

QXLink Viewer

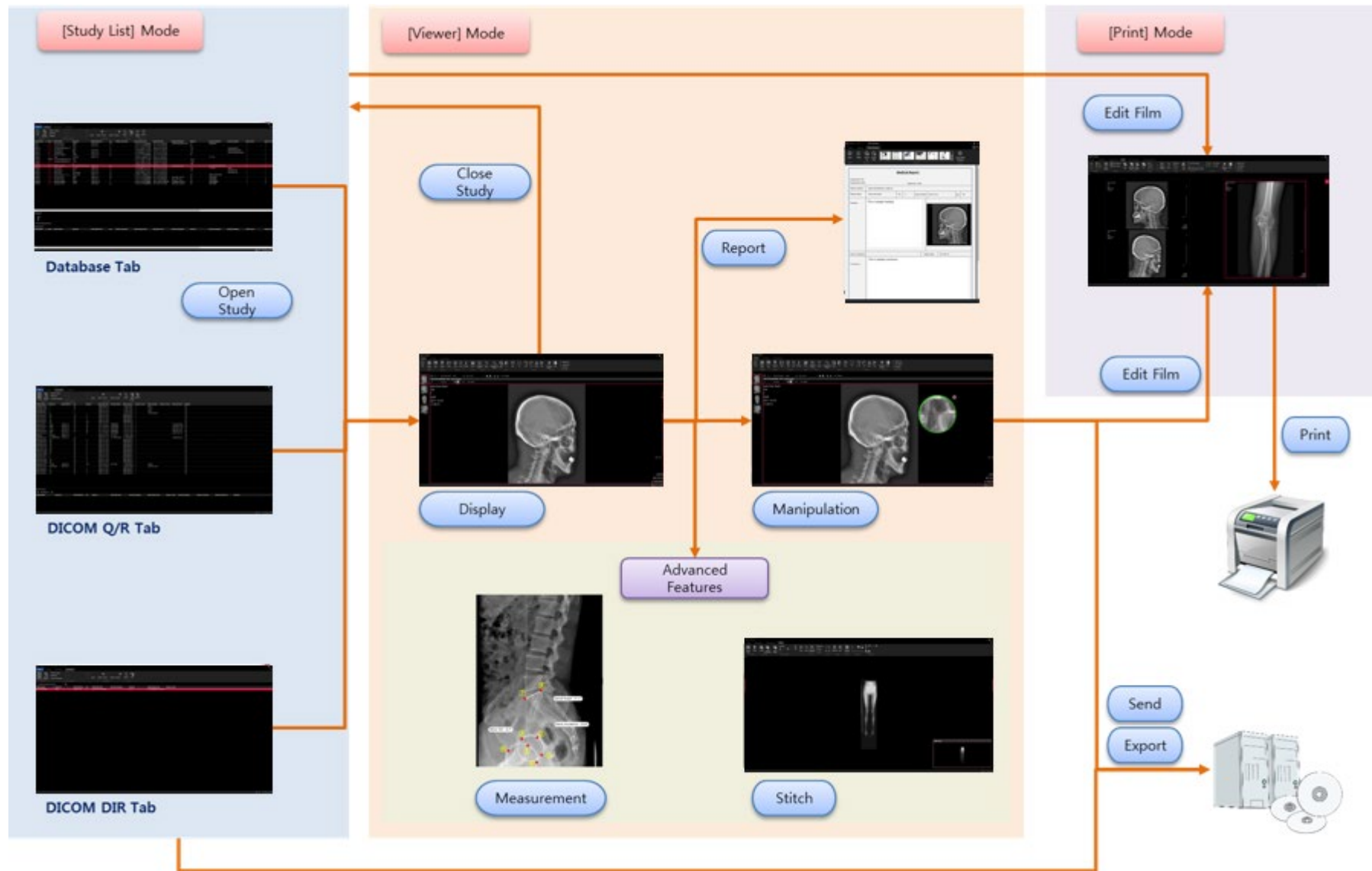
Quick Start Guide

QXLink is a PACS program that provides functions related to the acceptance, transmission, display, storage, printing and digital processing of medical images. It consists of a server and a viewer.

Through the QXLink viewer, users can view or manipulate images stored on the server, or generate reports.

It also provides specialized functions such as measurement and stitching.

1. WORKFLOW



2. HOW TO USE QXLINK VIEWER

2.1 STEP 1. LOGIN

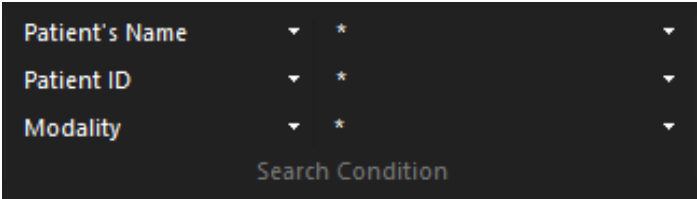
- 1 Choose a QXLink Server.
- 2 Log in by entering the user ID and password registered in the QXLink Server.



