

# **QXLink User Manual**

**CE**2460

© 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.	Ins	truc	tion	9
1	1.1	Cau	tions	
1	1.2	Doc	ument Guide	
	1.2.	2	Symbols	
	1.2.	.3	Notations	11
4	1 2	Dov	icion History	10
I	1.5	Rev		
1	1.4	Inte	nded Use	
	1.4.	. I	The Limits of Image Measurement Function	
1	1.5	Use	Environment	
	1.5.	.1	Installation Requirements	
2.	Get	tting	Started	20
2	2.1	Exe	cuting the Program	21
	2.1.	.1	Login	21
	2.1.	2	Setting Login Server	
	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.	Stu	ıdy L	.ist	24
-	2 1	Con	prosition of Study List	25
-	3.1.	.1	Database	
	3.1.	.2	User-Defined Screen Lavout	
	3.1.	.3	Status Bar	
	3.1.	.4	DICOM Q/R	
	3.1.	.5	DICOM DIR	27
	3.1.	.6	Changing the Size and Location of Window	
З	3.2	Sea	rch Condition	
	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	
	3.2.	.4	Setting Search Period	
	3.2.	.5	Initializing Search Condition	
	3.2.	.6	Clearing Search Result	
	3.2.	.7	Search Condition Template	
З	3.3	Dat	abase Tab	

3.3.1	Search	
3.3.2	Thumbnail View	34
3.3.3	Preview Mode	35
3.3.4	Opening Images in Study Unit	
3.3.5	Opening Images in Series Unit	
3.3.6	Opening Key Image only	
3.3.7	Opening with Reports	
3.3.8	Opening Study Using Protocol (View with Protocol)	
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 DI	ICOM 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 DI	ICOM DIR Tab	
3.5.1	Opening in Study Units	
3.5.2	Opening in Series Units	56
3.5.3	Opening in Image Units	56
3.6 DI		
3.6.1	Window to Check	
		го
4. viewe	er	
4.1 Co	omposition	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 Rit	bon 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	
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	
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	
4.3 Fu	nctional Description of Viewer	
4.3.1	Checking the Opened Study List (Available Exams)	
4.3.2	Moving the Study	
4.3.3	Closing the Study	
4.3.4	Changing View Mode	
4.3.5	DICOM SR	

	4.3.6	Changing the Study Layout	
	4.3.7	Changing the Image Layout	
	4.3.8	Sorting Images	
	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.	Annot	ation	
5	5.1 Co	emposition of Annotation	
5	5.2 An	notation Tools	
	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	5.3 Sh	ortcuts for Controlling Annotation	140
6.	Huma	n Measurement	141
e	6.1 Co	mposition of Human Measurement	
6	со u.	'	140
ť	5.2 HL	iman Measurement 1001s	
7.	Veteri	nary Measurement	144
7	7.1 Co	mposition of Veterinary Measurement	145
7	7.2 Ve	terinary Measurement Tools	
8.	Repor	t	147
8	8.1 Re	port	
	8.1.1	Composition of Report	148
	8.1.2	Drawing Up Report	150

	8.1.3	Save	150
	8.1.4	Approve	
	8.1.5	Confirm Approval	
	8.1.6	Report Template	
	8.1.7	Print	
	8.1.8	Quick Print	
	8.1.9	Print Review	
	8.1.1	0 Change print layout	
	8.1.1	1 Command	
	8.1.1	2 Clipboard	
	8.1.1	3 Font	157
	8.1.1	4 Paragraph	158
8	.2 1	Report Builder	
	8.2.1	Composition of Report Builder	
	8.2.2	Layout	
	8.2.3	Report Summary	
	8.2.4	Clipboard	
	8.2.5	Inserting Text	
	8.2.6	Drawing a Figure	
	8.2.7	Inserting a Picture	
	8.2.8	Inserting Watermarks	
	8.2.9	Grid / Margin	
	8.2.1	0 Changing Font Type and Size	
	8.2.1	1 Applying the Figure Style	
	8.2.1	2 Arrangement of Objects	
	8.2.1	3 Setting Environment of Report Builder	
9.	Prin	t	171
9	.1 I	Print Window	
	9.1.1	Moving to the Print Window	
	9.1.2	New Sheet	
	9.1.3	Sheet Layout	177
	9.1.4	Print Layout	
	9.1.5	Closing the Print Window	179
9	.2 1	Print Type	
	9.2.1	DICOM Print	
	9.2.2	Paper Print	
	9.2.3	Echo	
9	.3 (	Changing Printer	

9.4 C	hanging Format	
9.4.1	Changing Print Orientation	
9.4.2	Changing Film Size	
9.5 A	djusting Size	
9.5.1	Full Size	
9.5.2	Full Size Pages	
9.5.3	Reset Full Size Pages	
9.5.4	Setting Pixel Spacing	
9.6 C	hanging Position	
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	
9.6.4	Exchanging Location of Images	197
10. Stit	ch	198
10.1	Creating Stitched Image	
10.1.1	Auto Stitch	
10.1.2	Create Image	
10.1.3	Create and Send	
10.2	Stitch Window	201
10.2.1	Mini View	
10.3	Setting Auto Stitch Parameter	202
10.4	Image Manipulation	203
10.4.1	Crop	
10.4.2	Reset	204
10.4.3	Zoom	
10.4.4	Pan	
10.4.5	Fit	
10.5	Sorting and Changing the Order of Images	205
10.5.1	Sorting Images	
10.5.2	Changing Order of Images	
10.6	Setting Border	206
10.6.1	Manual Border	
10.6.2	Auto Border	
10.7	Applying Blend Effect	208
10.8	Adjusting Position	209
10.8.1	Set to Foreground	

10.8.2	2 Set to Background	
10.8.	3 Selecting Interval of Movement	210
10.9	Adjusting Brightness	211
11. Ot	hers	212
11.1	Stopping the Task	213
11.1.	1 Stopping Image Loading	213
11.1.2	2 Stopping Print	213
11.2	User-Defined Toolbar	214
11.2.	1 Original Size or Screen Size Toolbar	214
11.2.2	2 Study Toolbar	215
11.2.3	3 Viewer Access Toolbar	216
11.2.4	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. Ap	pendix	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 aquainted 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 tranferring 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:

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



 You can download this manual from VDS (Vieworks Download System) website: <u>https://clouds.vieworks.com:5001/</u>. 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 ver (Viewer)
1.0	2012-10-15	Initial Release	V3.0.0.5
	2013-04-13	(Updated) Totally revised	V3.0.0.6 - V3.0.0.10
		• (Added) 1.2.1 Login with a new edit server	
	2013-04-18	(Added) 17.1 Network properties check	V3.0.0.10
1.1		(Deleted) CE mark in the front cover	
	2013-04-22	• (Deleted) 17. Troubleshooting (Move the contents to the Troubleshooting guide)	V3.0.0.10
	2012 10 10	(Changed) Front cover/relevant pages	N/2 0 0 10
2.0	2013-10-19	(Added) FDA regulations	V3.0.0.10
		(Updated) 4 Study list UI layouts	
		(Updated) 5.1.3 DICOM Directory	
2.1	2014-02-21	(Updated) 5.3 Searching from database	V3.0.0.12
		(Updated) 9 QXLink viewer	
		(Updated) 10 Viewer	
		• (Updated) 9.1.1 Thumbnail	
		(Updated) 9.1.3 Study Viewer	
		<ul> <li>(Updated) 10.3 Opening DICOM file manually</li> </ul>	
	2014-07-14	(Updated) 10.6.1 Selector	
2.2		(Updated) 10.7 Annotation common menu	
2.2		(Updated) 17.2.3 Query/Retrieve SCP	VS.0.0.15
		(Updated) 17.5.3 Study veiwer	
		<ul> <li>(Updated) 17.6.2 Image display format</li> </ul>	
		<ul> <li>(Updated) 17.6.3 Custom image display format</li> </ul>	
		(Added) 10.6.16 Changing the location of study	
		• (Changed) Title	
2 1	2015 02 24	<ul> <li>(Changed) Company address and logo</li> </ul>	V2104
5.1	2013-03-24	(Changed) Document format	V5.1.0.4
		(Added) 7 Veterinary Measurement	
		<ul> <li>(Updated) Screen shots and icons</li> </ul>	
		(Added) 6 Human Measurement	
		• (Added) 13 Appendix	
3.2.0.14	2016-08-30	(Changed) 7 Veterinary Measurement	V3.2.0.14
		<ul> <li>(Changed) Version format of a document file</li> </ul>	
		• (Changed) 9 Print	
		(Changed) 11.5 Viewer Option	
3.3.0.15	2017-10-25	(Updated) Full revision	V3.3.0.15
3.3.0.18	2018-01-05	(Updated) Full revision	V3.3.0.18



		(Changed) Changed the European agent address and	
		contact information.	
		(Changed) 1.4.1 Installation Requirements	
		<ul> <li>(Changed) 3.3 Database Tab</li> </ul>	
3.3.0.21	2018-04-20	(Changed) 4.1 Composition	V3.3.0.21
		(Changed) 4.2 Ribbon Tools	
		• (Added) 4.3.4 Changing the Study Layout	
		(Changed) 3.1 Composition of Study List	
		(Changed) 3.2 Search Condition	
		(Changed) 3.3 Database Tab	
3.3.1	2018-12-03	(Changed) 4.1 Composition	V3.3.1
		(Changed) 4.2 Ribbon Tools	
		• (Changed) 4.3 Functional Description of Viewer	
		(Changed) 12.1 Appendix	
		(Changed) 2.1 Executing the Program	
		<ul> <li>(Changed) 3.1 Composition of Study List</li> </ul>	
	2010 02 20	(Changed) 3.3 Database Tab	
3.3.2	2019-03-26	• (Added) 3.6 DICOM Queue	V3.3.2
		(Changed) 4.2.5 DICOM Send	
		• (Added) 4.3.16 Sending E-mail	
		• (Changed) 3.3.7 Opening Study Using Custom Screen	
	2019-08-07	Layout	
		(Changed) 3.3.13 Sending a Study	
		(Changed) 3.3.16 Portable Viewer	
2 2 2		(Changed) 3.6.1 Window to Check	V2 2 2
3.3.3		(Changed) 4.2.3 Opening DICOM File	٧٥.٥.٥
		• (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	
		• (Changed) 2.1.1 Login	
		• (Changed) 3.2.1 Search Conditions of Database	
		• (Changed) 3.2.3 Search Conditions of DICOM Directory	
3.3.4	2019-11-01	<ul> <li>(Changed) 3.3.5 Opening Images in Series Unit</li> </ul>	V3.3.4
		(Added) 3.3.6 Opening Key Image only	
		(Added) 3.3.7 Opening with Reports	
		(Changed) 8.1 Report	
3.3.5	2020-01-15	(Changed) 5.3 Shortcuts for Controlling Annotation	V3.3.5
		(Changed) 1.4 Intended Use	
	2020 02 24	(Changed) 1.5 Use Environment	
3.3.1	2020-03-31	(Changed) 3.3 Database Tab	V3.3./
		• (Added) 4.2.29 Contrast Enhancement	

		• (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	
		(Changed) 1.2 Document Guide	
		(Changed) 1.4 Intended Use	
3.3.7	2020-07-31	(Added) 1.5 Contra-Indication	V3.3.7
		(Added) Front Cover	
		(Added) 4.3.18 Copying Images	
3.3.8	2020-10-12	(Changed) 8.2.5 Inserting Text	V.3.3.8
		(Changed) 4.3.4 Changing View Mode	
3.3.9	2021-03-11	• (Changed) 4.3.16 Sending E-mail	V3.3.9
		(Added) Production plant address	
		• (Changed) 4.2.14 Changed the name to Pixel Equivalen	t
		• (Added) 4.2.15 Planning Image	
3.3.10	2021-06-14	(Changed) 4.3.4 Changing View Mode	V3.3.10
		• (Changed) 4.3.16 Sending E-mail	
		(Added) 8.1.11 Clipboard	
		(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	
3.3.11	2022-04-18	• (Changed) 4.3.17 Configuring Custom Ribbon Tools	V3.3.11
		• (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	

		• (Added) 4.2.22 Free Rotation	
2 2 1 2	2022-11-25	• (Changed) 4.3.4 Changing View Mode	1/2 2 1 2
5.5.12		(Changed) 4.3.16 Sending E-mail	V3.3.12
		• (Added) 4.3.19 Key Image Note	

# 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
РТ	Positron emission tomography (PET)
ХА	X-ray Angiography
RTIMAGE	Radiotherapy Image
DX	Digital Radiography
10	Intra-oral Radiography
GM	General Microscopy
хс	External-camera Photography
ОР	Ophthalmic Photography
ст	Computed Tomography
MG	Mammography
NM	Nuclear Medicine
от	Other
DG	Diaphanography
RG	Radiographic Imaging (Conventional film / Screen)
TG	Thermography
RF	Radio Fluoroscopy
РХ	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

ltem	Minimum	Recommended
CPU	Intel i3 Dual Core @1.2 대 or higher	Intel i5 Quad Core @2.5 배z 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

ltem	Minimum	Recommended
CPU	Intel i3 Dual Core @1.2 ଖାଁz 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)**

ltem	Operating System
	<ul> <li>Microsoft Windows 7 Home Premium 32bit / 64bit</li> </ul>
	<ul> <li>Microsoft Windows 7 Professional 32bit / 64bit</li> </ul>
Microsoft Windows /	Microsoft Windows 7 Enterprise 32bit / 64bit
	Microsoft Windows 7 Ultimate 32bit / 64bit
	Microsoft Windows 8.1 32bit / 64bit
Microsoft Windows 8.1	Microsoft Windows 8.1 Pro 32bit / 64bit
	<ul> <li>Microsoft Windows 8.1 Enterprise 32bit / 64bit</li> </ul>
	Microsoft Windows 10 Home 32bit / 64bit
Microsoft Windows 10	<ul> <li>Microsoft Windows 10 Pro 32bit / 64bit</li> </ul>
	<ul> <li>Microsoft Windows 10 Enterprise 32bit / 64 bit</li> </ul>
NAL At NA/ AA	Microsoft Windows 11 Pro
Microsoft Windows 11	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

lcon	Location
QXLink.Vie	On the wallpaper of PC or the starting program.

