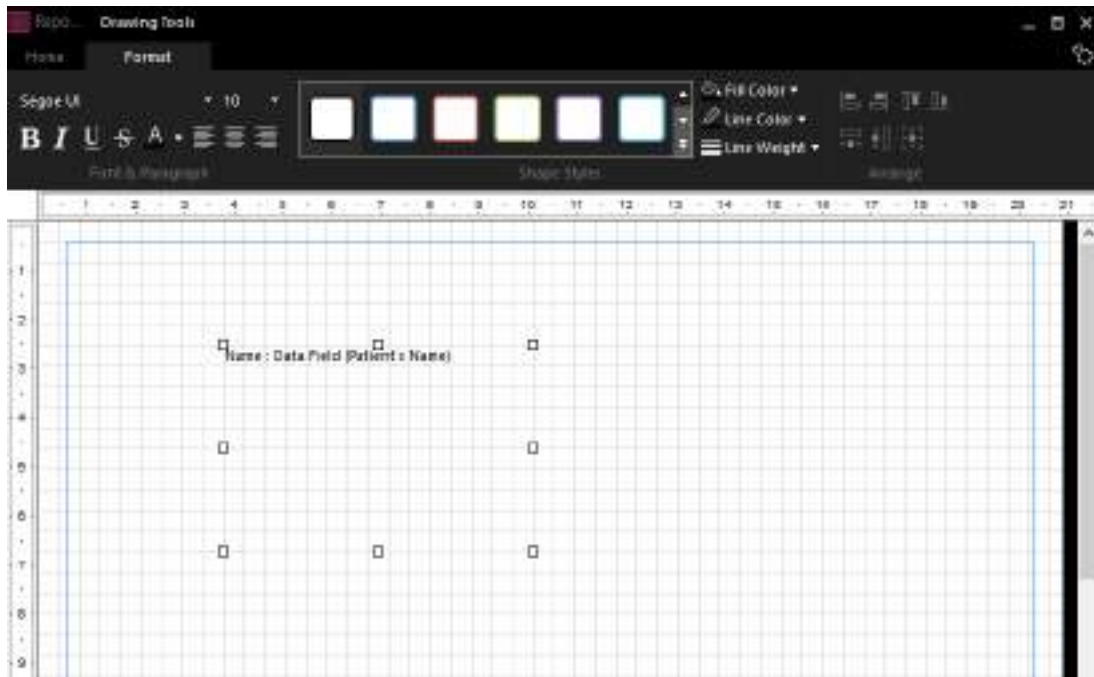
3 Double-click the text input field to open the **Text Property** window.



4 Enter the text in the text input field or double-click an item in the **Tag** list to indicate it.






5 Click the **OK** button and check the configured items.



- Be sure to input texts in the fixed field.
- The pre-defined tags are as follows. If you use the tags below, the tag value for each exam will be inserted to the report automatically.
 - User Input (Report Print) Reading, Finding, Conclusion, Report creator, Report Date Time, Report Date, Approver, Approved Date Time, Approved Date, Confirmed Approver, Confirmed Date Time, Confirmed Date, Printed Date Time, Printed Date, Patient's Name, Patient ID, Other Patient IDs, Other Patient Names, Patient's Age, Occupation, Patient's Birth Date, Patient's Birth Time, Patient's Sex, Patient's Size, Patient's Weight, Patient's Address, Patient Comments, Current Patient Location, Medical Alerts, Allergies, Special Needs, Institution Name, Institution Address, Referring Physician's Name, Requesting Physician, Study Date, Study Time, Study ID, Accession Number, Study Description, Modality, Performing Physician's Name, Operator's Name, Body part Examined, Requesting Service, Institutional Department Name
- If you set the Edit Data Field value in **Preset > Options** with the report template open, you can set whether to change the data field value in Report Preview.
- User Input (Report Print) can be modified regardless of whether Edit Data setting is changed.

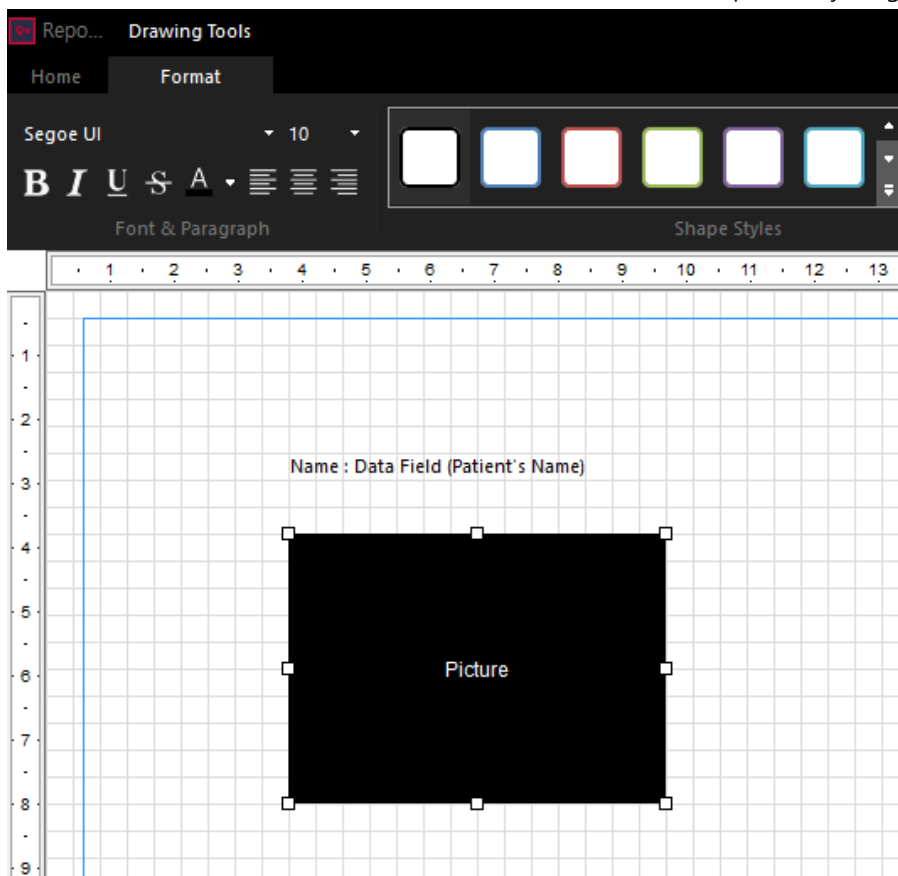
8.2.6 Drawing a Figure

Button	Name	Description
	Line	Adds a line.
	Ellipse	Adds an ellipse.
	Rectangle	Adds a rectangle.

8.2.7 Inserting a Picture

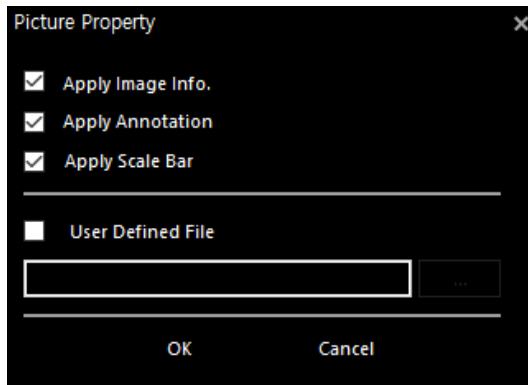
Button	Name	Description
	Picture	Attaches an image to the study and prints it.

- 1 Click on the **Picture** button.
- 2 Press and hold the left mouse button and draw an insertion field of picture by dragging the mouse.



- 3 Double-click the **Picture** field to open the **Picture Property** window.

4 When you attach an image of the study, you can select the following information.



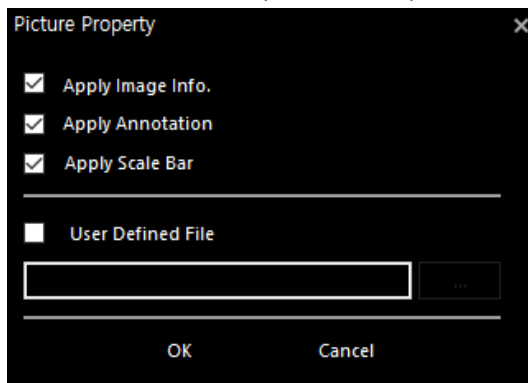
Attaching the User-Defined Picture

You can attach a general image file, not an image from the study. This function is useful when you insert a hospital logo, a signature of physician or clinical reference images.

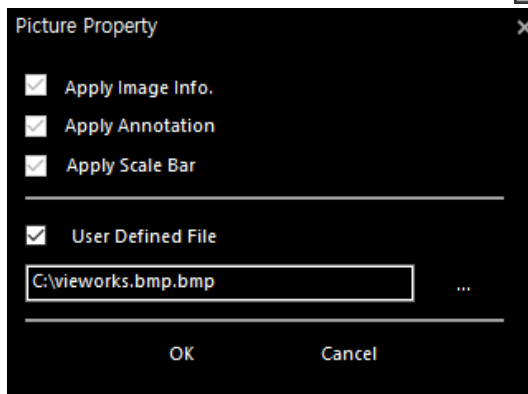


- The extension of **.BMP** file is supported only.

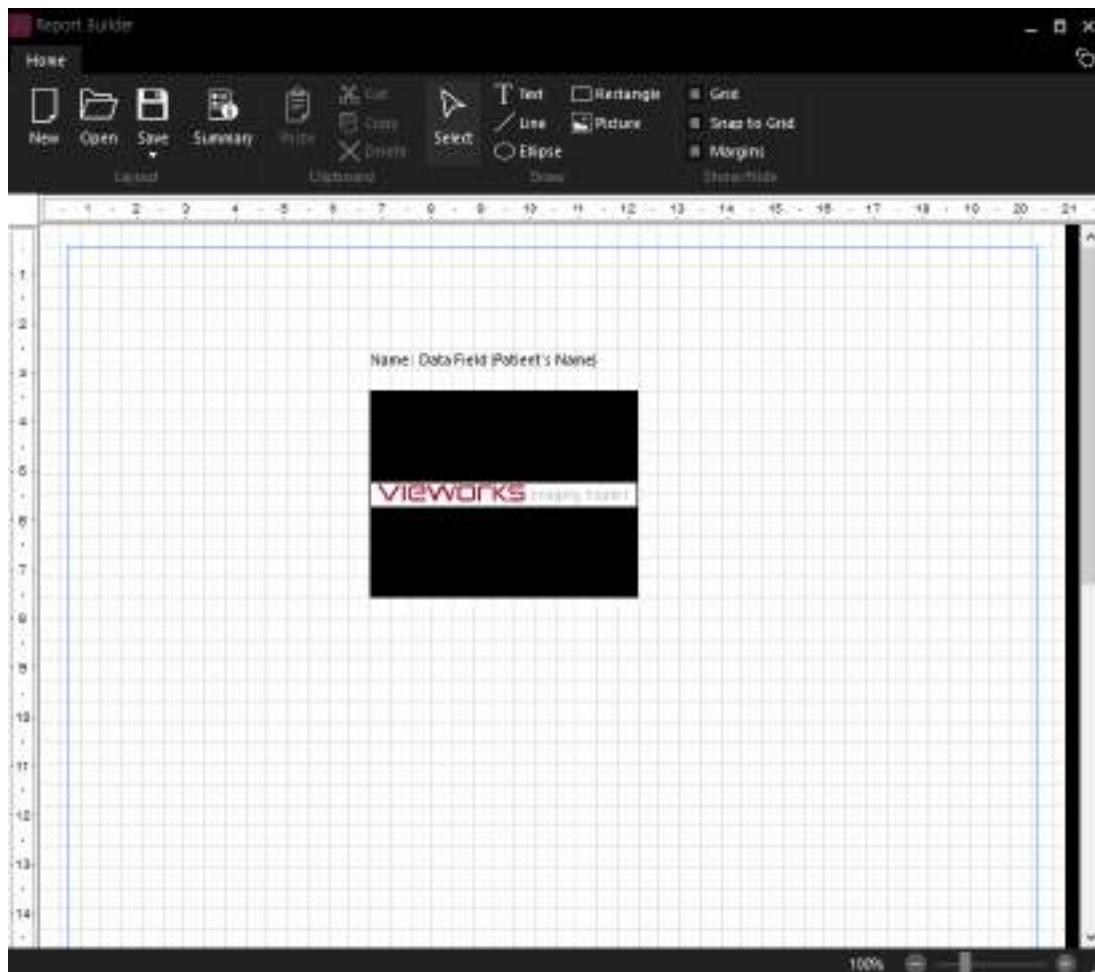
5 Double-click the added input field to open the **Picture Property** window.



