i-CAT Vision Quick Start Instructions

If you have received an iCATVision CD with an iCAT case on it, go directly to page #5: Operating iCATVision.

We are pleased to provide iCAT Vision free of charge to anyone with access to iCAT scans with no limit on usage and number of copies. However, since this software is restricted to iCAT scans, it necessitates an "authentication" of DICOM data (standard medical digital data format), which is performed by a separate program called "iCATTransfer". This module only needs to be installed and executed on the iCAT Acquisition computer, which is the computer that captures the scan (or another computer on the same network in special cases). iCATTransfer module would authenticate and store all newly exported DICOM data (from iCAT software to a designated "Watch folder") to the designated "Image Root" folder. This Image Root folder would typically reside on a server or another central storage location.

iCAT Vision module, which is a separate program, can be installed on any desired computer where the images would be visualized. If these computers are on the same network where the iCATTransfer is running, then they would have direct access to the patient images. If a particular copy of iCAT Vision is running outside this network (e.g. a referring doctor's office), then the applicable patient data could be transferred via a CD to the remote computer's Image Root folder. To reiterate, iCAT Vision would only accept DICOM data that has been authenticated by iCATTransfer.

Accessing i-CAT Data: iCATTransfer requires data to be exported from the iCAT software in DICOM3 **Multi file** or **Single file** (recommended) format. Single file format is more manageable since it is a single large file, instead of hundreds of smaller files. Both types undergo a lossless compression by iCATTransfer.

We recommend that you set up the file structure as follows:

1. On the iCAT Acquisition computer, first create an **"iCAT Vision"** folder under the **C:** drive.
2. Then create a subfolder under iCAT Vision called "**iCAT Vision Watch**". This is where the Dicom 3 data will be exported to.

File structure on iCAT Acquisition computer under the **C:** drive:
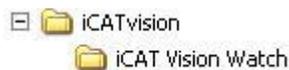
3. On the server or central storage location create another folder named **"iCAT Vision".**

4. Under this iCAT Vision folder create a sub folder named **"iCAT Vision Root"**

File structure on server/central storage location:
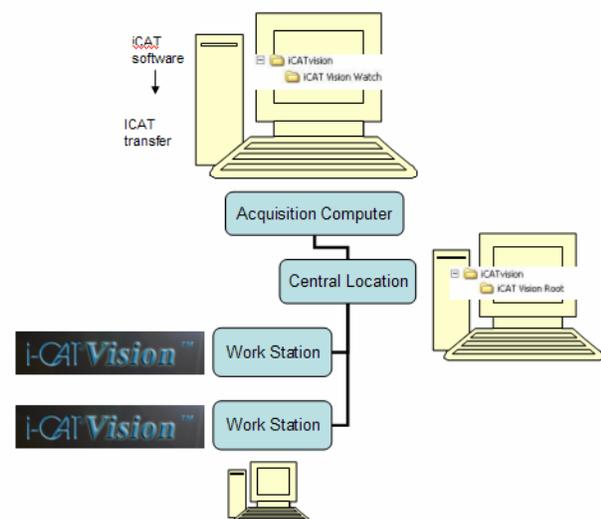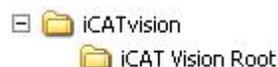
To create a new folder:
1.Open Windows Explorer
2. Click the drive or folder in which you want to create a new folder.
*3. On the **File** menu, point to **New**, and then click **Folder**.*
4. Type the name for the new folder and then press ENTER.

*If a server/central storage location is not available, then create the iCAT Vision Root directory on the iCAT Acquisition computer's **C:** drive under the **iCAT Vision** Folder.

The patient data MUST be exported in DICOM3 format (single file recommended) from iCAT software to the iCAT Vision Watch folder, where the data will be converted by iCATTransfer. This can be accomplished by creating a 1-click Image Output action item in the iCAT software (please refer to iCAT Manual, chapter 3, section 3.10 for more details). Then iCATTransfer will automatically place the converted data into the iCAT Vision Root folder.

