

ExamVue Control Software User Manual

(For Veterinary Use)

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1. Introduction

ExamVue is an independent software for acquiring, processing and optimizing x-ray images obtained with flat panel (DR) system.

2. System Requirements

- **Processor:** Intel i-7/Quad core
- **Memory:** minimum 4 GB
- **HDD:** Minimum 1TB software itself
(NOT counting the space required for image archiving)
- **Monitor:** Minimum resolution of 1,600* 900
- **O/S:** Windows 7, Windows 8 (32bit, 64bit)
- **Ethernet:** Gigabit network card

3. Log-in Window

When you first start '**Examvue.exe**', the following login window will show. To log in, you'll need to ID and password.

Also, there are three different log-in modes;

- **Admin:** Allow to access the configuration mode.
- **Guest:** No access the configuration mode.
- **Specific User:** User operator but no access to configuration mode.



[Login Window]

To log in,

- Select one of log-in modes (operator.)
- Input the password of the chosen mode (operator.)
- Click on **OK** button. It will take you to next mode such as Register or Exam and it will automatically check for the validity of other devices connected to the s/w.

To cancel,

- Click on **Cancel** button.

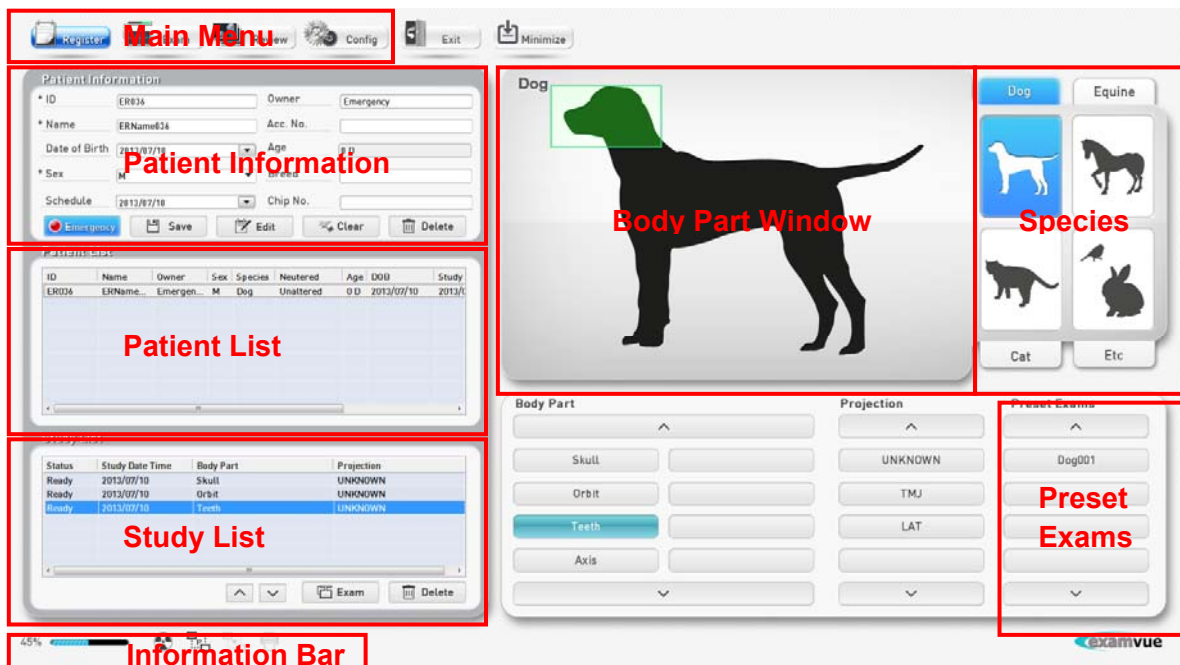
Note)

In order to add or delete a specific operator(s), please refer to the Information of Configuration.

4. Register Mode

User can choose to enter patient information manually to start the study.

Information, that is required to process the study, is marked by “*” mark while options information are displayed in white without any special signs.



[Register Window]

4-1. Main Menu



- Register Mode
- Exam Mode
- Review Mode
- Configuration Mode
- Exit Button
- Minimize Button

To activate the minimize function:

- Enable the check box of **'Use Minimize'** menu in Configuration window.
- Restart the program.

Note)

If **'Use Minimize'** box is checked, User will have an access to 'Minimize' button on the top menu bar.

4-2. Patient Information

Input the following information to register patient.

- ID
- Owner (optional)
- Name
- Accession Number (optional)

- Date of Birth (optional)
- Age (calculated automatically upon entering DOB)
- Sex
- Breed (optional)
- Schedule (optional)
- Chip Number (optional)

Note 1)

The Age units are Y, M, D and the Sex units are M (Male), F (Female), O (Other), M ALTERED, F ALTERED.

Note 2)

When you move to the other field after entering patient ID, the patient's information is automatically transferred to relevant fields.

The patient's age is calculated automatically upon entering DOB.

- **Emergency**

This function is useful if there is no data available on a patient or an examination must be carried out very quickly. Once **Emergency** mode is chosen, the system automatically creates the information of a patient. And the correct data can be entered at later date.

- **Save**

Register a patient.

Note)

Emergency patient's ID will be entered in the form of ER-xxx based on the work key number. And the patient's name is entered as "ERName-xxx".

- **Edit**

Modify patient information for selected patient.

- **Clear**

Clear all fields of information to register a new patient.

- **Delete**

Delete selected patient form the patient list.

Note)

Deleting patient information will not delete on local database.

4-3. Patient List

ID	Name	Owner	Sex	Species	Neutered	Age	DOB	Study
ER019	ERName...	Emergen...	M	Dog	Unaltered	0 D	2013/07/19	2013/0
ER020	ERName...	Emergen...	M	Dog	Unaltered	0 D	2013/07/19	2013/0
ER021	ERName...	Emergen...	M	Dog	Unaltered	0 D	2013/07/19	2013/0

[Patient List]

4-4. Study List

It shows the study list of the patient for the examination.

Status	Study Date Time	Body Part	Projection
Ready	2013/07/19	Skull	LAT
Ready	2013/07/19	T-SPINE	LAT

[Study List]

- **Up / Down**

Move the selected study up/down in the study list.

- **Exam**

Start the examination of patient with entered patient's information.

Note)

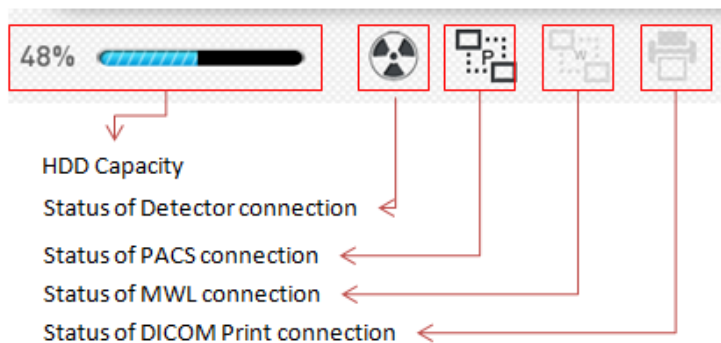
When the 'Exam' starts, the window moves to the **Exam** mode automatically.

- **Delete**

Delete selected study in the study list.

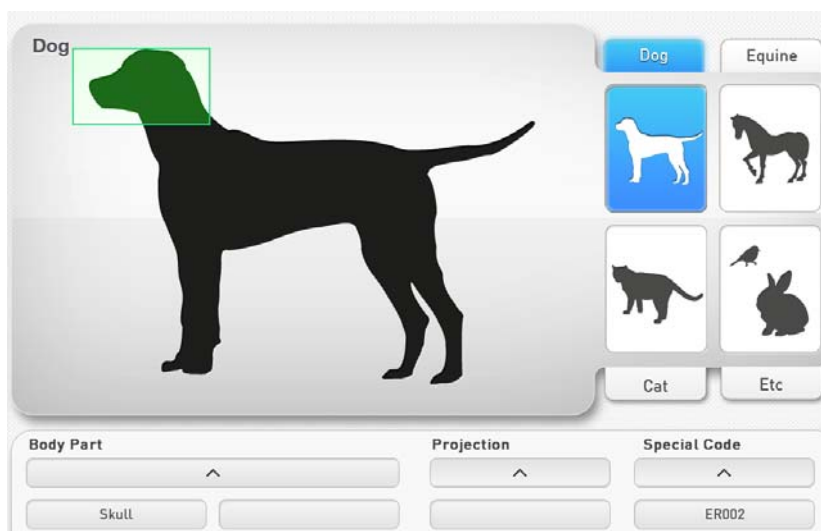
4-5. Information Bar

This information bar provides information on some of the key status, such as HDD capacity and availability, connectivity of detector, PACS, Modality Work-list Server and DICOM Printer.



[Information Bar]

4-6. Body Parts Window



[Body Parts Window]

When you choose a specific **Body Part** on the pictogram, the name of the chosen Body Part will appear on each of button. To register the study, click **Projection** button again.

This step helps you to choose both **Body Part** and **Projection**

4-7. Species

Choose a species from the register window.

- Dog
- Equine
- Cat
- Etc.

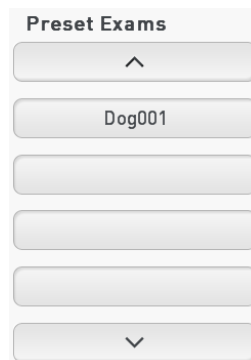


[Species Selection Button]

4-8. Preset Exams

Select the special code pre-registered in the configuration mode.

When you click this button, the pre-registered code will be automatically recalled.



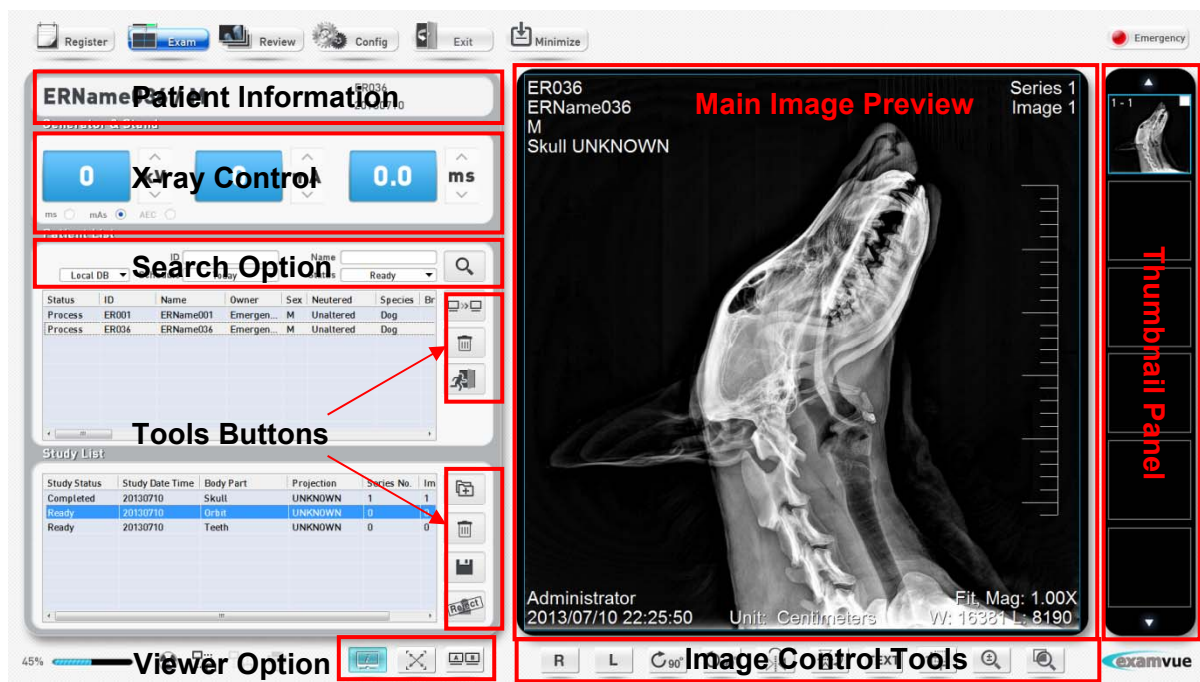
[Preset Exams Button]

Note)

Refer to **Configuration Mode** for registration of special code.

5. Exam Mode

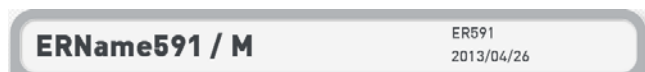
In Exposure Mode, user can take images of registered patient's study. User can process the acquired image using the imaging processing parameter file. Also, user can review the images using tools such as Zoom In/Out, Rotate, Flip-Flop and etc in image control box.



[Exam window]

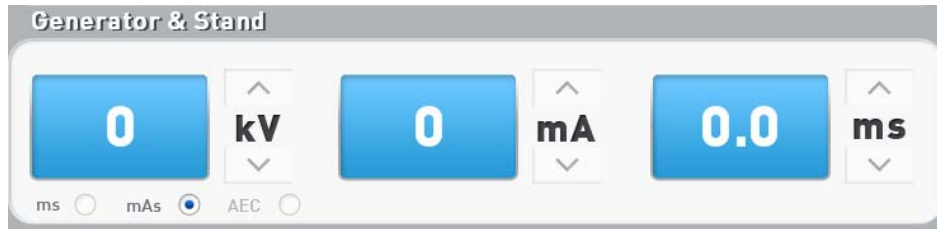
5-1. Patient Information

Located at the top left corner of the window, all important information, such as patient data (ID, name, DOB and sex) are displayed here.