## 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.

	Q	XLin	k age.	
	Server	Default	~	1
	User ID	service		
Pa	ssword			
Exit	it Change PW		Sign 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.

QXLink Agent Setup					
Enter the fully qua want to communio	lified domain name or ate.	IP address of QX	Link Server you		
Login Server	Default	~	Verify		
	Default				
	QXLinkTEST				
	Edit				
			Close		
	5	110 12 19 1 1 11			

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

	Login Server Settir	ng			x
	Server List		Alias	Default	
	Default QXLinkTEST		http://	10.14.11.110	
					Verify
4					
	New	Delete		ОК	Cancel

- 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



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



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.



# 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

# VIEWORKS

# 3.1 Composition of Study List

## 3.1.1 Database

		and the second second											- 6 -
G g	Antonio Contectioner	0		· E bay searce			1 1 1 1						
Study 5	. Ver. Patient	Name	Patient ID	Patient Birth D	ete Sex	Patient Comman_	Study Instance U.	Study Date Time	Referring Physic	Shudy ID	Accession Numb Study Description	Series Count	Instance
Unwad	Line. John D	oe-605-L5.	GADOK				136141191769	10.062011 (0606					3
Orward	Demo	mape	WV0E/S		0		134141191769	26.092011(1515)		60		1	-
Read	Con. John C	Non-Cliptine	4845	06.03.1968			LIELELIND,	67.10.2011 (0909.	L-Spine / APL Lat	N	2075490001		
Gronad	Uma, John D	2	17719	9628.1967			136141191768	07.102011 (1515.,	(12) EBow / AP, LAR (90) Hand / Obl. AP	1 U	20041730001		
		<mark>()</mark>	1		A. S. A.								1
hagan Sergie Real		•											
Sample Cond Red Dury Let Sharily Sec	a Ver., Patient	6	Patient ID	Patient Birth D	rha San	Patient Comman.	Study Instance U.,	Study Data Time	Referring Physic	Study 10	Actansian Numbu Study Description	Series Court	Instance
												510	8984

	ltem	Description
1	Databasa Pikhan Taalbar	Displays a toolbar available in the Database tab of the Study
1	Database Ribboli Toolbar	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 Par	Displays functions and their status used from the Database tab.
1	Status Bai	(Refer to <3.1.3 Status Bar>)

# 3.1.2 User-Defined Screen Layout

Image	Description
Custom Hanging Protocol	<ul><li>Configures the view screen with the specified layout.</li><li>Resets the layout.</li></ul>

# 3.1.3 Status Bar

Image	Description (From the left)
	• Text mode
	Preview mode
	Show or Hide the past study list
🖥 🗏 つ 田 🖵 🗐 🕪	Show or Hide thumbnail list
	<ul> <li>Show or Hide the setting of user-defined view layout</li> </ul>
	Show or Hide report
	Show or Hide DICOM Queue

# 3.1.4 DICOM Q/R

5100	y Eist - se																- 6 ^
qx •	Data	DICOM	DICOM C	DIR													ି
. ⊡	L.	Patient's Name				窗~*	盲	QQ	, CL								
Exit.	Viewer	Patient ID			Today	Within 1 Week	Within 1 Month	Search Add	Retrieve								
Com	Window mon	Accession Nun	Search Conc					<ul> <li>Queu</li> <li>Search</li> </ul>	e 1								
TextSRV			<ul> <li>Echo Pusi</li> </ul>	h													
Patien	t 🔺	Patient ID	Patient Bi	Sex	Study ID	Study Dat	Accession	Study Inst	. Instance C.	Study Des	Patient C	Referring	Modality				
DEM	0	DEMO		0	13	01/06/201_	20170106	1.2.392.20	2			3	SR.RF				
DEM	0	DEMO				03/28/201_	RM017103	2.16.840.1									
DEM	0	DEMO			486	02/04/200_	22717090	1.3.46.670		HAND							
DEM	0	DEMO				01/01/200_	TC-1234	1.2.826.0.1									
DEM	0	DEMO			9281	09/21/201_	17092100	1.2.410.20		FUNDUS P							
DEM	0	DEMO	(2)			10/07/201_		1.3.6.1.4.1									
DEM	0	DEMO	9		05011	12/19/200	9995011	1.3.6.1.4.1		Renal MRA		Thomas Al	MR				
B DEM	0	DEMO			94	10/07/201_	20797600	1.3.6.1.4.1				(Lt) Elbow /					
DEM	0	DEMO				10/07/201_	20800200	1.3.6.1.4.1				(Rt) Knee /	DX				
DEM	0	DEMO			60	09/26/201_		1.3.6.1.4.1					DX				
DEM	0	DEMO				11/24/201_		1.2.840.11		Wrist (AP+_							
DEM	0	DEMO				01/01/200_	TC-307915	TC-307915.				Sample Ph					
DEM	0	DEMO				02/22/201_		1.3.6.1.4.1					MG				
DEM	0	DEMO			0080	12/19/200_	0080	1.3.6.1.4.1				Thomas Al					
Retrieve O	ueue																
CL CL	3	G.															
Patien	t Nam	e Patie	nt ID	Patient	Bi Sex Stua	lv ID	Study Date	Time Acce	ssion Numb	. Study Instan	ce U Insta	nce C Study	Description Patier	nt Commen	ferring Physic	Modality	
		Tutte					, Date	Acce			in sta	Stady					
				4													
																	DICOM Queue

	ltem	Description
1	DICOM Q/R Ribbon	Displays a toolbar available in the DICOM Q/R tab of the study list
•	Toolbar	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



	ltem	Description
1	DICOM DIR Bibbon Toolbor	Displays a toolbar available in the DICOM DIR tab of the Study
1		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.

Window Common	Modalif			ioosy W	Study Date	e Mathin P Mo	ALL SCOUL	Search	retocol •	Send	nd							
y Status 🔺 V	erific F	atient Name	Patient ID	Patient Birl	th Date	Sex Pa	tient Comments		Study Inst	ance UID	Sh	udy Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Cou
		John Doe-Hand	17719	1967-09-0	8	м			1.3.6.1.4.1	1.19179.90000	÷.	1-10-07 (15:17:00)	Techtificarticom	65	2081/30001	Descentation 11/7 Minute		
20 3d	laure	Sample One	5205147	1964-10-0	6	м			126141	0500 100 1 1	2 20	002-11-21 (11-12-17)	Refering MD1	PEOT	1254	VP SCIDIOSIS AD & LAT		
4		Full Lens AP Internal Cur				M			9999.2005	1021202232.1	0 20	208-10-21 (20-22-32)						
		Full Leas AP Left Deform				M			9999.2008	31021202234,1	0. 20	008-10-21 (20:22:34)						
		Full Legs AP Short Statur							9999.2008	81021202240.1	0 20	008-10-21 (20:22:40)						
		Full Legs AP Left Shorter.							9999.2008	31021202243.1	0 20	008-10-21 (20:22:43)						
		Dog_Medium		2010-09-1					1.2.410.20	0033.121.2010	00 20	010-09-16 (12:48:55)				ABDOMEN VD		
		Dog_Medium	0003	2010-10-1					1.2.410.20	0033.203.2010	01 20	010-10-14 (12:04:29)				ABDOMEN VD		
		Dog_Medium	0003	2010-10-1	8				1.2.410.20	0033.217.2010	01 20	010-10-18 (11:06:19)				ELBOW R FLL		
		Kashi Phantom= = $\pi \gg .$	Jikken-2011	1981-12-1					2.16.840.1	.113669.632.3	3 20	011-03-28 (19:28:48)			RM01710328110002			
		John Doe-GOS-LSpine	GADOX	1999-11-3	0	M			1.3.6.1.4.1	1.19179.900000	00 20	011-08-10 (06:39:33)		61				
		Demo Image	WWIX-S	1999-11-3	0				1.3.6.1.4.1	.19179.900000	00 20	311-09-26 (15:37:32)		60				
		John Doe-Hand	17719	1988-07-1	8	M			1.3.6.1.4.1	.19179.900000	00 20	311-10-06 (09:45:05)	(Lt) Ankle / AP, Lat	93	2069170030			
_	Jowe	John Doe-ESpine	4845	1968-03-0	8	M			1336-134-1	19179900000	10 Z	011-10-07 (09:35:38)	L-Spine / AP, Lat	92	2079490001			8
	mve	John Doe-skull	9040	1941-07-2	3				13401401	1.19179.90000	au 24	011-10-07 (09:39:04)	SKUIT / AP / Lat	91	2019130005		-	
	Serve .	John Dee Keen	20530	1057.02.1	2				126141	10170 00000		1.10.07 (10.00.50)	(D) Keen ( AD   st	62	2080030001			
		John Doe-CSnine	11494	1971-04-1	7	M			136141	10170 00000	÷.	1-10-07 (10-20-58)		65				
		John Doe-Relvis	1403	1971-04-1					136141	19179 900	1	07 (10-35-05)		66				
		John Doe-Shoulder	8326	1941-02-2	5				136141	19179.90000	03	11-10-07 (10:58:18)	(Rt) Shoulder / AP, Axial	67	2080490001			
		John Doe-Chest	6258	1943-03-1	0	M			136141	19179.90000	10. 📩	1-10-07 (11:05:46)	Chest / PA	69	2080580001			
		John Doe-Rib	2904	1959-03-2						.19179.90000	00 20	011-10-07 (15:27:51)	(Lt) Rib / Series					7
		mbrad R R G																
dyList tatus ▲ V	erific I	atient Name	Patient ID	Patient Birt	th Date	Sex Pa	tient Comments	. 3	Study Inst	ance UID	Sh	ady Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	instance Co

- 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.

	Study L	ist - servic	e - 2017-04-10 (14:46												- @ ×
	QX T	Database													Ô
[		Patie Patie pwer odow Mode	nt's Name • • • • • • • • • • • • • • • • • • •		Today Within 1 Week	Within 1 Month	Search View Vie Search Search	ew with DiCOM Expendence Send	ort						
Stu	vdy Status	A Verific	Patient Name	Patient ID	Patient Birth Date	Sex Patient Co	oments St	udy Instance UID	Study Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Cou
Rea	ad	Unve	John Doe-Hand	17719	1967-09-09	м		3.6.1.4.1.19179.9000000.	. 2011-10-07 (15:17:00)	%28Rt%29%20Hand%20.	85	2081730001		1	5
Un	read		Presentation LUT					2.840.114257.1.1634110.	- 1957-09-08 (08:31:04)	Mayer Joerg	PLUT		Presentation LUT PState		1
Un	read		_Sample One	5295147	1964-10-05			1.3.6.1.4.1.9590.100.1.1.3	2002-11-21 (11:42:47)	Refering MD1			XR SCOLIOSIS AP & LAT		1
Uni	oread		Full Legs AP Internal Cur				9	9999.20081021202232.10.	. 2008-10-21 (20:22:32)						1
Un	read		Full Legs AP Left Deform	- 731			9	9999.20081021202234.10.	2008-10-21 (20:22:34)		0				
Un	read		Full Legs AP Short Statue	- 753		M	9	2999.20061021202240.10.	. 2006-10-21 (20:22:40)		733				
Un	veau		Fuil Legs AP Left Shorter		2010 00 16	M		9999.2006 F021202243.10.	2008-10-21 (20:22:43)		121		ARDOMENUM		
100	read	Unve	Dog Medium	0003	2010-09-10			2 410 200033 12 120100	2010-10-14 (12:04:33)		203		ARDOMEN VD		
Ues	read		Dog Medium	0003	2010-10-18			2.410.200033.217.20101	2010-10-18 (11:06-19)		217		ELBOW R FLL		1
Un	read		Kashi Phantom= = # 2	Jikken-2011	1981-12-17		2	16.840.1.113669.632 3.3.	. 2011-03-28 (19:28:48)		39	RM01710328110002			7
Un	read		John Doe-GOS-LSpine	GADOX	1999-11-30			1.3.6.1.4.1.19179.9000000.	2011-08-10 (06:39:33)						3
Un	read		Demo Image	VWIX-S	1999-11-30			.3.6.1.4.1.19179.9000000.	2011-09-26 (15:37:32)						6
Un	read		John Doe-Hand		1988-07-18			1.3.6.1.4.1.19179.9000000		(Lt) Ankle / AP, Lat		2069170030			2
Uni	read	Unve	John Doe-LSpine	4845	1968-03-08	м	1	1.3.6.1.4.1.19179.9000000	2011-10-07 (09:35:38)	L-Spine / AP, Lat	92	2079490001		1	8
Uni	rread	Unve	John Doe-Skull	9345	1941-07-23	1		1.3.6.1.4.1.19179.9000000	- 2011-10-07 (09:59:04)	Skull / AP / Lat	91	2079730003		1	4
Un	rread		John Doe-Elbow	24345	1943-07-14			1.3.6.1.4.1.19179.9000000.	2011-10-07 (10:05:13)	(Lt) Elbow / AP, Lat	94	2079760002			4
Un	read		John Doe-Knee	30520	1937-03-13	M		2.6.1.4.1.10170.000000.	2011-10-07 (10:09:50)	(ht) Knee / AP; Lat	62	2080020001			3
UN IL	and a		John Doe-Copine	1494	1971-04-17	E		3.6.1.4.1.19179.9000000.	2011-10-07 (10:20:58)		65				4
114	read	Direction of the local diversion of the local	John Doe-Shoulder	806	19/1-02-25			3.6.1.4.1.19179.9000000	2011-10-07 (10.55(05)	(Rt) Shoulder ( AP : Avia	67	2080490001			4
100	read		John Doe-Chest	6258	1943-03-10	M		3614119179.900000	2011-10-07 (11:05:46)	Chest / PA	69	2080560001			7
Um	read		John Doe-Rib	2904	1959-03-21	M		3.6.1.4.1.19179.9000000	2011-10-07 (15:27:51)	(Lt) Rib / Series	90				7
¢															
Past Stu	umbriail St Study List ady Status	A Verific	Patient Name	Patient ID	Patient Birth Date	Sex Patient Cor	nments St	budy Instance UID	Study Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Cos
<														50 E	。 今昭1日回

