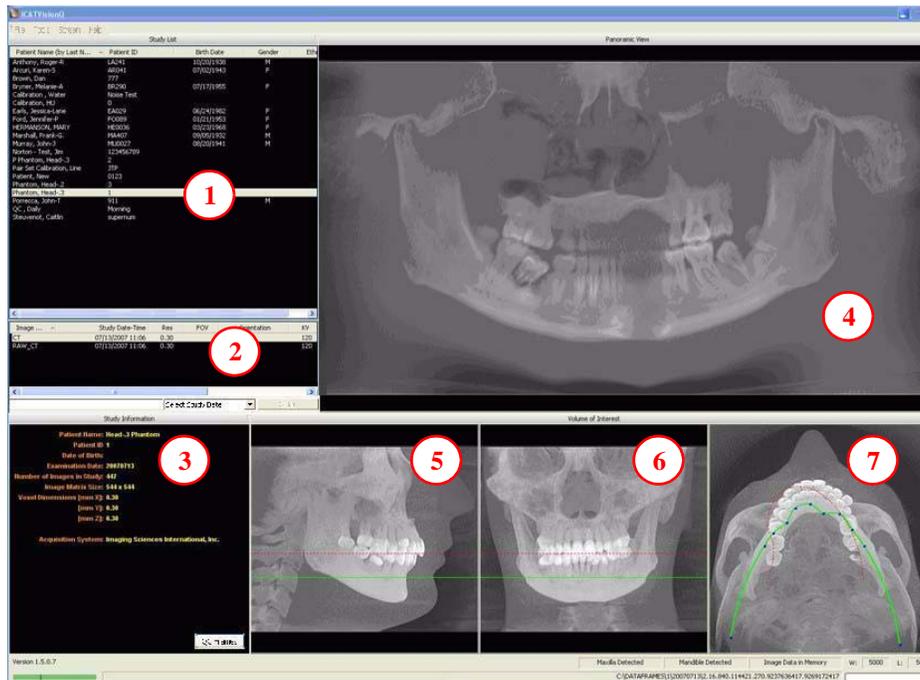


iCATVision Quick Reference

Navigating the i-CAT® Interface

This guide shows how to:

- View reconstructed images
- Use main features and tools to optimize an image.



REMINDER

Images are displayed as if you are looking at the patient from the front.

TO DISPLAY PATIENT IMAGE

1. Click Patient Name.
2. Click Patient Scans

DISPLAYED VIEWS

3. Patient Study Info
4. PANORAMIC View
Opens to **IMPLANT** Screen
5. SAGITTAL View
Opens to **CEPH** Screen
6. CORONAL View
Opens to **MPR** Screen
7. AXIAL View
Opens to **TMJ** Screen

MEASUREMENTS

HU Statistics

(Bone Density) Right click a view and select **HU Statistics**. Drag and click to define an area. Statistics 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.

Distance

(Linear Measurement) right click a view and select **Distance**. Point, click, drag, and release to draw a line. A measurement in mm appears 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 the actual measurement statistic to remove, inactivate, or activate them.

NOTE: Images shown in this document were acquired on a 17-19 system. Images acquired on a GXCB-500™ system may have a smaller field of view (examples are shown at the end of this document).

Tools for Viewing this Image

HIDING THE PATIENT LIST

Patient List can be hidden by selecting **Tools > Hide Patient List**. To show, select **Tools > Show Patient List**.

CURSOR TOOLS

ROTATION TOOL - Hover cursor over the lower right corner of the desired view. Cursor changes to the rotation tool.

BRIGHTNESS / CONTRAST TOOL - Drag cursor up, down, left, and right to adjust brightness and contrast. Use Reset Window/Level options on Pop Up menu to reset brightness and contrast settings.