5-2. X-ray Control

User can control the x-ray exposure with the generator panel. All recommended values and settings (kV, mAs, mA, etc.) for particular examination are displayed in the “generator panel”. User can change these values if necessary. When connected to a generator, the values and settings inputted here will transfer to generator automatically.



Note)

It's possible to use these functions when the generator is connected to the system.

5-3. Search Option

User can search the scheduled orders using **Search** button from DICOM worklist server or local database.



[Search Window]

- Local DB/Server/Both: search scheduled orders by selected location.
- ID
- Name
- Schedule
- Status

To use Search option,

- Entire desired conditions.
- Click **Search** button to start the search results from the selected server (Local/Server/Both.) The results should be displayed on the Patient List.

5-4. Tools buttons

- **DICOM Send**



Transfer selected images to pre-assigned DICOM storage server.

Note)

The image will transfer to all servers registered in Configuration mode.

- **Delete**



Delete patient information registered in local database.

Note)

Deleting examining patient information will not automatically delete the same information from the list.

- **Close Study**



Close selected patient's study.

If **Auto PACS Send** function is enabled in Configuration mode, the acquired image will be sent to the PACS server automatically upon closing the study.

Note)


Closing processing patient will not be performed. You have to complete the examination for that patient

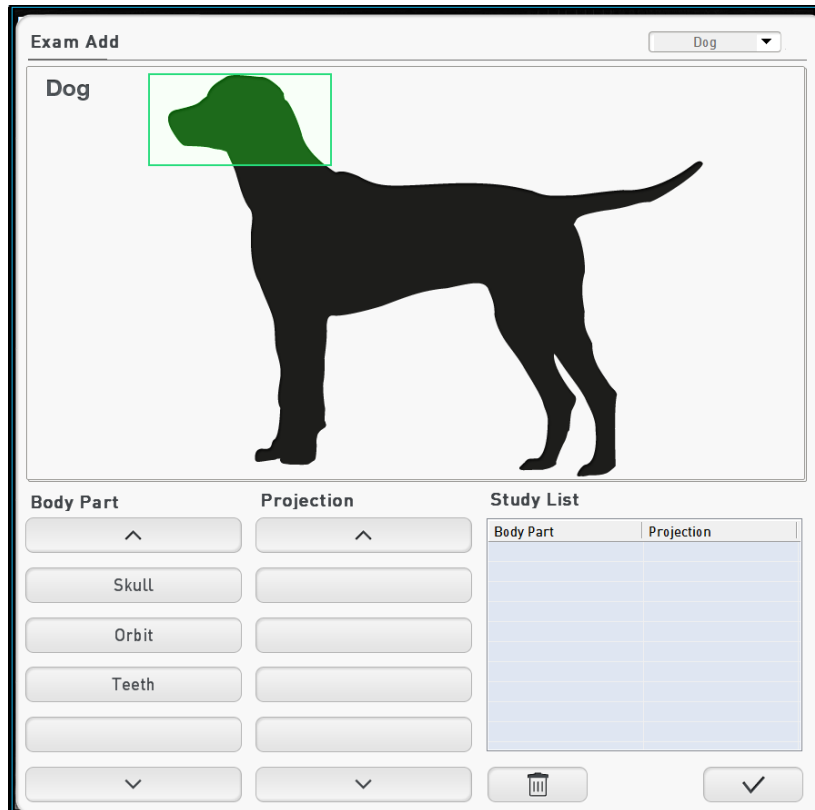
- **Add Study**



Add a new order in the exam list.

To create a new order.

- Click **Add Study** button.
- Select new **Body Part** and **Projection**.
- Click **Ok** button ()



[Exam Add Window]

- **Save**



Save the changes made to selected image (such as window Level, Crop, Test or Mark.)

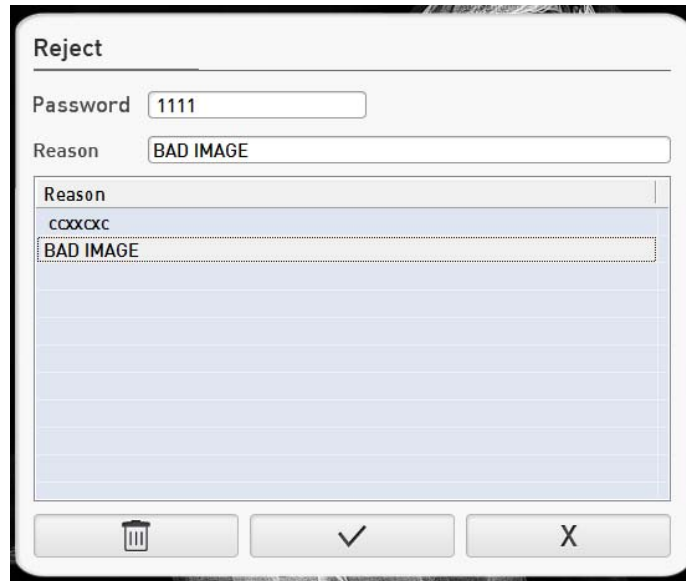
- **Reject**



Reject selected images.

To reject image.

- Select image to be rejected
- Click **Reject** button
- Enter password of current login account
- Select the one of the pre-registered reasons or enter manually.



[Reject Window]

Note)

The Reject function will show only when you select Reject function in the Configuration mode

The rejected images can't be sent nor printed even when it is selected.


And if you want to accept the rejected image, click the **Accept** menu in the mouse right menu in the thumbnail window as shown in the below figure.

- **Emergency**



Register emergency patient by creating patient information automatically.

To create new order,

- Click **Add Study** button
- Select new **Body Part** and **Projection** to be registered
- Click **Ok** button 

5-5. Viewer Option

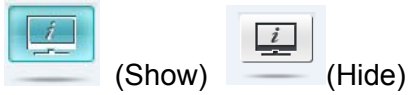
- **Annotation (Show/Hide)**



Show or hide all annotation on the image

To perform,

- Click **Annotation** button
- If the Annotation button is on, all annotation will be displayed
- If the Annotation buttons is off, all annotation will be hidden



● **Full Screen**



Expand an image on the image viewer



[General Mode]



[Full Screen Mode]

- **Dual Monitor**



If user is using a secondary monitor and dual monitor feature is activated in the configure window, the image will be displayed in the secondary monitor

5-6. Main Image Preview

Verify acquired images with a patient's information.

User can adjust the Window Level by dragging the mouse while pressing and holding the right mouse button.



[Main Image Preview]

- Patient / Body part Information:
- Image Index number in the study of the patient
- Scale bar in cm (or Pixel) unit
- Operator Information

- Window Level and Zoom ratio
- Image Acquisition Date and Time

5-7. Image Control Tools

Control the image by selecting the image control button



● R / L Marker



Add the white R (Right) and L (Left) to the left top on the image

To move R / L Mark,

- Press and hold the left mouse button on the label while dragging it to some area

To resize R / L Mark,

- Locate the mouse pointer on the corner of the rectangle and press and hold left mouse button and drag it to desired size

To delete R / L mark,

- Select the label, and then click press the Delete key on the keyboard



[Right Marking]



[Left Marking]

● Rotate CW90



Rotate an image by 90 degree clockwise



[Original]



[Rotate CW90]

- **Rotate CCW90**



Rotate an image by 90 degree counterclockwise



[Original]



[Rotate CCW90]

- **Horizontal Flip**



Flip an image horizontally



[Original]



[Horizontal Flip]

● **Vertical Flip**



Flip an image vertically



[Original]



[Vertical Flip]

● **TEXT**



Draw text notes to the image

To add Text,

- Click **TEXT** button, type text note you want

To resize,

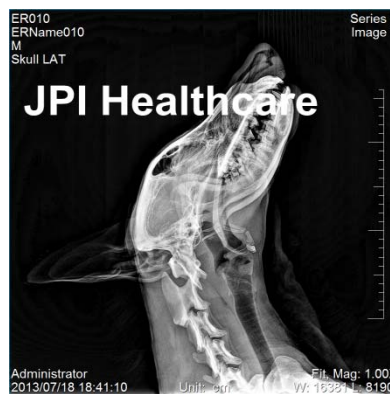
- Click the text note and locate mouse cursor on each point of the text box, and then press and hold left mouse button while dragging it to the desired size.

To delete,

- Select the text note, and then press Delete key on the keyboard

To modify,

- Double click the left mouse button in the selected text box, and change the text note , and then click the Enter key on the keyboard



[Text Note]

- **Rectangle Crop**



Draw a rectangle over an image to indicate a region of interest

To draw a rectangle crop,

- Press and hold the left mouse button while dragging the mouse after click the Rectangle Crop button



[Rectangle Crop]

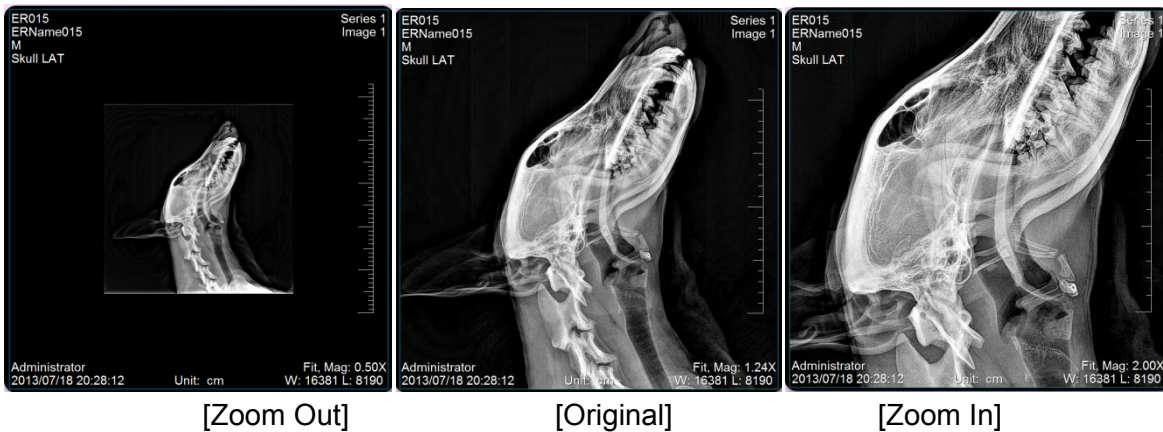
- **Zoom In / Out**



Resize an image

To zoom in and zoom out,

- Click **Zoom** button
- Move the mouse cursor into the image and drag the left mouse button during pressing the left mouse button



Note)

Zoom In – Drag the mouse downward

Zoom Out – Drag mouse upward

- **Magnifying glass**



Magnify a local region of interest

To magnify,

- Click **Magic glass** button
- Move the mouse cursor into the image and press and hold the left mouse while dragging it to the detail in the image you want to magnify



[Magnifying Glass]

5-8. Thumbnail Panel

View the images of current study for exposure and display the selected study.

The blue framed item is the output image from the current thumbnail view.



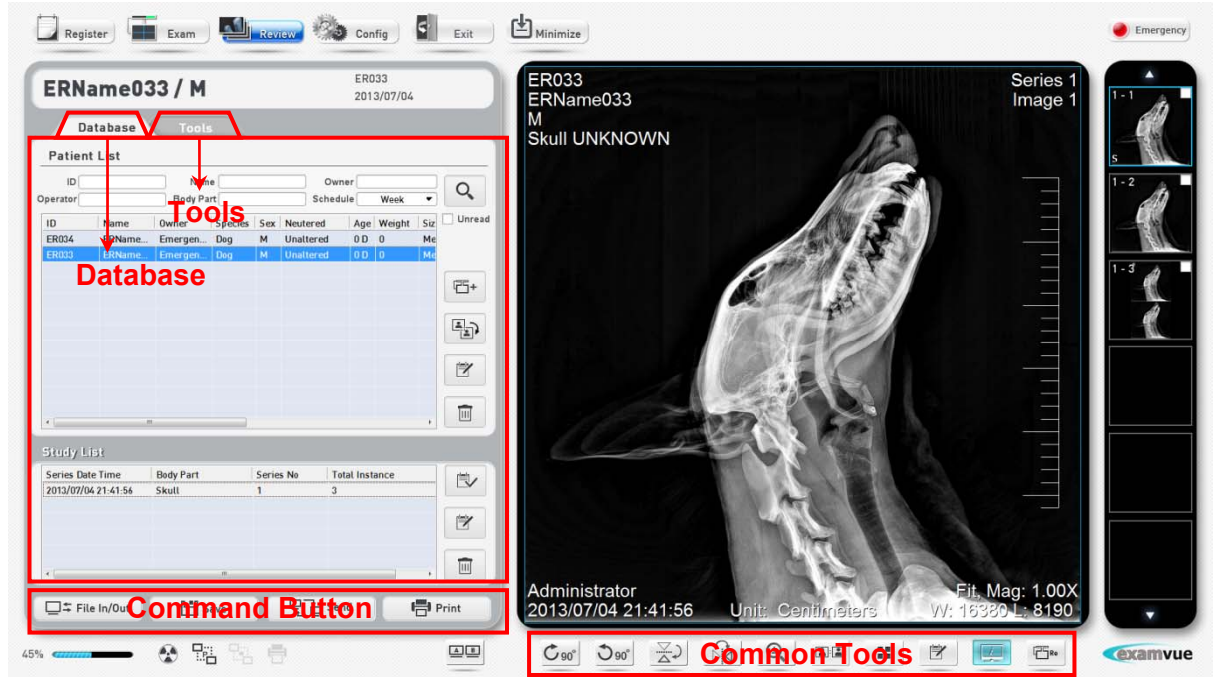
[Thumbnail Panel]