6 Select the **User Defined file** checkbox and click  button, then select an image file to insert.




7 Click the **OK** button and check if the image is indicated normally.



- You cannot attach an image of the study to the picture area where you inserted a user-defined file.

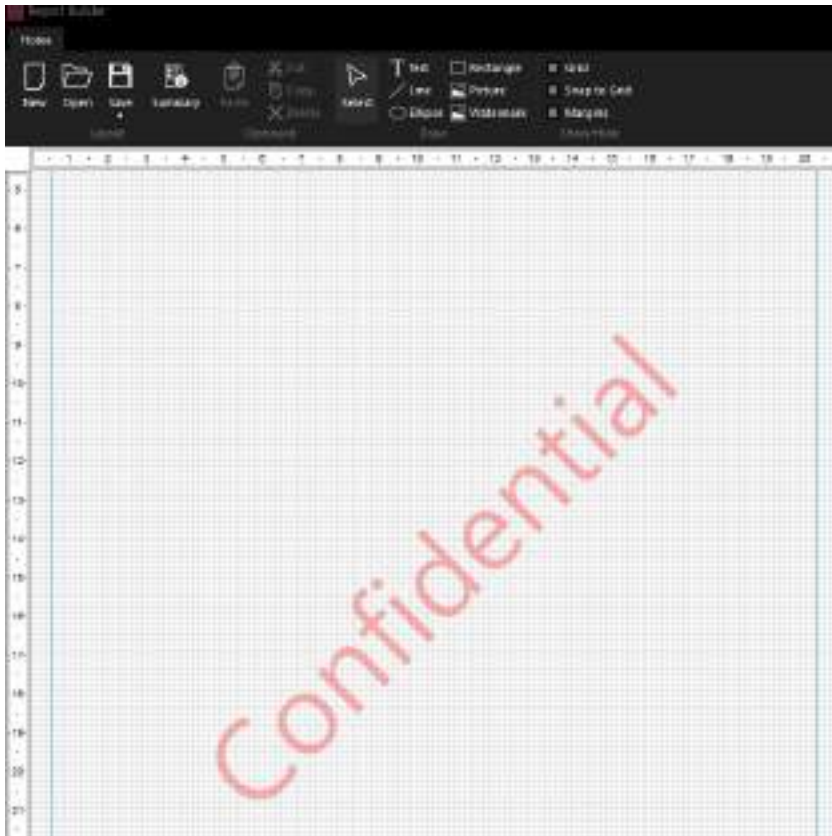
8.2.8 Inserting Watermarks

Button	Name	Description
	Watermark	You can attach watermark on the printings.

- 1 Select the 'Watermark' button.
- 2 You can set the watermark to add in the window below.



- 3 Click the OK button and check if the watermark is indicated as follows.











8.2.9 Grid / Margin

Function	Description
Show / Hide Grid	Shows or hides a grid. The grid is not showed when printing out the report.
Snap to Grid	When you move or resize an object, it will align or snap to the nearest intersection of lines in the grid. This is useful when you align objects including the layout.
Show / Hide Margin	Shows or hides margin guidelines of the paper to be printed out. The guideline is not showed when printing out the report.

8.2.10 Changing Font Type and Size

Change the font type and size of texts showed on the screen.

Button	Name	Description
	Bold	Indicates the selected text in bold style.
	Italic	Indicates the selected text in Italic style.
	Underline	Draws a line under the selected text.
	Strikethrough	Draws a line through the middle of selected text.
	Font color	Changes the text color.
	Align text left	Aligns the text to the left.
	Center	Aligns the text to the center.
	Align text right	Aligns the text to the right.

8.2.11 Applying the Figure Style








Apply a pre-defined figure style.



Name	Description
Fill Color	Fills a selected shape with a specified color.
Line Color	Changes the color of selected lines.
Line Weight	Changes the thickness of a line or border.

8.2.12 Arrangement of Objects

Align or resize the objects based on the lastly selected object.

Button	Function	Description
	Align Lefts	Aligns the edges of the objects to the left.
	Align Rights	Aligns the edges of the objects to the right.
	Align Tops	Aligns the top edges of the objects.
	Align Bottoms	Aligns the bottom edges of the objects.
	Make Same Width	Matches the width of objects as same.
	Make Same Height	Matches the height of objects as same.
	Make Same Size	Matches the height and width sizes of objects as same.

8.2.13 Setting Environment of Report Builder

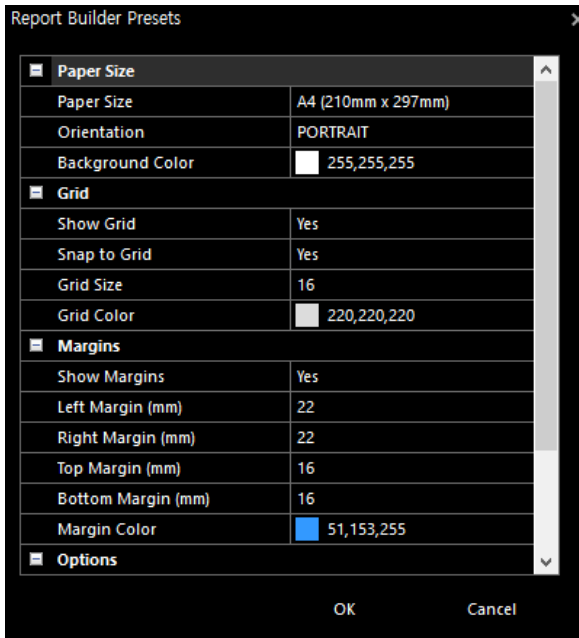
You can set various options of report formats. The preset options are as follows.

Name	Description
Paper Size	
Paper Size	Sets the paper size
Orientation	Sets the orientation of paper
Background Color	Changes the background color
Grid	
Show Grid	Indicates the grid
Snap to Grid	Moves the grid fitted in the frame.
Grid Size	Sets the grid size
Grid Color	Sets the grid color
Margins	
Show Margins	Indicates the guideline of margins.
Left Margin (mm)	Sets the left margin in mm.
Right Margin (mm)	Sets the right margin in mm.
Top Margin (mm)	Sets the top margin in mm.
Bottom Margin (mm)	Sets the bottom margin in mm.
Margin Color	Changes the color of margin lines.

Options

Edit Data Field

Sets whether to modify data fields.



9. Print

This section explains about the way to print selected images.

- Print Window
- Print Type
- Changing Printer
- Changing Format
- Adjusting Size
- Changing Position

9.1 Print Window




No.	Name	Function
1	Image manipulation toolbar	<ul style="list-style-type: none">• Displays tools used for image manipulation.
2	Print area	<ul style="list-style-type: none">• Displays the printed area of selected image.
3	Sheet Number	<ul style="list-style-type: none">• Indicates the currently selected sheet.
4	Status bar	<ul style="list-style-type: none">• Displays function and its status.

9.1.1 Moving to the Print Window



- The information of Window Level, Annotation, Zoom In/Out ratio and Pan will be maintained even if you copy an image from the **Viewer** window to the **Print** window.
- If the image is consisted of multiple frames, **QXLink** viewer will copy the image displayed on the **Viewer** window currently to the **Print** window.

Open as New Sheet

Button	Name	Description
	Open as New Sheet	Create a new sheet in the Print window, then paste the image selected from the Viewer window.


1 Select an image from the desired study.



2 Click the bottom of the **Print** button on the toolbar and select the **Open into New Film** menu.



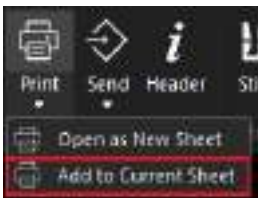
Add to Current Sheet

Button	Name	Description
	Add to Current Sheet	Paste an additional selected image from the Viewer window into the selected sheet in the Print window.


3 Select one of the existing sheets in the Print window.



4 In the viewer window, click the bottom of the **Print** button on the toolbar, then select **Add to Current Sheet**.



9.1.2 New Sheet

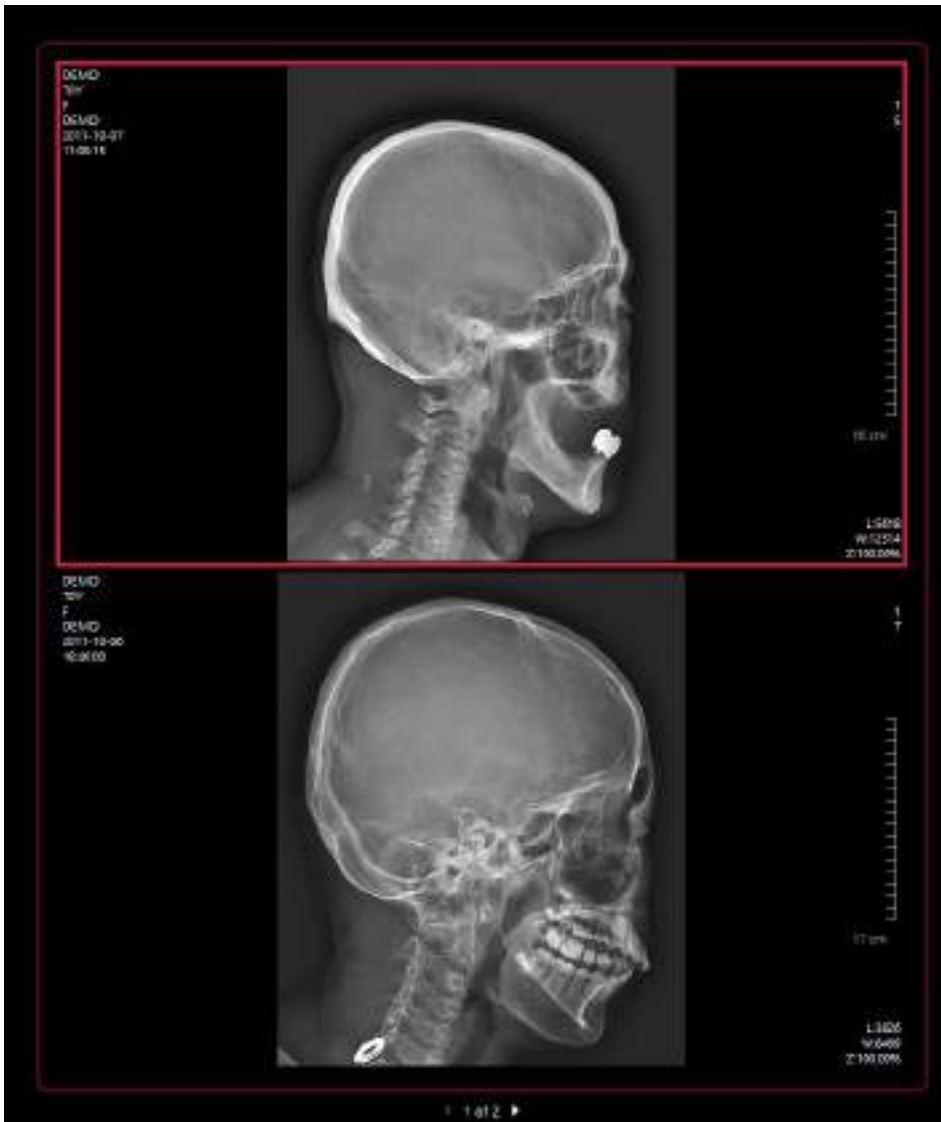
Button	Name	Description
	New Sheet	Creates a new sheet.



- When creating a new sheet, you can set the layout for the sheet.