Installing iCATTransfer and iCATVision:
The 2 files that have been sent to you are in ZIP format. Unzip these 2 files to the **iCAT Vision** folder. iCATVision.zip will unzip to iCATVision.exe and iCATTransfer.zip will unzip to iCATTransfer.exe. Double click on each .exe file to execute the programs. You can create shortcuts for these 2 programs on your desktop.
To unzip a file:
*Right-click the file and then click **Extract** on the shortcut menu.*
To create a shortcut:
*Right click on the file and on the file you want to create a shortcut for. Point to **Send to** and select **Desktop (create shortcut)**.*

iCATTransfer Passcode:
When the iCATTransfer program is first launched, it will open to an iCATTransfer Validation Screen (below) where you will receive instructions to send an email to Imaging Sciences at keys@imagingsciences.com with your customer information and the authentication code shown on screen.

iCATTransfer Validation Screen

This computer is not licensed to execute iCATTransfer. In order to be granted a license, please send an email to:

keys@imagingsciences.com

and supply the following information:

    - Your valid return email address
    - Your First and Last Name
    - Your Title
    - Your Institution Name
    - Your Institution Full Address
    - Your Telephone Number
    - This Key:

78C_FFPHONQSNS_U32_1   [Copy Key To Clipboard]

If you have already sent the above information and have received a Response Key, please enter it here:

[OK]   [Cancel]

When we receive this email information, we will create a Passcode and email it back to you. This Passcode will have to be entered into the iCATTransfer Validation Screen in the bottom field in order for it to open. Once the program is opened, follow the instructions below.

Initial iCATTransfer Setup:
Once installed, this program must be configured to "watch" for exported Dicom data from iCAT in order to authenticate it and transfer it to the image root directory. Also, the program will need to be running in the background in order to detect the exportation of the Dicom Data. You may want to place the iCATTransfer program into the StartUp Menu on you iCAT Acquisition computer (or server).

To Configure the program: Launch the iCATTransfer program and the following window will automatically appear:
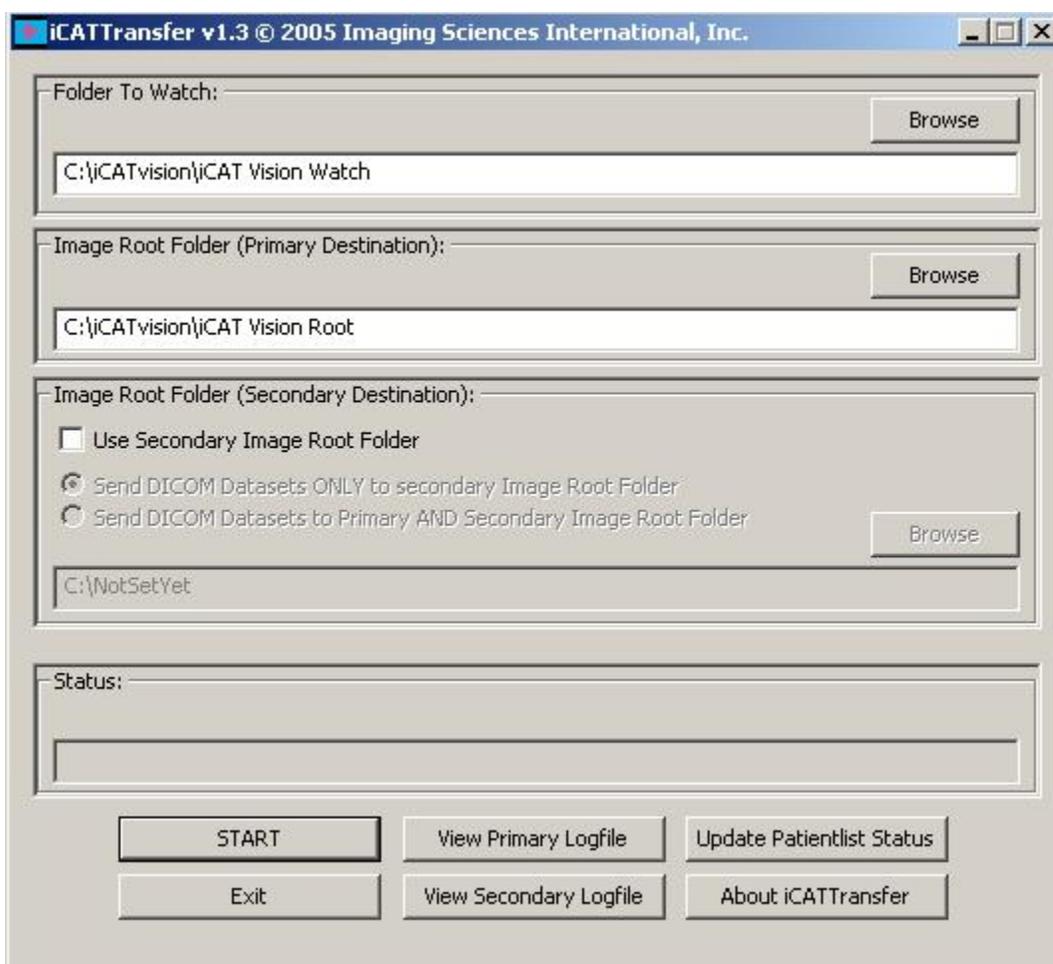
1. Under **Folder to Watch,** Browse to the **iCAT Vision\ iCAT Vision Watch** directory and select. (This is most likely to be on the C: drive of the iCAT Acquisition computer).