The status information of images displayed on thumbnail is as follows:

- Rejected
- Printed to the DICOM Print server
- Transmitted to the DICOM Storage server

6. Review Mode

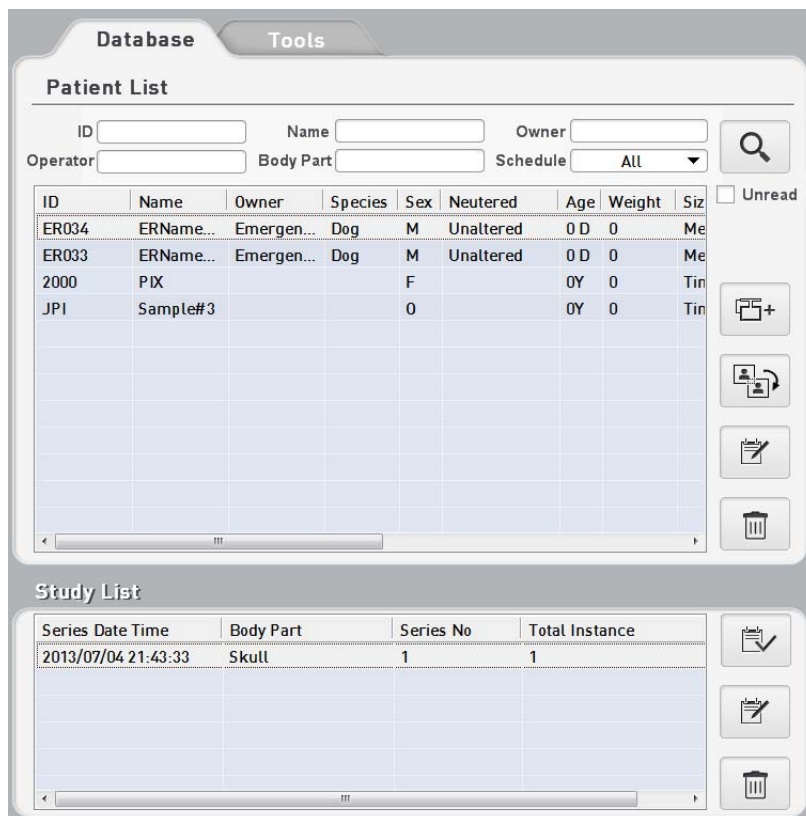
It shows the list of stored images after acquisition. You can open the images to edit, to send to the PACS server, and to print out.



[Review Window]

6-1. Database

It shows the list of stored images after acquisition.



[Review Window – Database]

6-1-1. Search

You can search the scheduled orders using **Search** button on the right side from Local Database with the following options.

Search form with the following fields: ID, Name, Owner, Operator, Schedule (Week), Body Part, and a Search button.

- **ID:** Input a patient ID.
- **Name:** Input a patient Name.
- **Owner:** Input an owner.
- **Operator:** Input an operator.
- **Schedule:** Select the Schedule.
- **Body Part:** Select the Body part.

6-1-2. Confirm (Unread / Read)

Search the study of UNREAD status when clicking the check box.

To use this function,

- Enable the check box of the “Unread”
- Click the Search button and then it will show the unread patient’s study in the list.

Patient List

Search form with the following fields: ID, Name, Owner, Operator, Body Part, Schedule (Week), and a Search button.

Read	ID	Name	Owner	Species	Sex	Neutered	Age	Weight	Unread
<input checked="" type="checkbox"/>	ER037	ERName...	Emergen...	Dog	M	Unaltered	0 D	0	<input type="checkbox"/>

6-1-3. Patient List Tools

- **Add Image**



Add new study in order to take an X-ray newly

● **Merge**



Merge different studies. For example, the case happens that the different patient image is in the selected patient image folder or one patient's image.

To perform Merge:

- Select the patient to merge.
- Click **Merge button** and then it shows the below pop-up window.
- Select the patient's image to merge by using Left / Right arrow button after searching.
- Input the password when you complete the condition to merge.

Merge

Study List

Series No	Total Inst...	Series Date Time
1	1	2014/04/01 14:55:34

Patient Name

Patient ID

Owner

Schedule

Patient List

ID	Name	Owner	Sex	Neuter
ER001	ERName...	Emergen...	M	Unalter

Study List

Series No	Total Inst...	Series Date Time
1	1	2014/04/01 10:44:34
2	1	2014/04/01 10:44:53

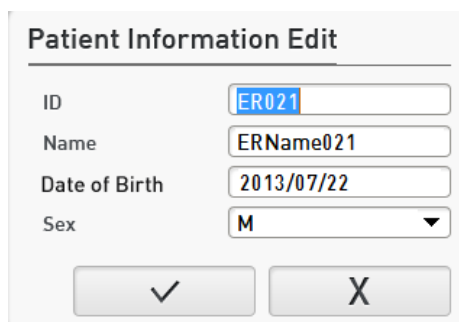
[Merge Window]

- **Edit Patient Information**



To use Edit,

- Activate the Edit button.
- Modify the information of the patient you selected as follows:
- Click the **OK** button



Patient Information Edit	
ID	<input type="text" value="ER021"/>
Name	<input type="text" value="ERName021"/>
Date of Birth	<input type="text" value="2013/07/22"/>
Sex	<input type="text" value="M"/>
<input type="button" value="✓"/> <input type="button" value="X"/>	

- **Delete Study Information**



Delete Patient information.

6-1-4. Study List Tools

- **Read**



This function is used to change the status of study from UNREAD to READ

- **Edit Study**



To use Edit,

- Activate the Edit button.
- Modify the information of the study you selected as follows:
- Click the **OK** button

Series Information Edit

Body Part

Series No. Total Instance

Series Date

● **Delete Series**



Delete the selected study

6-2. Tools Panel

Tools panel are organized with some button of image control like Layout, Zoom & ROI, Adjust Image, Annotation and ETC



[Review Window – Tools]

6-2-1. Layout

These buttons are tools to divide that working area into various grids. The grid may consist of at least one or at most 8 x 8 grid areas.

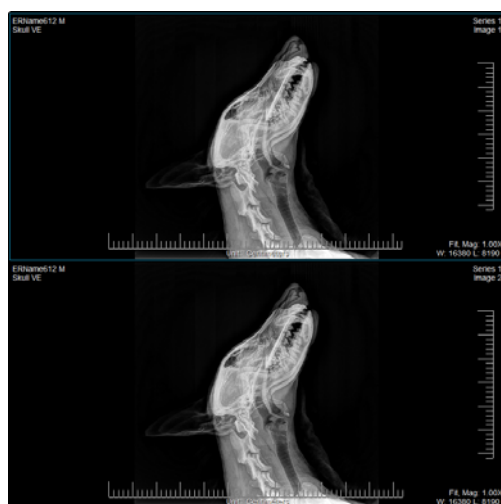
- **1 Layout**



Display one image on the image viewer window



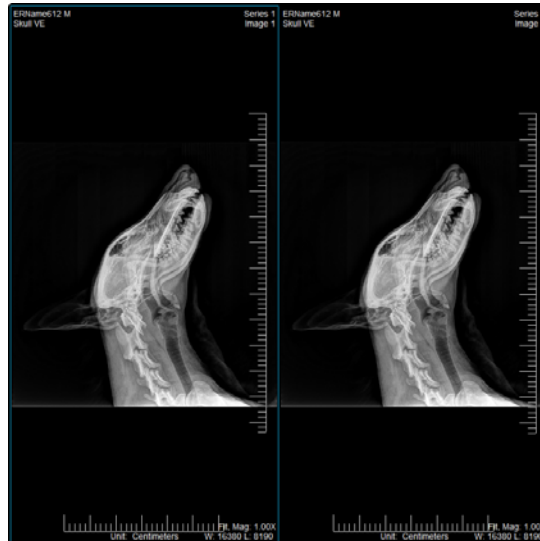
- **1 x 2 Layout (vertical)**



- **1 x 2 Layout (Horizontal)**



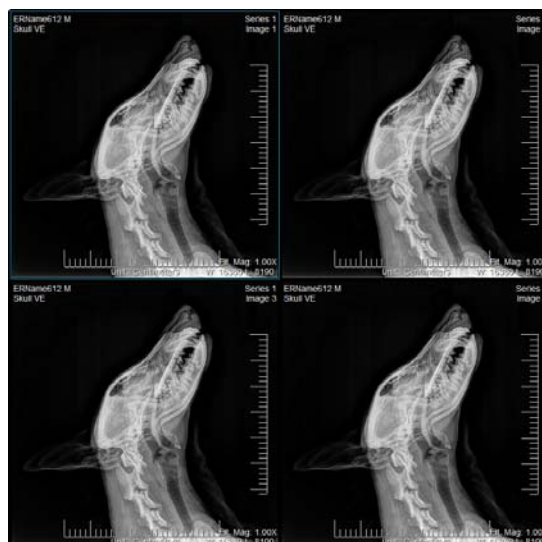
Display two images on the image viewer with 1x2 Layout.



- **2 x 2 Layout**



Display four images on the image viewer with 2x2 Layout.



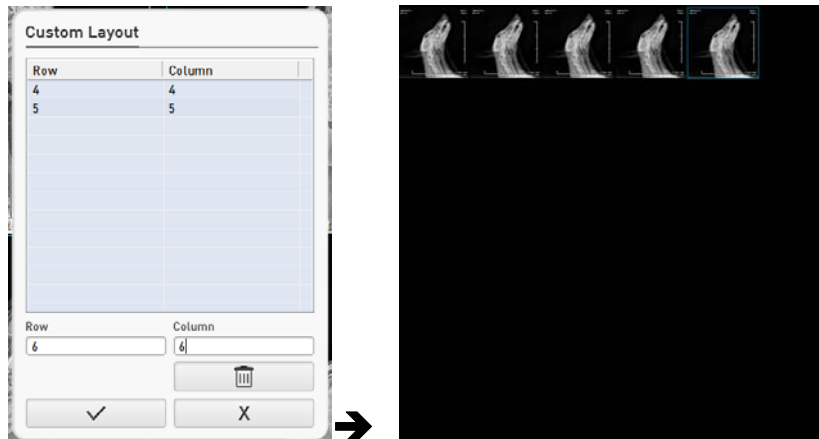
- **User Defined Layout**



Allow to customize the image layout on the image viewer window.

To make User Defined Layout.

- Click **N layout** button then the following dialog window will appear.



- Enter the image layout number, Row and Column and click the **OK** button. Then, the layout will be made on the image viewer window.

6-2-2. Zoom & ROI Tools

These buttons are tools to manipulate an image like Zoom In/out, Fit image and Magnifying glass.

- **Cursor**



This is the default mouse pointer state.

If you click the **Cursor** button, the previously function of the selected buttons are deactivated.

- **Panning**



Perform panning the image.

To use Cursor,

- Press and hold the left mouse button while dragging the image to the desired position.

- **Fit to Screen**



Fit an image to the main image viewer size.

If the image is cropped, the cropped image will be fit to the image viewer window.

- **Zoom In/Out**



This tool is used to zoom the entire image

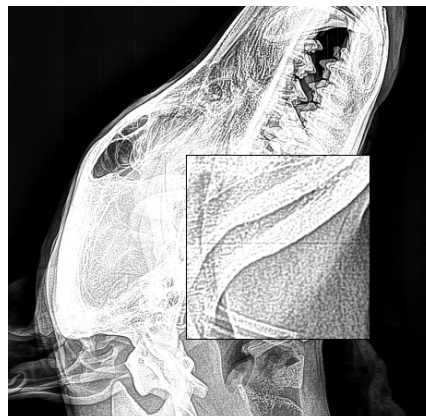
To perform the zoom,

- Activate the zoom button.
- Place the cursor over the image.
- Hold down the left mouse button.
- Drag the mouse up to zoom in, down to zoom out.
- Release the left mouse button.
-

- **Magnifying Glass**

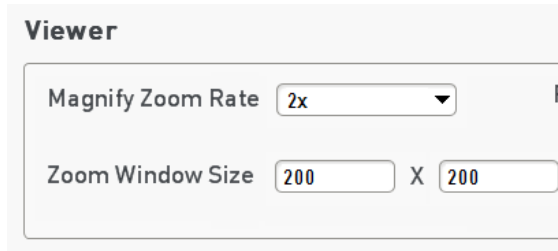


Magnify a local region of interest.



To set up Magnify Zoom Rate and Zoom Window Size,

- Click the Display menu in the Configuration window and enter each of the values you want as shown in the following figure.



Note)

Annotation will be not enlarged or reduced.