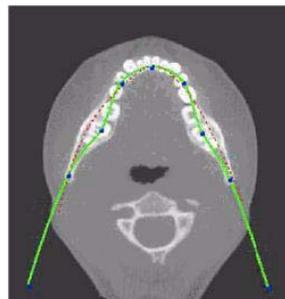
MIP/RADIOGRAPH - The system software enables displaying images as MIP or Radiograph. Move cursor to the top right of any image. The cursor becomes an **M**, toggle a selection.

MAXILLA and MANDIBLE CONTOUR LINES - can be repositioned with a click and drag to the desired location.



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.



Filtering Defaults

There are already filters applied to all images. The filters are defaulted as seen below.

1. Preview Screen: **Hard** on Panoramic and **Sharpen Mild** for all others.
2. Implant Screen: **Sharpen Mild** on Axial Slice and Cross Sections - **Hard** on Panoramic Map.
3. TMJ Screen: **Hard** for top row images and **Sharpen Mild** for Condyle Ceph Images.
4. MPR Screen: **Sharpen Mild** all images.
5. Ceph Screen: **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 an individual image, selecting **Filter Setting > Set Filter** and clicking 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**.

Removing Circumference Artifact

Circumference Artifact are seen visually in the Preview Screens as horizontal lines in the Coronal and Sagittal images and a white partial circle around the axial image. This can be removed from the dataset by right clicking the screen and selecting **Remove Data Outside of Center Scanfield**. The data re-calculates and the image is displayed without that artifact.

Saving and Loading Workups

Created plans can be saved for retrieval. When a plan is changed and an attempt to exit or switch patients is made, iCATVision prompts to save the workup. To save the workup, click **Yes**. A window is displayed to **Create New Workup**. Click this button and enter a new title for the workup or choose an existing workup name (if one) from the list to overwrite. 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 a Patient Name, and Patient Image, and then a workup. To select another workup (if there are multiple workups), right click the screen to access the pop up menu and select **Load Different Workup**. Then select the workup from the list.

Keyboard Shortcuts

Alt + S - Opens Setup dialog

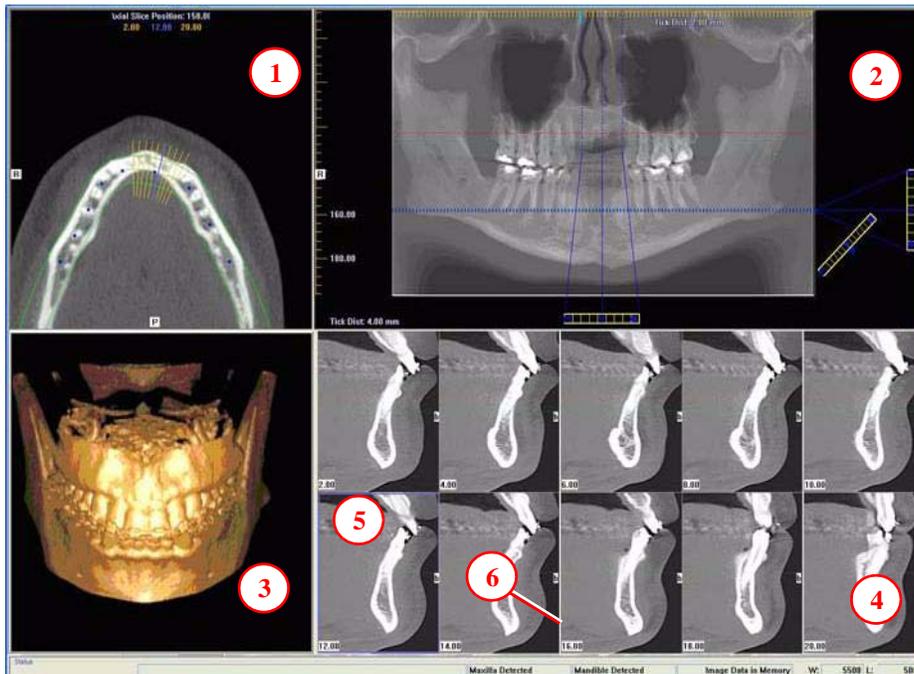
Alt + F - Opens File menu

Alt + T - Opens Tools menu

Alt + R - Opens Screen menu

Alt + H - Opens Help menu

Implant Planning Screen



- Double click an individual Cross Section to zoom in. Double click 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)

