



i²View

Quick Start Reference Manual

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OVERVIEW

i²View Veterinary Imaging Viewing Software is designed for routine use at locations inside and outside a hospital or other institution. Running under Microsoft Windows XP[®], *i²View* lets you load, display and manipulate virtually any medical image or patient study that may consist of an individual or a series of digital images. With *i²View*, you can import CT, MR, Digital X-ray (DX), US multi-frame, and many other types of images, either from a digital outlet or via secondary capture (e.g. digitized or frame-grabbed images). *i²View* also supports 8-bit to 16-bit pixel images and 16-bit through to 24-bit true-color images. In addition to displaying images for diagnosis and reporting, *i²View* can manage many other areas, such as archiving, transmitting (sending and receiving), printing, and 3D image manipulation.

i²View is designed to combine its powerful functionality with ease of use for everyone, even those without extensive computer experience. As with other Windows[®] applications, you can use the menu bars to perform your tasks, although you will often find it much quicker to use the mouse, keyboard shortcuts, or toolbar buttons for many tasks, especially those you perform frequently. A little time spent becoming familiar with using these will pay dividends in terms of your speed and efficiency.

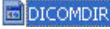
This chapter offers a very brief introduction to *i²View* and the philosophy behind it. It covers the general way you will work with viewing images, writing reports and printing images.


A) The Work screen

The basic functions of *i²View* are divided between viewing images, writing reports and printing images. The screen at right always appears when you first start *i²View*. It lets you manage your images and patient studies and load them from local or remote archives and other sources.



A1) The Search list

On the left side of the initial window is the **SEARCH Icon**. Click on this icon and use the search filters to find and load the studies you want. [Note: Using the keyboard shortcut Ctrl + "S", the search list will pop up.] To load images from a **DICOM** directory, click on the **SEARCH Icon**. In the **SEARCH Window**, click on **DICOMDIR**. In the **OPEN Window**, navigate to the folder where the DICOM directory is located. When the correct folder is identified, double click on the  file (or highlight the file and click Open). In the **DicomDirBrowser Window**, click on the

patient folder then . This will trigger the software to load the DICOM directory into the database. Once the DICOM directory is loaded, the patient information will appear in the **SEARCH Window**. [Note: If the patient information is not present in the **SEARCH Window**, click on the **SEARCH Button**.] Highlight the patient you want to view and click the **VIEW Button**. The patient dataset will now load.

i²View provides two methods to find studies. You can use the **Search** icon located in the tool bar or you can use the Advance button located at the bottom of the **Search Bar**. For reports, you can use the Search list on the Report window.

A2) Displaying Work Bars

To display the **Thumbnail Bar**, **Search Bar**, **Collect Bar**, **Navigation Bar** or **ScoutImage Bar** on the viewing screen, click on either AVT logo located at the top and bottom of the left side of the screen. Then go to **View** and check the desired bar. The chosen bar will be displayed on the right of the screen.

You can move and display any bar to other edges of the screen, or hide it altogether to give yourself more viewing area. To move a bar to another part of the screen, click on the title bar of the bar you want to move with the left mouse button. While holding the mouse button down, drag it to the center of the viewing area, and place it on one of the arrows shown in the middle of the screen. Release the mouse button. Your bar will now be docked at the new location.

To “auto hide” the bar, click on the push pin located at the top right of the bar. When you “auto hide” a bar, the bar will appear when you move the mouse over bar tab located at the right edge of the screen. To remove the bar, click on the X located at the top right of the bar.

The Thumbnail Bar in Detail

The Thumbnail is a powerful navigation tool which lets you see – and select – which images you are displaying in your viewports. It always shows all the images that were opened for viewing, even if you have opened a number of series or several studies for viewing at the same time.