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
			Study Status
			Verification
			Patient's Name, Patient ID
Patient's Name		-	• Patient Birth Date, Patient Sex, Patient Comments
Patient ID	• *	<b>•</b>	Referring Physician
Modality	Search Condition		• Study ID, Accession Number, Study Description
			<ul> <li>Modality, Body Parts, Operators</li> </ul>
			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		
Patient's Name	<b>→</b> *	•	Patient's Name, Patient ID		
Patient ID	<del>,</del> *	-	• Patient Birth Date, Patient Sex, Patient Comments		
Modality	<del>,</del> *	-	Referring Physician		
	Search Condition		<ul> <li>Study ID, Accession Number, Study Description</li> </ul>		

• Modality

## 3.2.3 Search Conditions of DICOM Directory

lmage				Search Condition		
Patient's Name Patient ID	+ +	*	- -	<ul> <li>Patient's Name, Patient ID, Patient Sex</li> </ul>		
Modality	<del>.</del> Searc	* h Condition	-	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.
  - <sup>a</sup> 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

6

• 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.	ltem	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.

Sea	rch condi	tion tem	plate								×
		2	Add	Edit	Delete		4	Name			
	Fa Na	ame		Description	Shortcu	t		Description			
	1						3 5 Move top Move Up Move Down 6	Patient's Name Patient ID Modality	✓ * ✓ * ✓ * ✓ * ✓ *	1 Month	
							Move bottom	Today		T MONUT	
							$\overline{\mathcal{O}}$	Date duration		None	$\sim$
							8	Shortcut	None	∨ None	$\sim$
							9	Favorite	1 2	3 4	5
					10	ОК	Cancel				

No.	ltem	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 /	Constitue many and description of the second terms late						
4	Description	specifies frame 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	Sets search period as of today.						
/	(As of today)							
8	Shortcut key	Sets shortcut keys for search template.						
9	Favorites	Designates the template as a favorites button.						
10	Okay / Cancle	Cancles 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** O 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.

QX -	Datab																	
	<b>F</b> <sup>m</sup>	Patier									E.							
5	L@	Patier	nt ID 🔹 🔹			AND ~				∍ ~⁄	1							
Dit	Window	Moda	aty		Today Wr	thin 1 Week	Within 1	Month Search	View View Proto	col . Send	Export							
Con																		
Study Sta	itus 🔺 V	erific	Patient Name	Patient ID	Patient Birth	h Date	Sex	Patient Comments	Stud	y Instance UID		Study Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Cor
Read			John Doe-Hand		1967-09-09				1.3.6	5.1.4.1.19179.9000	0:0	2011-10-07 (15:17:00)	%28Rt%29%20Hand%20.	. 85	2081730001			
Unread			Presentation LUT						1.2.8	340.114257.1.1634		1957-09-08 (08:31:04)	Mayer Joerg	PLUT		Presentation LUT PState		
Unread			_Sample One	5295147	1954-10-05				1.3.6	5.1.4.1.9590.100.1		2002-11-21 (11:42:47)	Refering MD1			XR SCOLIOSIS AP & LAT		
Unread			Full Legs AP Internal Cur	730			M		9999	9.20081021202232	2.10	2008-10-21 (20:22:32)						
Unread			Full Legs AP Left Deform	731			M		9999	3.20081021202234	.10	2008-10-21 (20:22:34)		0				
Unread			Full Legs AP Short Statur	733			M			120081021202240	A10	2008-10-21 (20:22:40)		735				
Unread		Jawe	Full Legs AP Left Shorter	732	2010 00 16		M		9999	320081021202245	101.	2006-10-21 (2022:43)		131		ABDOMENTING		
Unread		Jan	Dog_Medium	0003	2010-09-10				12	10.200055.121.20	100	2010/09/10 (12:48:30)		202		ABDOMENVD		
Unread			Dog Medium	0003	2010-10-18				1.2.4	10.20033.217.20	0101	2010-10-18 (11:06:19)		217		FIROW R FIL		
Unread			Kashi Phantom= = $h \ge$	Jikken-2011	1981-12-17		M		2.16	.840.1.113669.632	23.3	2011-03-28 (19:28:48)		39	RM01710328110002			
Unread		Jove	John Doe-GOS-LSpine	GADOX	1999-11-30	)	M		1.3.6	5.1.4.1.19179.9000	1000	2011-08-10 (06:39:33)		61			1	3
Unread		Jave	Demo Image	VIVIX-S	1999-11-30		0		1.3.6	5.1.4.1.19179.9000	000	2011-09-26 (15:37:32)		60			1	6
Unread			John Doe-Hand		1988-07-18				1.3.6	5.1.4.1.19179.9000	000	2011-10-06 (09:45:05)	(Lt) Ankle / AP, Lat		2069170030			
Unread			John Doe-LSpine	4345	1968-03-03				1.3.6	5.1.4.1.19179.9000	1000	2011-10-07 (09:35:38)	L-Spine / AP, Lat		2079490001			
Unread			John Doe-Skull	9345	1941-07-23				1.3.6	5.1.4.1.19179.9000	000	2011-10-07 (09:59:04)	Skull / AP / Lat		2079750003			
Unread			John Doe-Elbow	24345	1943-07-14				1.3.6	5.1.4.1.19179.9000	010	2011-10-07 (10:05:13)	(Lt) Elbow / AP, Lat		2079760002			
Unread			John Doe-Knee	30520	1957-03-13		M		1.3.6	5.1.4.1.19179.9000	1000	2011-10-07 (10:09:50)	(Rt) Knee / AP, Lat	62	2080020001			
Unread			John Doe-CSpine	11494	1971-04-17		M		1.3.6	5.1.4.1.19179.9000		2011-10-07 (10:20:58)		65				
Unread			John Doe-Pelvis	1403	19/1-04-17				1.30	5.1.4.1.191/9.9000	000	2011-10-07 (10:35:05)		8	2010 100101			
Unread		Jawe	John Doe-Shoulder	8320	1941-02-25				1.3.0	1.4.1.19179.9000		2011-10-07 (10:58:18)	(Kt) Shoulder / AP, Axial Chara ( DA	67	2080490001			
Unread		Janua -	John Doe-Chest	2220	1050.02.21		M		1.3.0	1 4 1 10170 000	0000	2011-10-07 (11:03:40)	(IA) Rik / Series	00	2080380001			
<																		>
Thumbnai																		
Past Study	y List																	
Study Sta	itus 🔺 V	erific	Patient Name	Patient ID	Patient Birth	h Date	Sex	Patient Comments	Stud	y Instance UID		Study Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Cor
<																		>
																	11.11.7	0 99 🗆 🔳

- 2 Click on the  $\Box_{\overline{\mathbf{a}}}$  button on the toolbar.
- 3 Or, double click the selected item or choose the **View** button in the popup menu after clicking the right mouse button.

View	
Open as New Sheet Add to Current Sheet	
Open Study to Stitch Open Study and Stitch by	Þ
Edit Patient	

# 3.3.5 Opening Images in Series Unit

1 Select a study from the thumbnail list.

e Study ox •	List - service Database		.2019 (1414: DICOM DI																	
G		tient's Name itient ID					iii ~ '		i	Q	C@ +		G							
Exit	Viewer Window M	odality				foday W	ithin 1 Week	<ul> <li>Within</li> </ul>	n 1 Month 🛛 👻	Search	View DI	COM Import E	xport							
Com																				
Study S	🔺 Ver.	Patient N	ame	Patient ID		Patient	Birth Date	Sex	Patient	Commen	Stud	y Instance U	J Stu	dy Date Time	Referring Phy	/sic Stu	udy ID	Accession Num	b Stu	dy Descripti
Unread	Ver	DEMO		DEMO				0			1.3.6	.1.4.1.19179	26.	.09.2011 (1515		60	)			
Unread	Unv	DEMO		DEMO		03.10.1	977	М			1.2.4	10.200018.7	21.	09.2017 (1111:		JJ	СВ	1709210065117	7 MF	I(L-SPINE)
Unread		DEMO		DEMO		27.09.20	019				1.3.6	.1.4.1.19179.	4 27.	09.2019 (2020:						
Unread		DEMO		DEMO		08.05.1	974				1.3.6	.1.4.1.19179.	4 30.	09.2019 (1010:		63				
Unread		DEMO		DEMO							1.3.6	.1.4.1.19179.	4 30.	09.2019 (1010:		64				
<	-																			
Thumbnail																				
	-			8353		8														
	. 21			12 8 8																
~	- A 1				2															
	4		-	5 6																
Past Study	list																			
Study S	🔺 Ver.	Patient N	ame	Patient ID		Patient	Birth Date	Sex	Patient	Commen	Stud	y Instance U	J Stu	dy Date Time	Referring Phy	/sic Stu	udy ID	Accession Num	b Stu	dy Descripti

2 Double click the selected item or choose the **View** button in the popup menu after clicking the right mouse button.


# 3.3.6 Opening Key Image only

1 Select a study from the list of searched studies.

study	LIST - SELAICE															
QX -	Database	DICOM Q/R	DICOM D	IR												
G	6	tient's Name				<b>=</b>			Q	-a 4	> G [	Ţ				
Exit	viewer Mc	viality				foday Within 1 Wee	sk 🝷 With	in 1 Month 📼	Search V	view DIC	OM Import Ex	port				
Comm	on my	Juanty								- Se	command					
Study S.	🔺 Ver	Patient N	ame	Patient ID		Patient Birth Da	ate Sex	Patient	Commen.	Study	Instance U.	Study Date Time	e Referring Physic	. Study ID	Accession Numb	Study Descripti
Unread	Ver.	DEMO		DEMO			0			1.3.6.	1.4.1.19179.	26.09.2011 (151	5	60		
Unread		DEMO		DEMO		03.10.1977				1.2.41	0.200018.7	. 21.09.2017 (111		JJCB	17092100651177	MRI(L-SPINE)
Unread		DEMO		DEMO		27.09.2019				1.3.6.	1.4.1.19179.4	27.09.2019 (2020	):			
Unread		DEMO		DEMO		08.05.1974				1.3.6.	1.4.1.19179.4		):			
Unread		DEMO		DEMO						1.3.6.	1.4.1.19179.4		):	64		
<																
Thumbnail																
			-	02.00												
-de	68		80.61	12	100											
	21		1.1		- 0											
		9	1	1. 1929 1												
Past Study Li	st															
Study S.	🔺 Ver	Patient N	lame	Patient ID		Patient Birth Da	ate Sex	Patient	Commen.	Study	Instance U.	Study Date Time	Referring Physic	. Study ID	Accession Numb	Study Description

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.