Standard Sheet

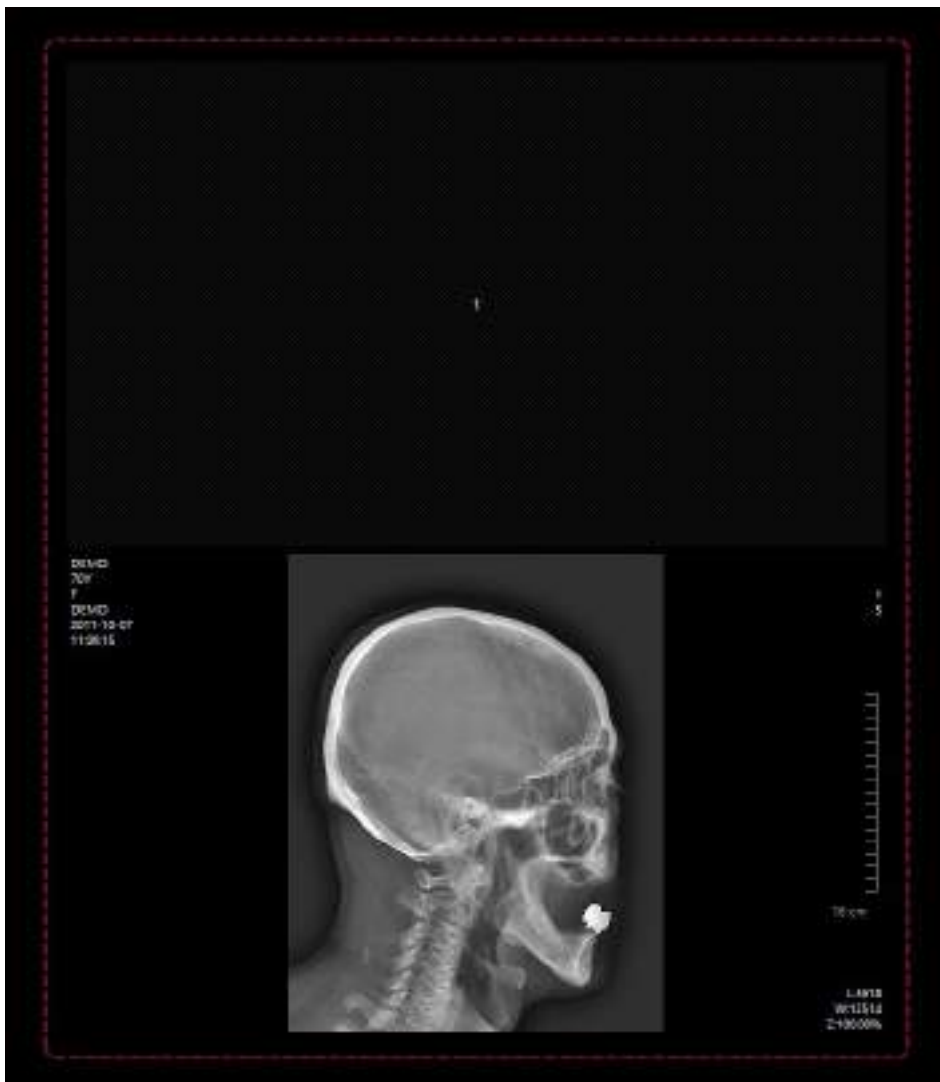
Sheet (solid line border) where images are sequentially added.



- The sheet can be composed of multiple pages.
- Between images or blank areas in front cannot exist.


Custom Sheet

Sheet that can freely add / change image position by drag & drop (dotted border)

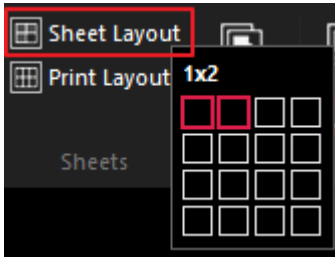


- Sheet cannot be composed of multiple pages.
- You can change the custom sheet to standard sheet by changing print layout.
 - When switching to the standard sheet, blank image area is removed.


9.1.3 Sheet Layout

Button	Name	Description
	Sheet Layout	Sets the layout for the created sheet in the Print window.

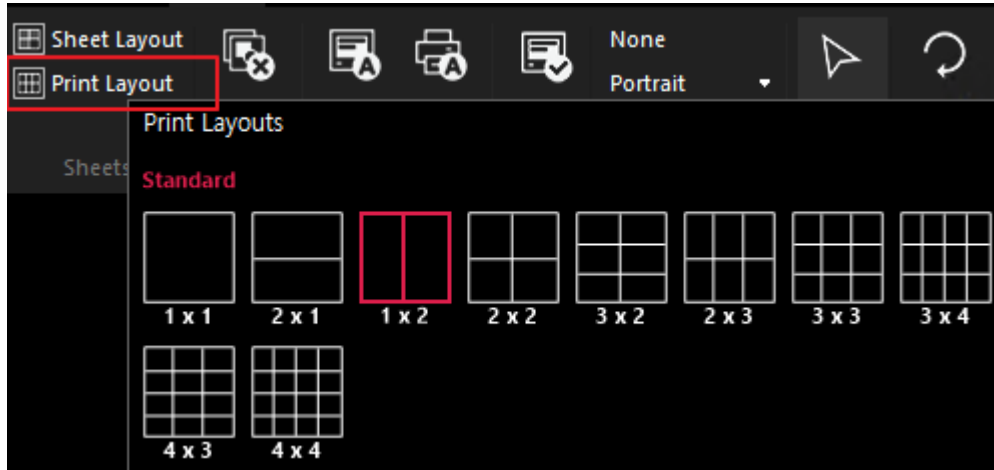
Changing Sheet Layout (2x1)



9.1.4 Print Layout




Button	Name	Description
	Print Layout	Sets the print layout applied to the selected sheet.

Changing Print Layout (1x2)



- You can modify the order and types of print layouts. Refer to 'Setting Display / Layout of Image Information for Printing' in QXLink Service Manual for details.

9.1.5 Closing the Print Window

Button	Name	Description
	Clear All Sheets	Removes all images in the Print window and moves to the Viewer window.
	Clear Current Sheet	Removes the selected sheet from the Print window.
	Clear Selected Image(s)	Removes the selected image from the Print window.

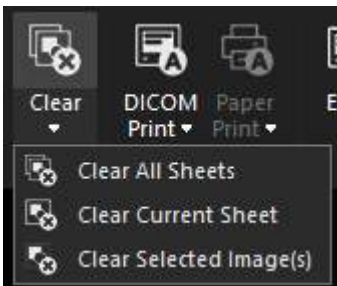


- The contents of image changed from the **Print** window are not applied to the image in the **Viewer** window.
- If there is only one sheet to print, the **Print** window will be closed and moved to the **Viewer** window after removing the sheet.
- If there is only one image to print, the **Print** window will be closed and moved to the **Viewer** window after removing the image.

1 Select an image to remove.






2 Click the bottom of **Clear** button on the toolbar and select **Clear Selected Image(s)**.





9.2 Print Type




9.2.1 DICOM Print

Button	Name	Description
	Print All Sheets	Transfers all images from the Print window to the DICOM printer. You can stop DICOM printing while printing out images.
	Print Current Sheet	Transfers the image of the currently selected sheet to the DICOM printer.
	Print Current Page	Transfers the image of current page to the DICOM printer.



- Activated when the current DICOM printer is selected.
- When the images are transferred to the DICOM printer normally, the mark **Printed** will be displayed on the right top corner of the image.


9.2.2 Paper Print

Button	Name	Description
	Print All Sheets	Prints all images of all sheets in the print window to paper.
	Print Current Sheet	Prints the image of the currently selected sheet on paper.
	Print Current Page	Prints the image of the currently selected page on paper



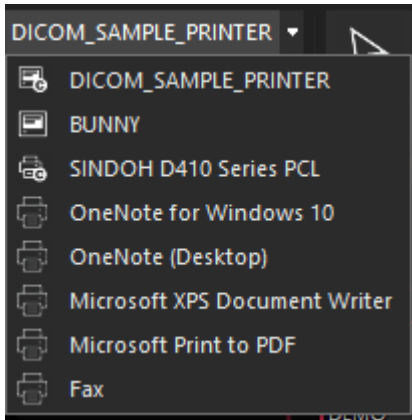
- Activated when the current paper printer is selected.

9.2.3 Echo





Button	Name	Description
	Echo	Checks the activation status of DICOM Printer.

9.3 Changing Printer

You can select the printer you want to use.



Printer Classification

Icon	Classification
	DICOM printer
	Calibrated DICOM printer
	Paper printer
	Calibrated paper printer



- Full Size or Full Size Pages function, executed by the non-calibrated printer in preset, operates as default setting, that precision may not be guaranteed.

9.4 Changing Format

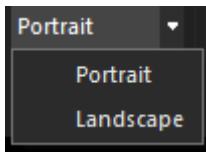
Change the print orientation and film size.



- The default value configured on the DICOM printer is used, and the lastly changed settings will be maintained while operating **QXLink** viewer.

9.4.1 Changing Print Orientation

You can change the print orientation of image.



Portrait

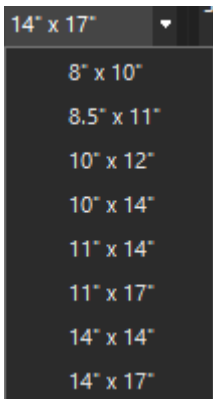


Landscape



9.4.2 Changing Film Size

You can choose the film size to print out. The image displayed on the screen is resized properly according to the configured film size.



14IN x 17IN



11N x 17N




Basic film size by printer

Film size	DICOM printer	Paper printer
8INX10IN	<input type="radio"/>	<input checked="" type="checkbox"/>
8_5INX11IN	<input type="radio"/>	<input checked="" type="checkbox"/>
10INX12IN	<input type="radio"/>	<input checked="" type="checkbox"/>
10INX14IN	<input type="radio"/>	<input checked="" type="checkbox"/>
11INX14IN	<input type="radio"/>	<input checked="" type="checkbox"/>
11INX17IN	<input type="radio"/>	<input checked="" type="checkbox"/>
14INX14IN	<input type="radio"/>	<input checked="" type="checkbox"/>
14INX17IN	<input type="radio"/>	<input checked="" type="checkbox"/>
24 cm × 24 cm	<input type="radio"/>	<input checked="" type="checkbox"/>
24 cm × 30 cm	<input type="radio"/>	<input checked="" type="checkbox"/>
A4	<input type="radio"/>	<input type="radio"/>
A3	<input type="radio"/>	<input type="radio"/>
B4	<input type="radio"/>	<input type="radio"/>
Letter	<input type="radio"/>	<input type="radio"/>
Legal	<input type="radio"/>	<input type="radio"/>
Tabloid	<input type="radio"/>	<input type="radio"/>
CUSTOM1	<input type="radio"/>	<input checked="" type="checkbox"/>
CUSTOM2	<input type="radio"/>	<input checked="" type="checkbox"/>

9.5 Adjusting Size

9.5.1 Full Size

Button	Name	Description
	Full Size	Enlarges or reduces the selected image to fit to the current printer/film size. The image displays in a different size according to the film space settings available to be printed out.