- 1) Click on the study in the study tree located at the top of the thumbnail.
- 2) Expand the study tree by clicking the small + icon before the study name. The series belonging to the study will be expanded.
- 3) Click on a series and all the images belonging to the series will be displayed in the viewing area and a thumbnail of each image will be displayed in the thumbnail area.
- 4) Expand the series by clicking the small + icon.
- 5) You can quickly move to exactly the images you want to view by clicking on the thumbnail. Images marked in the thumbnail area will now be marked in the viewports. To mark multiple images, hold down the CTRL key while clicking on the images.
- 6) You can resize the thumbnail area to give yourself more viewing area. To change the width of the thumbnail area, click on its left-hand border and drag left or right.

The Scout Image Bar in Detail

- 1) Drag one image into the **Scout Image** bar.
- 2) Change the image display to series mode using the **Series** icon.
- 3) Right click the image in the **Scout Image** bar and choose one of the scout modes shown. There are three scout modes: *First and Last Lines*, *All Lines* and *Current Line*.
- 4) Click on the series and scroll through the images with the mouse scroll button. The Scout will move as the image changes.
- 5) Use the *Zoom* and *Pan* command (right click on scout image) to magnify and pan the images in the **Scout Image** bar.

A3) Performing Tasks

You can perform almost all of your tasks using the menu bar (located at the top left), toolbar icons (located below the menu bar) or the menus that pop-up when you right-click in the image viewing area. A brief description of any icon will be shown when you pass the mouse over the icon. The toolbar is divided into three parts: User Group, Image View, Report and Print.

User Group: You can add your most frequently used icons to the User Group. Grab an icon by clicking and holding down the left mouse on an icon and drag and drop the icon into the user Group. It will appear in the User Group the next time you start *i²View*.

Image View: *i²View* provides powerful tools for viewing images. You can window, invert, flip or rotate your images, zoom in for a close look (or use a magnifying glass which you can drag over the image). Cine loops (film clips of a series of scans) are also available. Many kinds of measurement facilities are provided, from probes to regions of interest and profiles. You can also add various annotations, such as image overlays (text and markers pointing out particular features for example).

Print: You can perform all of your print operations in this area. For instance, you can adjust the layout of the films, or choose the template you have already designed.

Report: This area provides the function of writing and editing reports. You can open, save and print reports. With a study loaded, click on the **Report** icon. The report will be displayed in the center of the screen.

B) Image processing

Once you have opened a study for viewing, *i²View* provides numerous options for examining them. You can quickly create cine loops, examine images in detail with 'magnifying glasses', and a great deal more. Measurement and other annotation tools are also at hand. Changes made to images can be recorded. You can use the viewing area to manipulate and view studies for comparison and diagnosis.

B1) The Viewing area

The center of the screen consists of rectangular viewports. These are where you view your images. Each viewport will contain a single image from your series or study. You can display a single viewport, or a matrix of various sizes. Whenever you are displaying more than one viewport, one of them will always be *active*. Whenever you do anything such as zooming or panning, *i²View* will update this viewport first. To make a viewport “active”, click anywhere inside the viewport. Your “active” viewport is highlighted by a box surrounding it (yellow on color displays, white on monochrome).


To change the layout of the viewports, click the **Layout** icon located under the **Image View** menu and choose 1X1, 1X2, 3X3.....to adjust the matrix of the viewing area. Alternatively, you can use the keyboard shortcuts: Ctrl +”1”, Ctrl +”2”, Ctrl +”3”, Ctrl +”4”, Ctrl +”5”, to adjust the layout of the image. Many of layouts of the viewports are available - from a single window to 81 windows - in any combination you desire. Depending on the procedures in your organization and how *i²View* has been configured, studies may be opened using pre-defined layouts thereby automatically being displayed in just the way you desire.

To display one image from a layout in full screen, simply double click on the image you want to display. You can use the mouse scroll to run through the images quickly. Double clicking on the full screen image changes it back to the original layout.


To display (toggle) the viewports on the entire screen, use the **Main** icon located at the bottom left of the screen.

B2) Viewing the Series Mode



- 1) click the **Series** Icon  and choose a series
- 2) scroll through the images in the series using the mouse scroll
- 3) to select the whole series for other functions, use the keyboard shortcuts Ctrl +”E”.
- 4) double click the images to display full screen



- 5) to return into instances mode, click the **Instance** Icon. 