Concerne	Study List -	service (Admins													
Ver_ Patient Name     Ver_ Patient Name	QX ₹ Da	stabase DiCo	M Q/R DICOM D	IR											
Ver_ Patient Name       ver_     Patient ID     • Search Commen	F C	Patient's Na	me • •			iii ~ *	<b></b>	QLa	$\rightarrow$	G G					
Note:         Description         Sand         Construction         Sand         Construction           A         Verification         Patient Name         Patient ID         Patient Binth Date         Sand         Construction         Study Data Time         Stu	Exit Viewe	Patient ID er			Toda	w Within 1 Week -	Within 1 Month -	Search View	DICOM	Import Export					
Verification         Patient Name         Patient Dite         Sex         Patient Commen         Study Instance U         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID         Accession Numb         Study Date Time         Referring Physic         Study ID          Unverified	Windo Common	w Modality							Send						
Universited         DEMO         O         13.5 (1.4.1.1977)         26.09 2011 (1311         JJCB         17092100651177.         Americal           Universited         DEMO         DEMO         0.27.09.2019         O         1.3.6.1.4.1.19179.4.         27.09.210 (2020	Study S A	Verificatio	on Patient	Name	Patient ID	Patient B	irth Date Sex	Patient Co	ommen	Study Instance L	Study Date Time	Referring Physic	Study ID	Accession Numb	Study Description Se
Utwerified         DEMO         DEMO         DEMO         DEMO         DEMO         17092100651177	Prelimina	Verified	DEMO		DEMO		0			1.3.6.1.4.1.19179	26.09.2011 (1515		60		1
Utweritied         DEMO         DEMO         2709.2019         0         1.3.61.4.1.19174.         2002.002         3         2           Utweritied         DEMO         DEMO         0805.1974         F         1.3.61.4.1.19174.         50.092.019 (1010         63         1           Utweritied         DEMO         DEMO         F         1.3.61.4.1.19174.         30.092.019 (1010         64         1	Unread	Unverified	DEMO		DEMO	03.10.197	77 M			1.2.410.200018.7	21.09.2017 (1111:		JJCB	17092100651177	MRI(L-SPINE) 4
Unvertified         DEMO         DEMO         0805.1974         F         1.3.6.1.4.1.191794.         3009.2019 (1010         63         1           Unvertified         DEMO         DEMO         F         1.3.6.1.4.1.191794.         3009.2019 (1010         64         1	Unread		DEMO		DEMO	27.09.201				1.3.6.1.4.1.19179.	4 27.09.2019 (2020:				
Unvertified         DEMO         DEMO         F         13.6.1.4.1.191794         30.09.2019 (1010         64         1           Ver.         Patient Name         Patient Birth Date         Sex         Patient Commen Study Instance U	Unread		DEMO		DEMO	08.05.197				1.3.6.1.4.1.19179	4 30.09.2019 (1010				
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count	Unread		DEMO		DEMO					1.3.6.1.4.1.19179.	4 30.09.2019 (1010:		64		
v Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
v Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
ver_ Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
ver_ Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
ver_ Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
ver_ Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
Ver_ Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
a Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
v Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
w Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count															
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count	<														
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count	Thumbnail														
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count				<b>100</b>											
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count		老条 !	日本 日日日		10 10										
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count	-				2										
A Ver Patient Name Patient ID Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Numb Study Description Series Count	4		100	A NEW COL											
A Vef Patient Name Patient IU Patient Birth Date Sex Patient Commen Study Instance U Study Date Time Referring Physic Study ID Accession Rumb Study Description Series Count	Past Study List	Mar Dad	launt blauna	Destaut ID	0.	aloue Black Date	Cour Designed		Cauda Jan	contraction of the state	Deter Time Defension	Dhusia Chudu	10	and the block of the ba	and the second second
	study S 🔺	ver Pat	tent Name	Patient ID	Pd	itient Birth Date	Sex Patients	.ommen	Study ins	tance 0 Study	Jate Time Kererrin	g Physic Study	ID AC	cession Numb Study De	scription series count

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 **C** 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.

rotocol	Configuration					
Default (Default)	Close All Existing Studies	Yes				
Protocol 1	Number of Past Study	3				
Protocol 2	Default Hanging Protocol Of 2 Display	1-1				
	Default Hanging Protocol Of 3 Display	1-1-1				
	Default Hanging Protocol Of 4 Display	1-1-1-1				
	🔳 Display 1					
	Study Layout (Row)	1				
	Study Layout (Column)	1				
	Apply Default Image Layout Of Mo	Yes				
	Image Layout (Row)	1				
	Image Layout (Column)	1				
	Magnification	Keep Saved Status				
	Sort	Keep Saved Status				
	Show Thumbnail	Yes				
	Thumbnail Position	Тор				
	Thumbnail Size	70				
	🗉 Display 2					
	🖬 Display 3					
	🗉 Display 4					

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.
2	Configuration for scroon	Displays the applicable configuration on the screen of the current
5	configuration for screen	number.
4	Apply button	You can create and delete protocols as well as specify a default
4		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 Dicplay	Displays screen configurations that can be set when two
Inction Iose All Existing Studies Umber of Past Study efault Hanging Protocol of 2 Display efault Hanging Protocol of 3 Display efault Hanging Protocol of 4 Display	monitors are connected.
Default Hanging Protocol of 2 Dicplay	Displays screen configurations that can be set when three
Inction Iose All Existing Studies Iumber of Past Study Refault Hanging Protocol of 2 Display Refault Hanging Protocol of 3 Display Refault Hanging Protocol of 4 Display	monitors are connected
Default Hanging Protocol of 4 Display	Displays screen configurations that can be set when four
Default manging Protocol of 4 Display	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 0 1	Among the four monitors, two monitors in the middle are configured as one screen
1-2-1	(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 (1) 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.
  - $\ensuremath{^{\mathrm{o}}}$  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.



<sup>a</sup> Alternatively click the View with Custom button to open the study.





- 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.

🖭 Sti	udy List - service	- 2017-04-1	0 (14:46:2	25)
QX -				
	Recent Studies			
Ţ	Patient Name	Patient ID	Modality	Study Date Time
Exit	John Doe-Skull	9345	DX	2011-10-07 (09:
Co	John Doe-CSpi	11494	DX	2011-10-07 (10:
Study S	Dog_Medium	0003	DX	2010-10-18 (11:
Read	Full Legs AP L	731	OT	2008-10-21 (20:
Unread	John Doe-Elbow	24345	DX	2011-10-07 (10:
Unread				
Unread			Ope	en Clear All

2 You can view the recently searched study list from the pop-up window of Recent Studies.

<sup>a</sup> Select a desired study and click on the **Open** button to display the selected study on the viewer screen.

<sup>a</sup> 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.



#### 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.

Open Study and Stitch by ... 🕨



• 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.

Edit Patient

3 When you click the **Edit Patient** menu, the following window is displayed.

Edit Patient		×
Patient Name	TestName	
Patient ID	π-114	
Birth Date	1988-02-14 YYYY-MM-DD	
Age	30 Year	
Patient Sex	Male ~	
Patient Comments		
Study Description		
Reset	OK Cancel	

# VIEWOLKS

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

🗣 Stud	y List -	service	- 2018-05-24	4 (10:50:	32) De	mo				
QX <del>-</del>	Da	tabase	DICOM Q	/R D		DIR				
G	Ľ.	Pat Pat	ient's Name ient ID					<b>iii</b> ~ *		6
Exit	Windo	er w Mo	dality				Today	Within 1 Week	Within	1 Monti
Com					h Conc					
Study Sta	tus 🔺	Verific	Patient Na	ame		Patient ID	Patier	nt Birth Date	Sex	Patie
Unread			DEMO			DEMO	2000	-01-01		
Unread			🕜 TestN	ame		DEMO	1988	-02-14	М	
Unread		Unve	DEMO			DEMO	1986	j-08-22	М	
Unread			DEMO			DEMO	1994	-01-01	F	
Unread			DEMO			DEMO	2010	-01-01	0	
Unread			DEMO			DEMO			М	

• 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.

🔤 Stu	dy List - servic	e - 2017-04-10 (14:4	6:25)												- @ ×
qx •	Database														
	Patie	nt's Name 🔹 *					$\sim$								
5	LO Pati	ntiD • •					4 4	9 -© -∨ L							
Exit	Viewer Mod	ality - •		Today W	thin 1 Week With	in 1 Month	Search View	v View with DICOM Exp Protocol F Send							
Con	mon							ch Command							
Shudy Sta	tus a Verific	Patient Name	Patient ID	Patient Birt	h Date Sex	Patient Co	mments	Study Instance UID	Study Date Time	Referring Physician	Shudy ID	Accession Number	Study Description	Series Count	Instance Co
Read	Unve	John Doe-Hand	17719	1967-09-09	) M			1.3.6.1.4.1.19179.9000000	2011-10-07 (15:17:00)	%28Rt%29%20Hand%20		2081730001		1	5
Unread		Presentation LUT	999					1.2.840.114257.1.1634110		Mayer Joerg	PLUT		Presentation LUT PState		
Unread		_Sample One	5295147	1964-10-0				1.3.6.1.4.1.9590.100.1.1.3.		Refering MD1			XR SCOLIOSIS AP & LAT		
Unread		Full Legs AP Internal Co						9999.20081021202232.10.	2008-10-21 (20:22:32)						
Unread		Full Legs AP Left Defor	m 731					9999.20081021202234.10.	2008-10-21 (20:22:34)						
Unread		<ul> <li>Full Legs AP Short Stati</li> </ul>	ar 733		M			9999.20081021202240.10.	2008-10-21 (20:22:40)		733				
Unread		Full Legs AP Left Short	ar 732		м			9999.20081021202243.10.	2008-10-21 (20:22:43)						
Unread		Dog_Medium	0003	2010-09-14				1.2.410.200033.121.20100	2010-09-16 (12:48:55)		121		ABDOMEN VD		
Unread		Dog_Meaium	0003	2010-10-14				1.2.410.200033.203.20101			203		ABDOMENVD		
Unread		Keeki Okeeteen - † 2	0005 Dillow 2011	2010-10-10				2 16 940 1 112660 622 2 2	2010-10-18 (11:00:19)		207	Ph 401710239110003	ELDOWKIEL		
Unread	Univer	Kashi Phantom= = W S	CADOX	1901-12-1	M			2.16.940.1.113009.632.3.3	2011-03-26 (19(26)46)		59	RM01710528110002		1	
Unread	onte.	Demo Image	WVIX-S	1999-11-3				13614119179900000	2011-08-10 (0039:33)		60				5
Unread		John Doe-Hand	17719	1988-07-11	M M			136141.19179.900000		(It) Ankle / AP Lat	93	2069170030			
Unread		John Doe-LSpine	4845	1968-03-00	M			1.3.6.1.4.1.19179.9000000	2011-10-07 (09:35:38)	L-Spine / AP. Lat	92	2079490001			
Unread		John Doe-Skull	9345	1941-07-23				1.3.6.1.4.1.19179.9000000		Skull / AP / Let		2079730003			
Unread		John Doe-Elbow	24345	1943-07-14				1.3.6.1.4.1.19179.9000000		(Lt) Elbow / AP, Lat	94	2079760002			
Unread		John Doe-Knee	30520	1957-03-13				1.3.6.1.4.1.19179.9000000	2011-10-07 (10:09:50)	(Rt) Knee / AP, Lat		2080020001			
Unread		John Doe-CSpine	11494	1971-04-17				1.3.6.1.4.1.19179.9000000	2011-10-07 (10:20:58)						
Unread		John Doe-Pelvis		1971-04-1				1.3.6.1.4.1.19179.9000000	2011-10-07 (10:35:05)						
Unread		John Doe-Shoulder	8326	1941-02-2				1.3.6.1.4.1.19179.9000000	2011-10-07 (10:58:18)	(Rt) Shoulder / AP, Asial		2080490001			
Unread		John Doe-Chest	6258	1943-03-10				1.3.6.1.4.1.19179.9000000	2011-10-07 (11:05:46)	Chest / PA		2080580001			
Unread		John Doe-Rib	2904	1959-03-2	M			1.3.6.1.4.1.19179.9000000		(Lt) Rib / Series	90				
< Thumbnai	1														>
Past Study															
Study Sta	tus 🔺 Verific	Patient Name	Patient ID	Patient Birt	h Date Sex	Patient Co	mments	Study Instance UID	Study Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Col
<	_		_	_	_	_	_				_			16 1	、 1 の 部 豆 回

3 Click on  $\Leftrightarrow$  button on the toolbar.



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

Alias	SubStorage	^			
AETitle	QXLinkSRV				
Host Name	10.13.1.29				
Port	104				
Description	Default DICOM Storage Server				
		~			
Burn Annotation	Yes				
Apply Changed W/L	Yes				
Include Report	Yes				
Transfer Syntax	Keep Transfer Syntax				
	Send Close				
	Alias AETitle Host Name Port Description Burn Annotation Apply Changed W/L Include Report Transfer Syntax	Alias       SubStorage         AETitle       QXLinkSRV         Host Name       10.13.1.29         Port       104         Description       Default DICOM Storage Server         Burn Annotation       Yes         Apply Changed W/L       Yes         Include Report       Yes         Transfer Syntax       Keep Transfer Syntax			

- 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 ( III ) on the status bar to check the transfer status.

DICOM Service Queue				
Send Print	Email			
Task List	Alias	New ^	Date Time	Message
DEMO - (2/2)	AETitle	QXLinkSRV	2019-02-28	Connection S
	Host Name	10.13.1.23	2019-02-28	Senaing Asso Receiving As
	Port	104	2019-02-28	Sending C-ST
	Description	Default DICOM Stor	2019-02-28	Receiving C-S
	Burn Annotation	Yes	2019-02-28	Sending Rele Connection C
	Apply Changed W	//L Yes	2010 02 20	oonnoodon o
			2019-02-28	Connection S
	Stat Patient ID	M Study Date Ti	2019-02-28	Sending Asso Receiving As
	Done 24345	D 2011-10-07 ( D 2011-10-07 (	2019-02-28	Sending C-ST
	Duile 24345	D 2011-10-07 (	2019-02-28	Receiving C-S
			2019-02-28	Sending Rele
			2019-02-28	Connection C
			<	>
Delete		Retry All		Clear Log

#### 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.

Export			×
	Device	0:5:0 F: HI DT ST DVDRAM GH24NS	
	Path		
	Fatti		
	Export Type	DICOM Directory	
	Burn Image Info	No	
	Anonymize Information	Yes	
	Burn Annotation	No	
	Apply Changed W/L	No	
	Burn Scale Bar	No	
	Include Report	Yes	
	Include Viewer	Yes	
	Transfer Syntax	Keep Transfer Syntax	
		Export Close	

# VIEWOLKS

2 Click on  $\bigcup_{\text{Export}}$  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.

Device	User Directory	
Path	D:\Temp\ExportTest	
Export Type	DICOM Directory	
Burn Image Info	No	
Anonymize Information	Yes	
Burn Annotation	No	
Apply Changed W/L	No	
Burn Scale Bar	No	
Include Report	Yes	
Include Viewer	Yes	
Transfer Syntax	Keep Transfer Syntax	

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

xport			
	Device	User Directory	
	Path	D:\Temp\ExportTest	
	Export Type	DICOM Directory	
	Burn Image Info	No	1
	Anonymize Information	Yes	1
	Burn Annotation	No	
	Apply Changed W/L	No	
	Burn Scale Bar	No	
	Include Report	Yes	
	Include Viewer	Yes	
	Transfer Syntax	Keep Transfer Syntax	
			٦

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.