POP UP MENU

Right click views to display a Pop Up menu containing a subset of these options:

- HU Statistics
- Distance
- Display Formats: The default is 5 x 2. The other options are 7 x 3 and 3 x 1.
- Set Filters
- Save as JPEG
- Open Output Folder
- Estimate Nerve Canal

CURSOR TOOLS

- All views, except the 3D Model, have Brightness/Contrast, Rotate, Drag, Zoom and Pan. 3D Model only has Rotate.
- The mouse scroll wheel is active on the Axial Slice Position, 3D Model and Cross Sections to scroll through slices.
- **Back Tool:** to exit out of a planning screen back to the Main Display, move cursor to the very top left corner of screen until **X** is displayed and click. Or click the **Screen** option on the Main Menu bar.



REMINDER

Implant Screen is acquired by double clicking Panoramic View from Preview window or selecting it from the Screen menu.

DISPLAYED VIEWS

1. AXIAL SLICE POSITION
2. PANORAMIC MAP
3. 3D MODEL
4. CROSS SECTIONS
5. Center Slice is outlined in Blue.
6. Slice Location Number

Slice Location numbers start at "0" for center of anatomy or midline. (The "0" slice is outlined in Red). All slices to the patient's right are negative #'s. All slices to the patient's left are positive #'s.

Midline is determined by axial map.

PAN TOOLS

1. Horizontal Tool Bar

Drag this center tool left to right to move the slice location of the Cross Sections. The center slice is outlined in Blue on the Cross Sections.

Drag the tool to the right to adjust the slice thickness of the Cross Sections.

2. Diagonal Tool Bar

Drag this tool to adjust slice thickness of Panoramic View.

Drag the center tool to adjust Pan Focal Trough.

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

3. Vertical Tool Bar

Drag this center tool up or down to adjust height of anatomy viewed in the Cross Sections and Axial.