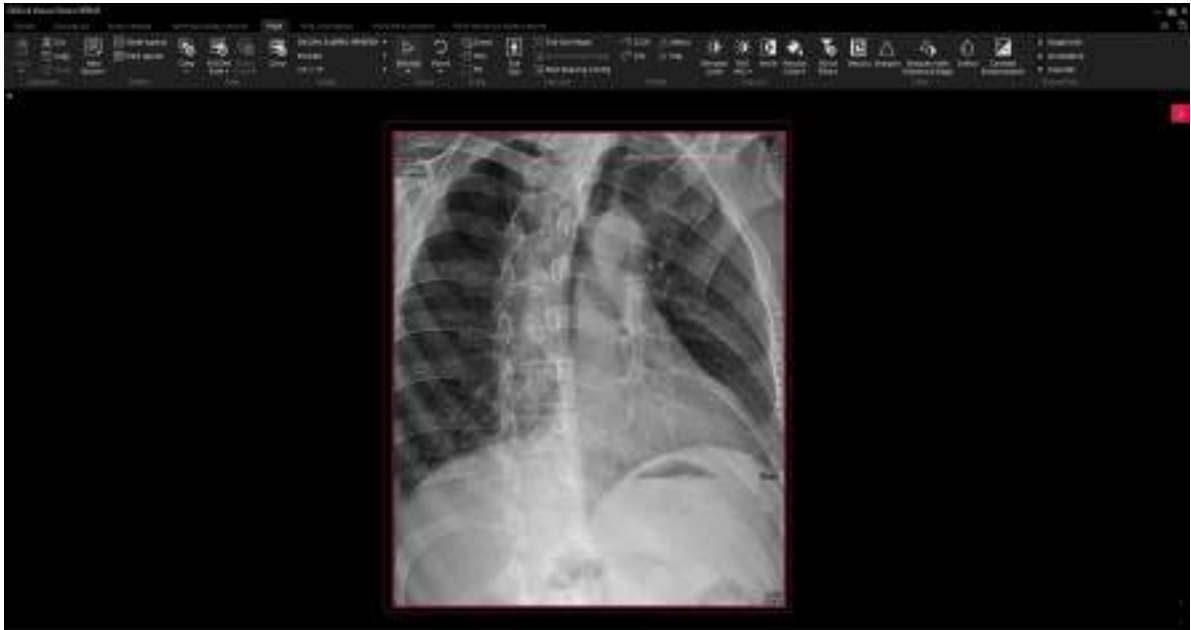


- Full Size or Full Size Pages function, executed by the non-calibrated printer in preset, operates as default setting, that precision may not be guaranteed.


Before applying Full Size to 14IN x 17IN Size



After applying Full Size to 14IN x 17IN Size



9.5.2 Full Size Pages

Button	Name	Description
	Full Size Pages	Enlarges the selected image to fit to the current film size and divide it to display each page. This function is useful when you divide and print the stitched image.



- Full Size or Full Size Pages function, executed by the non-calibrated printer in preset, operates as default setting, that precision may not be guaranteed.

- 1 Select an image from the **Print** window.
- 2 Change the image layout to 1 column and 1 row.



3 Click on the **Full Size Pages** button on the toolbar.



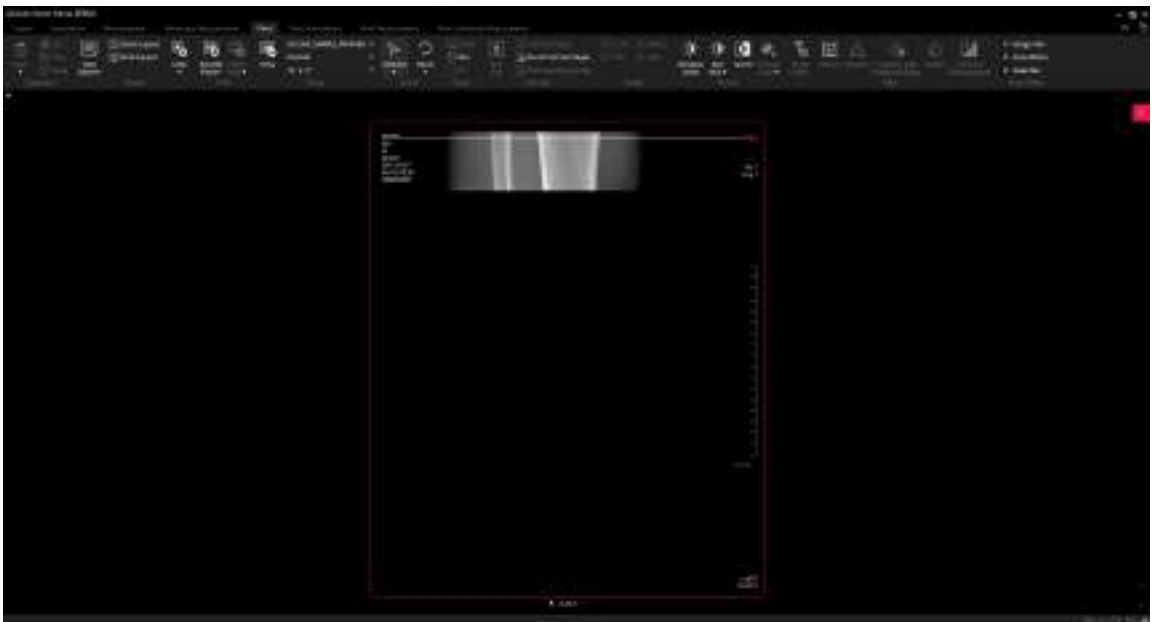
- If more than one image is selected or the image layout is set to other than 1 column and 1 row, the **Full Size Pages** button will be deactivated.

4 Check the enlarged image divided into pages.

▫ Page 1 (P1)



▫ Page 2 (P2)




5 The following functions cannot be used in the enlarged image divided in pages.

- Zoom
- Fit
- Full Size
- CW (Clockwise)
- CCW (Counterclockwise)
- Mirror
- Flip



- The page information as P1 and P2 is displayed on the right top of the separated images.
- The separated images can be moved from side to side only.

9.5.3 Reset Full Size Pages

Button	Name	Description
	Reset Full Size Pages	Resets the enlarged image separated in pages to its original state.


1 Select an enlarged image separated in pages.



2 Click on the **Reset Full Size Pages** button on the toolbar.



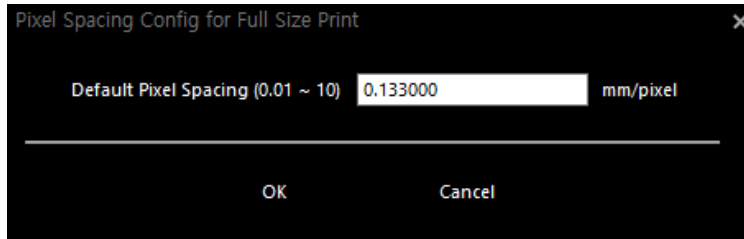
9.5.4 Setting Pixel Spacing

Button	Name	Description
	Pixel Spacing Config	Inputs the pixel spacing directly. When you perform the full size function, it will enlarge the image according to the current film size and the configured pixel spacing.

1 Select an image without a pixel spacing value.



- 2 Click on the **Pixel Spacing Config** button on the toolbar.



- 3 Input the pixel spacing value and click the **OK** button.

- 4 Perform the **Full Size** function to verify whether the pixel spacing is appropriate or not.



- You can only configure the pixel spacing on the image which does not have **(0028,0030) Pixel Spacing** DICOM tag.
- The default value is 0.133. If you make changes to pixel spacing, the changed value will be maintained even when you restart **QXLink** viewer.

9.6 Changing Position

You can change the position of the images.



- You cannot change the position of the images which are enlarged and split into pages in full size.

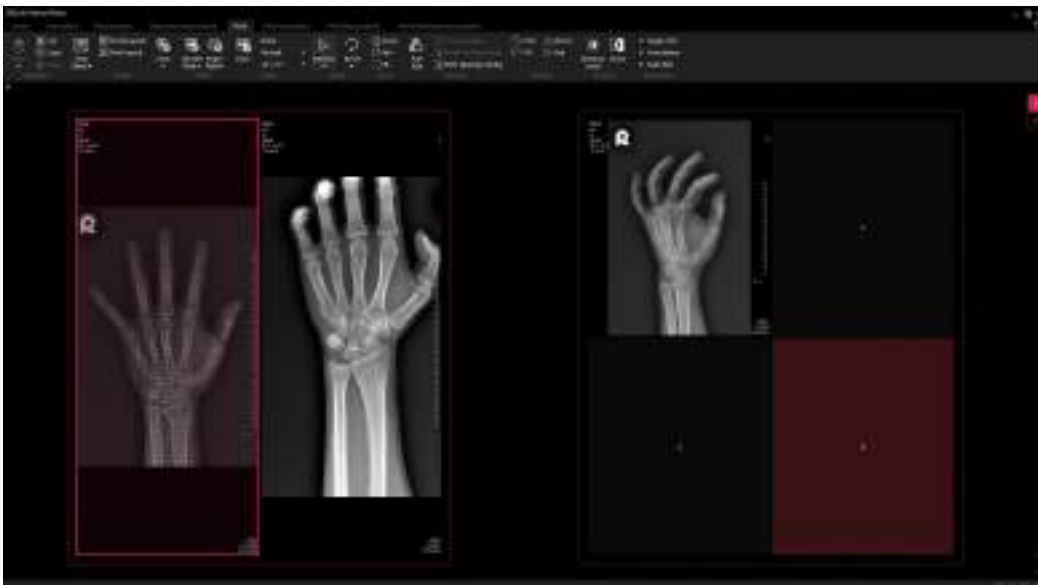
9.6.1 Moving images using Drag & Drop

If you position the mouse cursor over the image to be moved, you can move the image through the icon displayed on the image. (Multiple images can be selected.)

- 1 Move the mouse cursor to the image to change the position.
- 2 Click and hold the displayed icon.




- 3 Move the mouse to the position where you want to move the image.



4 After releasing the mouse click state, confirm the changed position.




- There are the following restrictions when moving images using the icon  or when adding them from Print Simple View.

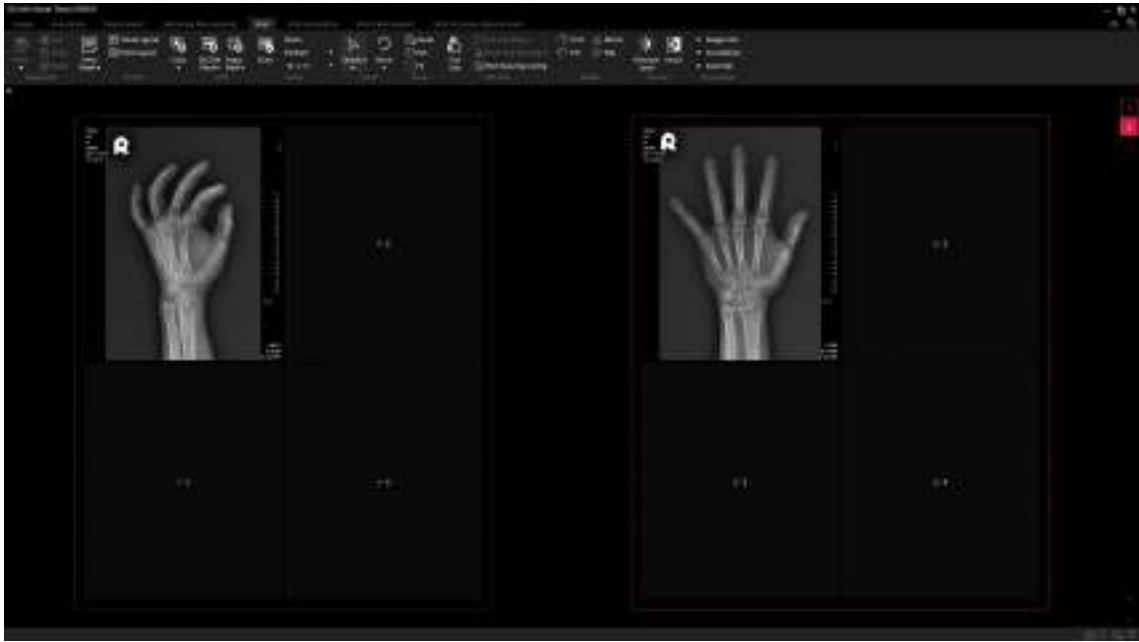


- When there is not enough empty area to move the image, the sheet is added and the image is moved.
- Images are not moved or added in Print Simple View to Sheet with multiple pages.

Moving images by adding a sheet

- Moving the image out of the sheet using the icon  will move the image after creating the sheet. (Multiple images can be selected.)






9.6.2 Pasting Image in front of the Selected Location

You can move the selected image to the front or back of the specified image.

- 1 Select an image to change its position. (Available to choose multiple images)



2 Click the **Copy** button  on the toolbar at the top left or press **Ctrl + C**.

3 Choose a position to paste the image.



4 Click the **Paste** button on the toolbar at the top left or press **Ctrl + V**.

- When pasting an image, you can set the position of the image using the Paste Before or Paste After function.


5 Check if the position is changed successfully.



9.6.3 Cutting and Pasting Image

- 1 Select the image to cut.