📙   🛃 🚽 Export						
File Home Share View						
Pin to Quick Copy Paste access	Move to v Copy	New item •	Properties	Select all		
Clipboard	Organize	New	Open	Select		
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\blacksquare$ $\rightarrow$ This PC $\rightarrow$ Desktop	← → ✓ ↑ 📙 → This PC → Desktop → Temp → Export →					
A 0.::h	Name	Date modifie	d Type	Size		
Culck access	PortView	20/10/27 02:0	)1 PM File folder			
Desktop 🖈	📓 Autorun.inf	12/02/14 01:3	0 PM Setup Info	rmation 1 KB		
Downloads	DICOMDIR	20/10/27 02:0	1 PM File	3 KB		
🗄 Documents 🛷	0000000	20/10/27 02:0	1 PM File	9,765 KB		
JaeHyeokDoc 🖈	0000001	20/10/27 02:0	1 PM File	9,217 KB		
TFS_Manager 🛛 🖈	1000002	20/10/27 02:0	01 PM File	8,765 KB		
GitProjects 🖈	000003	20/10/27 02:0	1 PM File	8,834 KB		
#4 VXvuelO	10000004	20/10/27 02:0	01 PM File	8,457 KB		
#OVLinkBreiests	0000005	20/10/27 02:0	1 PM File	8,065 KB		
- #QALINKPIOJECIS	0000006	20/10/27 02:0	01 PM File	8,908 KB		
📥 OneDrive - 주식회사 뷰웍스	1000007	20/10/27 02:0	01 PM File	8,618 KB		
Attachments	🚳 msvcr100.dll	11/06/11 01:5	68 AM Applicatio	n exten 756 KB		
Documents	W PV.Loader.exe	19/04/10 12:4	17 PM Applicatio	n 137 KB		
Microsoft Teams Chat Files						
Microsoft Teams 채팅 파일						

- 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.



Image: Size Type         Dewo Control (Signature)         Name         Size Type         Dewo Control (Signature)         Dewo Control (Signature) <thdewo (signature)<="" control="" th="">         Dewo Cont</thdewo>	001
C Demo10_CSI_Espine Demo11_CSI_Elbow Demo11_CSI_Foot Demo12_CSI_Rib Demo12_CSI_Rib Demo12_CSI_Rib C C C C C C C C C C C C C C C C C C C	/ 2 DX
Result Patient Name Patient ID Modality Study Date Time File Name	
Include Subdirectories Import Close	

**(** 

• 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.

Import (C:\User	s#user#Desktop#QXLINK TEST#DIC	OM_Sample#Circle D	etection)			
~	DICOM_Sample     CharactersetTest     Circle Detection     Demo1_CSI     Demo3_CSI_Knee     Demo4_CSI_CSpine     Demo5_CSI_Pelvis     Demo5_CSI_Palvis     Demo5_CSI_Shoulds     Demo5_CSI_Shoulds     Demo5_CSI_Shoulds     Demo5_CSI_Shoulds     Demo1_CSI_LSpine     Demo1_CSI_LSpine     Demo11_CSI_Elbow     Demo11_CSI_Elbow	Name 1.2.826.0.136 1.2.840.11356 2.16.840.1135 2.16.840.1113 TC-307915618 TC-307915618 TC-307915618 TC-307915618	<ul> <li>30043</li> <li>4.10.1</li> <li>669.63</li> <li>669.63</li> <li>3106.1</li> <li>3106.1</li> <li>3106.1</li> <li>3106.1</li> </ul>	Size         Type           322kB         DCM III           10,002kB         DCM III           4,897kB         DCM III           3,431KB         DCM III           8,636kB         DCM III           8,608kB         DCM III           10,421kB         DCM III           13,687kB         DCM III	Writt Case1.           102           2007-004 (16:54:3           201           21           22           22           22           22           23           23           23           23	22713090 22713090 1,7 CR
Result	Patient Name	Patient ID	Modality	Study Date Time	File Name	
Imported Imported Imported Failed Failed Failed	Knee Wrist Case2 Wrist Case1 HIPJOINT11 KNEE1 KIVEE_Jack Black KINEE_Jack Black	TC123451 0011223344 TC1234 TC1234 TC-3079156183106 TC-3079156183106	CR CR CR CR CR CR CR CR	2000-01-01 (99:3 2010-11-24 (20:1 2007-02-04 (16:5 2007-02-04 (16:5 2011-01-01 (09:2 2007-01-01 (20:3 2007-01-01 (20:3	86:50)       1.2.826.0.         14:51)       1.2.840.1'         14:39)       2.16.840.         14:39)       2.16.840.         17:54)       TC-30791!         17:13)       TC-30791!         17:13)       TC-30791!	1.3680043.6.9035 3364.10.1.16900 1.113669.632.3.11 1.13669.632.3.11 16183106.131402 16183106.131411 16183106.131411
📕 Include Su	ubdirectories				Stop	

- 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	Туре
PortView	2021-02-25 오전 11:22	File folder
Autorun.inf	2012-02-14 오후 1:30	Setup Information
Svcr100.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.

Pattert Name       Pattert Name       Image: Construction of Constructio Construction of Construction of Construction of Cons
Patient ID     Patient B Sex     Study Date Time     Accession Num     Study ID     Study Instance       I John Doe-Kne     30520     1957-03-13     M     2011-10-07 (100     20800020001     Copy Seturd Image(1) Is     3
n John Doe-Kne 30520 1957-03-13 M 2011-10-07 (10.0 2080020001

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

#### **Export Options**

Item	Description				
	DICOMDIR				
	• BMP				
Evport Tupo	• JPEG				
export type	• TIF				
	• RAW				
	• PNG				
Burn Image Info	<ul> <li>Applies the patient or study information into pixels.</li> </ul>				
Anonymize Information	Anonymizes patient information.				
Burn Annotation	<ul> <li>Applies the annotation and shutter information to pixels.</li> </ul>				
Apply Changed W/L	<ul> <li>Applies the changing window level to pixels.</li> </ul>				
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 **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 Q button.



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

#### 3.4.2 Queue List Toolbar

lcon	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.
Ъ	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	VIVIX-S	1999-11-30		60	2011-09-26 (15:		1.3.6.1.4.1.1917					DX
🧧 John Doe	6258	1943-03-10	М	69	2011-10-07 (11:	2080580001	1.3.6.1.4.1.1917				Chest / PA	DX
🚊 John Doe	11494	1971-04-17			2011-10-07 (10:							
John Doe-E	24345	1943-07-14		94	2011-10-07 (10:	2079760002	1.3.6.1.4.1.1917				(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				%28Lt%29%20	DX

2 Click on the Add Queue button.

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

Retrieve Queue									
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		
John Doe-GOS-LSpine	GADOX	1999-11-30	M		2011-08-10 (06:39:33)		1.3.6.1.4.1.19179.9000000		

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	ViVIX-S	1999-11-30	0	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)
i <u>i</u> ₁1	DX	1.3.6.1.4.1.19179.9000	000		
🖬 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
፹ Demo Image	ViVIX-S	1999-11-30	0	60
🖬 John Doe-Chest	6258	1943-03-10	М	69
John Doe-CSpine	11494	1971-04-17	M	65
🛓 John Doe-Elbow	24345	1943-07-14	F	94
<b>⊨</b> . 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	М	93

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

Retrieve Queue						
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	
			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.

* D:\DICOMDIRTEST	-							
Patient Name	Patient ID	Patient Birth D	Sex	Study Date Time	Accession Number	Study ID	Study Instance UID	Instance Count
📰 John Doe-Foot	30349	1988-07-18	М	2011-10-06 (09:45:05)	2069170030	93	1.3.6.1.4.1.19179.9000000	
👖 John Doe-Pelvis	1403	1971-04-17		2011-10-07 (10:35:05)		66	1.3.6.1.4.1.19179.9000000	
John Doe-Skull	9345	1941-07-23	F	2011-10-07 (09:59:04)	2079730003	91	1.3.6.1.4.1.19179.9000000	4
🚊 Kashi Phantom= = π	Jikken-2011	1981-12-17	М	2011-03-28 (19:28:48)	RM01710328110002	39	2.16.840.1.113669.632.3.3	

2 Click on the View button.

## 3.5.2 Opening in Series Units

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

* D:\DICOMDIRTEST	-			
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)
n1		DX		1.3.6.1.4.1.19179.9000000000
🖪 John Doe-Skull	9345	1941-07-23	F	2011-10-07 (09:59:04)
🚊 Kashi Phantom= = π	Jikken-2011	1981-12-17	М	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.

* D:\DICOMDIRTEST	-		
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
<b>=</b> 1		DX	
5	1.3.6.1.4.1.19179.9000000	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2
6	1.3.6.1.4.1.19179.9000000	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2
7	1.3.6.1.4.1.19179.9000000	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	М

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 (IIII) on the status bar to display the following window.

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

DICOM Service Queue									×
Send	Print	Em	ail						
Task List		Alias				~	Date Time	Message	
		AETit	le						
		Host	Name						
		Port			0				
		Desc	ription						
		Burn	Annotation						
		Appl	y Changed W/L						
		Inclu	de Report			~			
		Status	Patient ID	М	Study Date Time				
							<		>
Delete					Retry All			Clear Log	

- 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

# VIEWOLKS

# 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 is 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	Provious page ( Next page	Displays the previous or next thumbnail image based on the current
<u> </u>	Plevious page / Next page	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 D displayed on the image to expand the bound images.
- Click **S** 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.	
		The images of all the sheets in the output window are transferred to the	
7	Print All Sheets	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.	

# VIEWOLKS

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

• Using the icon is 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.

lmage	Functions (from left)
	<ul> <li>Adding and moving images using drag and drop</li> </ul>
	See <9.5.1Moving images using Drag & Drop>.
	Adding images to a new sheet
	<ul> <li>Adding images after the last image of the selected sheet.</li> </ul>
	• When you add an image by ito 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)		
	Shows or hides thumbnail list.		
	<ul> <li>Shows or hides simple print view.</li> </ul>		
:::::::::::::::::::::::::::::::::::::	<ul> <li>Shows or hides magnifying glass.</li> </ul>		
	<ul> <li>Shows or hides the guide function.</li> </ul>		
	Shows or hides DICOM Queue		
• You can cha	ange 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

Pixel Equivalent - DEMO - DEMO - 2011-10-07 (AM 10:10:34)

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	Provious page / Next page	Moves to the previous or next image based on the current
4	Previous page / Next page	image.
5	Selector	Default status of a mouse pointer. Double click on the image to
5	Selector	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 <b>Real Size</b> window.

х



• 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

12		3			(	4 5	6	$\overline{O}$
× 1x1 ⋅	DEMO	DEMO	DX	2011-10-07	-	≟e <b>io io</b>	ര്ം	1 of 1 Study
* 2011-10-07	(10:20:58) - DEMO	) - DEMO						
1x1 •	Image	<ul> <li>All Series</li> </ul>	•	o 🖌 🗟 🚺	1 of 2	Srs:1 Img:2		
8	9	10		(1) (12 (13)	(14)	15		

No.	Name	Function
1	Close all studies	Closes all opened studies.
2	Study loveut	• Changes the study layout up to four columns and
2	Study layout	four rows.
3	Opened studies	• Lists the currently opened studies.
4	View past studies	<ul> <li>You can view the checklist with the patient ID and</li> </ul>
4	view past studies	open it in the viewer window
F	Open the province ( payt study	Opens the previous or next study in the Viewer
5	Open the previous / next study	window based on the current study.

# VIEWORKS

6	Move to the previous next study	<ul> <li>Moves to the previous or next study based on the currently activated study.</li> </ul>
7	Order information of the current study	Current order of study / Total open studies
0	Image lavout	Changes the layout of images included in the
0	inage layout	activated study up to 10 columns and 10 rows.
9	View mode	<ul> <li>Changes the way exams are displayed</li> </ul>
10	Series list	Series list of the current study.
		Only selected images are displayed.
11	View selected images only	• It is activated only when the image display method is
		'Image'.
		• Displays only key images.
12	View key images only	• It is activated only when the image display method is
		'Image'.
		• Applies effects such as window level, zoom, pan,
12	Apply to this series / Apply to selected	counterclockwise rotation, clockwise rotation, mirror,
15	images	flip and invert to all or selected images. The default
		value is Apply to Selected Images.
14	Page information of the current exam	• Page of current exam / Full page of open exam.
45	Series and image information of the	• Displays the total number of series and images of the
15	current study	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 <b>Viewer</b> and <b>Study List</b> .