2. Under **Image Root Folder (Primary Destination)**, Browse to the **iCAT Vision Root** folder and select. (This is most likely to be on a server/central storage location).

3. Now click on "**Start**".   If START is not clicked the transfer program will not work.   Now the program can be minimized. Remember, iCATTransfer must be running (can be minimized) in order for the data to transfer.

> (To put iCATTransfer into the **StartUp** Menu: right click on the START button and select OPEN. Double click on *Programs* folder to open and then double click on the *StartUp* folder to open. Copy the iCATTransfer.exe file into this StartUp folder).

Initial iCAT Vision Setup:
From iCAT Vision select *Tools / Setup*. Under **DICOM Database Root Folder**, Browse to the **iCAT Vision\ iCAT Vision Root** directory and select. (This may be on the C: drive or on a networked drive).

The DICOM Import Controls are no longer necessary so disable the "Enable Auto-Transfer" if not already (click to uncheck the box).
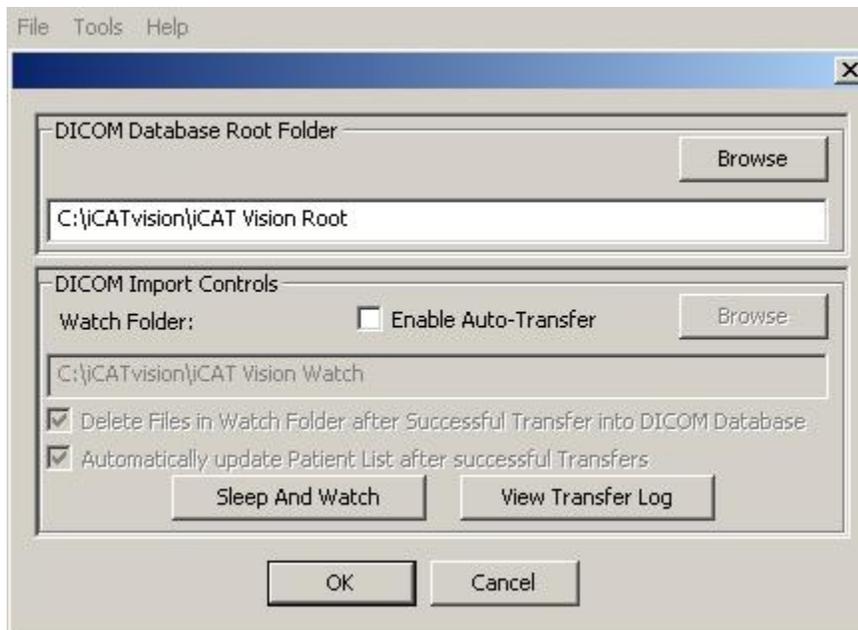
Configure this iCAT Vision setup in the same manner at all desired networked computers or workstations.

==We are currently recommending that when using iCAT Data for 3rd party software, perform a separate Dicom export from iCAT. The data will be interchangeable== when third party systems start accepting compressed DICOM

Operating iCAT Vision: Open the program and click on the Patient Name in the patient database list at the top left corner of the window.

Caution: DO NOT do anything in a patient study until the status bar located at the bottom of the window indicates that the patient data is fully loaded.

Wait until [Loading Image Data... W: Window L: Level / 28226.3915.19592.3023.24831] looks like [Image Data in Memory W: 5500 L: 500 / 28226.3915.19592.3023.24831]

The Preview Screen:

Double click on this panoramic view to enter the implant screen

Double click on this sagittal view to enter the ortho screen

Double click on this coronal view to enter the MPR screen

Click on the red or green line to switch between the maxilla and mandible

Double click on this axial view to enter the TMJ Screen

Patient List

Patient Info

Click and drag these blue dots to adjust the pan map

Hiding the Patient List:
The Patient List can be hidden by clicking **Tools / Hide Patient List.** To Show the Patient List again, click **Tools / Show Patient List**.