- 2 Click the **Cut** button  on the toolbar at the top left or press **Ctrl + X**.

- 3 Choose a position to paste the image.



9.6.4 Exchanging Location of Images

You can change the position of the selected two images.

- 1 Hold down the **Ctrl** key and press the left mouse button to select both images.



- 2 Click the Swap button  in the toolbar at the top left.

- 3 Check if the position of two images is changed successfully.




10. Stitch

This section provides information about the process of stitching images and setting the related menus.

- Creating Stitched Image
 - Stitch Window
- Setting the Automatic Stitch Parameter
 - Image Manipulation
- Sorting and Changing the Order of images
 - Setting Border
 - Applying Blend Effect
 - Adjusting Position
 - Adjusting Brightness


10.1 Creating Stitched Image

10.1.1 Auto Stitch

Button	Name	Description
	Auto Stitch	Stitches images using the registered parameters. Select the registered parameters according to the body parts of the images.



10.1.2 Create Image

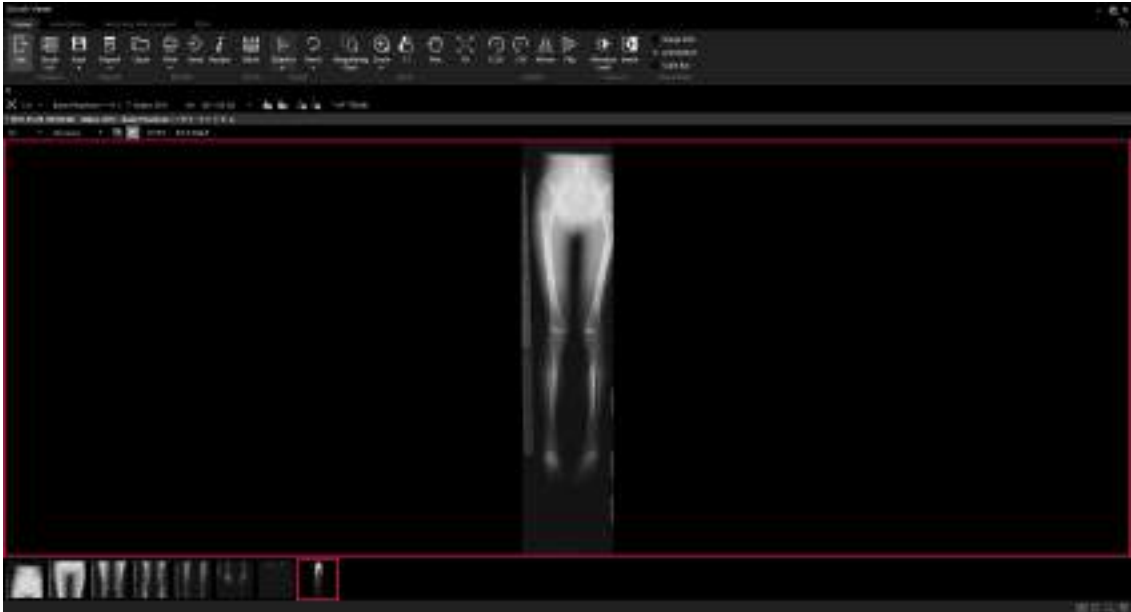
Button	Name	Description
	Create	Creates the stitched image in the current screen as a DICOM file.


- 1 Apply auto or manual stitch to the image.



- 2 Click on the **Create** button on the toolbar.

3 Check the stitched image loaded to the **Viewer** window.




4 You cannot delete the stitched image from the study if it is not transferred to the default server. Click  button on the top right corner of the screen to delete the image.



- You can reduce the height of the image when you create a DICOM file. Refer to 'DICOM Setting' in QXLink User Manual for the detailed information.

10.1.3 Create and Send

Button	Name	Description
	Create and Send	Creates the stitched image in the current screen as a DICOM file and send it to the default server.

10.2 Stitch Window




No.	Name	Function
1	Image manipulation toolbar	<ul style="list-style-type: none"> Displays tools used for image manipulation.
2	Stitch area	<ul style="list-style-type: none"> Displays the stitched area of selected image.
3	Mini-View	<ul style="list-style-type: none"> Displays the current image on the mini view screen.
4	Status bar	<ul style="list-style-type: none"> Displays function and its status.

10.2.1 Mini View



No.	Name	Function
1	Window area of mini image	<ul style="list-style-type: none"> Zooms in or out the image based on the ratio of the stitched image.
2	Pan	<ul style="list-style-type: none"> Drag the image in the mini view by pressing the left mouse button and move it to the desired direction. <ul style="list-style-type: none"> You can move the center of the area of interest from the window easily where a stitched image is located.

10.3 Setting Auto Stitch Parameter

Button	Name	Description
	Configure Stitch Parameters	Adds or edits the parameters used for auto stitch. You can set appropriate values according to the body part of the images to be stitched.

Auto Stitch Parameter Config


<ul style="list-style-type: none"> Default Spine Front Narrow Step Spine Side Narrow Step Lower Extremities (Legs) Narrow Lower Limb (Leg) Narrow Step Thoracoabdominal Wide Step Lower Limb Wide Step Constant Pitch Pattern Match 4%Lap Stroke Data 1%Lap 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Name</th> <th>Pattern Match 4%Lap</th> </tr> </thead> <tbody> <tr> <td>Maximum Scanning Height (1 ~ 100%)</td> <td>14</td> </tr> <tr> <td>Maximum Lateral Shift (0 ~ 200 pixel)</td> <td>2</td> </tr> <tr> <td>Overlapped Region Height (1 ~ 100%)</td> <td>4</td> </tr> <tr> <td>Overlapped Region Width (1 ~ 100%)</td> <td>75</td> </tr> <tr> <td>Resampling Rate (1 ~ 30 pixel)</td> <td>3</td> </tr> <tr> <td>Scanning Step (1 ~ 30 pixel)</td> <td>3</td> </tr> <tr> <td>Crop Upper And Lower Area (0 ~ 40%)</td> <td>1</td> </tr> <tr> <td>Stitched Plane Height (-150 ~ 150 mm)</td> <td>0</td> </tr> </tbody> </table>	Name	Pattern Match 4%Lap	Maximum Scanning Height (1 ~ 100%)	14	Maximum Lateral Shift (0 ~ 200 pixel)	2	Overlapped Region Height (1 ~ 100%)	4	Overlapped Region Width (1 ~ 100%)	75	Resampling Rate (1 ~ 30 pixel)	3	Scanning Step (1 ~ 30 pixel)	3	Crop Upper And Lower Area (0 ~ 40%)	1	Stitched Plane Height (-150 ~ 150 mm)	0
Name	Pattern Match 4%Lap																		
Maximum Scanning Height (1 ~ 100%)	14																		
Maximum Lateral Shift (0 ~ 200 pixel)	2																		
Overlapped Region Height (1 ~ 100%)	4																		
Overlapped Region Width (1 ~ 100%)	75																		
Resampling Rate (1 ~ 30 pixel)	3																		
Scanning Step (1 ~ 30 pixel)	3																		
Crop Upper And Lower Area (0 ~ 40%)	1																		
Stitched Plane Height (-150 ~ 150 mm)	0																		



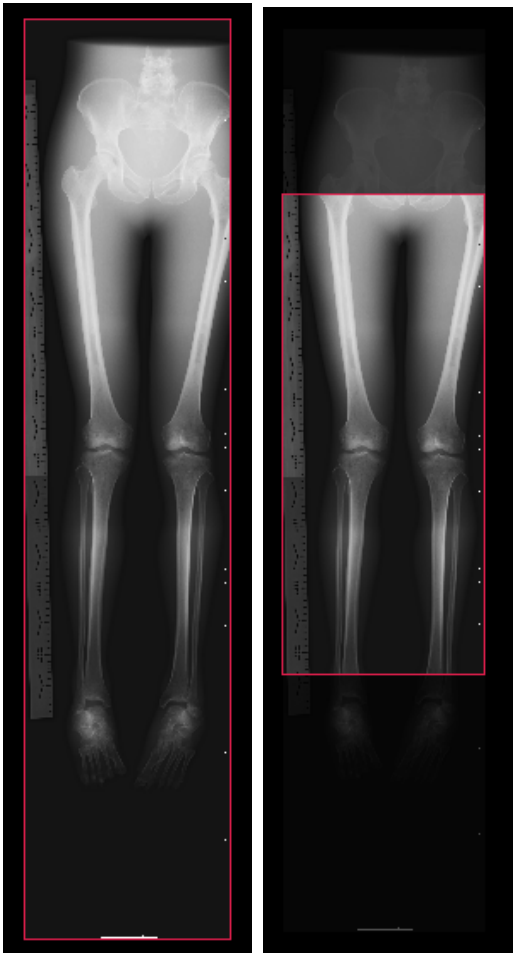
- Aliases cannot be duplicated.

10.4 Image Manipulation

10.4.1 Crop

Button	Name	Description
	Crop	Crops out the unnecessary parts from the image.


- 1 Click on the **Crop** button on the toolbar.
- 2 Move the mouse pointer to the image.
- 3 Set the necessary areas by using the top, bottom, left and right lines.
- 4 Click on the **Crop** button on the toolbar again or press the **Esc** key.
- 5 Check if the unnecessary parts are cropped out from the image normally.



- When you select the **Crop** function, the other functions in use become deactivated and the image is fit to the current screen.



10.4.2 Reset

Click on the **Reset** button on the toolbar.

Button	Name	Description
	Reset	Resets all status information of the image including stitched one.


10.4.3 Zoom

Click on the **Zoom** button on the toolbar.

Button	Name	Description
	Zoom	Presses and holds the left mouse button, and then drag the mouse upward or downward to zoom in or out an image by a specific ratio.
		<ul style="list-style-type: none"> The minimum / maximum zoom ratio 10% and 2000% based on the current viewer size.


10.4.4 Pan

Click on the **Pan** button on the toolbar.

Button	Name	Description
	Pan	Holds down the left mouse button while dragging the image to the desired position. You can move the center of ROI (Region of Interest) in the image view.

10.4.5 Fit



Click on the **Fit** button on the toolbar.

Button	Name	Description
	Fit	Fits an image to the current window size.

10.5 Sorting and Changing the Order of Images



10.5.1 Sorting Images

Displays images by sorting them based on series number and instance number in order.

Button	Name	Description
	Ascending Sort	Sorts images in ascending order. (Default)
	Descending Sort	Sorts images in descending order.

10.5.2 Changing Order of Images

Displays image by changing the order of selected images. This function is useful when you align the disordered images.


Button	Name	Description
	Move Up	Moves up the selected image.
	Move Down	Moves down the selected image.



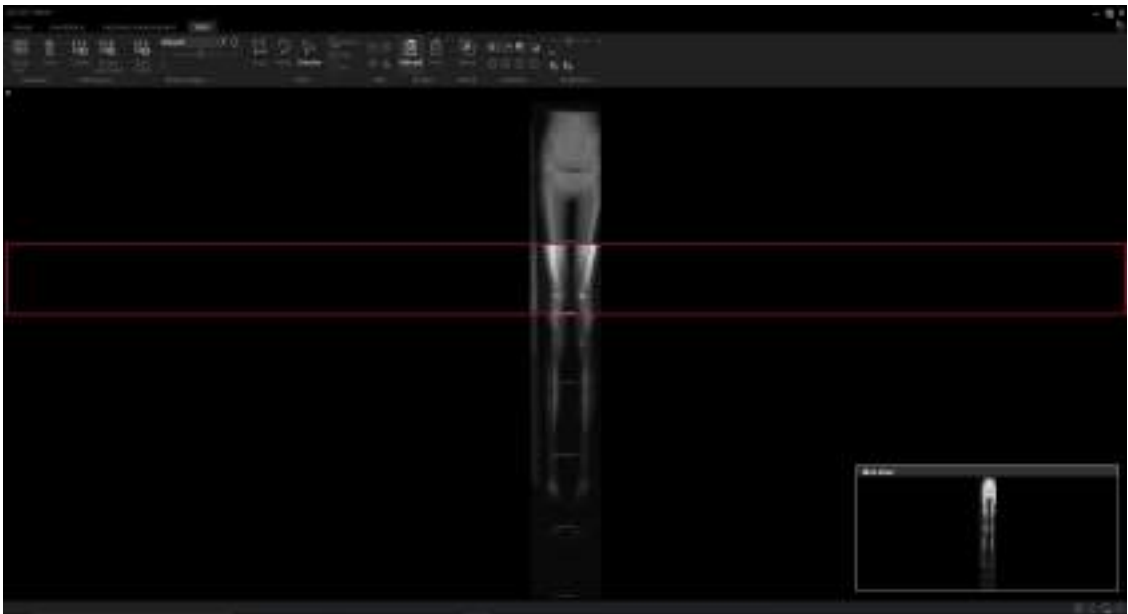
10.6 Setting Border

You can set a border between the images to be stitched.