## 4.2.2 Saving Study Status

Button	Name	Description
		Saves the status of image. The saved information is as follows.
	Save	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



1 Click on the Viewer Window button (

- 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
<b>L</b>	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.



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

Insert Pictures				×
← → ✓ ↑ ■ > 내 PC > 사진 > ✓ ○	사진 검색			Q
구성 ▼ 새 풀더	[	-		?
QXLink 3 ▲ ▲ Vuels ▲ #Manual #QXLink Upgrac QXLink 3.x-3.3.5 QXLink 3.x-3.3.5 AT 전 4 One Drive - 주식회 UPC 3 3D 개체 ↓ 다운로드 중 중상 중 문서 바탕 화면 ► 사진 ✓				
파일 이를(N): apple.jpg	All Files (*.*)			~
	열기(O)	4	취소	



Image formats available to add are as follows:



- BMP
- TIFF
- 7 Confirm the image added to the test.



## 4.2.5 Print

## Sending new sheet to the print window

Button	Name	Description
Button	Name	Beschption
Щ. Г	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
Ę.	Add to Current Choot	Adds the selected image to the existing sheet selected in the
	Add to Current Sneet	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		
$\Rightarrow$	Send	Sends the selected images to the other DICOM server.		
• The sending process is the same as <3.3.14 Exporting Study>.				
	Send.			

# 4.2.7 Checking DICOM Header Information

Button	Name	Description
i	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.

g 🔺	Attribute Name	VR	VM	Length	Value
(0028,0011)	Columns	US	1	2	1744
(0028,0030)	Pixel Spacing	DS	2	14	0.1743\0.1743
(0028,0100)	Bits Allocated	US	1	2	16
(0028,0101)	Bits Stored	US	1	2	14
(0028,0102)	High Bit	US	1	2	13
(0028,0103)	Pixel Representation	US	1	2	0
(0028,0106)	Smallest Image Pixel Value	US	1	2	0
(0028,0107)	Largest Image Pixel Value	US	1	2	16383
(0028,0301)	Burned In Annotation	CS	1	2	NO
(0028,1040)	Pixel Intensity Relationship	CS	1	4	LIN
(0028,1041)	Pixel Intensity Relationship Sign	SS	1	2	
(0028,1050)	Window Center	DS	1	6	5618
(0028,1051)	Window Width	DS	1	6	12514
(0028,1052)	Rescale Intercept	DS	1	2	0
(0028,1053)	Rescale Slope	DS	1	2	1
(0028,1054)	Rescale Type	LO	1	2	US
(0028,2110)	Lossy Image Compression	CS	1	2	00
(0040,0253)	Performed Procedure Step ID	SH			
(0040,0254)	Performed Procedure Step Description	LO			
(0040,0555)	Acquisition Context Sequence	SQ			
(0054,0220)	View Code Sequence	SQ			
(FFFE,E000)	ltem	OB			
(0008,	Code Value	SH	1	8	R-10206
(0008,	Coding Scheme Designator	SH	1	4	SRT
(0008,	Code Meaning	LO	1	16	antero-posterior
(2050,0020)	Presentation LUT Shape	CS	1	8	IDENTITY
(7FE0,0010)	Pixel Data	OW	38821	7764288	
					Close

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

## 4.2.8 Selector

Button	Name	Description
$\diamond$		• Default status of a mouse pointer.
	Soloctor	• When you click on the <b>Selector</b> button on the toolbar, the
	Selector	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
Ď	Select All	• 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
$\mathbf{\hat{\mathcal{C}}}$	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
С.		• Initializes the status information of all images included in the selected series.
	Reset All	• To reset status information of all images included in the current series, click
		on the <b>Reset All</b> 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
Ĩ	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
$\oplus$	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
<b>L</b> =		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
Ť	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
$\bigcirc$	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
$\mathbb{K}$	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
$\odot$	ссw	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
$\odot$	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
ΔİΔ	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
<b>⊿</b> i∖	Flip	Flips an image vertically.

1 Select an image from the desired study.



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



## 4.2.22 Free Rotation

Button	Name	Description
$(\pm)$	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.
  - $\mbox{ " In }$  1), select / add / delete / save Modality.
  - <sup>a</sup> Add, modify or delete the window level list to be applied to images taken in Modality selected in 2).

Edit Window Level Presets 1 ×			
CR			) ~
Add	Delete		Save
Title		Window	Window
Brain		80	40
Head/Neck		350	90
Chest		350	40
Lung		1500	-600
Abdomen/Pelvis		350	40
Bone		2500	480
Title			
Window Width	Win	dow Center	
Add	Edit		Delete
	ок с	ancel	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	
- <b>Ò</b> -	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	
0	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
Ъ	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.

Vano F For A Zen Lago Zen Lago	be t ⊮ detecter 
	t britis vititis z Nobek

- 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
$\bigtriangleup$	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
$\Delta_{\!\!\boldsymbol{0}}$	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.



- 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
$\Diamond$	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
$\Diamond$	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.



- 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.

Description	
Show or hide image information such as patient, study and image information	
displayed on the image.	
Show or hide annotations added to the image.	
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 be referring to the pixel spacing value (0028, 0030) first.

# VIEWOLKS

## 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

ltem	Description
°,	Opens a study among the list of previous studies the patient has had.
iio	Opens the previous study.
	Opens the next study.
ŝ	Activates the previous study.
Ê	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.

X 1x1	<ul> <li>DEMO</li> </ul>	DEMO	MR 2017-09-21	📩 💼 🖧 🖧 1 o	f 1 Study
* 2008-10	-28 (15:44:11) -	DEMO - DEMO			
3x3	<ul> <li>Image</li> </ul>	<ul> <li>All Series</li> </ul>	- 💿 🔑 🖪 💽	1 of 8 Srs:3 Img:68	

## 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.



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

The functions available in the series mode are as follows.



• 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.

	10 fps Forward Show Series					
DEMO 39Y Series 2 DEMO 2017-09-21 11:24:17	(LH) 12//14	Kangnam KMI DEMO MAGNETOM_ESSENZA 39Y Srs 2 M Img 12 DEMO 2017-09-21 11:27:39	Series 3 (L4) 1/18	Kangnam KM D MAGNETOM_ESSENZA 31 Srs 3 Img 1 I 1 2 2 2 2 1 1	EMO 97 Serien 4 (AH) 1/17 017-09-21 130-43	Kangnam KMI MAGNETOMLESSENZA Srr 2 Img 1
HFS Mat 512 x 307 SE SAT1 SF 24 693 SL 400	1/5	(P) 54.400	1.E	ש א א א (P) דוד א א א	P5 141 384 x 169 ATT P50 F122 1400	
4.80 100.00 TE 2700.00 TE 92.00 FA 150.00 F5 1.50	1PS	4.80 100.00 TR 610.00 TE 11.00 FE 1150.00 F5 1.50		1 4. 17 17 12 cm 47 12 cm 45	40 5.63 8.4062.10 E 88.00 A 150.00 5 1.50	6 cm
MRI(L-SPINE) T2 TSE SAG	(RF)	L 383 W 886 MRI(L-SPINE) Z 100.00% T1 TSE SAG	(RF)	U 238 W 714 Z 100.00% T2	IRUL-SPINE [PF]	U 1184 Z 100.00%
CHUC SUPER STATES (1) SUPER S	[AH] To TB Construction (FF)	Control Stand				

The functions available in the cine mode are as follows.

ltem	Description
First Frame	Moves to the first frame.
Previous Frame	Moves to the previous frame.
Next Frame	Moves to the next frame
Last Frame         Moves to the last frame	
Play	Continuous playback.
Stop	Stops continuous playback.
Frame Rate	Sets the playback speed (frames per second).
Play Style	Sets the playback type.
	ItemFirst FramePrevious FrameNext FrameLast FramePlayStopFrame RatePlay Style

- 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	
4	Calit Scout Imaga	Assigns Scout images to other views.	
-	Split Scout image	• The image with the overlay is judged as a scout image.	
2	<b>Synchronize Slice Position</b> Displays images at the same image position as the current ex		
3	All Lines	A cross-reference line corresponding to all images of the	
		selected series is displayed on the scout image.	
4		Activates and drags the 3D Cursor tool to search for and display	
4	SD Cursor	the position in the current image from the other series	
5	Chaw Carias	Shows or hides the series.	
	Show Series	<ul> <li>If there is a hidden series, *Show Series is displayed</li> </ul>	

#### 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.
  - <sup>o</sup> Others: Locates an image in the center.



- Image information is displayed as follows:
  - <sup>a</sup> 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.
  - <sup>a</sup> Top-right setting: Displays the information in the center.
  - <sup>a</sup> Bottom-right setting: Displays the information at the bottom center.

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

	ltem	Description
1	Previous view	Moves to the previous view type.
2	2 Next View Moves to the next view type.	
3	Apply to All Selected View Type	Applies to all selected view type when manipulating
	Apply to All Selected View Type	images.
4	Show View Type	Shows or hides view type
4	Show view Type	• Hidden view type is displayed as 'Show View Type'.
5	Show Sovies	Shows or hides series.
	Show Series	<ul> <li>Hidden series is displayed as 'Show Series'.</li> </ul>

## 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:

	ltem	Description
1		Displays a layout divided into 16.
-	FWIX TO	(Excluding camera image)
2	FMX20	Displays a layout divided into 20.
2		(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.

Dexio M Dexio Dexio de 10 160527	Sis 1 Img 1
SR Structured Report	
Please double click to review here for more details.	
	L 127 W 255 Z 100.00%

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

DICOM SR (DEMO - DEMO)		×
Patient: Study: Series: Completion Flag: Verification Flag: Content Date/Time:	Mr Loop (male) OFFIS Structured Reporting Test Valid report with loop/cycle (#1) PARTIAL UNVERIFIED 2005-05-30 16:05:27	~
Document	Title	
First Paragraph: Some text.		
Inferred from: Content Item	by-reference	
Second Paragraph: Some more text.		
Inferred from: Content Item <u>by-reference</u>		
		$\sim$
	Close	

## 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.

OXUnit Viewer	- 6 ×
Viewer Acrodution Ministrement	6
□       ■       □	
≆ Σ h1 * here παν 2445 ματι πα 2011 μαστ · ∰ ∰ δα δα 2012 3040	
× 2011:10/27 (10.35.05) - 1443 - 3.06 No. Dec Petrix	
262 * All Series * 🔞 🔟 1 of 1 Srist Ing 3	
	HH G2 C2 80

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 **Z** 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 **selected** 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.





- 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.

$\triangleright$	Selector	
Þ	Select All	
0	Reset	
Ş	Reset All	
	Erase All Status	ĺ
	Key Image	
	Zoom	►
	Specified Image Height	
	Rotate	•
	Process	Þ
	Filter	•
	Sort	Þ
Ъ	Hide Annotation	
	Indication	•
	Line	•
	Text	•
	Basic	•
	Shutter	•
	Common Angle	•
	Difference	•
	Spine	•
	Knee	•
	Hip	•
	Foot	•
	Special	•
	Hip	•
	Heart	•
	Dynamic Stabilization Procedures	×
	Implants	
	Fragment Tools	•
	Calibration	Þ
	Edit Patient	
	Send Email	
	Save As	×
	Copy DICOM	

• 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.



**P** 

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

• Key images can be distinguished from other images by displaying an icon (

## 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.



- 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.

# VIEWOLKS

Send Email		×
SMTP Server	Gmail (smtp.gmail.com:587) 🗸 🗸	
From	admin <vieworks@gmail.com>;</vieworks@gmail.com>	
То		
Cc		
Subject		
Attached	1000000.dcm	
Content		
>> Options	Send Close	



• 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.

- **P**
- 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.







### To and Cc Input with Address Book



### Deletion of To and Cc



### **Address Book**

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



Item	Description				
	• Displays user corresponding to User level in the list.				
User level	• The user level of logged-in user is selected as default. =				
	<ul> <li>When selecting '*', all users are included in the list.</li> </ul>				
Coards Boy	• You can search user or group included in the list.				
Search Box	<ul> <li>Press Enter or click search button for further process.</li> </ul>				
Search Button	• Searches users with the condition you entered in the search box.				
Clear Button	Initiates the previous search condition and list.				
	Displayes users selected from the User level.				
List	• 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.

Export Type	DICOM File (*.dcm)
Burn Image Info	No
Anonymize Information	No
Burn Annotation	No
Apply Changed W/L	No
Include Report	No
Burn Scale Bar	No
Compression	No
Transfer Syntax	Keep Transfer Syntax

# **Email Option**

ltem	Description	
	• DCM	
	• BMP	
	• JPEG	
Export Type	• TIF	
	• RAW	
	• PNG	
Burn Image Info	Burns Information of patient and test to picture element.	

# VIEWOLKS

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**.

BMP, JPEG, TIF, PNG - Anonymize Information, Transfer Systax

• DCM - Burn Image Info., Burn Scale Bar



- 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.