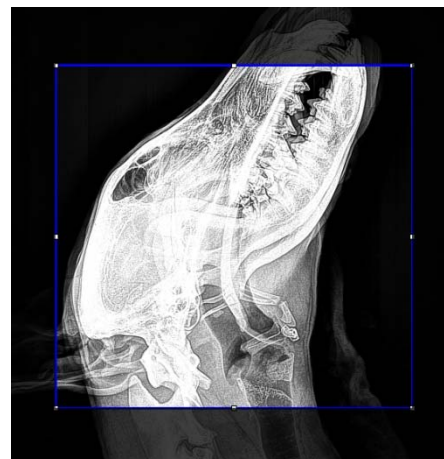
- **Crop (Rectangle)**



Crop an image of interest.

To crop an image,

- Click **Crop** button
- Locate the mouse cursor inside of the Image.
- Drag the mouse to the cropping area during pressing and holding the mouse left button.
- Click **Save** button or **Double-clicking** of the left mouse button if you want to save the image you selected.



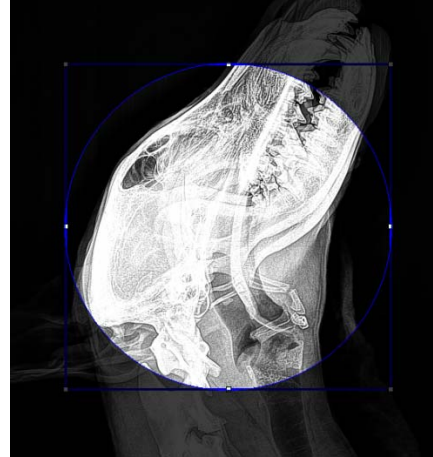
- **Crop (Ellipse)**



Crop an image of interest.



[Original]



[Ellipse Cropping]

- **1:1 (Actual Size Image View)**



Display an image in its actual size.

Note)

It depends on the pixel size of the monitor and the pixel spacing of the detector.

6-2-3. Adjust Image

These buttons are tools to adjust an image like Rotate, Flip and Invert.

- **RESET**



Restore all of the information saved lastly.

- **Rotate CW90**



Rotate an image by 90 degree clockwise.



[Original]



[CW90]

● **Rotate CCW90**



Rotate an image by 90 degree counterclockwise.



[Original]



[CCW90]

● **Flip Horizontal**



Flip an image horizontally



[Original]

[Horizontal Flip]

- **Flip Vertical**



Flip an image vertically



[Original]



[Vertical Flip]

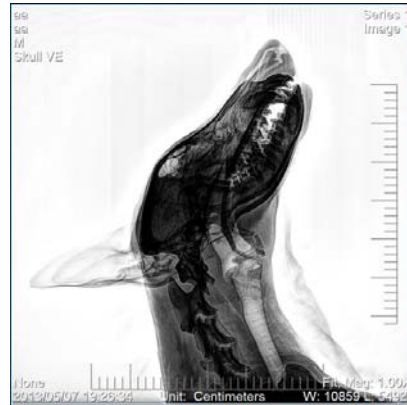
- **Invert Image**



Invert an image between black and white.



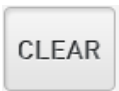
[Original]



[Image Invert]

6-2-4. Annotation

- **Clear**



Reset all annotations and modifications to initial state.

● **R / L Marker**



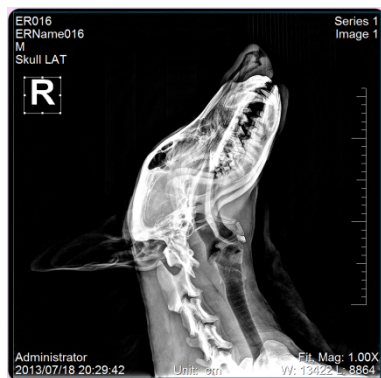
Add the White R (Right) and L (Left) label to the left top of the image.

To move R / L Mark,

- Press and hold the left mouse button on the label while dragging it to the area you want.

To delete R / L Mark,

- Click **Delete** button after choosing the label to be deleted.



[Right Marking]




[Left Marking]

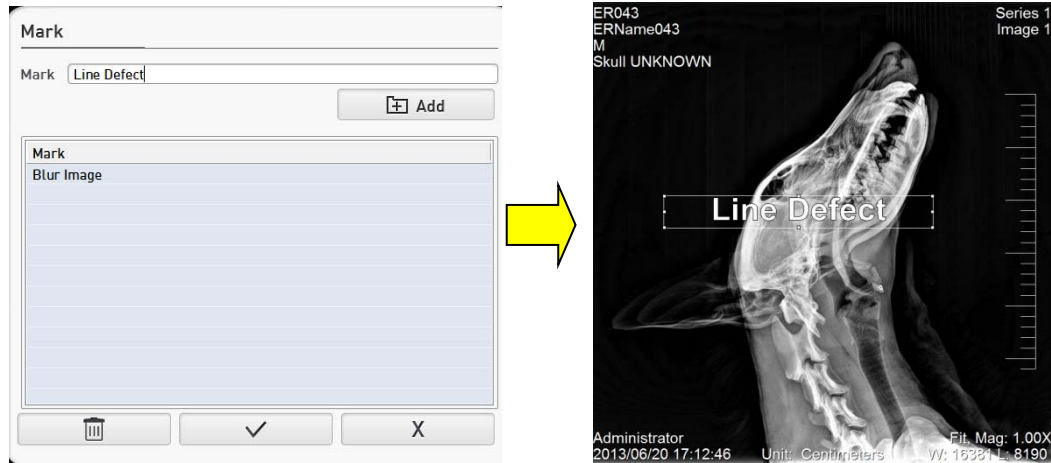
● **MARK**



You can add, delete or modify frequently used marks as desired.

To add / delete the Mark,

- Click **MARK** button.
- Enter the Mark you want in the field of Mark and click **Add** button, and then you will be able to show the made mark in the Mark list.
- Click the **OK** button 



● **TEXT**



Draw text notes to the image

To add,

- Click **TEXT** button on the Tools Panel, and type text note you want

To resize,

- Click the text note and locate mouse cursor on each point of the text box, and then press and hold the left mouse button while dragging it to the desired size.

To delete,

- Select the text note, and then press the Delete key on the keyboard

To modify,

- Double click the left mouse button in the selected text box, and change the text note, and then click **Enter** key on the keyboard



- **Distance**



Measure distance between two points on the image



- **Angle**



Measure the angle between three points over an image.

When you complete drawing an angel, the value of the angle will be calculate and displayed automatically.



To perform Angle.

- Click on left mouse button on the image to set the center point of the angle.
- Move the mouse and click the left mouse button to set the endpoint of the first vector.
- Click Left mouse button to set the end endpoint of the second vector.
- At this point, the angle's measurement is displayed.

Note)

If you want to delete the angle, press the **Delete** key on your keyboard.

● **Cobb Angle**



This tool is used to find the angle where two lines intersect.

To use this tool.

- Click (Left) to set the first point for the first line.
- Click (Left) to set the last point for the first line.
- Click (Left) to set the first point for the second line.
- Click (Left) to set the last point for the second line. At this point, the software is computing the degree of the angle where the two lines meet.

6-2-5. ETC

● **Raw**



Reset as the original DICOM image

- **Window Level**



Reset the window level of the selected image

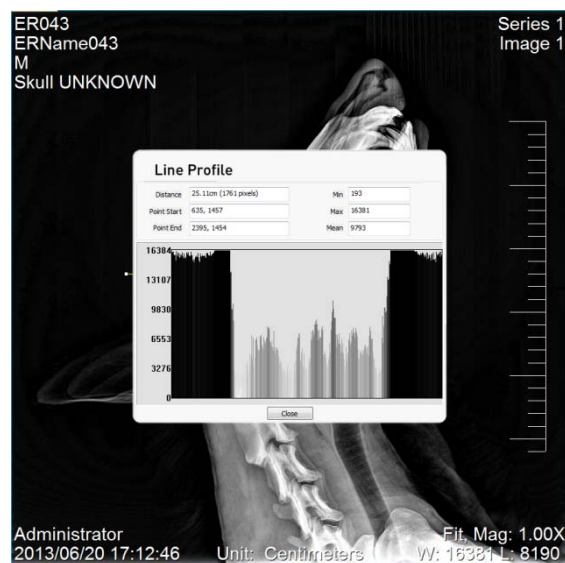
- **Line Profile**



Display various pixel values related to the line when you draw a line

To use the line profile,

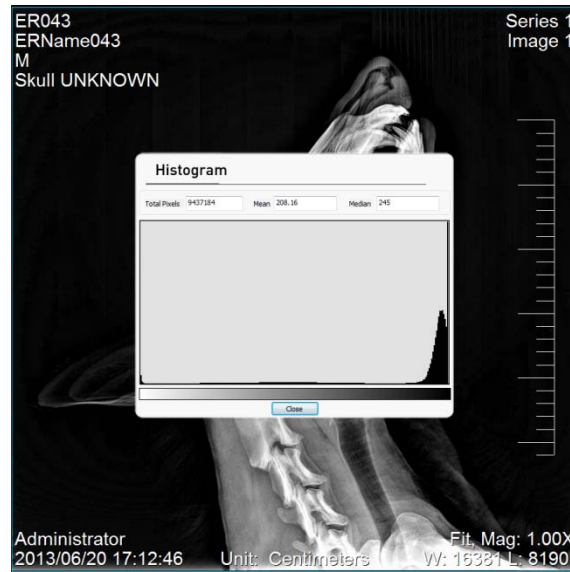
- Click **Line profile** button and draw some line you want to see.



- **Histogram**



Sometimes it is helpful to have an idea of how the pixel values fall for a particular image.







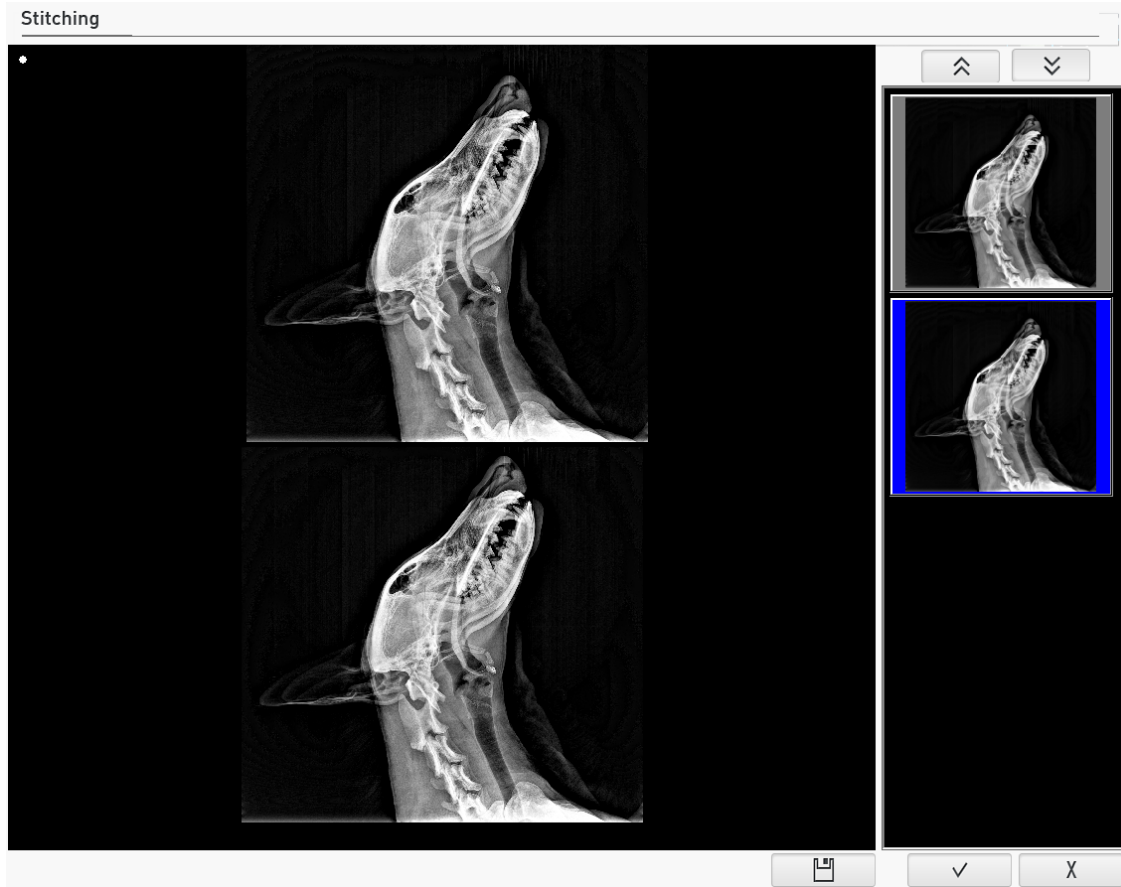
● **Stitch**



Stitch two images into one from the selected study. Not supported yet.

To use Stitch,

- Click **Stitch** button
- Select two images using Top () and Bottom () button
- Adjust the position of each image using the mouse
- Click **Save** () button to save the composite image and **OK** () button.