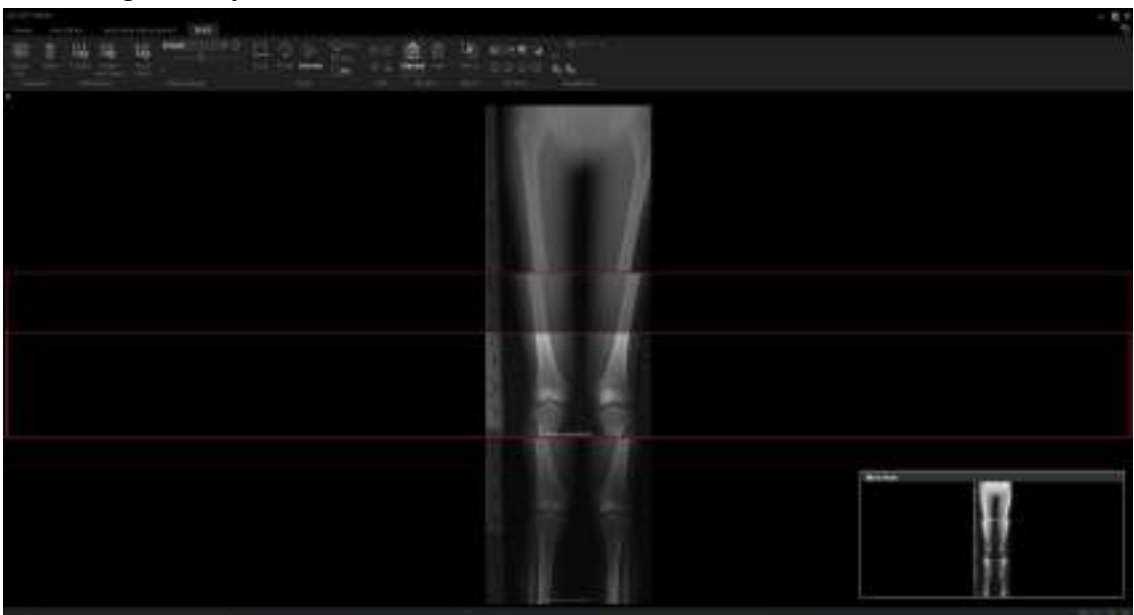
10.6.1 Manual Border

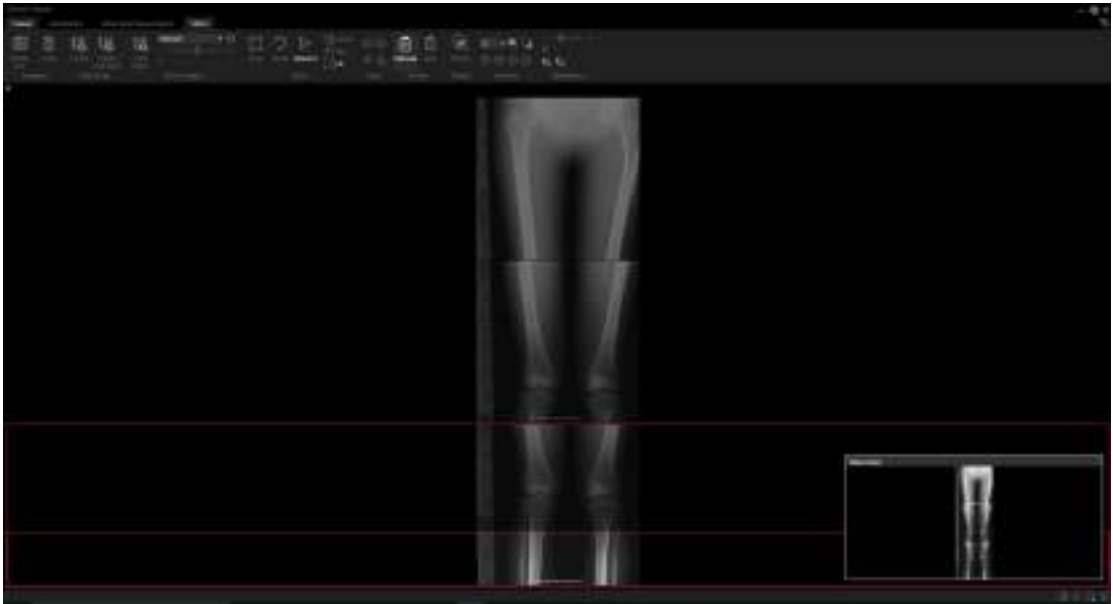
Button	Name	Description
	Manual Border	Specifies the area to be cut manually before you combine images.

- 1 Click on the **Manual** button on the toolbar.




- 2 Select an image and adjust the border of area to be cut.






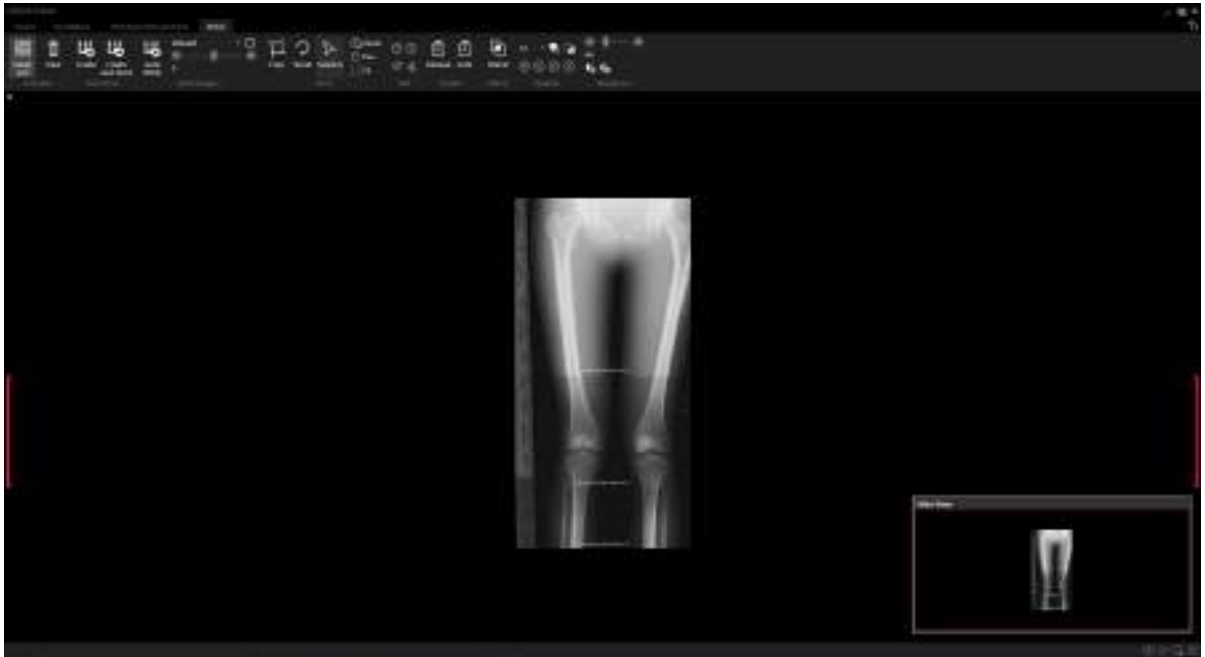
10.6.2 Auto Border

Button	Name	Description
	Auto Border	Specifies the area to be cut automatically before you combine images.

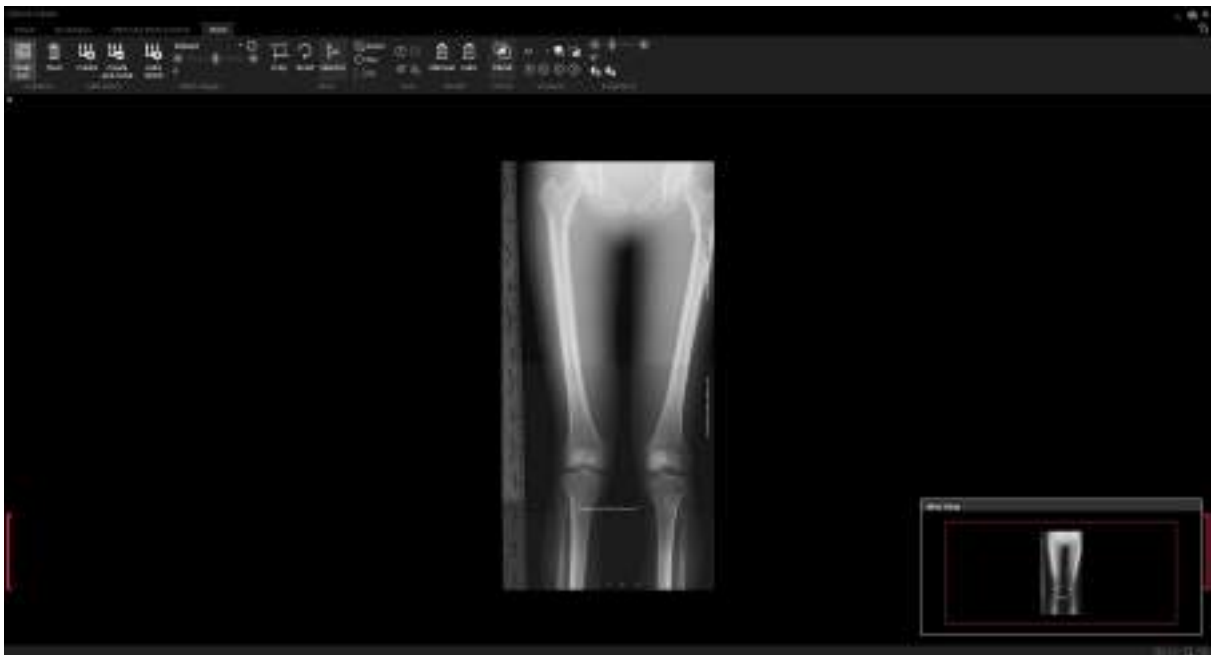
10.7 Applying Blend Effect

Button	Name	Description
	Blend Stitched Area	Blends the border of images smoothly.

Before




After



10.8 Adjusting Position


You can change the displaying order of the stitched images. This function cannot be applied to the 1st one among the stitched images.