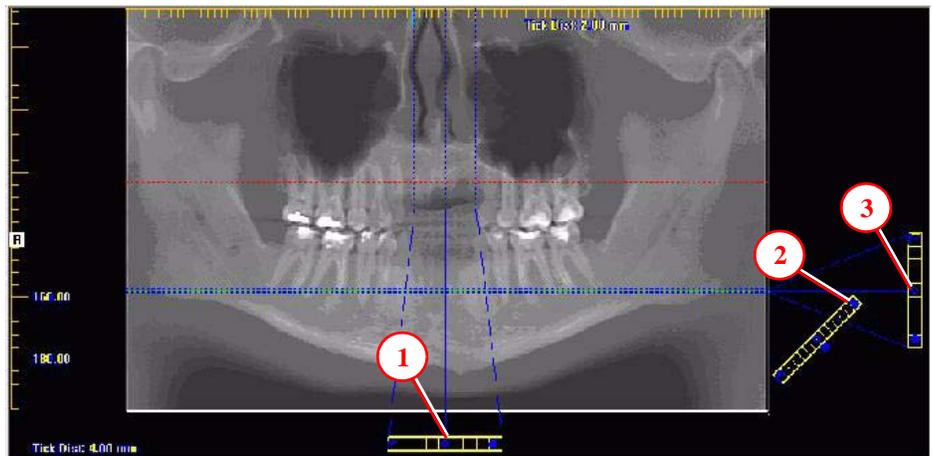
AXIAL TOOLS

1. Drag blue dots to adjust Pan Map.

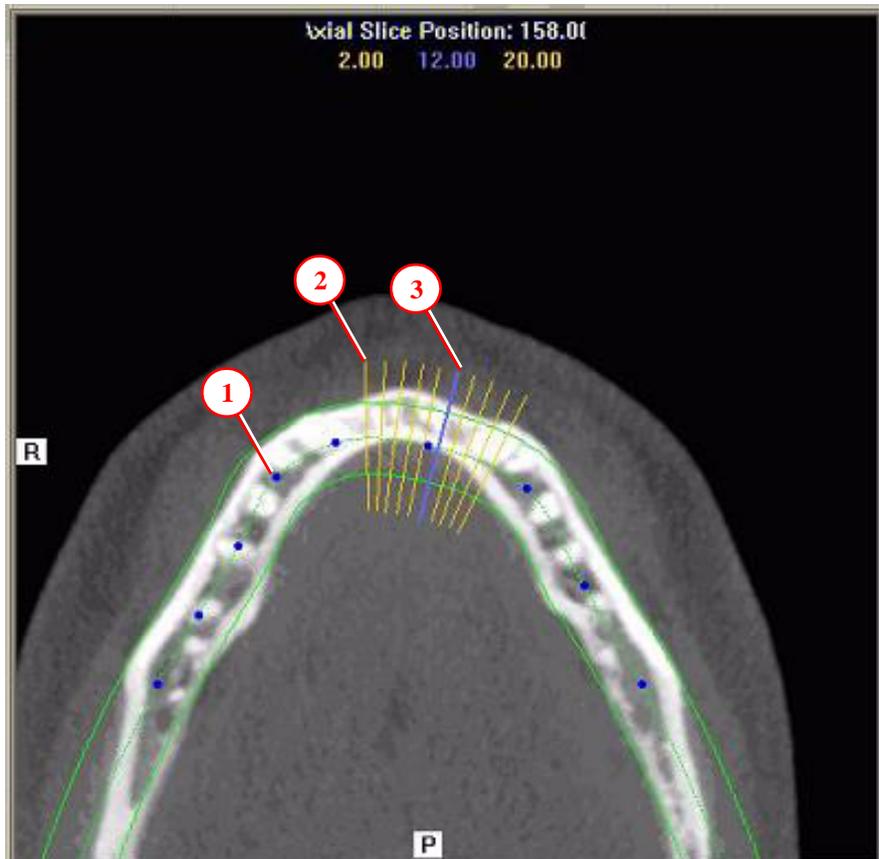
2. Orange hash marks are Slice Location Indicators.