- **DICOM Header Information**



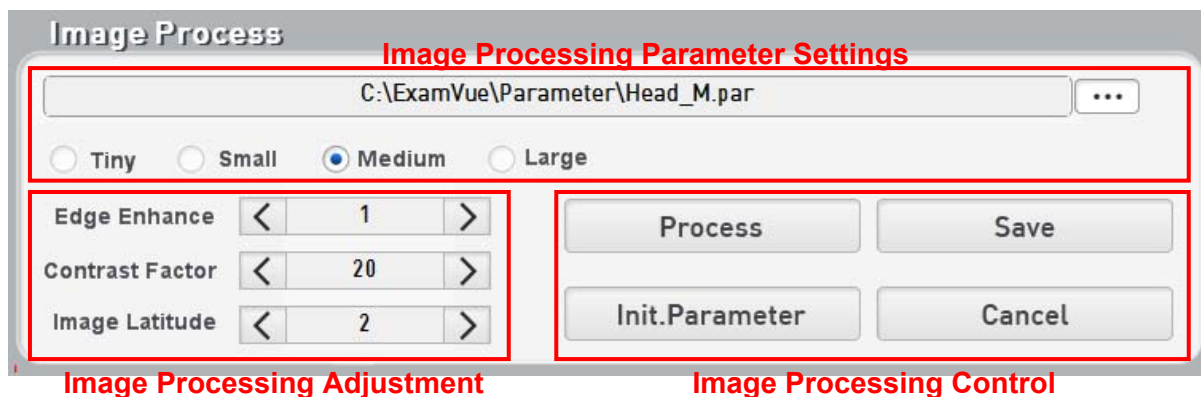
Display DICOM Header information of the selected image.

To view the DICOM tag data of the selected image, click this button.

Tag Name	Value
0010:0010 - PN - Patient's Name	ERName043
0010:0020 - LO - Patient ID	ER043
0010:0030 - DA - Patient's Birth Date	06/20/2013
0010:0040 - CS - Patient's Sex	M
0010:4000 - LT - Patient Comments	
0010:2297 - PN - Responsible Person	Emergency
General Study	
0020:0010 - UI - Study Instance UID	1.2.410.200018.100.1.10.35.20130620171246000
0008:0020 - DA - Study Date	06/20/2013
0008:0030 - TM - Study Time	17:12:31.000000
0008:0090 - PN - Referring Physician's Name	
0020:0010 - SH - Study ID	10
0008:0050 - SH - Accession Number	
0008:1030 - LO - Study Description	Skull UNKNOWN
Patient Study	
0010:1010 - AS - Patient's Age	0 years
0010:1020 - DS - Patient's Size	2
0010:1030 - DS - Patient's Weight	0
0010:2180 - SH - Occupation	
0010:2200 - CS - Patient's Sex Neutered	Unaltered
General Series	
0008:0060 - CS - Modality	DX
0020:0010 - UI - Series Instance UID	1.2.410.200018.100.1.10.35.42.20130620171246000
0020:0011 - IS - Series Number	1
0020:0060 - CS - Laterality	
0008:0021 - DA - Series Date	

6-3. Image Post-processing

You can process displayed images by opening the Parameter file, applying the parameter, and changing the details.



6-3-1. Image Processing Parameter Settings

You can save parameter files for image processing. Tiny/Small/Medium/Large buttons make it possible to select the parameter file chosen in advance according to the patient condition. If it not set yet, it is displayed as blank.

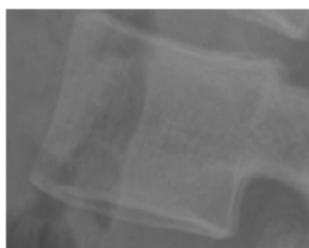
Note)

You need to set for image processing. If the file is not in the pre-set route of the configure window, it is displayed as blank.

6-3-2. Image Processing Adjustment

- **Edge Enhance**

This is for highlighting the edge of the image (separately with other parameters). As shown in the below image, it is used to watch the detailed part of the bone tissue.



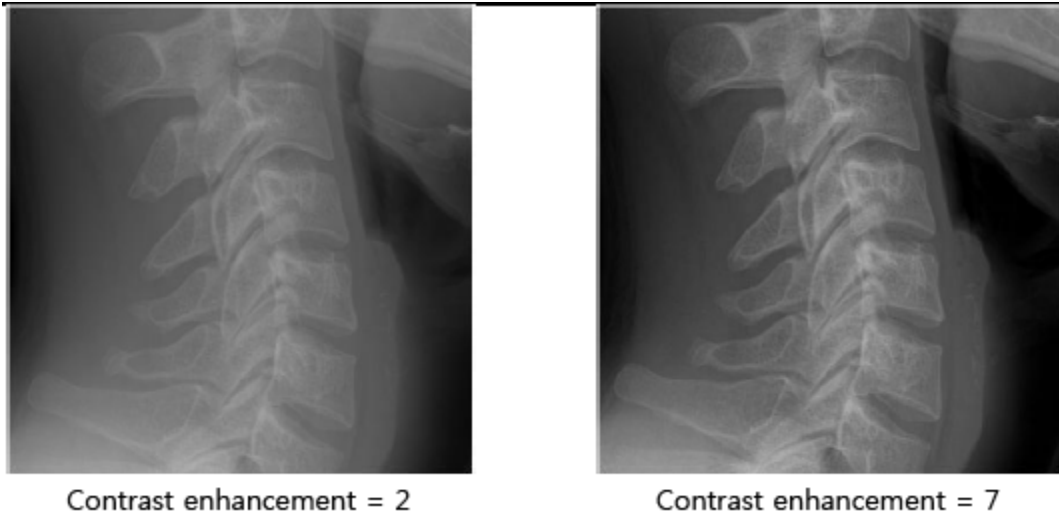
edge enhancement = 2



edge enhancement = 7

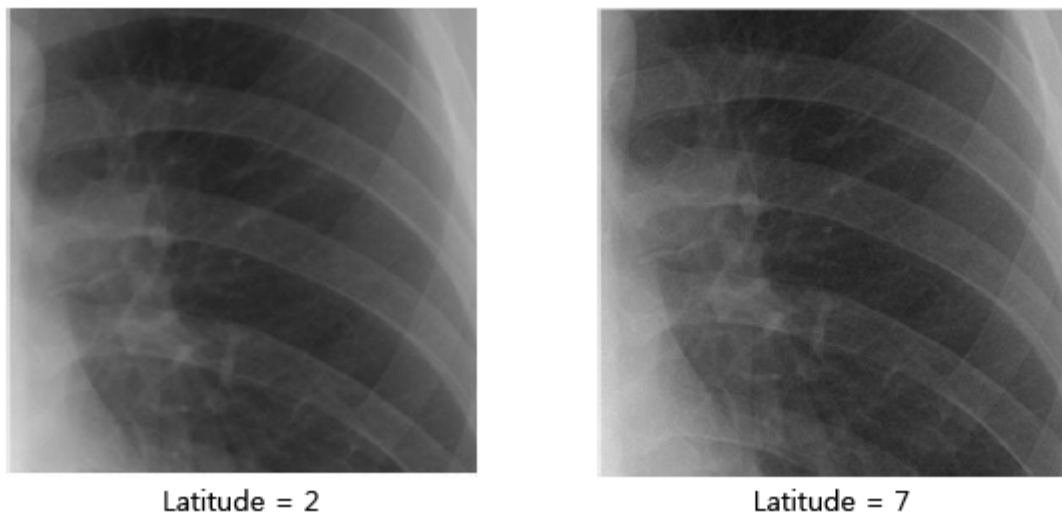
- **Contrast Factor**

This is highlighting the contrast of the image. It is related to latitude. If highlighted too much, it looks hard. As shown in the below images, C-spine's part is highlighted compared to the surrounding tissue.



- **Image Latitude**

As the value gets higher, the lower part of the image is highlighted and the image gets thicker. It shows more realistic image for the two dimensional image.



6-3-3. Image Processing Control

- **Process**

It executes image processing.

- **Save**

The modified Edge enhance, Contrast factor and Image latitude of the parameters for image processing are saved. The saved parameters will process the same study part.

- **Initial Parameter**

It initializes to the original values of parameter.

- **Cancel**

It can go back to the state that image processing is not done.

6-4. Command Button

6-4-1. File In / Out

Convert images to various formats from the selected study

- **Export**

The export of images is initiated via a typical the File In/out window. The user can chose between exporting the loaded images of the study. Images can be exported to files in DICOM format or BMP or to JPG, BMP, PNG files.

- **Device:**

Select the place to export image by Local Disk or CD/DVD

- **Path:**

Select User Directory to save the image in the local place.

- **Image Type:**

Select a format of the image to be restored. (BMP, JPG, PNG, DICOM)

- **Burn information into image:**

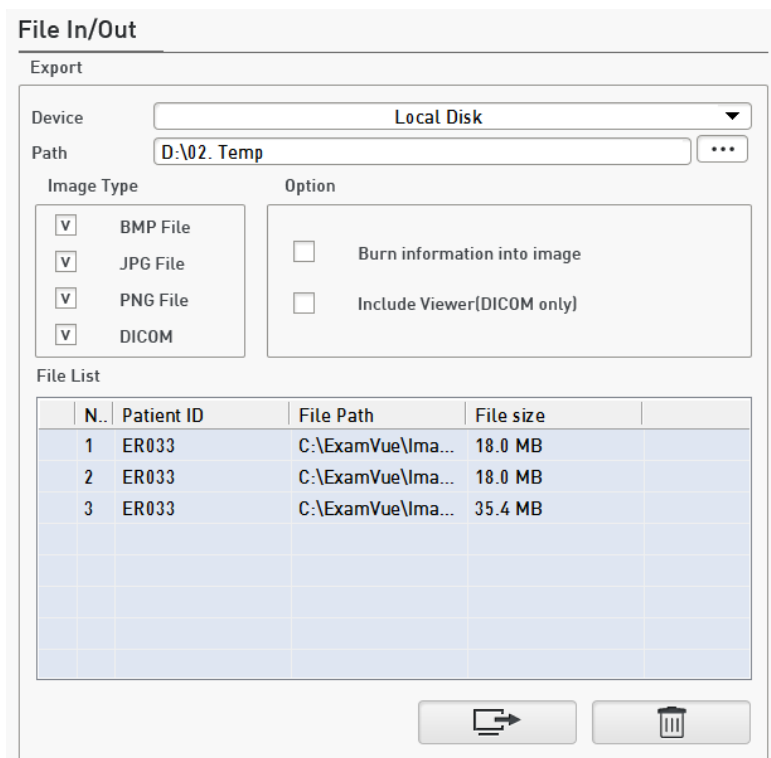
The image is exported including patient's information when the check box enabled.

- **Include Viewer (DICOM only):**


The image viewer is exported for DICOM image when the check box enabled.

- **File list:**

Display the list of selected to export.

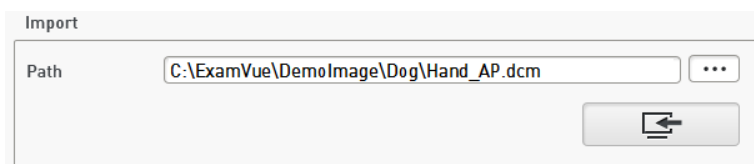


To use Export.

- Select the type of Device, Local Disk or CD / DVD
- Set the path to be exported to Local Disk
- Check the Image type (BMP, JPG, PNG, DICOM)
- Click **Export** button 

● **Import**

Open (retrieve) selected image.



To use Import.

- Click **Browser** button and select an image
- Click **Import** button 

6-4-2. Save

Save current image including the annotation from the selected study.



6-4-3. Send

Transfer the DICOM Image selected to Image Storage Server.



To use the DICOM Send,

- Click **Send** button.
- Select the PACS Server in the PACS server list.
- Click **Send** button to send

Note)

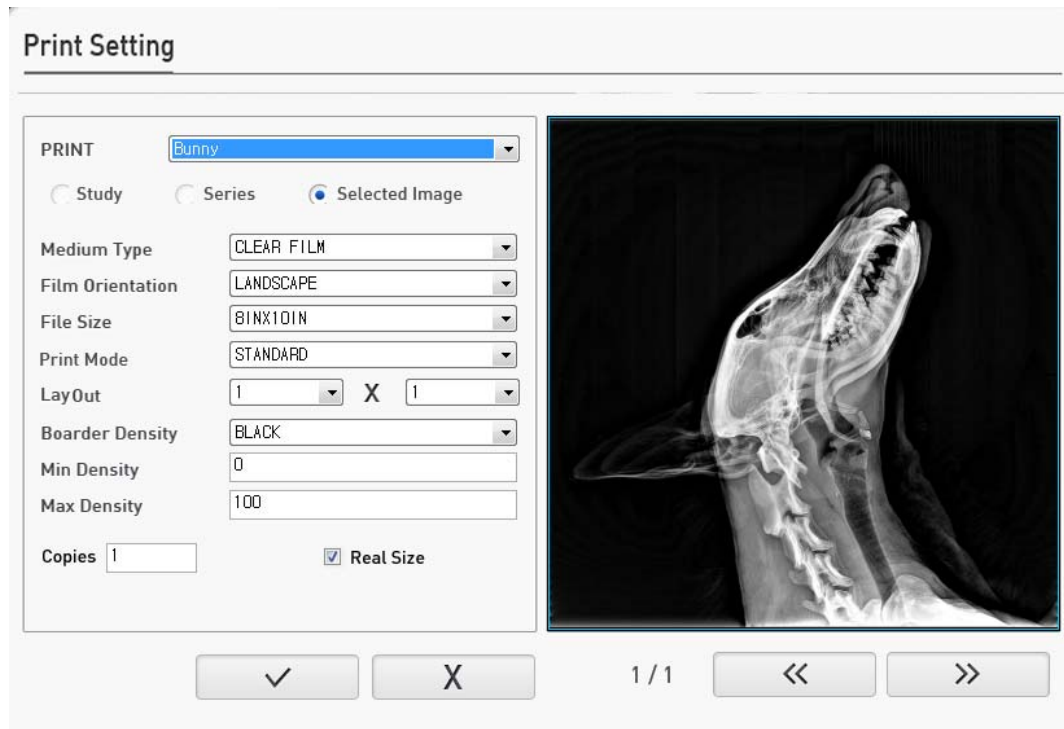
If you want to add other PACS Server, please refer to configuration's DICOM menu.