The image shows the QXLink login interface. At the top, the logo "QXLink" is displayed in a large, light-colored font, with the tagline "Connecting the advanced image." underneath it. Below the logo, there are three input fields: "Login Server" with a dropdown menu showing "Default", "User ID" with the text "service" entered, and "Password" which is currently empty. At the bottom of the form, there are three buttons: "Exit", "Change PW", and "Login". The "Login" button is highlighted with a dark background.


2.2 STEP 2 SEARCHING STUDY LIST

In the Study List window, you can search the corresponding study list by combining search conditions.

Image	Search Condition
	<ul style="list-style-type: none">• Study Status• Verification• Patient Name, Patient ID• Patient Birth Date, Patient Sex, Patient Comments• Referring Physician• Study ID, Accession Number, Study Description• Modality, Body Parts, Operators• Institution, Source AE Title

SEARCHING STUDIES STORED ON THE LOGGED-IN SERVER FROM THE DATABASE TAB


- Retrieves a study stored in the database of the logged-in server.

1 Enter or select a search condition and click the Search  button.

2 The search results are displayed in the search result list.


SEARCHING ON THE DICOM Q/R TAB

- You can query or search the DICOM server that supports the DICOM Q/R service.

- 1 Enter or select a search condition and click the Search  button.
- 2 The search results are displayed in the search result list.

SEARCHING ON THE DICOM DIR TAB

- It displays the inspection information of DICOM directory (DICOMDIR).

- 1 After inserting local drive or CD/DVD or USB drive, select the specific folder where DICOM DIR exists.
- 2 Enter or select a search condition and click the Search  button.
- 3 The search results are displayed in the search result list.


2.3 STEP 4 HOW TO OPEN STUDY

- The studies can be opened in study unit or image unit.


The screenshot displays a software interface for managing medical studies. At the top, there are tabs for 'Database', 'DICOM Q/R', and 'DICOM DIR'. Below these are search and filter options, including 'Patient's Name', 'Patient ID', 'Modality', and 'Study Date'. A table lists several studies with columns for 'Study Status', 'Verify...', 'Patient Name', 'Patient ID', 'Patient Birth Date', 'Sex', 'Patient Comments', 'Study Instance UID', 'Study Date Time', 'Referring Physician', 'Study ID', 'Accession Number', 'Study Description', 'Series Count', and 'Instance Co...'. The third row is highlighted in red. Below the table is a 'Thumbnail' gallery showing five hand images, with the third image selected. Below the thumbnails is a 'Custom Hanging Protocol' section and a 'Post Study List' table with the same columns as the main table.

Study Status	Verify...	Patient Name	Patient ID	Patient Birth Date	Sex	Patient Comments	Study Instance UID	Study Date Time	Referring Physician	Study ID	Accession Number	Study Description	Series Count	Instance Co...
Unread	Unve...	John Doe-Skull	9345	1941-07-23	F		1.3.6.1.4.1.19179.90000000...	2011-10-07 (09:59:04)	Skull / AP / Lat	91	2079730003		1	4
Unread	Unve...	John Doe-Knee	30520	1957-03-13	M		1.3.6.1.4.1.19179.90000000...	2011-10-07 (10:09:50)	(Rt) Knee / AP, Lat	62	2080020001		1	3
Unread	Unve...	John Doe-CSpine	11494	1971-04-17	M		1.3.6.1.4.1.19179.90000000...	2011-10-07 (10:20:58)		65			1	2
Unread	Unve...	John Doe-Hand	17719	1967-09-09	M		1.3.6.1.4.1.19179.90000000...	2011-10-07 (15:17:00)	(Rt) Hand / Obj, AP	85	2081730001		1	5


OPENING STUDY IN STUDY UNIT

- 1 Select the desired study from the result list.
- 2 Click the **View**  button.

OPENING STUDY IN IMAGE UNIT

- 1 Select the desired study from the thumbnail list.
- 1 Click the **View**  button.

2.4 STEP 5 MANIPULATING STUDY AND SAVING THE STATE


- You can manipulate the open studies and save their state.
- 1 Select the desired image.
 - 2 Select the desired functions from ribbon tools (Annotation, Window Level, Zoom, Pan, Image Layout, etc.) to manipulate the image.
 - 3 Click the **Save**  button to save the status of the image.




2.5 WRITING A REPORT

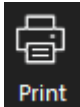
You can create an inspection report and print the created report in a user-defined format. You can also print the image of the study or an external reference file attached to it.

1 Select the desired study from the study list to open it.

2 Click the **Report**  button in the Viewer window.


3 Use the Report tool to enter the Reading and the Conclusion.


4 Click the **Save**  button to save the reading and results.

5 Click the **Print**  button to print the report.

2.6 STEP 7 ENDING STUDY INQUIRY

1 To close the selected study, click  button in the upper right corner of the study viewer.

2 Click  button on the study toolbar to close all studies currently opened on the viewer.

3 Click the Study List  button to switch the window to the study list one.

3. QXLINK VIEWER WINDOW

3.1 STUDY LIST

DATABASE

The screenshot displays the QXLINK viewer interface. At the top, there is a menu bar with options like 'Database', 'DICOM Q/R', and 'DICOM DIR'. Below the menu is a toolbar with icons for 'Exit', 'Viewer Window', 'Modality', 'Search', 'View', 'View with Protocol', 'DICOM Send', and 'Export'. A search bar is also present.