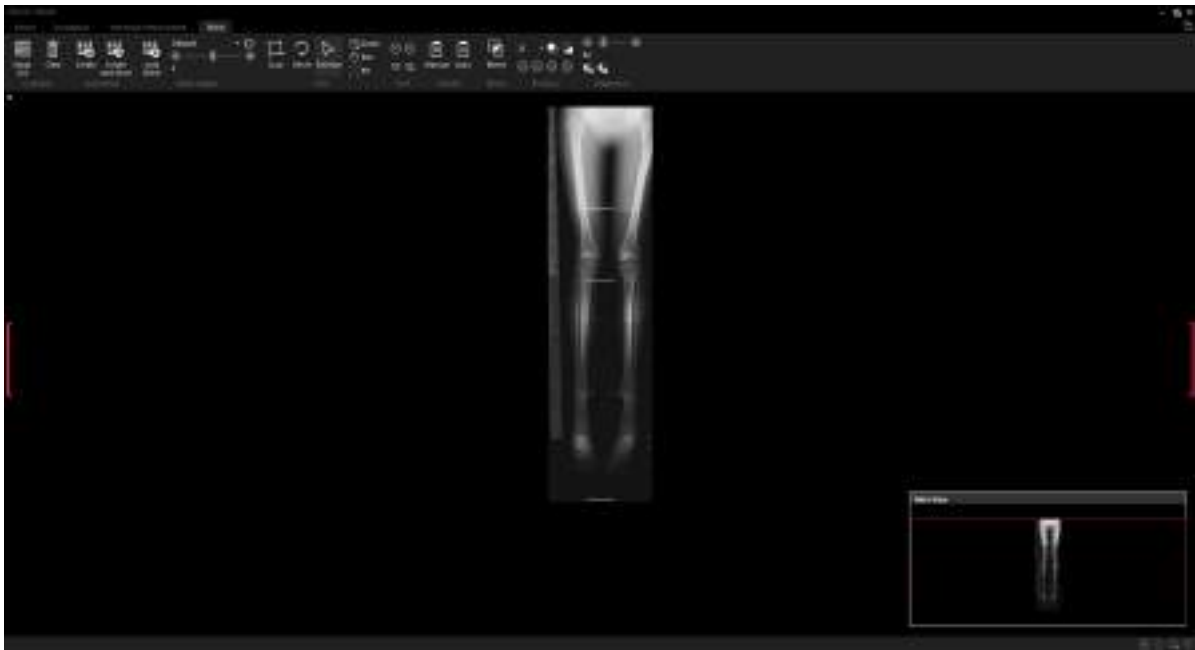
10.8.1 Set to Foreground

Button	Name	Description
	Set to Foreground	Brings the selected image to the front of the overlapped image.



10.8.2 Set to Background

Button	Name	Description
	Set to Background	Sends the selected image to the back of the overlapped image.



10.8.3 Selecting Interval of Movement

Sets the interval of movement in pixels and move the images to the top, bottom, left and right directions.

- 1 Select a desired image and select the interval of movement in pixels.
- 2 Click on the arrow button to move. You can select among the following pixel units.
 - 1, 4, 8, 16, 32, 70, 100, 150





- The 1st image cannot be moved.

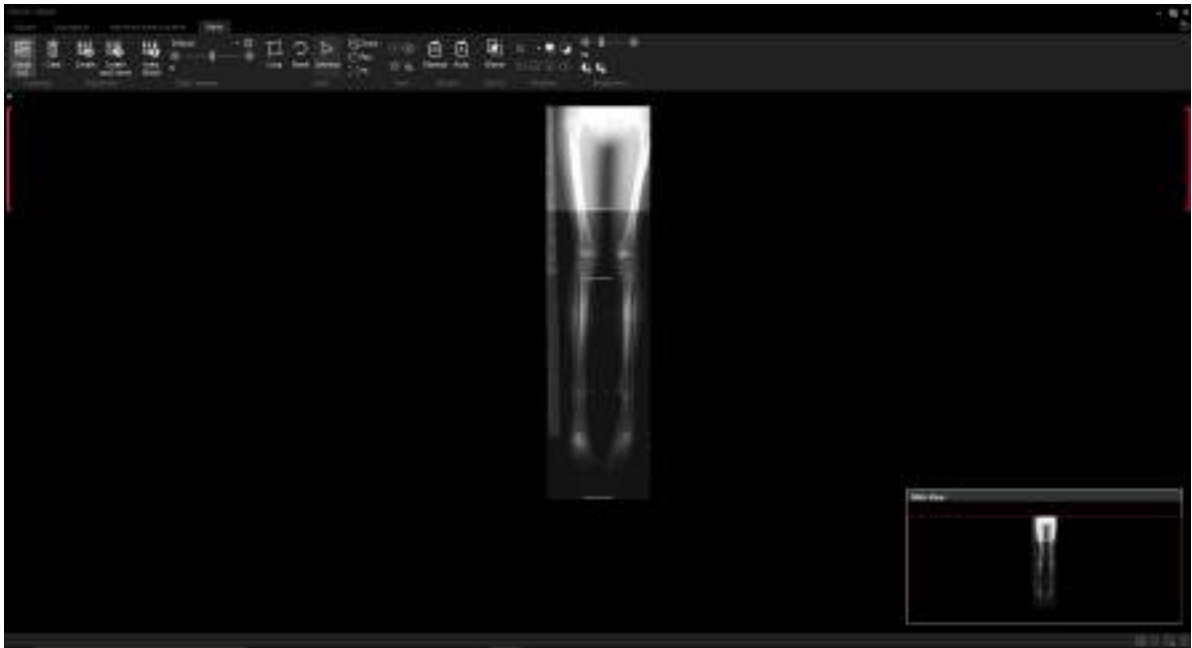
Button	Name	Description
	Move Pixel Upward	Moves the selected image upward by a specified pixel unit.
	Move Pixel Downward	Moves the selected image downward by a specified pixel unit.
	Move Pixel to the Left	Moves the selected image to the left by a specified pixel unit.
	Move Pixel to the Right	Moves the selected image to the right by a specified pixel unit.

10.9 Adjusting Brightness

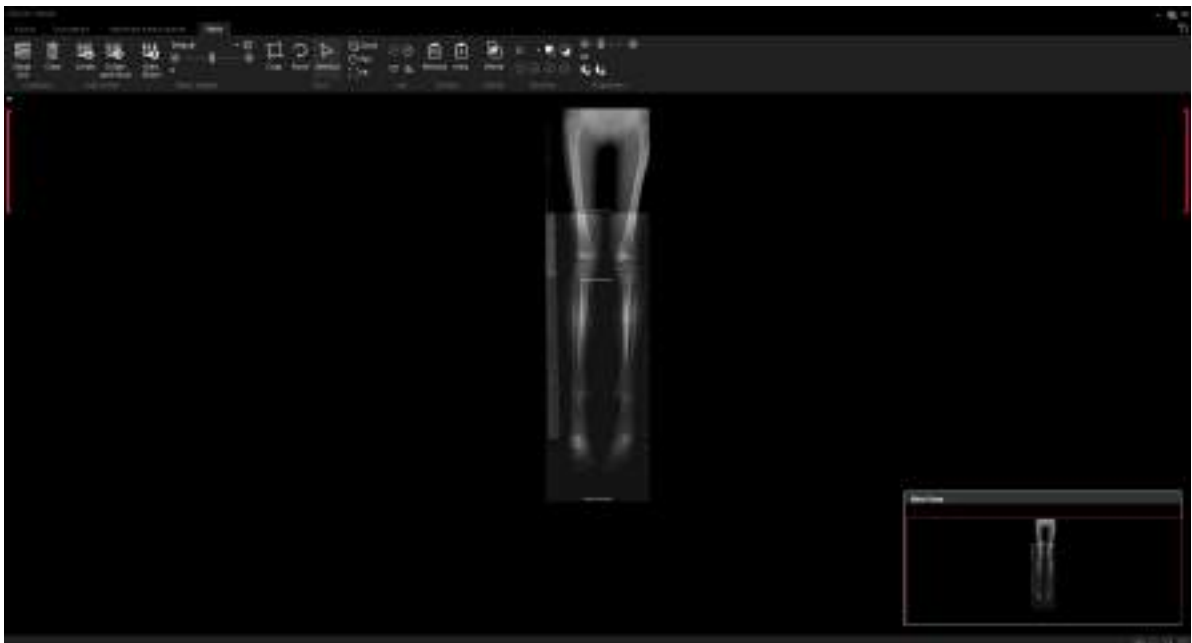
Adjusts the brightness of two images similarly each other.

Button	Name	Description
	Brighten	Brightens the selected image by a specified unit.
	Darken	Darkens selected image by a specified unit.

Brighten



Darken



11. Others

Stopping the Task

User-Defined Toolbar

Changing the Position of Quick Access Toolbar

Quick Launch

Shortcut Keys

11.1 Stopping the Task

11.1.1 Stopping Image Loading

You can stop the study being loaded.



11.1.2 Stopping Print

You can stop the DICOM printing.



11.2 User-Defined Toolbar

You can add frequently-used functions on the viewer to quick access toolbar.

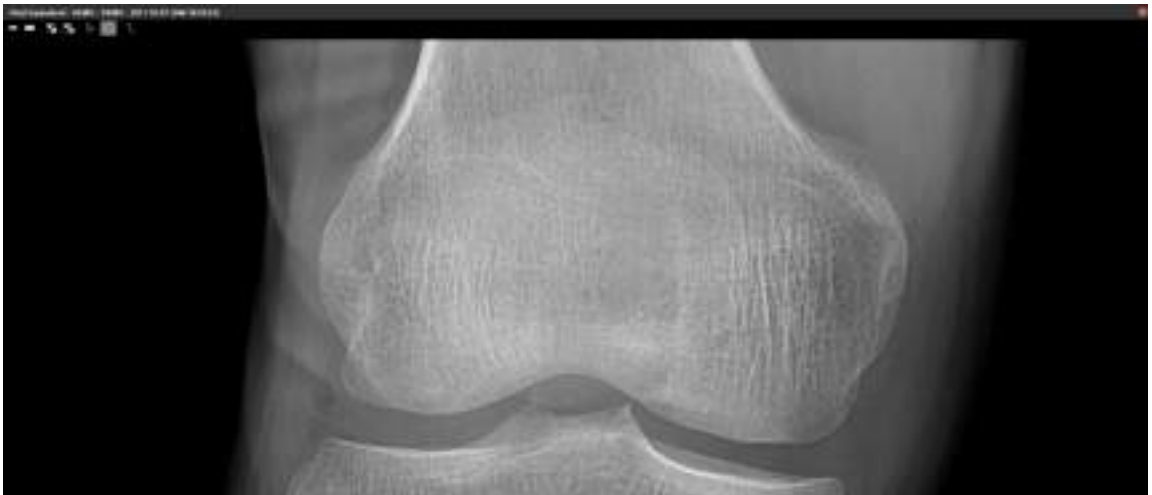


- The added or removed status of tools is applied after restarting **QXLink** viewer.
- You cannot edit the toolbar from **Study List** window.

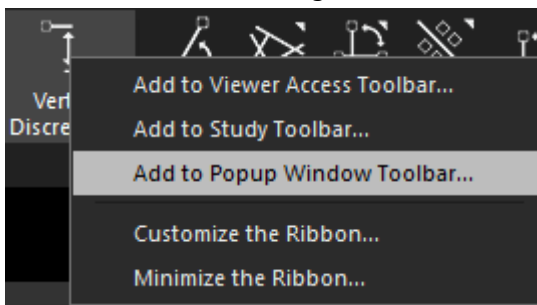
11.2.1 Original Size or Screen Size Toolbar

Add tools

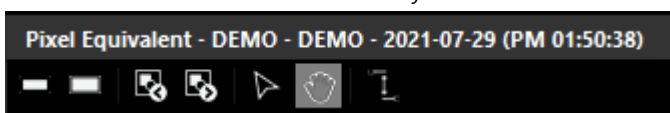
- 1 Open the **Real Size** window.



- 2 Click the tools to add with a right mouse button and choose **Add to Popup Window Toolbar**.

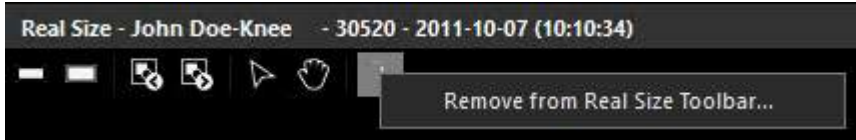


- 3 Check if the tools are added successfully.

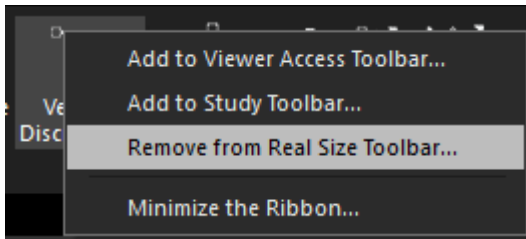


Remove tools

- 4 Open the **Real Size** window.
- 5 Click the tools to remove with a right mouse button.



- 6 Otherwise, right-click on the tool in the toolbar and select **Remove from Real Size Toolbar**.



- 7 Check if the tool is removed successfully.