Cursor tools:

All views have this *window level* cursor tool. When your cursor looks like this, click and drag up, down, left, and right to adjust brightness and contrast

In the Planning Screens, if you move the cursor to the bottom left of an image, the *pan* cursor tool will appear. Click and drag to move the image up, down, left or right within its window.
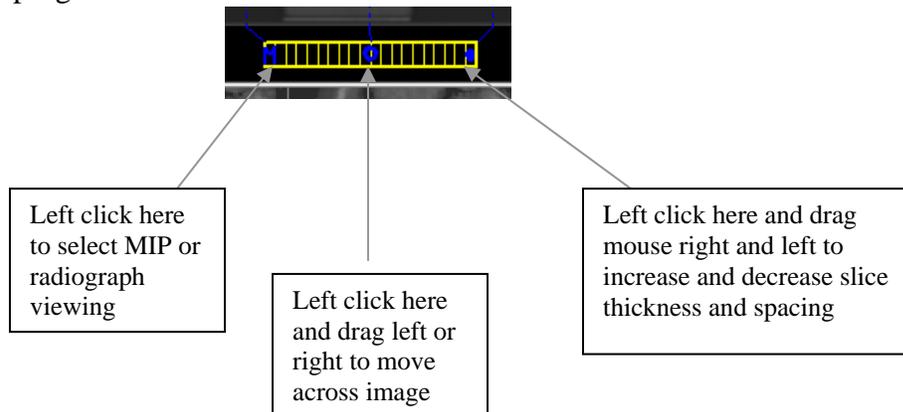
In the Planning Screens, if you move the cursor to the bottom right of an image, The *zoom* cursor tool will appear. Click and drag up and down to zoom in and out.

Back Tool: to exit out of a planning screen back to the Main Display, move the cursor to the very top left corner of the screen until you see the "X" and click. Or click on the **Level Up** button on the Main Menu bar.

Slice Controls: The following slice control bar is found in various views and positions throughout the program:

Left click here to select MIP or radiograph viewing

Left click here and drag left or right to move across image

Left click here and drag mouse right and left to increase and decrease slice thickness and spacing

Measurements:
➢ To make a hounsfield unit (Bone Density) measurement, Right click on a view and select "HU Statistics." Click, drag, and click to define an area. Statistics will appear in upper right corner. A maximum of 4 HU stats can be taken at a time in a normal view and 2 in a cross section view.
➢ To make a linear measurement, right click on a view and select "Distance". Point, Click, drag, and release to draw a line. A measurement in mm will appear in upper left corner. A maximum of 9 distance measurements can be taken at a time in a normal view and 4 in a cross section view.
➢ Right click and select "HU Stats" or "Distance" again to turn the tool off
➢ Right click on the actual measurement statistic to remove, inactivate, or activate them.