B3) Viewport Active Image Functions:

There are six areas of any viewport that are “active” for quick access to user functions. They are accessed by passing your mouse over the area that contains the function (the mouse will change when you are within the area). Use the left mouse button to activate the function and then move your mouse accordingly.



1) In the **TOP LEFT** area is the image **Zoom** function. With the left mouse button held down, dragging up and down will zoom the image in and out.



2) In the **TOP MIDDLE** area is the image **Flip** function. With the left mouse button held down, dragging up and down will flip the image up and down, dragging the mouse left and right will flip the image left and right.



3) In the **TOP RIGHT** area is the **Pan** function. With the left mouse button held down, dragging the mouse will move the image within the viewport.



4) In the **BOTTOM LEFT** area is the window-level function. With the left mouse button held down, move the mouse and the window-level of the image will be changed.



5) In the **BOTTOM CENTER** area is the image rotate function. With the left mouse button held down, move the mouse left and right to rotate the image (counter clockwise and clockwise, respectively) by 90 degrees. Move the mouse up or down to rotate the image by 180 degrees.



6) In the **BOTTOM RIGHT** area is the magnifying glass. With the left mouse button held down, drag the glasses over the image.

B4) Examining Images in Detail using Zoom

You can use the **Zoom** icon to zoom in or out on images. You can use the magnifying glasses to zoom in on a particular area of an image.

- 1) Click on the **Zoom** icon located under the **Image View** menu.
- 2) Drag the mouse on the image while holding down the left button. Drag up to zoom in, drag down to zoom out.
- 3) Click on the **Zoom** icon located under the Image View menu.
- 4) Drag the mouse on the image while holding down the left button.
- 5) To change the magnification of the glasses, click on the **Zoom** icon and hold the mouse button down for 1 second.
- 6) Choose the desired magnification **Zoom** mode from the icon list.



B5) Windowing

Windowing is one of the most common tasks in digital medical imaging. You can window quickly and easily using the right mouse button, or more precisely using the Windowing tool.



- 1) Click with the right mouse button in one of your viewports and hold the mouse button down. Now, keeping the mouse button pressed, drag the cursor to the left or right to adjust the center, and up and down to adjust width (or a combination of the two). The cursor will change into a sun symbol while you do this.
- 2) Click the **W/L** icon on the view toolbar to adjust the center and width.
- 3) Right click the image and choose Tools->W/L->Set window/Level, enter the window and level to adjust it more precisely.
- 4) Right Click the image and choose Invert from the pop-up menu to display the negative of the gray scale of an image or images.
- 5) Restore the original windowing settings by clicking the **Reset** icon on the view toolbar.
- 6) This will return all your images in your viewports to how they were when you first opened the study.

B6) Viewing Cine Loops

- 1) Click the **Series** icon to change to **Series** mode.
- 2) Choose a series.
- 3) Right click the mouse and choose the **Play** function in the pop-up menu.
- 4) Left click the series again to stop.

B7) Pseudo Colors (palette)

i²View provides numerous pseudo colors to colorize images. To select a new palette color with which to view images:

- 1) Right click on the image and select Pseudo color from pop-up menu. Select the palette you wish to use from the list that appears.
- 2) To cancel the color map, select Pseudo color -> Pseudo color mapping

B8) Measuring and Annotating Images

- 1) You can perform all kinds of measurements on your images and also include annotations to point out specific features. Annotations are overlays (placed as though on a transparent film over the images), so that they do not affect the original images. You can save annotations with your images so that they can be seen when the study is opened again for viewing. To choose an annotation function, click the **Line** icon on the View toolbar and hold for 1 second then choose whichever function you want.



Draw a line on the image:

- 2) Click the **Line** icon then move your mouse to one of your viewports and draw a line.
- 3) You can reposition the line by clicking on the arrow and dragging it with the mouse.
- 4) You can delete a line by highlighting it and hitting the delete key.