6-4-4. Print

Print the selected image with DICOM print.



- **Print:** Name of DICOM Print Server to be used for printing.
- **Film Size:** Size of printed materials
- **Copies:** Number of copies to print
- **Layout:** Type of image layout
- **Film Orientation:** type of image orientation



Note)

If you want to add other DICOM Print Server, please see the DICOM menu of Configuration Window

6-5. Common Tools

Frequently used buttons are located at bottom of Image viewer

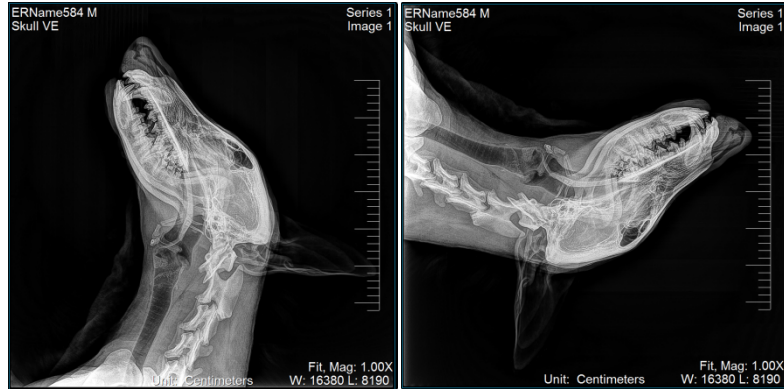
(CW90, CCW90, Flip Vertical, Flip Horizontal, Zoom, Compare, Expand, Edit Image Information, Annotation and Re-take button)



- **Rotate CW90**



Rotate an image by 90 degree clockwise.



- **Rotate CCW90**



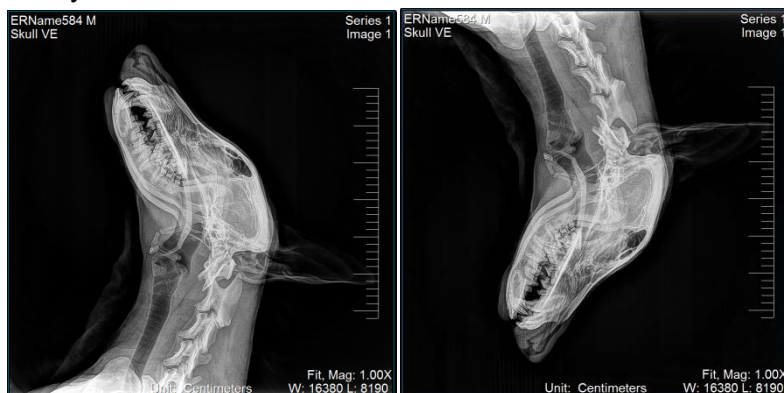
Rotate an image by 90 degree counterclockwise.



- **Flip Vertical**



Flip an image vertically



- **Flip Horizontal**



Flip an image horizontally



● **Zoom In/Out**



This tool is used to zoom the entire image

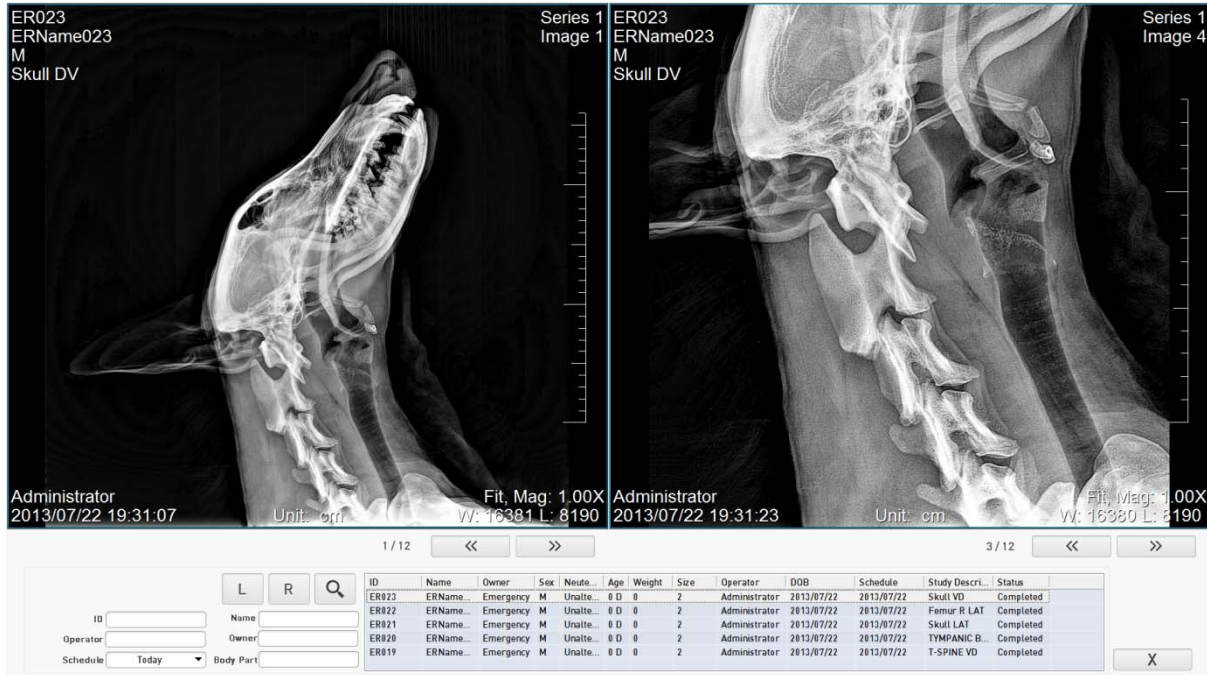
To perform Zoom,

- Activate the zoom button.
- Place the cursor over the image.
- Hold down the left mouse button.
- Drag the mouse up to zoom in, down to zoom out.
- Release the left mouse button.

● **Compare**



This function is used to compare two images side-by-side.



To exit Compare Mode,

- Click **ESC** key and then the screen returns to normal image viewer.

● **Expand**



This function is used to watch all images by pushing EXPAND button when there are too many thumbnail images.



● **Edit Image Information**



Modify patient's image information on the current study.

To perform **Edit**,

- Click **Edit** button
- Modify some information in the Edit Image Information window

Edit Image Information

Series No.

Image No.

Laterality

Patient Pos.

- Click **OK** button

● **Annotation (Show / Hide)**



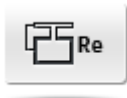
Show or hide all annotation on the image

To perform the show / hide:

- Click **Annotation** button

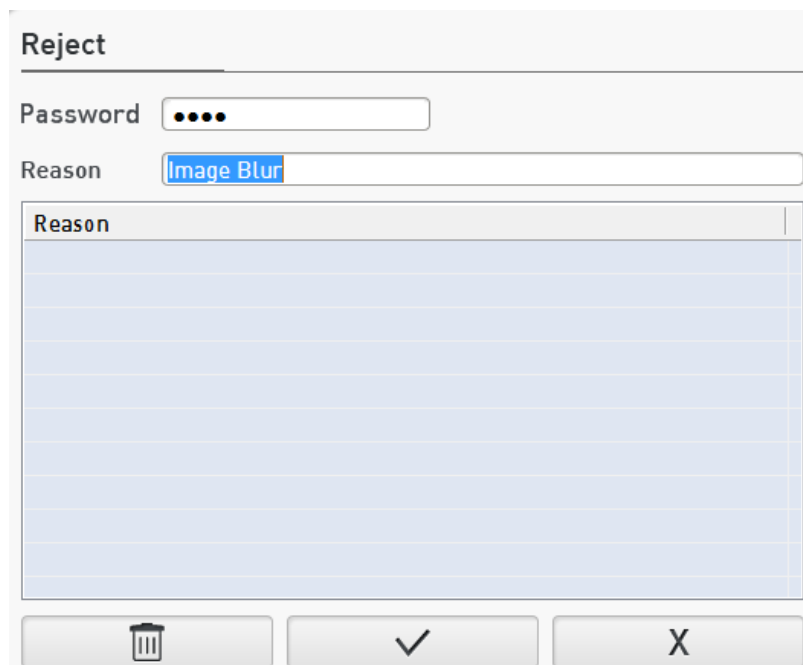
● **Re-take**

If a saved image is under x-ray or mismatch position, you can do the examination again using this function.



To perform the Re-take,

- Activate **Re-take** button.
- Input the reason and the password.
- Click **Ok** button, and then, the mode will be changed as Exam window to exam.



Note)

If you do accept new image, the old image will be changed the rejected image.

7. Configuration Mode

User can set the various parameters like the 'Information', 'Display', 'DICOM', 'Body Part Management', 'Exam Settings', 'Code matching' and 'Report' except the Device, so the proper settings of parameters is important.

If you want to set the Device component, please run the DeviceConfig.exe.

7-1. General

7-1-1. Information

The information window displays

The screenshot shows the 'General' configuration window. It features a sidebar with navigation options: Information, Display, DICOM, Exam, Body Part Management, Exam Setting, Code Matching, Utility, and Report. The main content area is divided into several sections:

- Hospital:** Fields for Hospital Name, Department, and Telephone.
- System:** Fields for Product Name, Product Serial Number, Detector Name, Detector Serial Number, Generator Name, Generator Serial Number, Software Name, and Software Version.
- Date Format:** Radio buttons for Year, Month, Day; Day, Month, Year; and Month, Day, Year.
- ETC:** Checkboxes for 'Use Reject (Need to restart)', 'Use Minimize (Need to restart)', and a dropdown for 'Default Secondary Monitor (Count from Left to right)'.
- Operator List:** A table with columns for ID and Name, and input fields for Name, ID, Password, and Repeat PWD, along with Add, Delete, and Save buttons.
- Comment:** A text area for entering comments.

A 'Save' button is located at the bottom right of the configuration area. The system tray at the bottom shows a 46% battery level and the ExamVue logo.

- **Hospital:** Enter the name of the hospital
- **Date Format:** Select the Date Format
- **ETC:** Select some functions (REJECT, Secondary monitor)
- **Operator:** You can manage login accounts on the Operator List panel
- **Comment:** Write some comment

To add the Operator,

- Input the Name, ID and Password.
- Click **Add** button and then the new operator will be inserted in the list

To delete the operator,

- Select the operator's ID
- Click **Delete** button

To modify the operator,

- Select the operator's ID
- Modify some information
- Click **Save** button.

Operator List

ID	Name
Operator	OperatorName
Zwan	Joohwan

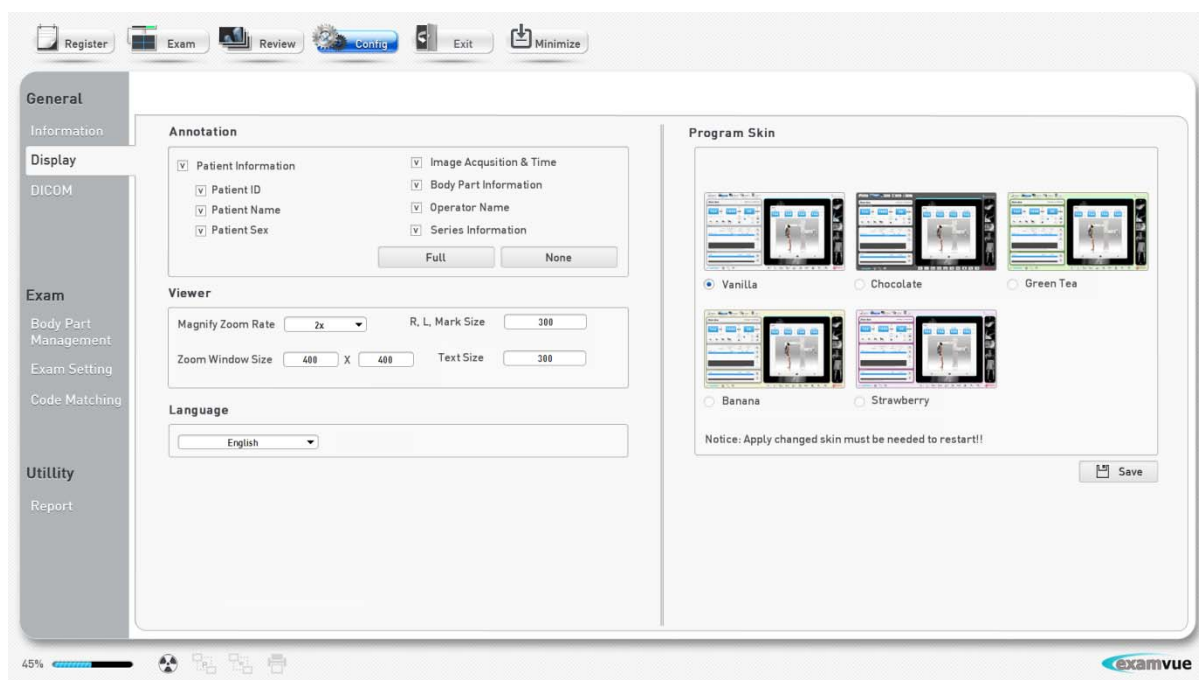
Name

ID

Password

Repeat PWD

7-1-2. Display



- **Annotations**

Select the information to display on the image.