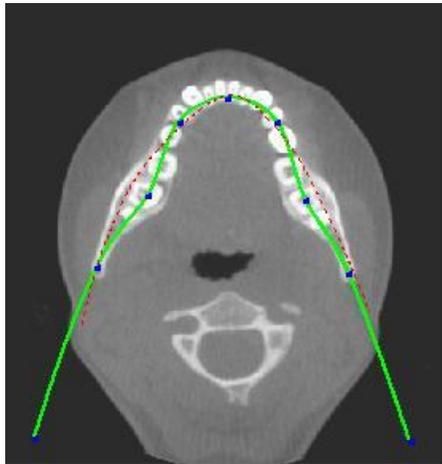Distance stats

HU stats
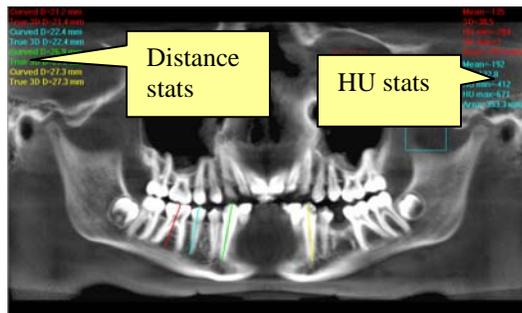
Filtering Defaults:
There are already filters applied to all images. The filters are defaulted as seen below.
1. Preview Screen: Select "Hard" for all images.
2. Implant Screen: Select "Hard" for all images.
3. TMJ Screen: Select "Hard" for first 3 and "Normal" for Condyle Ortho Images.
4. MPR Screen: Select "Normal" for all images.
5. Ceph Screen: Select "Very Sharp" for Upper Left Right Lateral and "Hard" for all others.
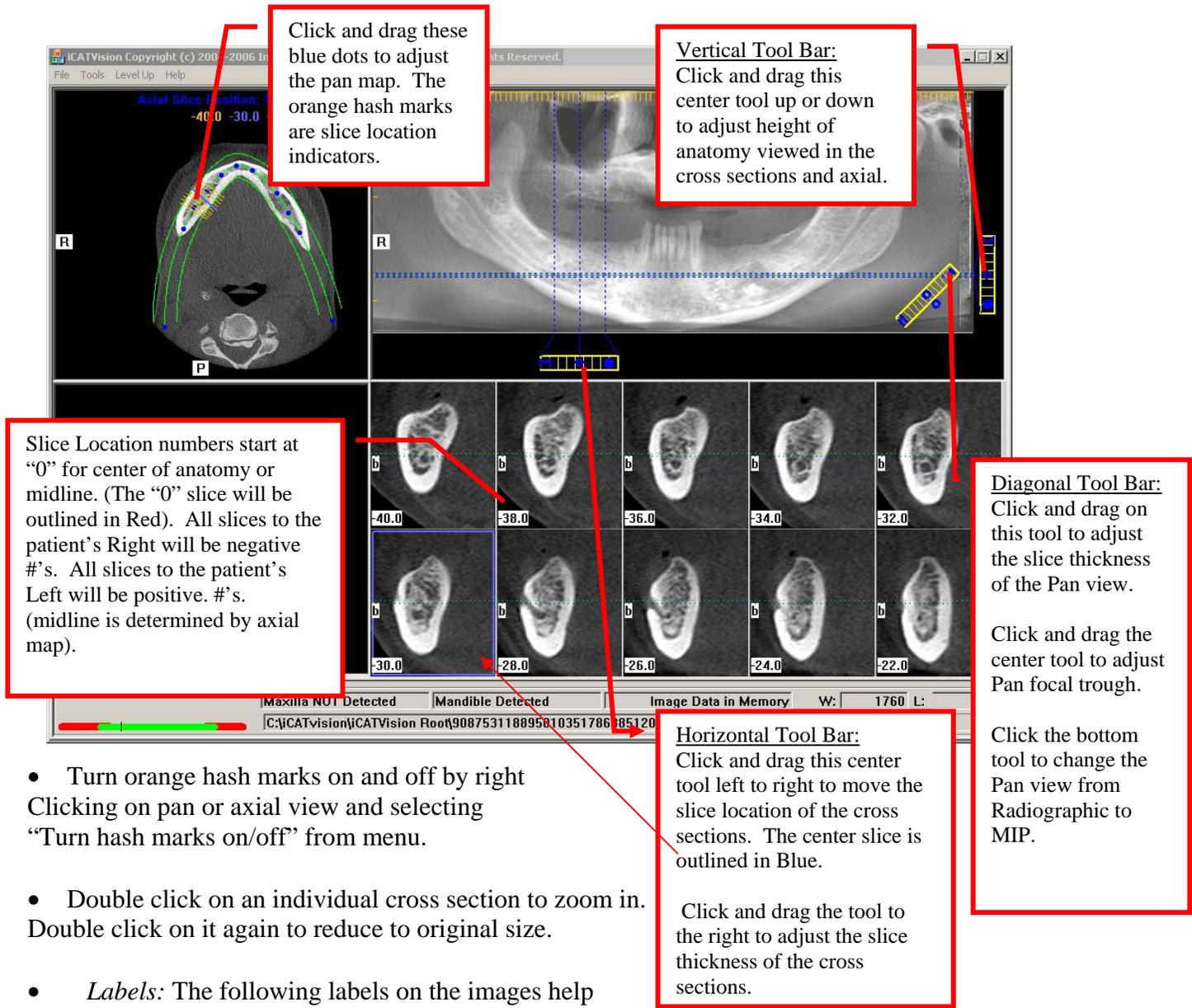
These defaults can always be changed by Clicking *Tools / Filter Settings / Set Filters*. They can also be changed "on the fly" by right clicking on an individual image, selecting *Filter Setting / Set Filter* and clicking on the desired option (Smooth, Normal, Hard, Sharp, Very Sharp). They can be changed back to the default by clicking *Tools / Filter Settings / Reset to Default.*
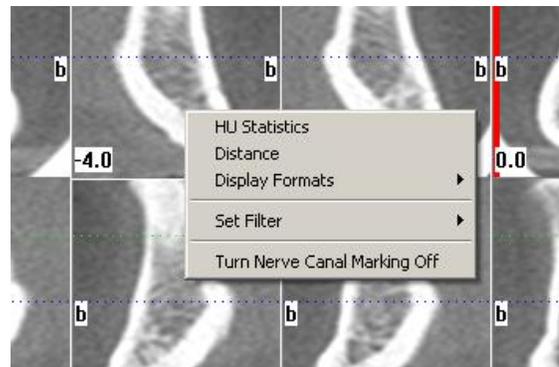
Suggestions for adjusting Panoramic Map:
Start adjusting the Panoramic map from the Preview Screen. It is recommended to center the anterior point at midline and then move the next two points up closer to the anterior point on each side. Place them a few teeth away from anterior center. Then move the next two points closer to the molars. See sample below.