The main area contains a table with the following columns: Study Status, Verific..., Patient Name, Patient ID, Patient Birth Date, Sex, Patient Comments, Study Instance UID, Study Date Time, Referring Physician, Study ID, Accession Number, Study Description, Series Count, and Instance Co... The table lists various studies for 'John Doe-Hand' and other patients.

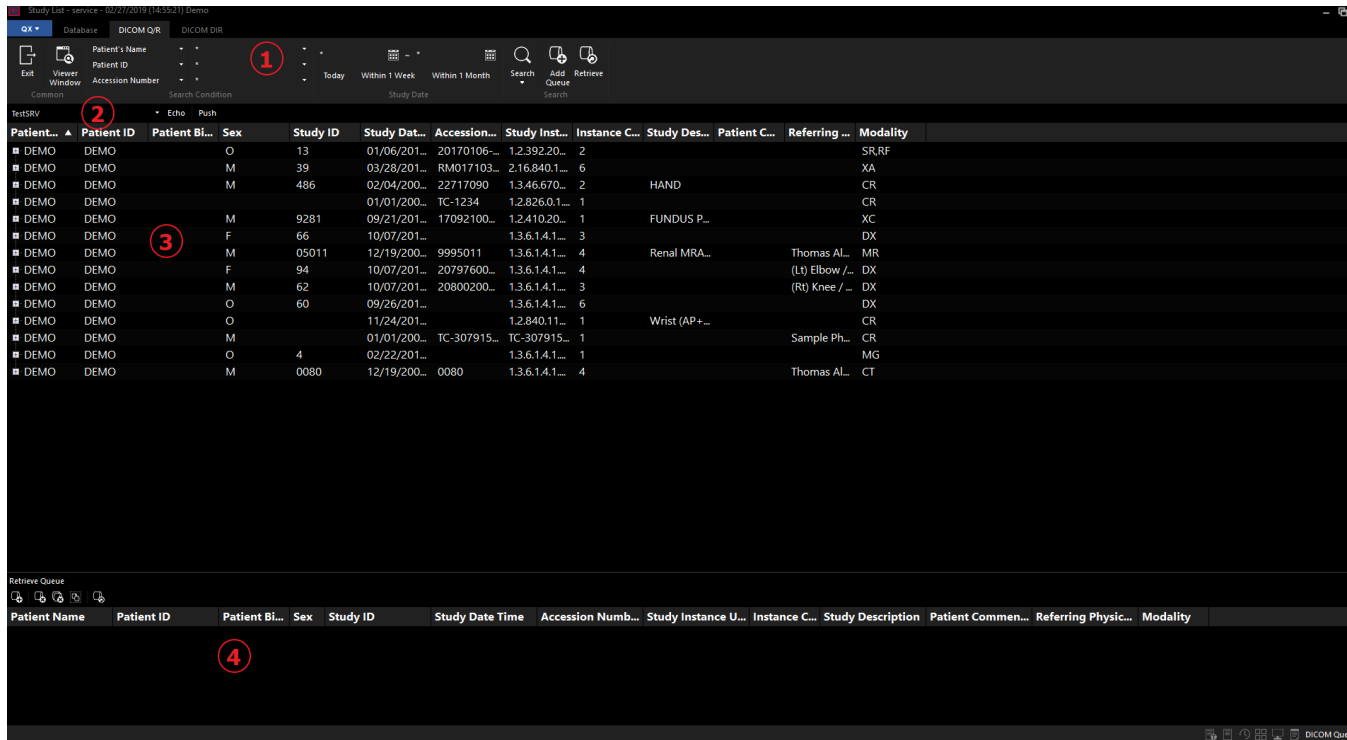
Below the table, there is a 'Thumbnail' section showing hand images. A 'Custom Hanging Protocol' section includes a 'View' button. A 'Report' section shows 'sample reading' and 'sample conclusion'. At the bottom, there is a 'Part Study List' section showing a summary of the selected study.

Red circles highlight the following elements:

- 1: 'Today' filter button in the toolbar.
- 2: Patient ID '17719' in the table.
- 3: Thumbnail image of a hand.
- 4: 'View' button in the Custom Hanging Protocol section.
- 5: 'sample conclusion' text in the Report section.
- 6: Patient ID '17719' in the Part Study List table.
- 7: Close button in the bottom right corner.