- Full: Display all information on the image
- None: Does not display all information on the image

- **Viewer**

- Magnify Zoom Rate: set the magnify zoom rate.
- R, L, Mark Size: set the size
- Zoom Window Size: set the size of the zoom window
- Text Size: set the text size

● Language

Note)

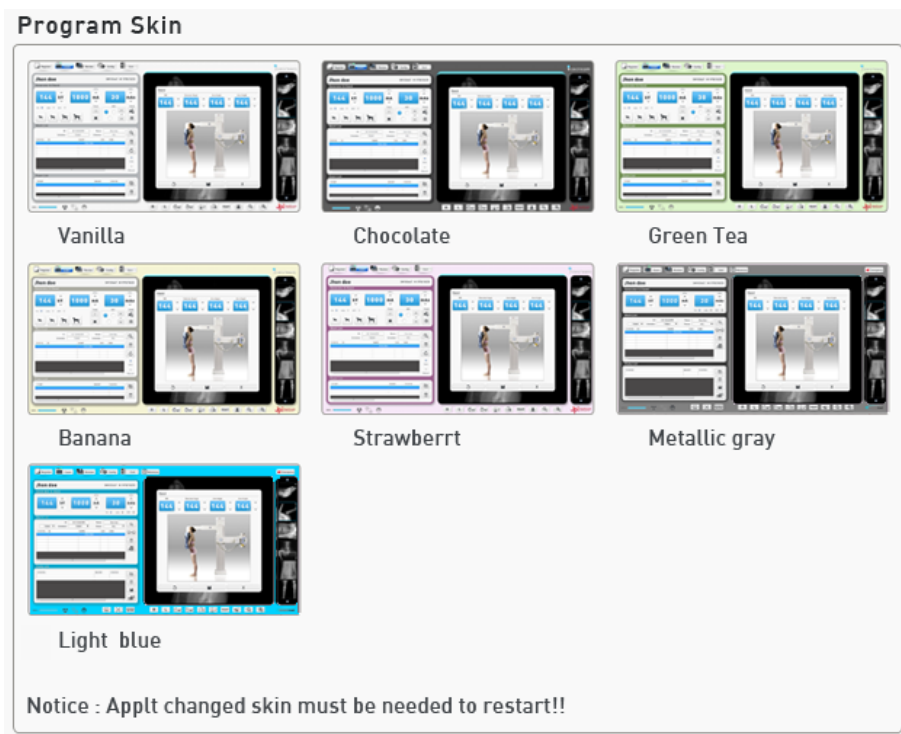
Not complete yet. This function is under development

● Program Skin

You can change the skin like the **Vanilla**, **Banana**, **Strawberry**, **Green tea**, **Chocolate**, **Metallic gray**, **Light Blue** in this mode.

To use User skin.

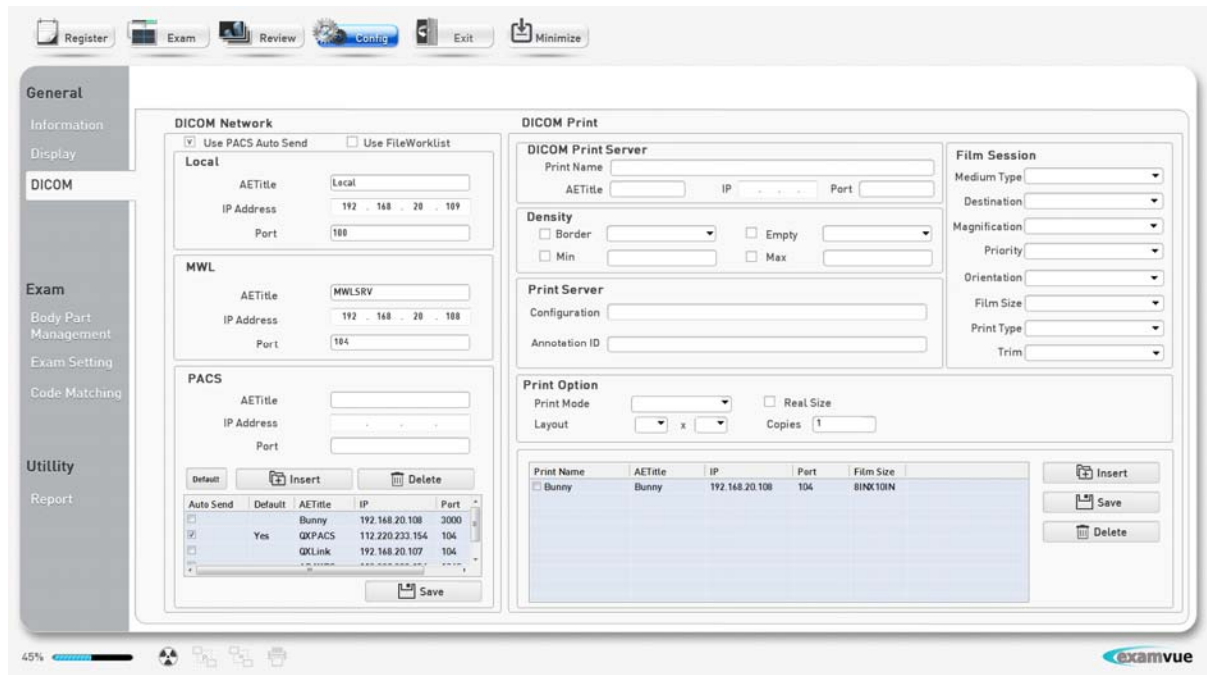
- Select the User's skin
- Click **Save** button
- Restart the program to apply



Note) after changing the skin, please be sure to restart the program.

7-1-3. DICOM

This is to set the server's environment of DICOM print and DICOM Storage.



● DICOM Network

Set the DICOM settings.

- **AE Title:** Display the Application Entity title of the Server.
- **IP:** Display the PACS Server's IP.
- **Port:** Display the PACS Server's port.

To add the PACS Server,

- Input **AETitle**, **IP Address** and **Port**.
- Click **Insert** button.

To delete the PACS Server,

- Select one registered item in the list.
- Click **Delete** button.

To set the Default settings,

If you want to send some image while you click **Close study** button in Exam mode,

- First, check **Use PACS Auto Send** item Use PACS Auto Send
- Enable the check box of **Auto Send** in the registered PACS lists.
- Click **Default** button.

It means that the image send to the PACS checked as **Default** first when sending to the PACS server.

PACS

AETitle

IP Address

Port

Auto ...	Default	AETitle	IP	Port	Status
<input checked="" type="checkbox"/>	Yes	QXPACS	112.220.233.154	104	
<input type="checkbox"/>		QXLink	192.168.20.107	104	
<input type="checkbox"/>		APAXDS	112.220.233.154	1040	

Note)



: Indicates that the server is connected.



: Indicates that the server is not connected.

● **Modality Worklist Server**

You can set the server's environment and client's environment for using DICOM Modality Worklist Service.

- **AE Title:** Display the Application Entity title of the Server.
- **IP:** Display the Server's IP.
- **Port:** Display the Server's port.

MWL

AETitle

IP Address

Port

● **DICOM Print**

Set the film and printer.

- **Print Name:** Display DICOM Printer name
- **AE Title:** Display the DICOM printer Application Entity title.
- **IP:** Display the DICOM Printer IP.
- **Port:** Display the DICOM printer port.
- **Medium type:** Select the type of film
- **Film Orientation:** Select the direction of film.
- **Border Density:** Select the minimum density area of film.
- **Min Density:** Select the minimum density area of film.
- **Max Density:** Select the maximum density area of film.

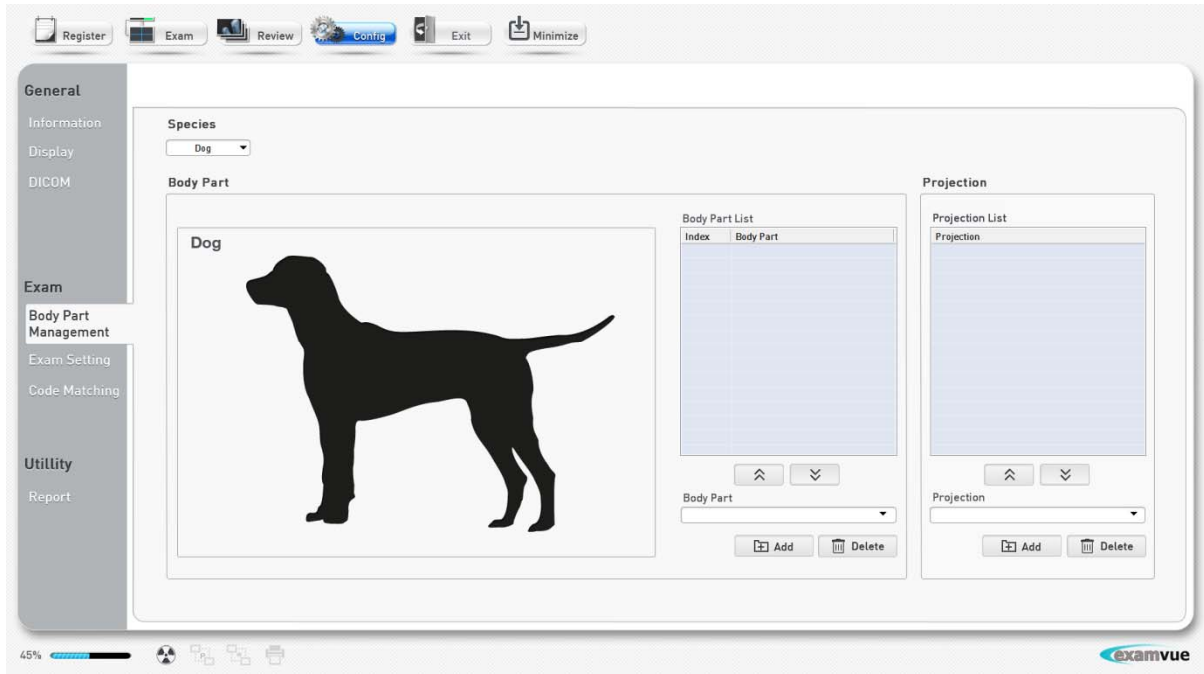
DICOM Print

<p>DICOM Print Server</p> <p>Print Name <input type="text"/></p> <p>AETitle <input type="text"/> IP <input type="text"/> Port <input type="text"/></p>	<p>Film Session</p> <p>Medium Type <input type="text"/></p> <p>Destination <input type="text"/></p> <p>Magnification <input type="text"/></p> <p>Priority <input type="text"/></p> <p>Orientation <input type="text"/></p> <p>Film Size <input type="text"/></p> <p>Print Type <input type="text"/></p> <p>Trim <input type="text"/></p>																																																							
<p>Density</p> <p><input type="checkbox"/> Border <input type="text"/> <input type="checkbox"/> Empty <input type="text"/></p> <p><input type="checkbox"/> Min <input type="text"/> <input type="checkbox"/> Max <input type="text"/></p>																																																								
<p>Print Server</p> <p>Configuration <input type="text"/></p> <p>Annotation ID <input type="text"/></p>																																																								
<p>Print Option</p> <p>Print Mode <input type="text"/> <input type="checkbox"/> Real Size</p> <p>Layout <input type="text"/> x <input type="text"/> Copies <input type="text" value="1"/></p>																																																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Print Name</th> <th>AETitle</th> <th>IP</th> <th>Port</th> <th>Film Size</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Bunny</td> <td>Bunny</td> <td>192.168.20.108</td> <td>104</td> <td>8INX10IN</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <div style="float: right; margin-top: 10px;"> <input type="button" value="Insert"/> <input type="button" value="Save"/> <input type="button" value="Delete"/> </div>		Print Name	AETitle	IP	Port	Film Size	<input checked="" type="checkbox"/> Bunny	Bunny	192.168.20.108	104	8INX10IN																																													
Print Name	AETitle	IP	Port	Film Size																																																				
<input checked="" type="checkbox"/> Bunny	Bunny	192.168.20.108	104	8INX10IN																																																				

7-2. Exam

7-2-1. Body Part Management

You can add and modify and delete the Body part in this mode.