Implant Planning Screen: (enter by double clicking on the Pan from the Preview window).

Click and drag these blue dots to adjust the pan map. The orange hash marks are slice location indicators.

Vertical Tool Bar: Click and drag this center tool up or down to adjust height of anatomy viewed in the cross sections and axial.

Slice Location numbers start at "0" for center of anatomy or midline. (The "0" slice will be outlined in Red). All slices to the patient's Right will be negative #'s. All slices to the patient's Left will be positive. #'s. (midline is determined by axial map).

Diagonal Tool Bar: Click and drag on this tool to adjust the slice thickness of the Pan view.

Click and drag the center tool to adjust Pan focal trough.

Click the bottom tool to change the Pan view from Radiographic to MIP.

- Turn orange hash marks on and off by right Clicking on pan or axial view and selecting "Turn hash marks on/off" from menu.

- Double click on an individual cross section to zoom in. Double click on it again to reduce to original size.

- *Labels:* The following labels on the images help clarify the orientation of the anatomy:
R: Right Side (Axial, Pan)
P: Posterior (Axial)
b: buccal (cross-sections)

Horizontal Tool Bar: Click and drag this center tool left to right to move the slice location of the cross sections. The center slice is outlined in Blue.

Click and drag the tool to the right to adjust the slice thickness of the cross sections.

- *Pop Up Menu:* Right click on the cross section views to display the Pop Up menu to select measurements and other features. "Display Formats" gives 2 other options for viewing cross sections. The default is 5 x 2. The other options are 7 x 3 and 3 x 1. Nerve Canal detection is not yet functioning.
- All views have W/L, Zoom and Pan tools available.

The TMJ Planning Screen:
(enter by double clicking on the Axial view from the Preview Screen)

Click and drag this center tool to scroll up and down sagittal view to locate condyles in the axial view so you can see condyles properly for mapping.

Horizontal Tool Bar:
Click and drag this center tool to left to right to move slice location of cross section views. Click and drag the tool to the right to change slice thickness of cross section views.

Creating Lateral Slices:
Click and drag center blue circles to move condyle map (do this for each condyle). Click and drag yellow and blue end circles to adjust the angle of each condylar map. Green markings indicate anterior to condyle. Red marking indicate posterior of condyle.

Creating Coronal Slices:
 Click red circle on either end map to create Coronal views.

- *Hint*: When entering the TMJ screen, you may have to first drag the axial (SMV) view down in the window to see the condyles. Move the cursor to the lower left of the SMV (axial) view until you see the "P" for pan tool. Then point, click and drag the image down.
- All views in TMJ Screen have W/L, Zoom and Pan tools available (not the Sagittal view).

MPR Screen: (enter by double clicking on the Coronal View in the Preview Screen).