D	ICOM Service Queue									>
	Send	Print	En	nail						
	Task List		Alias	5		CUR_USER_SMTP(Defau	ult) 🔨	Date Time	Message	
	Kashi Phantom= = カシ	ファントム	Host	t Name		smtp.gmail.com		2022-11-22 (AM 11:0	Conversion Suc	C
	Kashi Phantom= = カシ	ファントム	Port			587		2022-11-22 (AM 11:0	Sending Email.	
			Expo	ort Type		JPEG Format (*.jpg)		2022-11-22 (AM 11:0 2022-11-22 (AM 11:1	Conversion Succee	с С
			Burn	n Image Info		Yes		2022-11-22 (AM 11:1	Sending Email.	
			Ano	nymize Informa	nation	No		2022-11-22 (AM 11:1	Sending Succee	c
			Burn	Annotation		Yes				
			App	ly Changed W/	V/L	Yes				
			Inclu	ude Report		No				
			Burn	n Scale Bar		No				
			Com	pression		No				
			Tran	sfer Syntax		Keep Transfer Syntax				
			From	n		vieworks@vieworks.com	~			
			Status	Subject	R	lequested Date Time				
			Done	test2	2	2022-11-22 (AM 11:11				
								<	>	
	Delete					Retry All			Clear Log	
	<b>State</b>					interior of the second s				

# 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.

Choose commands from:						
Viewer Tabs	~					
+ Stitch + Select	^		+ Viewer Custom Tab (Cu	stom)		
	_		Hide Anr	notation		
			Select Selector			
Annotation + Common			Hide Anr + Annotation	notation		
Select     Calibration			Heasurement			
+ Indication + Line Text						
+ Basic + Shutter		Add >>				
<ul> <li>Measurement</li> <li>Common</li> </ul>		<< Remove				
Select Selector Delete						
Hide Annotation Calibration						
Line Circle						
Common Angle     Difference     Ruler						
F Spine	~		New Tab	New Group	Rename	

#### **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.

Copy DICOM

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.

		×
Create info	Creator> service, 2022-11-22 (PM 01:51:25)	
Last modify info	Modifier> service, 2022-11-22 (PM 01:51:25)	
Reason	For Patient	$\sim$
Description	Vieworks	$\sim$
		$\sim$
Delete	OK Cancel	

ltem	Description			
Create info	Displays the created information.			
Create into	<ul> <li>User ID and creation date are indicated.</li> </ul>			
Last modify info	<ul> <li>Displays the latest modified information.</li> </ul>			
Last modify into	<ul> <li>User ID and modification date are indicated.</li> </ul>			
Reason	Displays the reason for addition of Key Image Note.			
Description	Includes detailed content.			
ОК	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.

Not saved yet		
Create info	Creator> admin, 1899-12-30 (AM 12:00:00)	
Last modify info	Modifier> admin, 1899-12-30 (AM 12:00:00)	
Reason	Of Interest	~

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

# VIEWOLKS

# 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
Ъ	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.
  - <sup>a</sup> Delete All Annotations / Delete Selected Annotation(s)



# 5.2.2 Hide Annotation

Button	Description
Έ	Shows or hides annotations on the image.



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

# 5.2.3 Calibration

Button	Description
<b>G</b> I	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 menus 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.

Line Thickness	2	
ine Color	255,255,255	
Creator	service	
Date	2017-04-14	
Time	11:32:06	

## 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





- 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.



# VIEWOLKS

### 5.2.8 Guide Functionality

mage	Function
	Click the

Click the Guide icon in the status bar to activate the Guide feature.

### • Example (High Tibial Osteotomy)



• A detailed description of the measurement functions can be found in the Guide function.



• When you measure the image, use this function by clicking mouse points on the image according to the order of markers.

• The blinking red dot in the image above is a marker that used as a guide.

• 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	
	Removes the selected annotation.	
Delete	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

<b>(</b>	<ul> <li>The range of maximum tolerance for angle measurement is ±0.5°.</li> <li>The range of maximum tolerance for length measurement is ±0.5mm.</li> </ul>
<b>(</b>	<ul> <li>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'.</li> <li>If there is no Pixel Spacing value, you can use the calibration function to correct the length information.</li> </ul>
	<ul> <li>Refer to &lt;5.2.8 Guide Functionality&gt; for the detailed information about each measurement tool.</li> </ul>

# 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

<b>E</b>	<ul> <li>The range of maximum tolerance for angle measurement is ±0.5°.</li> <li>The range of maximum tolerance for length measurement is ±0.5mm.</li> </ul>
<b>(</b>	<ul> <li>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'.</li> <li>If there is no Pixel Spacing value, you can use the calibration function to correct the length information.</li> </ul>
	<ul> <li>Refer to &lt;5.2.8 Guide Functionality&gt; for the detailed information about each measurement tool.</li> </ul>

# 8. Report

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

Report Report Builder

# VIEWOLKS

# 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)

Image: Marging Control and Control	eport - 2011-016-07 (AM 102656), DEMO, DR	- 🖻 ×
	Hotey	4 °
No reading control No reading control No conductions No conductions	2.650 (#M62111)-# + (1)	
We reading control [         Image: Second control [		
Y 1 conductor contet.         3	s reading content	
Versee Re is conduction context. 3		
NY is conductor correct.		
en en exelución center. €		
in is conclusion context. €		
Ni is canduion contest. 3		
execute It is concluion context. ③		
is is conclusion context. 3		
N' is conducion context.		
No is canducion content.		
is is conclusion context.		
Prince It is conclusion content. 3 € Content model Content m		
ik is condution content.		
	- Augan	
	is conclusion content.	
() Credit House		
(а) Ставит миня		
() Credit's House		
() Girld i Huike		
(a) Onlars struct		
(а) Ставит миня		
Ceda: rinka		
i i i i i i i i i i i i i i i i i i i		
	dar senice	

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

Report - 26.09.2011 (1515:37:32), DE	MO, DEMO, DX
Home History	0 <sup>4</sup>
30.09.2019 (1616:05:36) - serv 👻 🚺	
30.09.2019 (1616:05:36) - service	
30.09.2019 (1616:05:04) - service	
30.09.2019 (1515:45:39) - service	
Sample of reading	
(2)	
Conclusion	
Sample of conclusion	
0	
Creator : service	

No.	ltem	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.

Font Information		
Font Name	Segoe UI	
Font Size	10	



- 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
B	Saves the report being written currently. You can modify and save the existing contents of report. The past contents can be checked in the <b>History</b> 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
$\blacksquare$	An authorized user finally confirms the approved report.

## 8.1.6 Report Template



No.	ltem	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.

S

# 8.1.7 Print

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

heral	
Select Printer	
ConeNote 2013	
SINDOH D410 Series PCL	
<	>
Status: Ready	Preferences
Location:	Treferences
Comment:	Find Printer
Page Pages	
	Number of engines 1
Selection Current Page	Number of copies.
O Pages:	Collate

# 8.1.8 Quick Print

Button	Description
<b>B</b>	Prints out a report with a printer defined as a default one.

# 8.1.9 Print Review

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

nt Zo	pom T		L	ayouts			Close	
		Med	dical Rep	ort				
Registration No. : Registration Date :			Patient	D : 9345				
Patient Address	Data Field (Patient's Address)							
Patient Name	John Doe-Skull	Sex	F	Date of Birth	1941-07-23		Age 70Y	
Reading	Sample reading							
						~		
							A	
						-	Ell'an	
						102	0	
				Rep	ort date 2017-0	04-17		
Date of outbreak								
Date of outbreak Conclusion	Sample conclusion							
Date of outbreak Conclusion	Sample conclusion							
Date of outbreak	Sample conclusion							
Date of outbreak	Sample conclusion							
Date of outbreak	Sample conclusion							
Date of outbreak	Sample conclusion							
Date of outbreak	Sample conclusion							

#### 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 (b) displayed on the image by holding down the left mouse button and dragging the image.





#### 3 Check the attached image.

egistration No. : egistration Date	: Patient ID : 11494
itient Address	Data Field (Patient's Address)
itient Name	John Doe-CSpine Sex M Date of Birth 1971-04-17 Age 44Y
ate of outbrest	Penot date 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
C1	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.

Export			
Patl	h	C:\Users\T3500\Desktop\ExportTest	
Log	io Image Path(optional)		
		Export	Close

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
ж	Cut	Cuts out a selected area and store it in the clipboard temporarily.
F	Сору	Copies a selected area and store it in the clipboard temporarily.
Ē	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						
ÅA	Grow font	Increases the text size.						
AÅ	Shrink font	Decreases the text size.						
$\diamond$	Clear formatting	Clears every format of the selected area and leaves the plain texts only.						
B	Bold	Indicates the selected text in bold style.						
I	Italic	Indicates the selected text in Italic style.						
$\underline{\mathbf{U}}$	Underline	Draws a line under the selected text.						
<del>5</del>	Strikethrough	Draws a line through the middle of selected text.						
<b>X</b> 2	Subscript	Creates a small letter below the baseline of text.						
X²	Superscript	Creates a small letter above the line of text.						
		• Changes the first character of the selected text to uppercase.						
A		• Changes the selected text to lowercase.						
Aa	Change case	<ul> <li>Changes the selected text to uppercase.</li> </ul>						
<b>—</b>		<ul> <li>Capitalizes each word of the selected text.</li> </ul>						
		<ul> <li>Toggles between the uppercase and lowercase.</li> </ul>						
A	Text highlight color	Applies a specific color to mark the text or change the background color.						
<u>A</u>	Font color	Changes the text color.						

# 8.1.14 Paragraph

Button	Name	Description
I	Decrease indent	Decreases the indent level of the paragraph.
Ш	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.
	luctific.	Aligns the text to both the left and right margins, adds extra space
	Justity	between words as necessary.

# VIEWOLKS

# 8.2 Report Builder

# 8.2.1 Composition of Report Builder

Qv	Rep Home	ort Buil	der																												े र
	New	Oper	Save	Su	imman	У	Paste	e Clipb	Ж Сі ∏ Со Х Di юard		9	Selec	t	τ ⁄ι Οι	ext ine Ilipse Drav	•	] Rec ] Pict	tangl ure	e	0 5 1 51	Grid Gnap f Margi Now/P	to Gri ns Hide	d								
		1	2	3	4	•	5	6		7	8	•	9		10	11	•	12	13	•	14	15	· 1	6	17	18	•	19	20	2	1 ·
· 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9 · 9 · 10 · 11												Image: Sector	Image: Section of the sectio					Image: Sector					Image: Sector								~
ŀ																															~
		(3																						4	100%		) —			- (	Ð.:

No.	ltem	
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.
B	Save Layout	Saves the currently edited layout to the external file.
E.	Save As	Saves a layout as a different name.
E.	Save As Default	Specifies a layout as a default one.



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

# 8.2.3 Report Summary

Button	Name	Description
R.	Poport Summon	Inputs summary information of the current report layout such
<b>_0</b>	Report Summary	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.
F	Сору	Copies the selected part and store it in the clipboard temporarily.
$\times$	Delete	Deletes the selected object.
Ê	Paste	Pastes the contents in the clipboard to a desired location.

### 8.2.5 Inserting Text

Button	Name	Description
Т	Text	Adds text to the report to print out. You can input the text directly
1		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.

Text Property	×							
Name :	A T							
name	Find Clear							
Tag	Attribute							
(0010,0010)	Patient's Name							
(0010,1001)	Other Patient Names							
(0008,0080)	Institution Name							
(0008,0090)	Referring Physician's Name							
(0008,1050)	Performing Physician's Name							
(0008,1070)	Operators' Name							
(0008,1040)	Institutional Department Name							
Patient's Name Delete								
	OK Cancel							



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.
$\bigcirc$	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.





6 Select the **User Defined file** checkbox and click



button, then select an image file to insert.



Q	Re		t Bu	iilde	r																																								_	٦	ים ק	Υ.Υ
	New		لم م	] en La	Sav yout	ve t	Su	mm	) ary		Pas	te CI	lipt	ж Г Х	Cu Co De rd	t py lete	2	۲ se	elec	.t	ך ~ ~	Ω ΓLi ⊃EI	ext ne Ilips Dra	[ [ ;e W		Rec Pict	tanı ure	gle			Gri Sna Ma Sho	d ap f irgi w/i	to G ns Hide	irid													,	-
_		•	1	·	2	•	3	• •	ł	•	5	·	6	•	1	?	•	8	÷	9	•	1	<u>0</u>	• •	11	·	12	÷	13	•	1	ŧ	1	5	•	16	•	17	·	18	•	1	9	• 2	0	•	21	÷
- 1	2 -														N	am	e : [	Data	a Fi	eld	(Pa	atie	nt's	Na	me)																							^
																																															l	
															`	V	IC	N.	VC	רכ	Ъ	S	Ima	igin	g Ex	per	t																				I	
																																															l	
. 8																																																
1	0																																															
1																																																
1	2																																															
1	4																																															
																																					10	0%		•	_	-				- (	Ð	

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 userdefined file.

# VIEWOLKS

#### 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 gird. The grid is not showed when printing out the report.						
	When you move or resize an object, it will align or snap to the nearest						
Snap to Grid	intersection of lines in the grid. This is useful when you align objects						
	including the layout.						
Chaur / Llida Marrin	Shows or hides margin guidelines of the paper to be printed out. The						
Show / Hide Margin	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
B	Bold	Indicates the selected text in bold style.
I	Italic	Indicates the selected text in Italic style.
$\underline{\mathbf{U}}$	Underline	Draws a line under the selected text.
5	Strikethrough	Draws a line through the middle of selected text.
<u>A</u>	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.