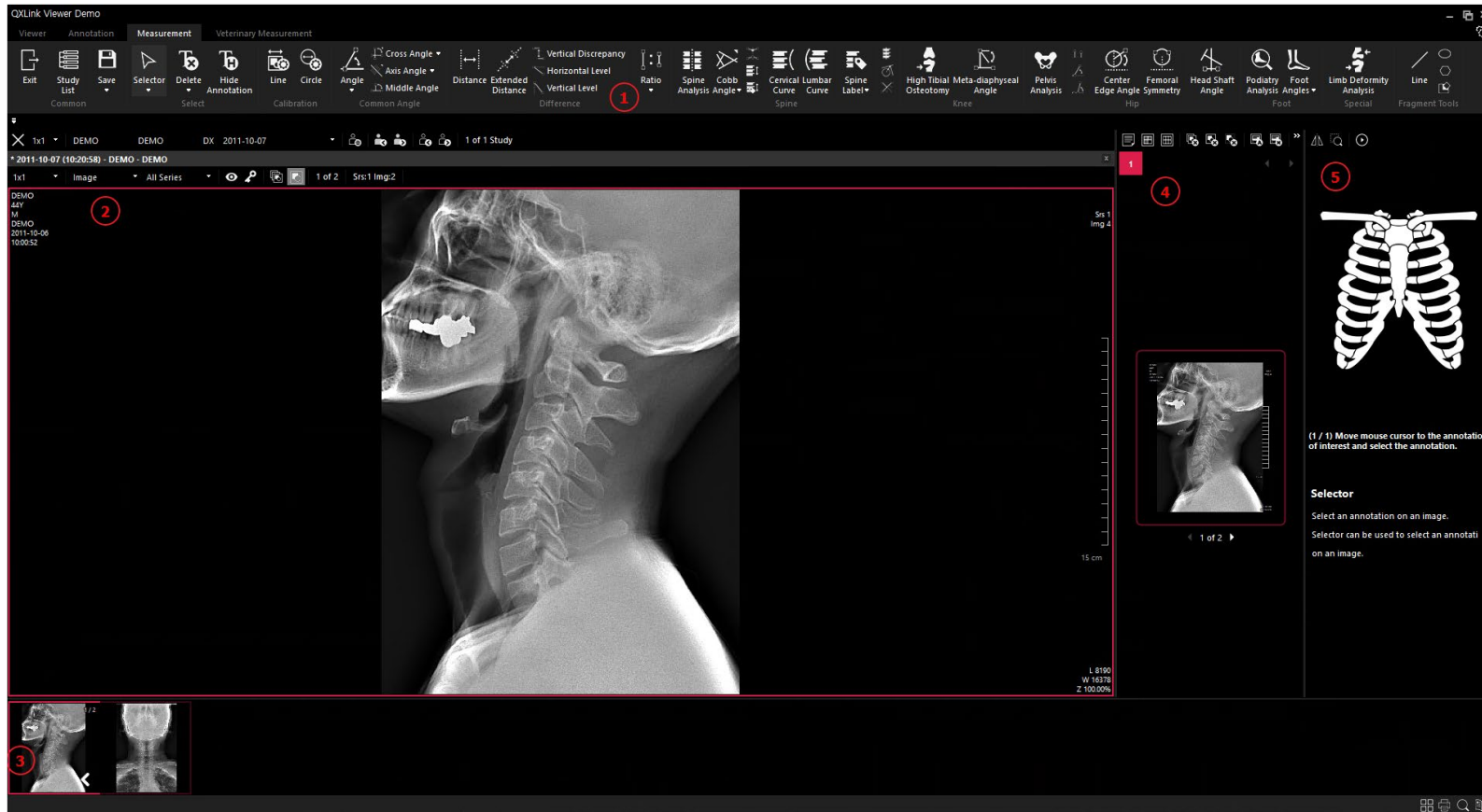
Item	Description
1	Database Ribbon toolbar
2	Study List On the Database tab, display a study list of the results that you searched for.
4	Thumbnail List Displays the image thumbnail of the selected study.
5	User-defined Screen Config. Sets the view screen configuration for the selected study.
6	Report Displays report information for the selected study
7	Past Study List Displays past study list for selected patients.
8	Status Bar Displays features and their status available in the Database tab.

DICOM DIR



Item	Description
1	DICOM Q/R Ribbon Tool bar Tools available in the DICOM Q/R tab of the Study List window
2	DICOM Q/R Server List Choose DICOM Q/R Server with functional toggle buttons.
3	Query List Displays the study list you have queried on the DICOM Q/R tab.
4	Searching Queue List Displays a list of retrieve queues.


3.2 VIEWER WINDOW



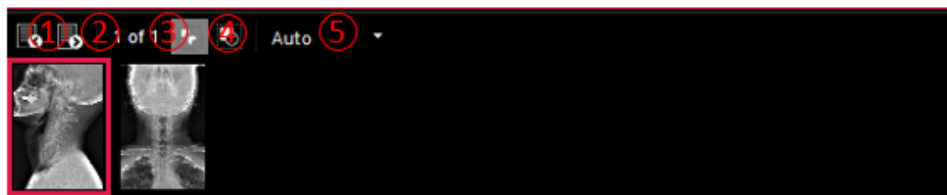
Item	Description
1	Image Manipulation Tools You can select and use the tool at the corresponding position when operating the image.
2	Study Viewer Displays the image of the selected study.

3	Thumbnail View	Displays the thumbnail image of the 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	Shows or hides the thumbnail.



• You can add an image of the study viewer to the Simple Print view by dragging the image by using the icon  displayed on the image.

THUMBNAIL



Item	Description
1	Go to the previous or next page • Displays the previous or next thumbnail image based on the current thumbnail image.
2	Page Count • Displays the page of the currently displayed thumbnail image.
3	View all Images • Displays all images.
4	View the First Image • Displays the first image.
5	Thumbnail Layout • Adjusts the layout of the thumbnail view.



- Images that are not loaded properly in the thumbnail image do not appear on the screen.