Write text on the image:

- 1) Click the **Text** icon and double click on a viewport. Enter some text.
- 2) Click on the text and drag it to a new position in the viewport.

Draw a Rectangle\ Ellipse\ Polygon on the image:

- 1) Click **Rectangle**, **Ellipse** or **Polygon** icon and draw it on the viewport with the mouse.
- 2) Note the information that pops up in the ROI Statistics window. Experiment with resizing and moving your ROI's.

Draw an angle on the image:

- 1) Click on the **Angle** icon and then in a viewport.
- 2) Click the image where you want to mark the angle, dragging the mouse on the image and left click, then move an angle and left click to end the angle.

Draw an arrow on the image:

- 1) Click the **Arrow** icon and then click in a viewport.
- 2) Hold down the mouse button, Drag to another part of the viewport and release the mouse button. Move the two ends of the arrow in turn by clicking and dragging on them.

Use the Point icon:

- 1) Click the **Point** icon in the list then in a viewport.
- 2) The number next to the cross hair indicates the pixel value at the position of the cross hair. Drag the probe across the viewport and note how the pixel value changes.
- 3) Remove the probe by dragging it outside the viewport.

C) Reporting

You can readily write your reports while working in *i²View* by using the Reports window.

C1) Opening and Editing a Report

If the report window has not been opened or has been closed, you can open it by clicking the **Report** icon in the report toolbar or by clicking the **Report** button on the **Search** list. When the report has been opened, you can edit it. By using the report template we have already defined for you, you can write report very quickly.

- 1) Modify the patient information on the top part of the report. Click the show button on the report area to show other information of the study.
- 2) Choose the modality and body part from the dropdown list of the patient according to the images of the study. The modality tree at right will be expanded to locate the modality and body part you have just selected.
- 3) Double click the report template you want to use or you can drag it into the report editing area. If you are familiar with the report template you use frequently, then you can enter the shortcut of the template name on the shortcut edit box, the template you are looking for will be shown below. You can double click or drag it into the report editing area.
- 4) Click the positive box to define the study is positive.
- 5) Choose the veterinarian's name from the dropdown list, or you can just enter your own name on the box.
- 6) Click save button to save the report.
- 7) Click the clear button to clear the information you have already input.

C2) Printing the Report

After you have edited your report, you can print it.

- 1) Click the SelLayout button on the bottom to select the report template. Choose the template according to the modality of the study, and then click the **Set as Default** button. Click ok to return to the report.
- 2) Click the Preview button to check report
- 3) Click the Print button to print the report.

C3) Adding the Report Template

Although we have provided several report templates, you can also create them by yourself.

- 1) Click the show button to open the adding area.
- 2) Select the body part, and then click **AddFolder** button and enter the fold name.
- 3) Select a folder and enter the Display Name; Shortcut; Finding; Impression, then click **AddTpl** button to add it in the tree.
- 4) Select a template, change the information of the template and then click the modify button to update it.
- 5) Select a template and click the delete button to delete it.

D) Printing Films

Selecting images

You can select single images or multiple images.

- 1) Click an image to select it.
- 2) Press the Ctrl button on the keyboard to select multiple images.
- 3) Click the **All** icon in the view toolbar to select all the images.

Send the images to the print frame

After you have selected the images, you can use the **Send** icon in the view toolbar to send the images to the print frame. Click on the **Send** icon and down the mouse button for 1 second. Select Send1X1, Send1X2 etc. The chosen images will be sent to the print frame.

Adjust the print frame

Adjusting the layout of the print frame:

- 1) Use the **Layout** icon in the print model to change the layout of the print frame.
- 2) Choose a cell in the print frame and click on the **Split** icon for 1 second. Choose Split1X2, etc.
- 3) Click and drag the edge of a cell to define the grid function yourself.
- 4) Use the **DelGrid** icon to delete the layout of the cells.
- 5) Click the small arrows located in the top right area of the print frame to turn the pages.