The MPR Screen allows you to scroll through the axial, sagittal, and coronal slices. W/L, Zoom and Pan tools are available in all views.
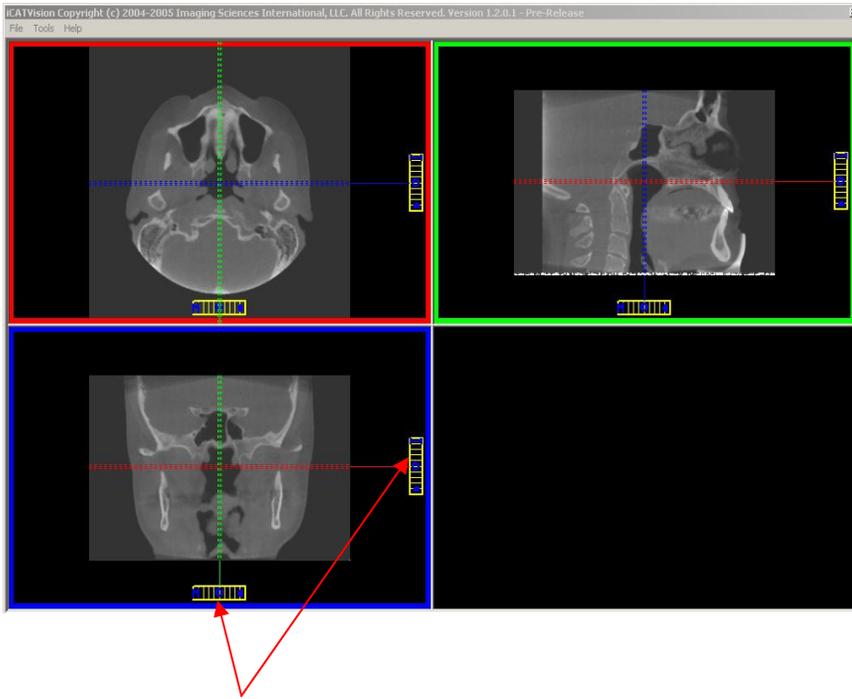
Horizontal & Vertical Tool Bars:
Click and drag center tools from any view to move slice location. The views are colored coded to correlate which view will adjust.

Click and drag the tool to the right for horizontal and bottom for vertical bars to adjust slice thickness of the corresponding color coded view.

Right-click in any of the 3 views and select "Explore" for additional cut planes

**Ortho Screen:** (enter by double clicking on Sagittal view from Preview screen.

The Ortho screen displays the Lateral Cephs in Radiographic and MIP mode as well as a Coronal View and a Mid Sagittal Slice (15mm thick).

W/L, Zoom and Pan tools are available in all views.

Rotating the Volume:
The data can be rotated from the Preview window in any of the bottom 3 views (Sagittal, Coronal, Axial). To do this, hover the mouse in the lower Right hand corner of any of these 3 views. The cursor will change to a half moon shape. When the cursor looks like this, point, click and drag to rotate the image. A grid will appear over the image to give a visual guide for the new rotation. When the rotation is at the new desired position, release the mouse.
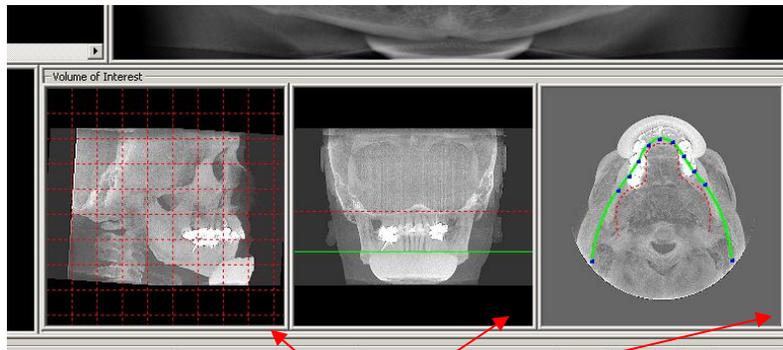
Volume rotation Tool at bottom right hand corner of Sagittal, Coronal and Axial views

<u>To complete the rotation of the entire data set</u>, you must now Right click to access the pop up menu and select the item called "Rotate Volume Now". This will re-calculate the new rotation in all views. If you wanted to return to the original volume, Right click to access the pop up menu and select the item "Reset Volume Rotations".

Removing Circumference Artifact:
If you have a dataset that has the Circumference artifact (seen visually in the Preview Screen as horizontal lines in the Coronal and Sagittal images and a white partial circle around the axial image), then this can be removed from the dataset by Right clicking in the Preview Screen and selecting "Remove Stray Voxels from Circumference". The data will re-calculate without that artifact.