REAL SIZE



Item	Description
1	Information Bar <ul style="list-style-type: none">• Patient name, patient ID, date and time the image was created.
2	Fit Window to Screen <ul style="list-style-type: none">• Maximizes the window to the resolution of the current monitor with the mouse pointer.
3	Restore Window <ul style="list-style-type: none">• Returns to the window size of the study viewer.
4	Go to the previous or next image <ul style="list-style-type: none">• Displays the previous or next image based on the current image.
5	Selector <ul style="list-style-type: none">• The default mouse pointer state. Double-clicking in the image will switch to the normal viewer screen.
6	Pan <ul style="list-style-type: none">• You can move the image to the desired position within the window.
7	Close the real size window <ul style="list-style-type: none">• Closes the entire Real Size window.



- Double-click the left mouse button to display the Real Size window. Refer to the **QXLink Service Manual** for details on these options.

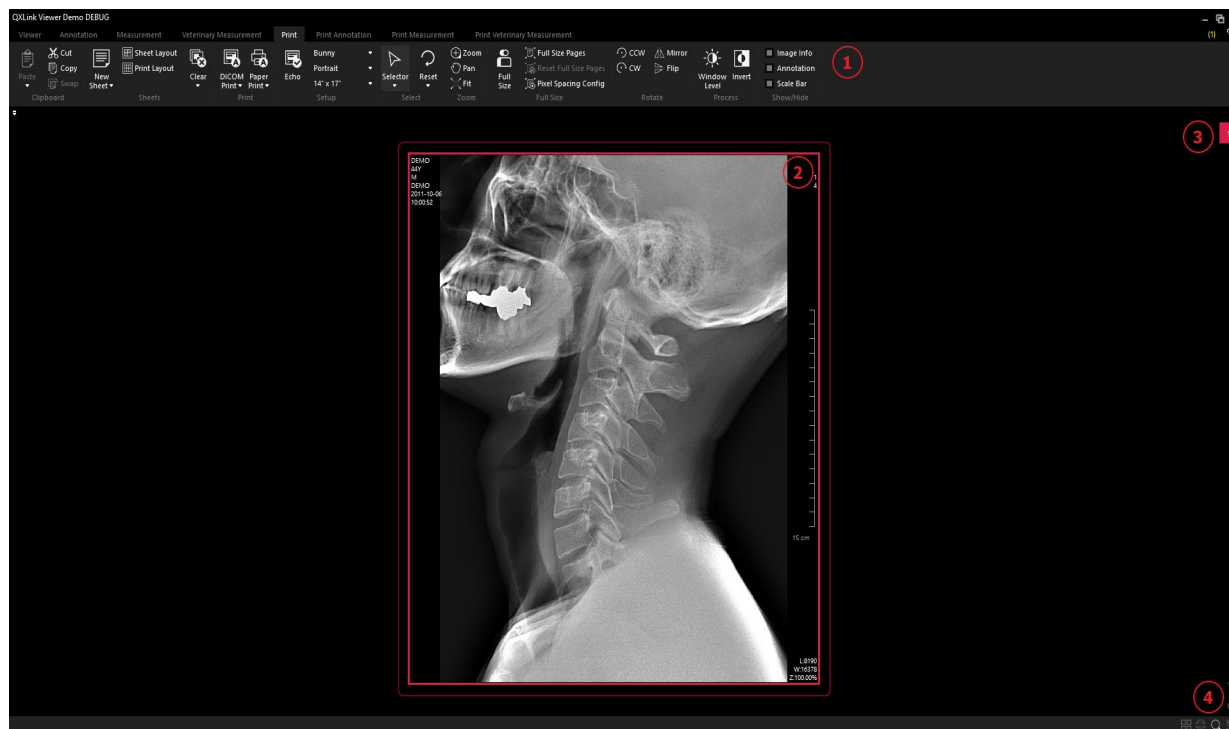
STUDY VIEWER



Item	Description
1	Close all Open Studies <ul style="list-style-type: none"> Closes all open studies.
2	Study Layout <ul style="list-style-type: none"> Changes the study layout to a maximum of 4 rows and 4 column layouts.
3	Open Study List <ul style="list-style-type: none"> List of currently open studies.
4	View previous study <ul style="list-style-type: none"> You can view the checklist corresponding to the patient ID and open it in the viewer window.
5	Open previous or next Study <ul style="list-style-type: none"> Based on the current study, you can open an earlier or later one in the Viewer window.
6	Go to previous or next Study <ul style="list-style-type: none"> Moves to the previous or next study based on the one currently being activated.
7	Order Information of Current Study <ul style="list-style-type: none"> Current study order / Whole open study
8	Image Layout <ul style="list-style-type: none"> Changes the image layout of the currently active study to 10 rows and 10 column layouts (max.).
9	View mode <ul style="list-style-type: none"> Changes the way the study is displayed.
10	Series List <ul style="list-style-type: none"> List of series of current studies.
11	View selected image only <ul style="list-style-type: none"> Displays the selected image only.