💀 Repo	Drawing Tools		_ 🗆 ×
Home	Format		ڻ ا
Segoe UI <b>B</b> I	•10 ⊻-8-A•≣≣≣	Control Color •	
	Font & Paragraph		

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.
<u>∎</u>	Align Bottoms	Aligns the bottom edges of the objects.
+∎+	Make Same Width	Matches the width of objects as same.
<b>‡</b>	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 S	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
Margin	IS	
	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.

Repo	rt Builder Presets		
	Paper Size		^
	Paper Size	A4 (210mm x 297mm)	
	Orientation	PORTRAIT	
	Background Color	255,255,255	
	Grid		
	Show Grid	Yes	
	Snap to Grid	Yes	
	Grid Size	16	
	Grid Color	220,220,220	
	Margins		
	Show Margins	Yes	
	Left Margin (mm)	22	
	Right Margin (mm)	22	
	Top Margin (mm)	16	
	Bottom Margin (mm)	16	
	Margin Color	51,153,255	
	Options		v
		OK Cancel	

# 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> <li>Displays tools used for image manipulation.</li> </ul>
2	Print area	<ul> <li>Displays the printed area of selected image.</li> </ul>
3	Sheet Number	<ul> <li>Indicates the currently selected sheet.</li> </ul>
4	Status bar	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
٩.	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
Щ.	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
$\blacksquare$	Sheet Layout	Sets the layout for the created sheet in the Print window.

## Changing Sheet Layout (2x1)

🖽 Sheet Layou	t 🝙 l
🖽 Print Layout	1x2
Sheets	



## 9.1.4 Print Layout

Button	Name	Description
Ħ	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

Dutton	Nomo	Description
Button	Name	Description
E.	Clear All Sheets	Removes all images in the <b>Print</b> window and moves to the
		Viewer window.
	Clear Current Sheet	Removes the selected sheet from the <b>Print</b> window.
<b>₽</b> ⊗	Clear Selected Image(s)	Removes the selected image from the <b>Print</b> 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 <b>Print</b> 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.



• 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.
<b>B</b>	Print Current Sheet	Prints the image of the currently selected sheet on paper.
ß	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**

lcon	Classification
<b>—</b>	DICOM printer
	Calibrated DICOM printer
Ę.	Paper printer
ß	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	0	Х
8_5INX11IN	0	Х
10INX12IN	0	Х
10INX14IN	0	Х
11INX14IN	0	Х
11INX17IN	0	Х
14INX14IN	0	Х
14INX17IN	0	Х
24 cm × 24 cm	0	Х
24 cm × 30 cm	0	Х
A4	0	0
A3	0	0
B4	0	0
Letter	0	0
Legal	0	0
Tabloid	0	0
CUSTOM1	0	Х
CUSTOM2	0	Х

# 9.5 Adjusting Size

## 9.5.1 Full Size

Button	Name	Description
		Enlarges or reduces the selected image to fit to the current printer/film size.
ñ	Full 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
(E)	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.
  - <sup>D</sup> Page 1 (P1)



<sup>n</sup> Page 2 (P2)





- 5 The following functions cannot be used in the enlarged image divided in pages.
  - Zoom
  - □ Fit
  - Full Size
  - <sup>D</sup> CW (Clockwise)
  - CCW (Counterclockwise)
  - Mirror
  - □ Flip



## 9.5.3 Reset Full Size Pages

Button	Name	Description
B	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
<b>[</b> ]	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.

Pixel Spacing Config for Full Size Print	t	>
Default Pixel Spacing (0.01 ~ 10)	0.133000	mm/pixel
ОК	Cancel	

- 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.

## VIEWOLKS

# 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.)

# VIEWORKS



# 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**.
  - <sup>a</sup> 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  $\mathbf{X}$  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  $\bigcirc$  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
117	Auto Stitch	Stitches images using the registered parameters. Select the
L®		registered parameters according to the body parts of the images.



## 10.1.2 Create Image

Button	Name	Description
딾	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
E Contraction de la contractio	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> <li>Displays tools used for image manipulation.</li> </ul>
2	Stitch area	<ul> <li>Displays the stitched area of selected image.</li> </ul>
3	Mini-View	<ul> <li>Displays the current image on the mini view screen.</li> </ul>
4	Status bar	<ul> <li>Displays function and its status.</li> </ul>

#### 10.2.1 Mini View



No.	Name	Function
1	Window area of mini image	• Zooms in or out the image based on the ratio of the stitched
	window area of mini mage	image.
		• Drag the image in the mini view by pressing the left mouse
2	Don	button and move it to the desired direction.
2	Pdil	<ul> <li>You can move the center of the area of interest from the</li> </ul>
		window easily where a stitched image is located.

# 10.3 Setting Auto Stitch Parameter

Button	Name	Description
Ö	Configure Stitch Parameters	Adds or edits the parameters used for auto stitch. You can set appropriate values according to the body part of
~	5	the images to be stitched.

Auto Stitch Parameter Config		
Default Spine Front Narrow Step	Name	Pattern Match 4%Lap
Spine Side Narrow Step	Maximum Scanning Height (1 ~ 100%)	14
Lower Extremities (Legs) Narrov	Maximum Lateral Shift (0 ~ 200 pixel)	2
Lower Limb (Leg) Narrow Step	Overlapped Region Height (1 ~ 100%)	4
Thoracoabdominal Wide Step	Overlapped Region Width (1 ~ 100%)	75
Constant Ritch	Resampling Rate (1 ~ 30 pixel)	3
Pattern Match 4%Lap	Scanning Step (1 ~ 30 pixel)	3
Stroke Data 1%Lap	Crop Upper And Lower Area (0 ~ 40%)	1
	Stitched Plane Height (-150 ~ 150 mm)	0
< >		
New Delete		OK Cancel



• Aliases cannot be duplicated.

## 10.4 Image Manipulation

#### 10.4.1 Crop

Button	Name	Description
口	Сгор	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
$\mathcal{O}$	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
$\oplus$	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.
	• 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	
$\bigcirc$	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
$\geq$	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
t⊟	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
$\otimes$	Move Up	Moves up the selected image.
$\odot$	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
M	Manual Border	Specifies the area to be cut manually before you combine images.

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

Viewer Annotation Veterinary Measurement Stitch			- 0
Study Clear Create Create Auto o Unit Common Add Strick Strick Strick Images	Description         O 2 Joint         O 0         Image: Paint         Image: Paint	+	
•		- Calles	
		- <del></del>	
			Mini-View
			Ĩ
			00-2-0-20

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

DKLink-Viewer Viewer Annotation Weteriaary Measurement 388ch	- e ×
Image: Sector Control     Contro     Control     Control <th< th=""><th></th></th<>	
-	
	Mine View



#### 10.6.2 Auto Border

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

# 10.7 Applying Blend Effect



#### Before



#### After



# 10.8 Adjusting Position

You can change the displaying order of the stitched images. This function cannot be applied to the 1<sup>st</sup> 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 1<sup>st</sup> image cannot be moved.

Button	Name	Description
$\Diamond$	Move Pixel Upward	Moves the selected image upward by a specified pixel unit.
$\odot$	Move Pixel Downward	Moves the selected image downward by a specified pixel unit.
$\bigotimes$	Move Pixel to the Left	Moves the selected image to the left by a specified pixel unit.
$\odot$	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
G	Brighten	Brightens the selected image by a specified unit.
G	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.

Stop

# 11.1.2 Stopping Print

You can stop the DICOM printing.

Abort

## 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.



#### 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.

* 2011-1	0-07 (	10:05:13) - 243	45 - John Doe-Ell	bow			
1x1	•	All Series	- 🖸 🚺	1 of 4	Srs:1 Img:4	Ă.	

#### **Remove tools**

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

* 2011-10-07 (10:05:13) - 24345 - John Doe-Elbow				
1x1	<ul> <li>All Series</li> </ul>	🔹 💽 1 of	4 Srs:1 Img:4	
				Remove from Study loolbar

5 Check if the tools are removed successfully.



#### 11.2.3 Viewer Access Toolbar

#### Add tools

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



5 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**.

Viewer	Annotation	Veterinary Measurement				
Study List	Add to P	PORTRAIT				
	C Minimize non P	e the Ribbon Tint Format				

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.

r i	<u> </u>
M	Remove from Stitch Access Toolbar
	Minimize the Ribbon

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.

QXLink V	ïewer										
Viewer	Anno	otation	Measurement								
☐ Exit	Study List	Save	Selector	Telete	Hide Annotation	<b>↓</b> Line	Circle	↓ ■ Point	Center Point	Line	 Extended Line
	Common					Calib					
11	1 + 4	Ŧ									

## 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.



#### 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
F2 —	Viewer window	Moves to the Viewer window
F3		Opens the Report window
Esc		Cancels the current task being processed.
		Deletes the selected annotation
Delete		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		Enlarge or reduce the image 10% or 1% (adjusted with
(with shift key)		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	Drint window	Copies the image
Ctrl + V	Fint window	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	0	0	0	0
Circle Calibration	0	0	0	0
Point	0	0	0	0
Center Point	0	0	0	0
Line	0	0	0	0
Horizontal Line	0	0	0	0
Vertical Line	0	0	0	0
Extended Line	0	0	0	0
Grid Line	0	0	0	0
Text	0	0	0	0
Mark	0	0	0	0
Arrow	0	0	0	0
Free Line	0	0	0	0
Curve Line	0	0	0	0
Rectangle	0	0	0	0
Ellipse	0	0	0	0
Circle	0	0	0	0
Rectangle Shutter	0	0	0	0
Ellipse Shutter	0	0	0	0
Polygon Shutter	0	0	0	0
Free Draw Shutter	0	0	0	0
Angle	0	0	0	0
Horizontal Orthogonal	0	0	0	Х
Vertical Orthogonal	0	0	0	Х
Cross Angle	0	0	0	0
Cross with 3 lines	0	0	0	Х
Cross with 5 lines	0	0	0	Х
Cross with unlimited	0	0	0	Х
Axis Angle	0	0	0	0
Axis with 3 Lines	0	0	0	Х
Axis with 5 Lines	0	0	0	Х
Middle Angle	0	0	0	0
Distance	0	0	0	0
Extended Distance	0	0	0	Х
Vertical Discrepancy	0	0	0	0

# VIEWOLKS

Horizontal Level	0	0	Х	Х
Vertical Level	0	0	Х	Х
Ratio	0	0	Х	Х
4 Points Ratio	0	0	Х	Х
3 Points Ratio	0	0	Х	Х
CT Ratio	0	0	Х	Х
Gonstead Ruler	0	0	Х	Х
Spine Analysis	0	0	Х	Х
Cobb Angle	0	0	Х	0
Cobb with 3 lines	0	0	Х	0
Cobb with 5 lines	0	0	Х	0
Cobb with 8 lines	0	0	Х	0
Vertebral Line	0	0	Х	Х
George's Line	0	0	Х	Х
George's Line with Label	0	0	Х	Х
Cervical Curve	0	0	Х	Х
Lumbar Curve	0	0	Х	Х
Spine Label	0	0	Х	Х
Sagittal Spine Alignment	0	0	Х	Х
Pelvic Parameters	0	0	Х	Х
Spondylolisthesis	0	0	Х	Х
High Tibial Osteotomy	Х	0	Х	Х
Meta-diaphyseal Angle	Х	0	Х	Х
Pelvis Analysis	0	0	Х	Х
Leg Length Discrepancy	Х	0	Х	Х
Acetabular Angle	Х	0	Х	Х
lliac Angle	Х	0	Х	Х
Center Edge Angle	Х	0	Х	Х
Femoral Symmetry	Х	0	Х	Х
Head Shaft Angle	Х	0	Х	Х
Podiatriy Analysis	Х	Х	0	Х
Intermetatarsal Angle	Х	Х	0	Х
Hallux Valgus Angle	Х	Х	0	Х
Hallux Interphalangeus Angle	Х	Х	0	Х
Distal Articular Set Angle	Х	Х	0	Х
Proximal Articular Set Angle	Х	Х	0	Х
Proximal Metatarsal Articular Angle	Х	Х	0	Х
Tibial Sesamoid Position	Х	Х	0	x
Metatarsus Adductus Angle	Х	Х	0	Х
Anterior Distal Tibial Angle	Х	Х	0	Х
Meary's Angle	Х	Х	0	Х

# VIEWOLKS

Х	Х	0	Х	
Х	0	Х	Х	
Х	Х	Х	0	
Х	Х	Х	0	
Х	Х	Х	0	
Х	Х	Х	0	
Х	Х	Х	0	
Х	Х	Х	0	
Х	Х	Х	0	
Х	Х	Х	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
	X X X X X X X X X X X X 0 0 0 0 0	X X   X O   X X   X X   X X   X X   X X   X X   X X   X X   X X   X X   X X   Q O   O O   O O   O O   O O   O O   O O   O O   O O   O O   O O   O O   O O   O O   O O	X   X   O     X   O   X     X   X   X     X   X   X     X   X   X     X   X   X     X   X   X     X   X   X     X   X   X     X   X   X     X   X   X     X   X   X     Q   O   O     O   O   O     O   O   O     O   O   O     O   O   O     O   O   O     O   O   O     O   O   O     O   O   O     O   O   O     O   O   O	X     X     O     X       X     O     X     X       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       X     X     X     O       Q     O     O     O       Q     O     O     O       Q     O     O     O       Q     O     O     O       Q     O     O     O       Q     O



## 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** 

EC REP

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