Saving and Loading Workups:
The plans that you created can be saved so that when you re-enter the case, they can be retrieved. If you made or changed a plan and attempt to exit iCAT Vision or switch patients, the program will prompt you and ask if you want to save your workup. To save the workup, click "yes." A window will appear for you to "Create new workup". Select this and enter a new title for your workup or choose an existing workup name (if one) from the list to overwrite it. Once the workup is named, click OK to save.

Or, before exiting or switching patients, from the Preview Screen, Right click to access the pop up menu and select "Save this Workup". Then proceed as instructed above.

To load a workup, click on a patient name, and a "Select a workup" window will appear. Select an existing workup to load it. If you want to select another workup (if you have multiple workups), from the Preview Screen, right click to access the pop up menu and select "Load New Workup". Then select the desired workup from the list.

Creating Export CDs:
　　Note: Make sure to first Save any Workups before attempting to burn a CD.

- First insert a CD or CDRW into your CD drive.
- Then click on **Tools / Create Export CD.** The CD burner window will open.
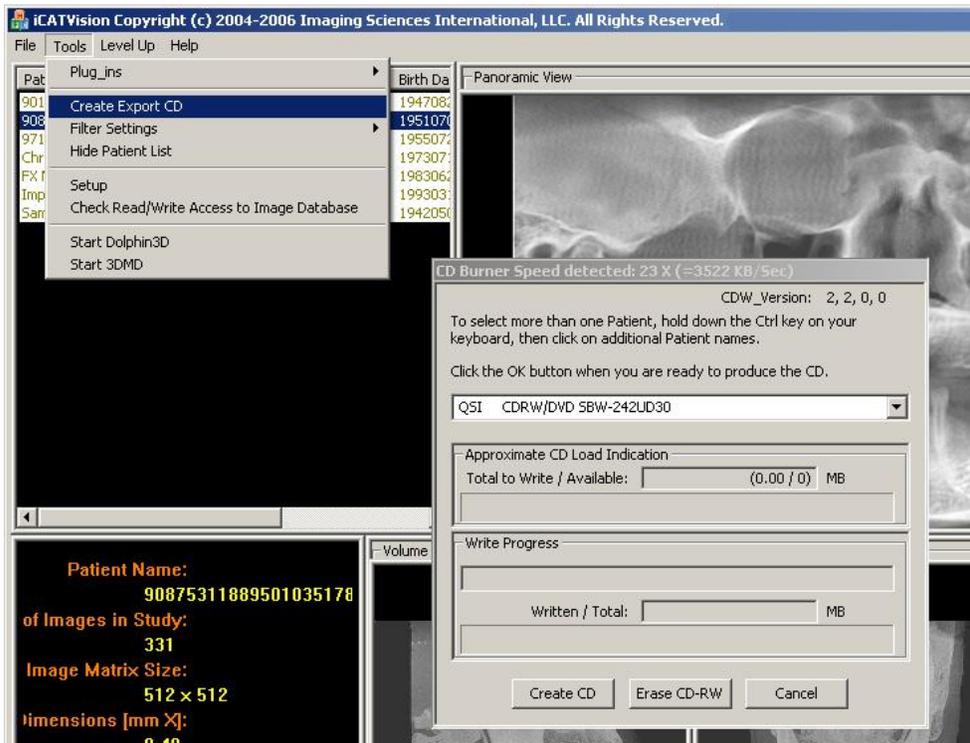
- If you have multiple CD drives, select the desired hardware from the drop down list. If you are using a CD-RW and need to erase it, you can choose, Erase CD-RW. Or proceed below.
- Click on the desired patient to select for burning. If selecting multiple patients, hold down the CTRL key on your keyboard, then click on the additional patients. All highlighted patients will be copied to the CD.
- Then click on the **Create CD** button in the CD burner window. The burning process will begin. There will be a message when the burn is complete and the CD will eject.

Installing an iCAT Vision CD with case(s) to another computer:
Now the CD can be inserted into another computer. It will auto run. The iCATVision
program will be detected. The User can choose to install iCATVision and the case(s)
Permanently or Temporarily. Once installed, the iCATVision program will open and the
new case will be highlighted in the patient list and ready to be loaded. Just click on the
patient name.