		<ul style="list-style-type: none"> • Activates ony when the view mode is set to 'Image'.
12	View key image only	<ul style="list-style-type: none"> • Displays the key image only. • Activates ony when the view mode is set to 'Image'.
13	Applying effects to the current series or selected image	<ul style="list-style-type: none"> • Applies window level (W/L), zoom, move, counterclockwise, clockwise, flip, flip to all or selected images. (Default: Apply to Selected Images)
14	Image information of current study	<ul style="list-style-type: none"> • Moves to any image.
15	Series / Image information of the current study	<ul style="list-style-type: none"> • Displays the number of the currently active study series and the number of images.

3.3 PRINT WINDOW



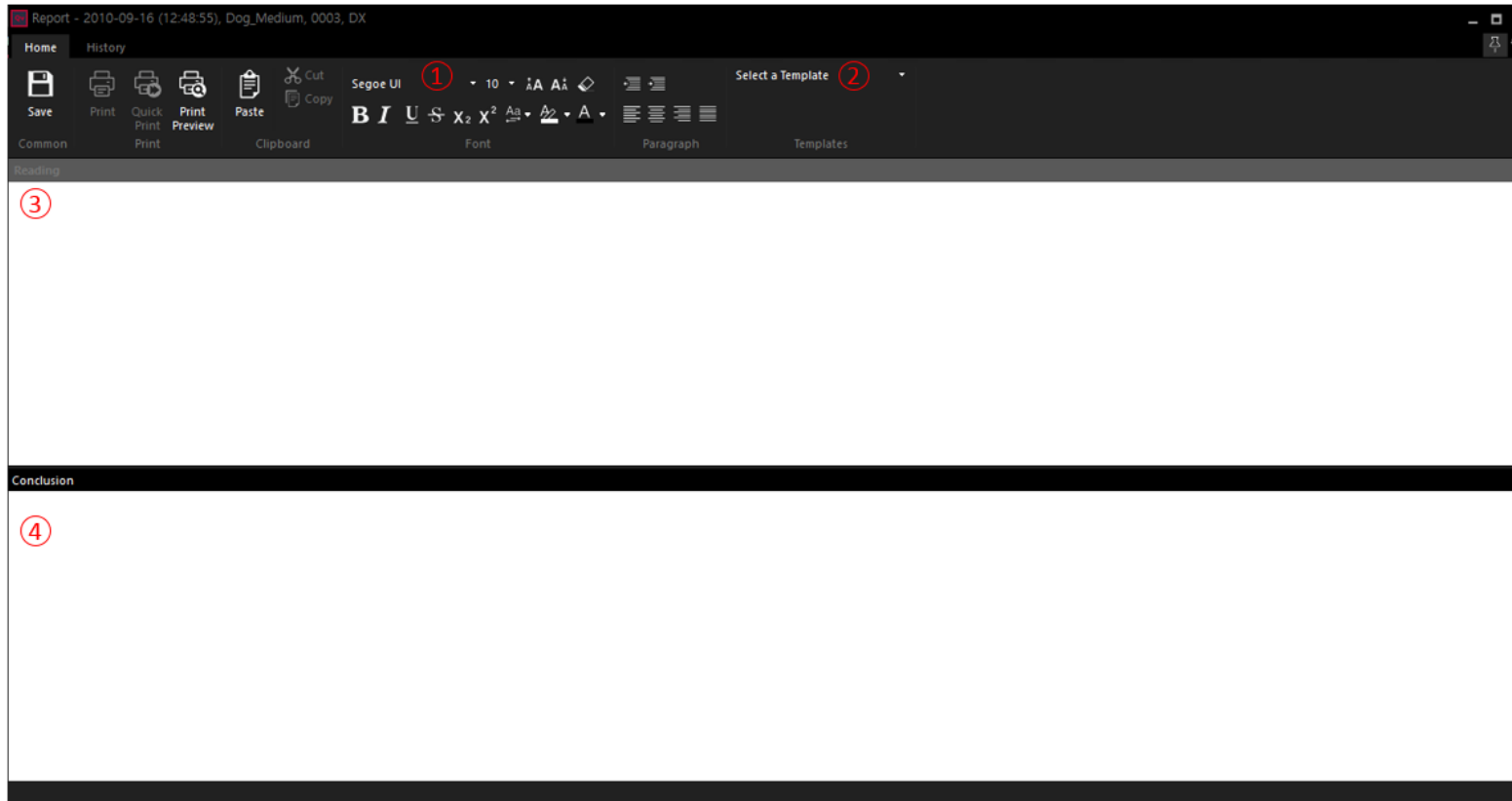
Item	Description
1	Image manipulation tool bar <ul style="list-style-type: none">• Displays necessary tools for image manipulation.
2	Printing Image Area <ul style="list-style-type: none">• Displays the image to be printed.
3	Sheet Number <ul style="list-style-type: none">• Indicates the currently selected sheet.
4	Status Bar <ul style="list-style-type: none">• Displays the status of the window.

3.4 REPORT

- You can create a study report and print the created report in a user-defined format.
- You can also print the image of the study or an external reference file attached to it.