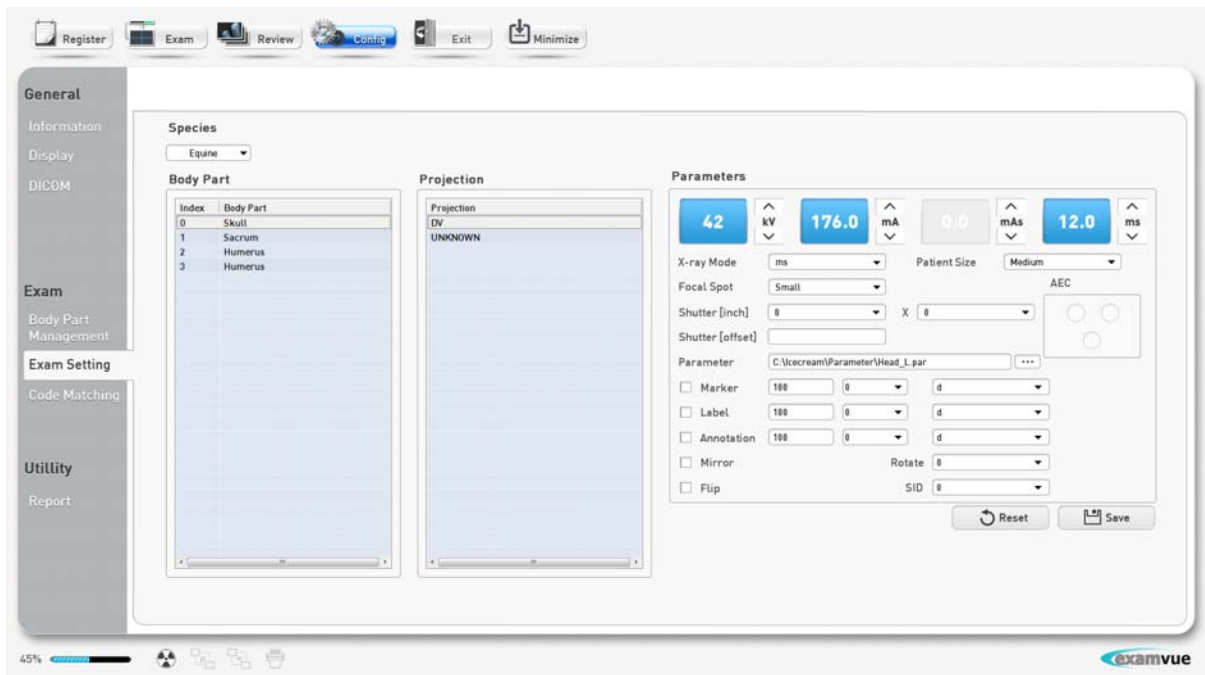
- Species: Select the Species (Equine, Dog, Cat and ETC)
- Body Part: Select the Body part
- Projection: Select the Projection

To add the Body part,

- Select the species one of all species.
- Select the region you want to be added using the Pictogram.
- Input the Body Part name in the field of the Body part.
- Click **Add** button.
At this point, the new body part will be registered in the Body part List.
- Input the Projection name in the field of Projection.
- Click **Add** button this also will be registered in the Projection List.
- After completing this work, you can verify New Body Part in the Register window.

7-2-2. Exam Settings

This function is used to set the value each of the projections during setting the parameter like the generator value, L/R Mark and etc.



- **Species:** select the species (Equine, Dog, Cat, Etc)
- **Body Part:** Select the Body Part
- **Projection:** Select the projection
- **Parameters:** Set the some information including the generator settings. (X-ray Mode, Patient Size, Focal Spot, Shutter, Parameter, Marker, Label, Annotation, Mirror, Rotate, Flip and SID)

7-2-3. Code Matching

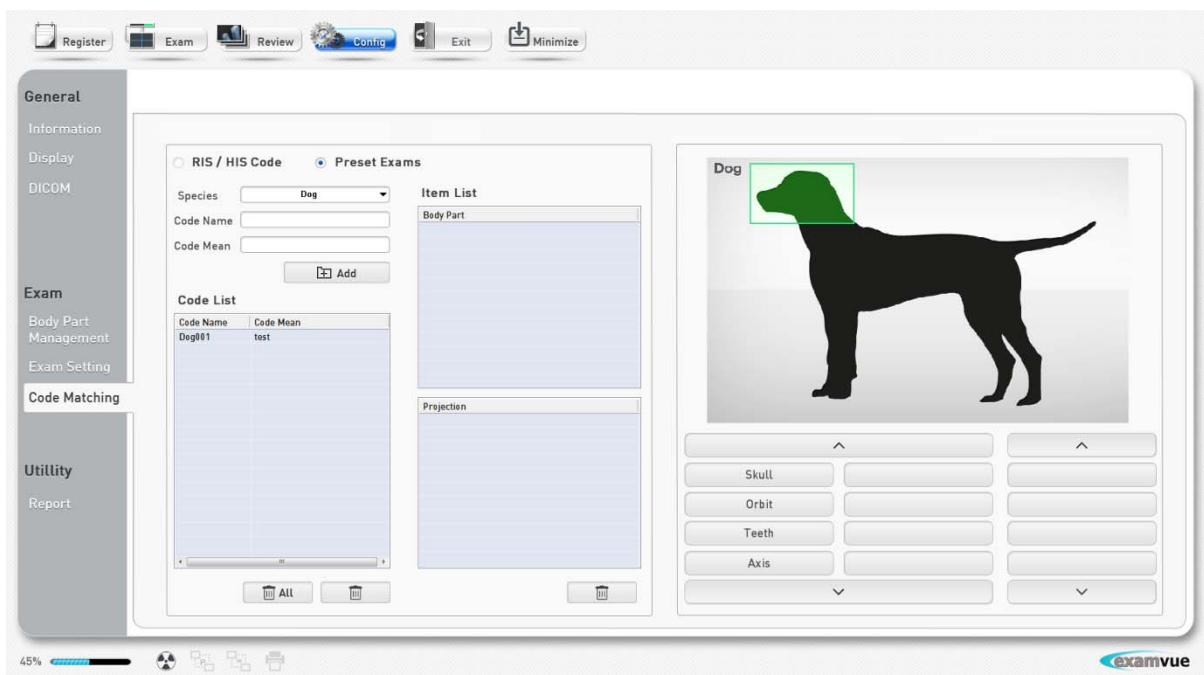
It matches the Body part and projection items with RIS/ HIS code.

- **RIS / HIS Code:** it shows all inputted RIS code.
- **Preset Exam:** it shows all registered preset exam code.
- **All (button):** delete all information of Code List.
- **Delete (button):** delete selected item in the Code list.

To use the Preset Exam,

- Check the radio button of Preset Exams.
- Select the Species type.

- Input the code name in the field of the Code name.
- Input the code Mean in the field of the Code Mean
- Click the **Add** button, at this point, the new Code will be registered and displayed in the Code list.
- Select the Body part and the projection in the pictogram. At this point, the Body part and the projection will be displayed in the Item list.



7-3. Utility

7-3-1. Report

Note)

NOT complete yet. This function is under development.

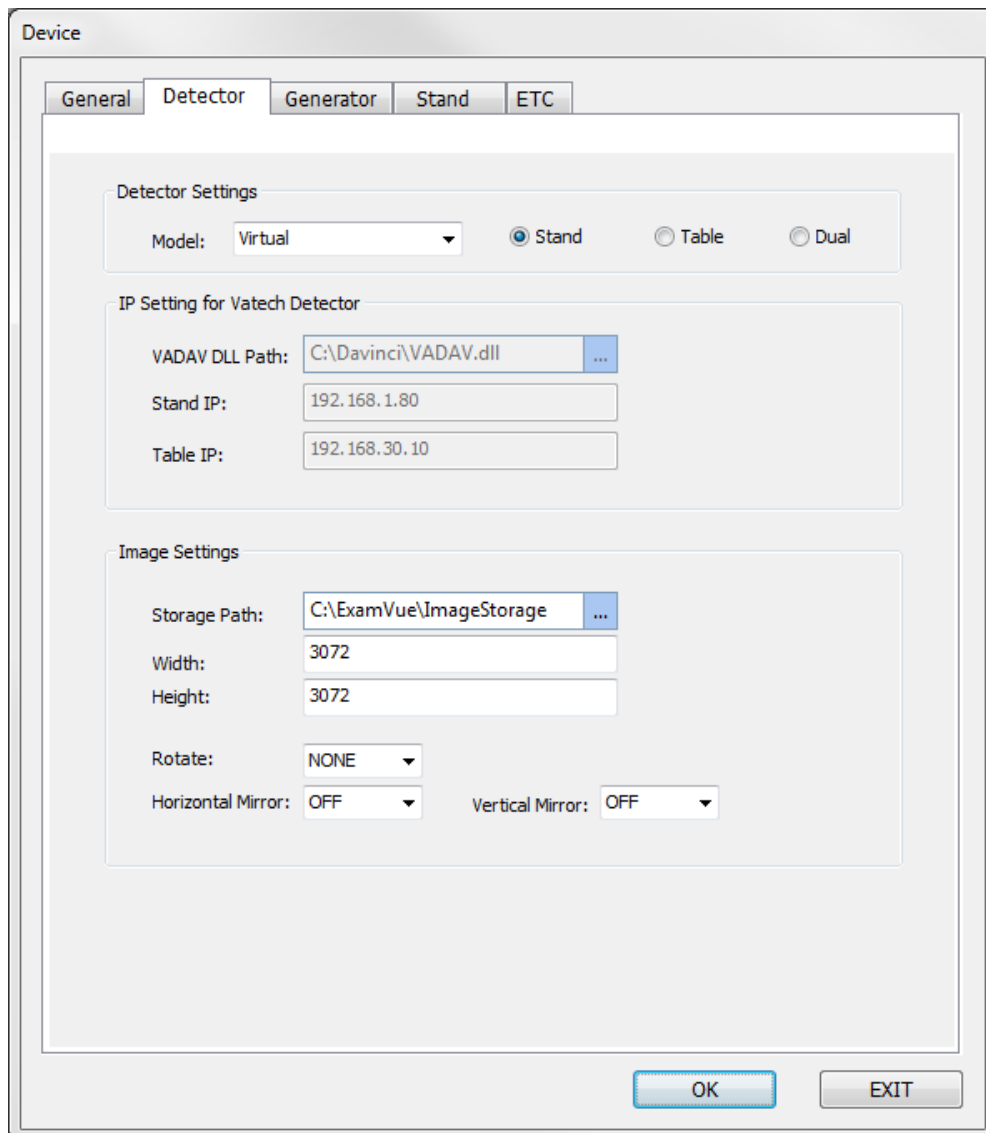
Appendix A – Setting Device and Options

User can set the various parameters that are used in the ExamVue by using DeviceConfig software, so the proper setting of parameter is important.

Configuration of Device consists of four parts:

- General:
- Detector:
- Stand:
- Etc:

The Device configuration software is located at “C:\ExamVue\” folder.



Generator type

Type	Generator	Communication	Setting
0	None		DeviceConfig.exe
1	CPI (CMP 200DR)	Serial	DeviceConfig.exe
2	Poskom PXR	Serial / Parallel	DeviceConfig.exe

Detector type

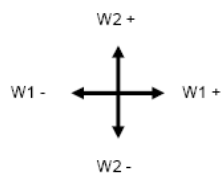
Type	Detector	Communication	Setting
0	Virtual		DeviceConfig.exe
1	Xmaru1717	TCP/IP	DeviceConfig.exe
2	Toshiba FDX3443RP	TCP/IP	DeviceConfig.exe
3	Toshiba FDX4343R	TCP/IP	DeviceConfig.exe
4	Atlaim ATAL8C	TCP/IP	DeviceConfig.exe
5	Teleoptic IONA-R-02 Note) under development	TCP/IP	

Appendix B – How to use Mouse

Mouse is a device to move cursor and object on the screen.

Following are the instructions for using Mouse.

- Left button: Choose an image
- Right button: Display option menus in the thumbnail window.
- Wheel: Roll the mouse wheel up and down to switch between images when multiple images are selected.
- Drag: Adjust window level. Press and hold the right mouse button while dragging the mouse to adjust Window Level on the image window.




Appendix C – Software Structure

Software Structure

#	Component	Description	Note
1	ExamVue.exe	General SW application of ExamVue Software complex. It is intended for image acquisition from some detector being under control of x-ray equipment, as well as for analysis and transmittance of images within DICOM network.	
2	DeviceConfig.exe	SW Application for Hardware adjustment of Detector, Generator, Auto-collimator and Stand.	
3	DICOMTagViewer.exe	DICOM Tag Viewer utility	
4	JDicomSender.exe	Module for medical report compiling	
5	JBurnCD.dll	CD/DVD burn utility	
6	SampleView.exe	Patient CDs viewer	
7	FeekTK.dll	Image Processing utility	
8	Aladdin.dll	USB Lock Key	

Appendix D – Troubleshooting

This document gives instructions about troubleshooting for **ExamVue** program files.

Solving General Problems		
Problem	Cause	Solution
The ExamVue cannot run when I double-click shortcut icon on the desktop.	Computer is in DEP ON	Run DAP_Setup.bat which located to the C:\ExamVue
The message of " Key Lock not found displays " on the screen 	Not insert the USB Key	Check the USB key
The message of " Can't to the Detector " displays on screen	<ol style="list-style-type: none"> 1. Detector's LAN cable is plugged into the wrong connector 2. Network setting is wrong 3. VADVA.dll is missing <p>Note) It is available when the Xmaru1717 detector is connected</p>	<ol style="list-style-type: none"> 1. Set the right LAN Cable. 2. Set the right IP number of Detector on the _vadav 3. Set the right IP number on the computer