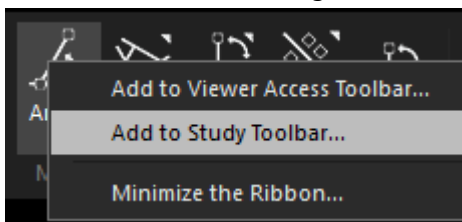


- You can add or remove tools when the **Real Size** window is being activated.
- You cannot add the deactivated tools.

11.2.2 Study Toolbar

Add tools

- 1 Click the tools to add with a right mouse button and choose **Add to Study Toolbar**.

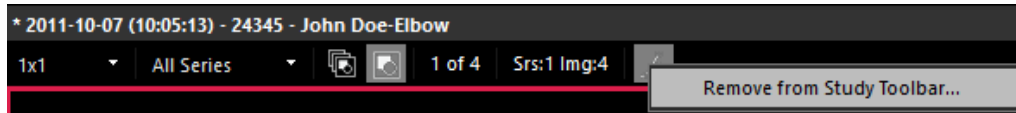


- 2 Check if the tools are added successfully.



Remove tools

- Click the tools to remove with a right mouse button.
- Choose **Remove from Study Toolbar**.



- Check if the tools are removed successfully.

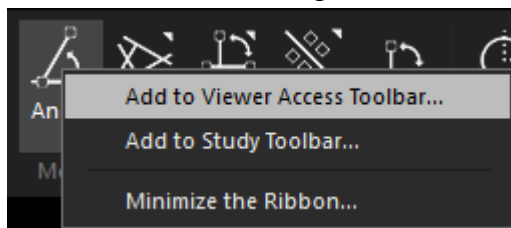


- For adding or removing a tool to/from study toolbar, at least one or more study must be opened.

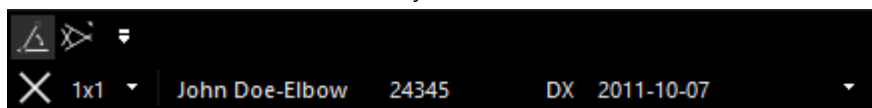
11.2.3 Viewer Access Toolbar

Add tools

- Open the **Viewer** window.
- Click the tools to add with a right mouse button and choose **Add to Viewer Access Toolbar**.

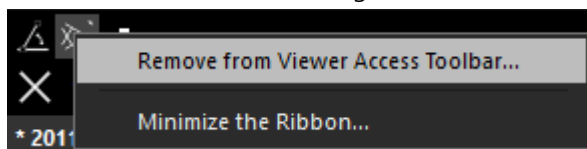


- Check if the tools are added successfully.



Remove tools

- Click the tools to remove with a right mouse button and choose **Remove from Viewer Access Toolbar**.

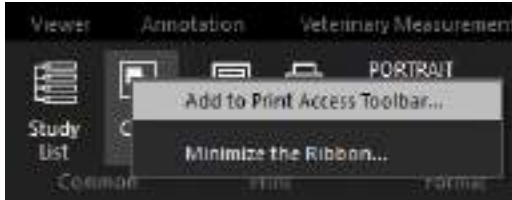


- Check if the tools are removed successfully.

11.2.4 Print Access Toolbar

Add tools

- 1 Open the **Print** window.
- 2 Click the tools to add with a right mouse button and choose **Add to Print Access Toolbar**.

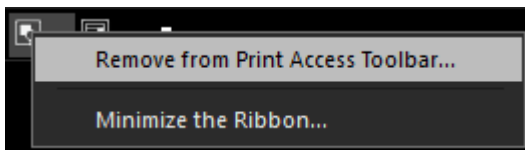


- 3 Check if the tools are added successfully.



Remove tools

- 4 Click the tools to remove with a right mouse button and choose **Remove from Print Access Toolbar**.

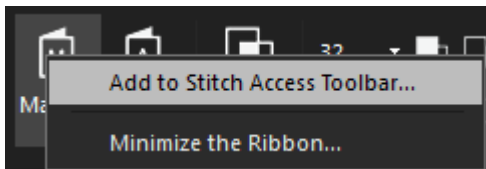


- 5 Check if the tools are removed successfully.

11.2.5 Stitch Access Toolbar

Add tools

- 1 Open the **Stitch** window.
- 2 Click the tools to add with a right mouse button and choose **Add to Stitch Access Toolbar**.



- 3 Check if the tools are added successfully.



Remove tools

- 1 Click the tools to remove with a right mouse button and choose **Remove from Stitch Access Toolbar**.



- 2 Check if the tools are removed successfully.

11.3 Changing the Position of Quick Access Toolbar

The Quick Access Toolbar is formatted as a status bar below the main menu as follows.

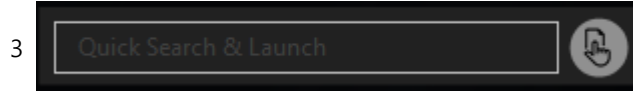


11.4 Quick Launch

You can search and execute the preset setting and functions provided by QXLink.

Execution

- 1 Press Q or q from the viewer.
- 2 Quick Launch display appears in where the mouse pointer is located.



4

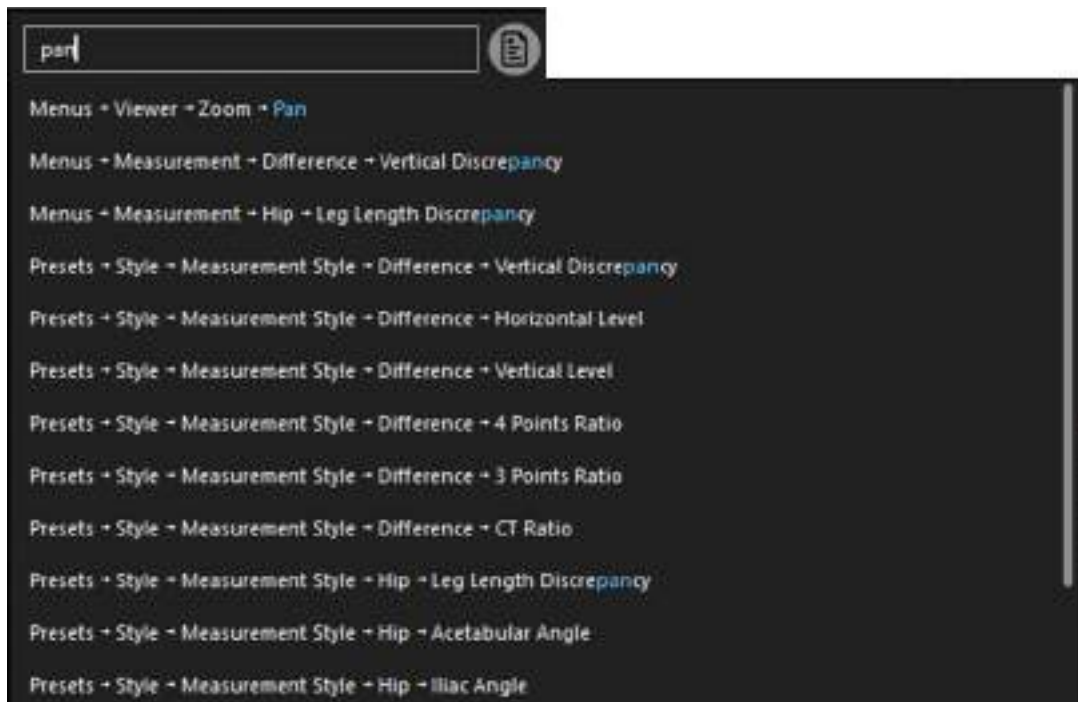


- Quick Launch loads the entire function when being initially executed, and the message pops up. Once the message disappears, Quick Launch reruns.

5

Search

Type the function you want to search in the Quick Launch field and execute the function.



11.5 Shortcut Keys

Name	Appliable window	Function
F1	Viewer window	Show / Hides Guide
F2	Study List window	Moves to the Study List window
	Viewer window	Moves to the Viewer window
F3		Opens the Report window
Esc		Cancel the current task being processed.
Delete		Deletes the selected annotation
		Or, deletes the step which was measured just before the current step.
Home		Moves to the first page of the current study.
End		Moves to the last page of the current study.
Page Up		
Left Arrow		Moves to the previous page from the current study
Up Arrow		
Page Down		
Right Arrow	Viewer window	Moves to the next page from the current study
Down Arrow		
Ctrl + F4 or W		Closes the current study
Ctrl + Shift + F4		Closes the all studies
Ctrl + A		Selects all images
Ctrl + S		Stores the image
Ctrl + Shift + S		Stores all images
Ctrl + Tab		Selects the next image
Ctrl + Shift + Tab		Selects the previous image
Ctrl + Mouse wheel (with shift key)		Enlarge or reduce the image 10% or 1% (adjusted with the Shift key)
Alt + Mouse Left Btn		Moves the image
Q (or q)		Executes Quick Launch
Ctrl + A		Choose all images of the selected sheet
Ctrl + C	Print window	Copies the image
Ctrl + V		Pastes the image
Ctrl + X		Cuts the image

12. Appendix

12.1 Appendix

This chapter explains available functions of the measurement tools (Chiropractic, Orthopedic, Veterinary) depending on your intended use.

Functions	Chiropractic	Orthopedic	Podiatry	Veterinary
Line Calibration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Circle Calibration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Point	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Center Point	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Horizontal Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vertical Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extended Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grid Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Text	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mark	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arrow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Free Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Curve Line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rectangle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ellipse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Circle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rectangle Shutter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ellipse Shutter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Polygon Shutter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Free Draw Shutter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Angle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Horizontal Orthogonal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Vertical Orthogonal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Cross Angle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cross with 3 lines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Cross with 5 lines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Cross with unlimited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Axis Angle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Axis with 3 Lines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Axis with 5 Lines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Middle Angle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extended Distance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Vertical Discrepancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Horizontal Level	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Vertical Level	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ratio	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4 Points Ratio	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3 Points Ratio	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CT Ratio	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Gonstead Ruler	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spine Analysis	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cobb Angle	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Cobb with 3 lines	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Cobb with 5 lines	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Cobb with 8 lines	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Vertebral Line	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
George's Line	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
George's Line with Label	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cervical Curve	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lumbar Curve	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spine Label	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sagittal Spine Alignment	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pelvic Parameters	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spondylolisthesis	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
High Tibial Osteotomy	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Meta-diaphyseal Angle	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pelvis Analysis	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Leg Length Discrepancy	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Acetabular Angle	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Iliac Angle	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Center Edge Angle	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Femoral Symmetry	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Head Shaft Angle	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Podiatry Analysis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Intermetatarsal Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Hallux Valgus Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Hallux Interphalangeus Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Distal Articular Set Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Proximal Articular Set Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Proximal Metatarsal Articular Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Tibial Sesamoid Position	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Metatarsus Adductus Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Anterior Distal Tibial Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Meary's Angle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>

Calcaneal Pitch Angle	X	X	O	X
Limb Deformity Analysis	X	O	X	X
Norberg Angle	X	X	X	O
Percent Coverage	X	X	X	O
Distraction Index	X	X	X	O
Vertebral Heart Score	X	X	X	O
Clock Face	X	X	X	O
TTA	X	X	X	O
TPLO	X	X	X	O
Implant	X	X	X	O
Line Fragment	O	O	O	O
Ellipse Fragment	O	O	O	O
Polygon Fragment	O	O	O	O
Free Draw Fragment	O	O	O	O

VIEWWORKS

Vieworks Co., Ltd.**Headquarter**

41-3, Burim-ro 170beon-gil, Dongan-gu, Anyang-si,

Gyeonggi-do, 14055 Republic of Korea

Telephone: +82-70-7011-6161

Fax: +82-31-386-8631h

Homepage: <http://www.vieworks.com>

**Hwaseong Site**

25-7, Jeongnamsandan 2-gil, Jeongnam-myeon, Hwaseong-si,

Gyeonggi-do, 18514 Republic of Korea

Telephone: +82-70-7011-6161

Homepage: <http://www.vieworks.com>

European representative: Obelis s.a

Bd. Général Wahis 53

1030 Brussels, BELGIUM

Tel: +(32) 2.732.59.54

Fax: +(32) 2.732.60.03

E-mail: mail@obelis.net