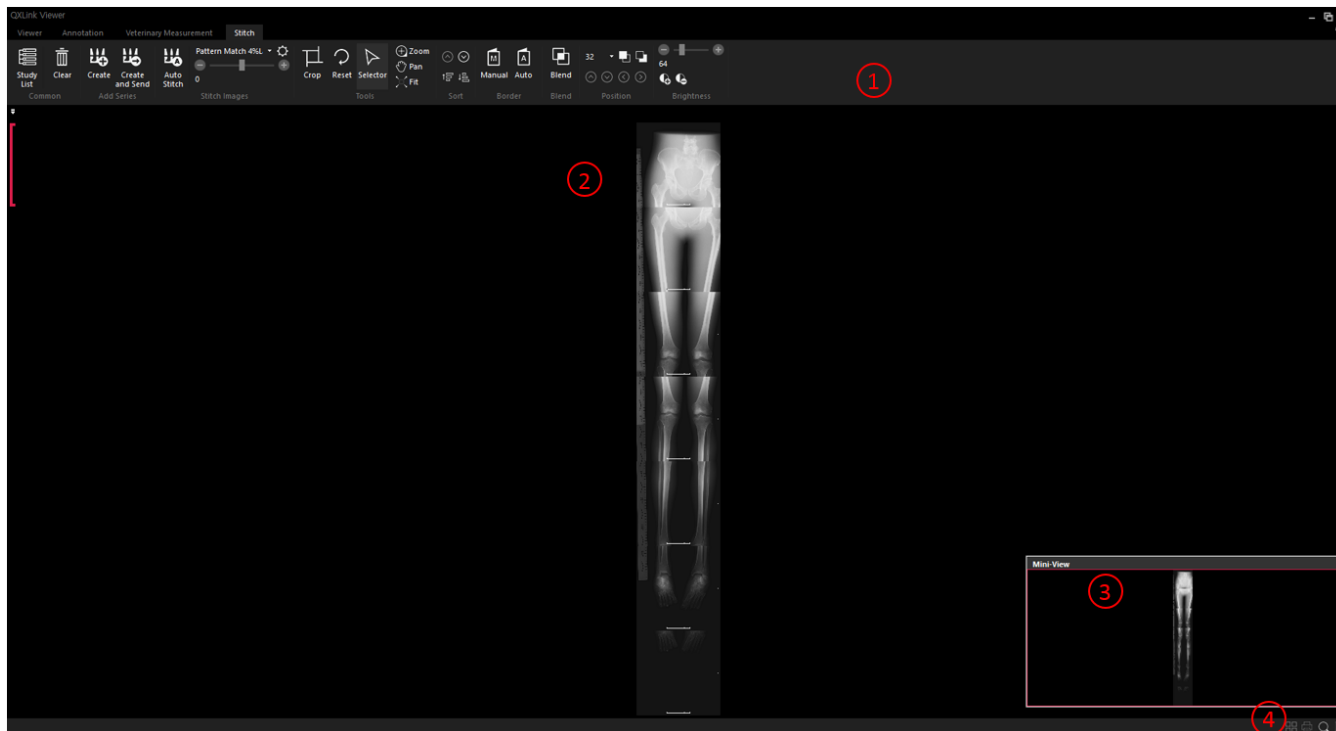
REPORT LAYOUT

HOME (VIEWER > REPORT)




	Item	Description
1	Toolbar	<ul style="list-style-type: none"> • Displays the tools needed to create reports.
2	Report Template	<ul style="list-style-type: none"> • Creates custom templates for your reports.
3	Reading	<ul style="list-style-type: none"> • Enters the reading contents. 4096 characters can be input.
4	Conclusion	<ul style="list-style-type: none"> • Enters the reading results. 4096 characters can be input.

3.5 STITCH WINDOW

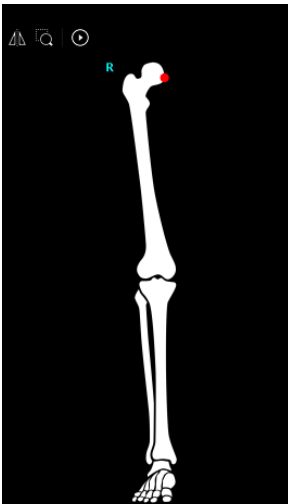


	Item	Description
1	Image manipulation tool bar	• Displays necessary tools for image manipulation.
2	Stitch image area	• Displays the entire area of the image to be stitched.
3	Mini-View	• Displays the small area of the image to be stitched.
4	Status Bar	• Displays the status of the window.

3.6 GUIDE FUNCTIONALITY

Item	Description
	Click the Guide icon in the viewer's status bar to see the measurement method and detailed description of the selected function.

EXAMPLE (HIGH TIBIAL OSTEOTOMY)



(1 / 9) Mark a first point on the outline of the femoral head.











High Tibial Osteotomy













A surgical procedure to treat a bow leg caused the deformity due to degenerative arthritis disease.













High Tibial Osteotomy measurement can be used to identify a correct surgical site of a high tibial osteotomy.








The degree of deformity in legs are measure by angle and a simulation can be performed with guide line displayed.

3.7 HUMAN MEASUREMENT TOOLS








Name	Image	Function
Angle		Measures the angle between two specified points.
Horizontal Orthogonal Angle		Measures the angle between the specified line and the horizontal line.
Horizontal Orthogonal Angle		Measures the angle between the specified line and the vertical line.
Cross Angle		<p>Measure the angle between the intersection lines. Alternatively, from the pop-up menu that appears when you click  button below the icon, you can access the following advanced features.</p> <ul style="list-style-type: none"> ▫ Cross with 3 lines, Cross with 5 lines, Cross with unlimited
Axis Angle		<p>Measures the angle between two straight lines passed center of the two sets of segments. Click  button at the bottom of the icon to use the advanced functions.</p> <ul style="list-style-type: none"> ▫ Axis with 3 Lines, Axis with 5 Lines
Middle Angle		Measures the angle between the specified line and the line connecting the arbitrary point to the center point of the line.
Distance		Measures the length between two specified points.
Extended Distance		Measures the length between two specified points.

Vertical Discrepancy		Measures the vertical height difference between two specified points.
Horizontal Level		Measures the angle and vertical length between the lines drawn at a point on the horizontal and vertical lines.
Vertical Level		Measures the angle and the horizontal length between the vertical line and the line drawn at a point on the horizontal line.
4 Points Ratio		Displays the ratio of two segments formed by taking four points.
3 Points Ratio		Displays the ratio of two segments formed by taking three points.
CT Ratio		Measures the ratio of heart to thorax width.
Spine Analysis		Specifies the area of each vertebra bone, represent the centerline between the vertebrae, and calculate the length and angle between adjacent vertebrae.
George's Line		Measures the spacing and alignment between the vertebrae.
Georges Line with Label		Spacing and alignment between vertebrae mark together with labeling of spine bones.
Vertebral Line		Draws the center line of the spine and check the degree of the spine.
Cobb Angle		Measures the Cobb Angle of the spine. Click  button below the icon to access the following advanced functions from the pop-up menu. <ul style="list-style-type: none"> ▫ Cobb with 3 Lines, Cobb with 5 Lines, Cobb with 8 Lines

Cervical Curve		Measures the angle of the cervical flexion and check the degree of the fringe.
Lumbar Curve		Measures the angle of the lumbar curve and check the degree of the fringe.
Spine Label		Labels the vertebrae bone.
Sagittal Spine Alignment Analysis		Measures the angle and length between the vertebrae across the spine to determine the alignment of the vertebrae overall.
Pelvic Parameters		Uses the femoral head and sacrum to determine the extent to which the pelvis is distorted.
Spondylolisthesis		Measures the degree of spondylolisthesis by checking the displacement of the Lumbar L5 along the sacrum S1 top surface.
High Tibial Osteotomy		Checks the surgical site in the High Tibial Osteotomy to treat O-shaped leg deformity that causes knee flexion due to degenerative arthritis.
Meta-Diaphyseal Angle		Measures the Meta-Diaphyseal angle to check for Bow leg or Tibia vara or Blount's disease.
Pelvis Analysis		For Pelvis Subluxation, the degree of dislocation is analyzed by measuring the degree of pelvic rotation around the pelvis and the amount of lateral deviation.
Leg Length Discrepancy		Finds the difference in leg length using the degree of difference between the pelvis and femur.
Acetabular Angle		Measures potential hip dysplasia (Developmental Dysplasia of the Hip).
Iliac Angle		Measures potential hip dysplasia (Developmental Dysplasia of the Hip).

Center Edge Angle		Diagnoses dysplasia of the hip by measuring the central acetabular angle using the lateral edge of the femoral head and palate (Acetabular Roof).
Femoral Symmetry		Uses the degree of difference between the pelvis and the femur to determine the difference in leg length and determine the degree of femoral head misfit.
Head Shaft Angle		Finds the angle of deflection of the femoral neck.
Podiatry Analysis		You can check the overall deformity of the foot bone at once.
Foot Angle		<p>Measures the degree of flatulence (deformation) or deformity of the big toe.</p> <ul style="list-style-type: none"> ▫ Hallux Valgus Interphalangeus Angle ▫ Hallus Valgus Angle ▫ Intermetatarsal Angle ▫ Distal Metatarsal Articular Angle ▫ Proximal Metatarsal Articular Angle
Limb Deformity Analysis		Measures the degree of deformation of the limb.
Fragment Tools		<p>The Fragment Tool is a virtual surgical tool that cuts the image of the bone into the desired shape.</p> <ul style="list-style-type: none"> ▫ Line ▫ Ellipse ▫ Polygon ▫ Free Draw

3.8 VETERINARY MEASUREMENT TOOLS

Name	Image	Function
Norberg Angle		You can diagnose dysplasia of the hips of animals (especially dogs).
Percent Coverage		You can diagnose dysplasia of an animal's hip joint.
Vertebral Heart Score		You can measure the heart size of an animal (dog or cat).
Clock Face		Anatomical information of the animal's heart can be displayed in a clockwise direction.
TT Advancement		In order to prevent rupture of the cruciate ligament of obese or obsolete dogs, you can obtain relevant information about the procedure before performing anterior cruciate ligament (TTA).
TPL Osteotomy		To prevent rupture of the cruciate ligament in obese or obese dogs, you can obtain information about whether or not to perform tibial tubal translocation surgery (TPLO).
Fragment Tools		<p>The Fragment Tool is a virtual surgical tool that cuts the image of the bone into the desired shape.</p> <ul style="list-style-type: none"> ▫ Line ▫ Ellipse ▫ Polygon ▫ Free Draw
	