3. Blue hash mark represents the centerline of the axial slices displayed on the Cross Section views.

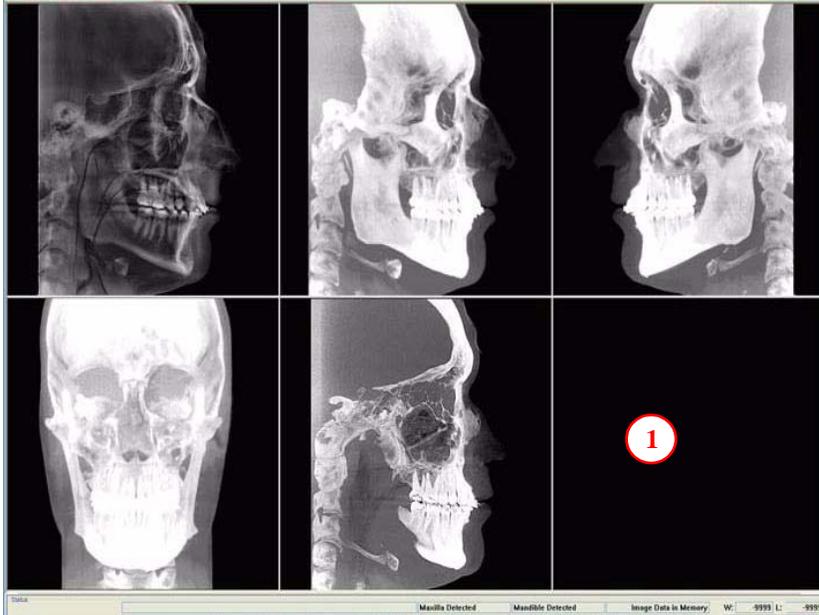
Panoramic Map



Axial Slice Position

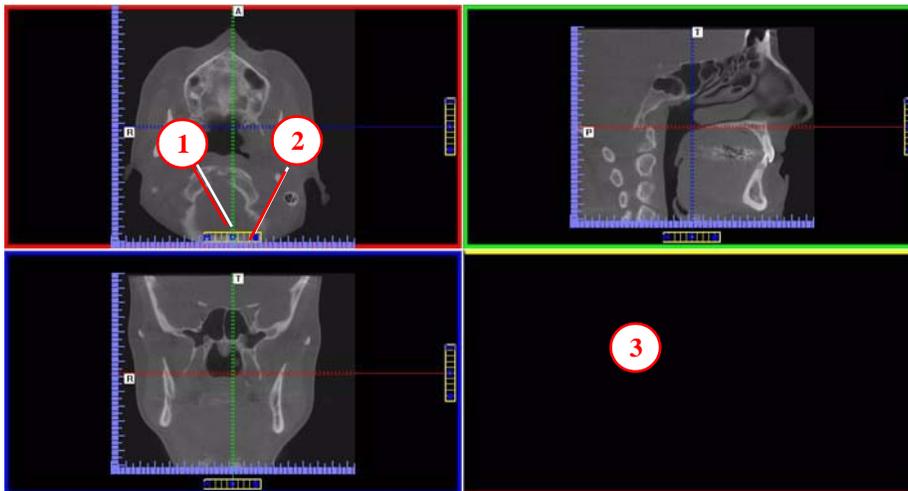


Ceph Screen



1. Right click blank screen and select **Tag Airways**. This generates a 3D view of the airways for the patient in the blank view. In addition, the tagged airway data is displayed in the view at the bottom center of the Ceph screen.

MPR Screen



1. Drag center tools from any view to move slice location. The views are color coded to correlate which view will adjust.
2. Drag tool to the right for horizontal and bottom for vertical bars to adjust slice thickness of the corresponding color coded view.
3. Right click any of the 3 views and select Irregular, Line, or Explore for additional cut planes to be displayed in the blank area.

REMINDER

Ceph Screen is acquired by double clicking Sagittal View from Preview window or selecting it from the Screen menu.

DISPLAYED VIEWS

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

CURSOR TOOLS

All views have Brightness/Contrast, Zoom and Pan.

POP UP MENU

Right click to display the Pop Up menu to select:

- Set Filters
- Save as JPEG
- Open Output Folder

REMINDER

MPR Screen is acquired by double clicking Coronal View from Preview window or selecting it from the Screen menu.

DISPLAYED VIEWS

The MPR Screen allows scrolling through the Axial, Sagittal, and Coronal Slices. Mouse scroll wheel is active to scroll through slices.

CURSOR TOOLS

All views have Brightness/Contrast, Zoom and Pan.

POP UP MENU

Right click to display the Pop Up menu to select:

- Irregular
- Line
- HU Statistics
- Distance
- Explore
- Explore Speed
- Set Filters
- Save as JPEG
- Open Output Folder
- Reset Volume Rotation

REMINDER

TMJ Planning Screen is acquired by double clicking Axial View from Preview window or selecting it from the Screen menu.

DISPLAYED VIEWS

TMJ Screen enables condyle mapping and creating corresponding coronal slice views.

CURSOR TOOLS

All views have Brightness/Contrast, Zoom and Pan.

POP UP MENUS

Right click to display the Pop Up menu to select:

- Set Filters
- Save as JPEG
- Open Output Folder

HINT

It may be necessary 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 displayed is the “P” for pan tool to drag the image downward.

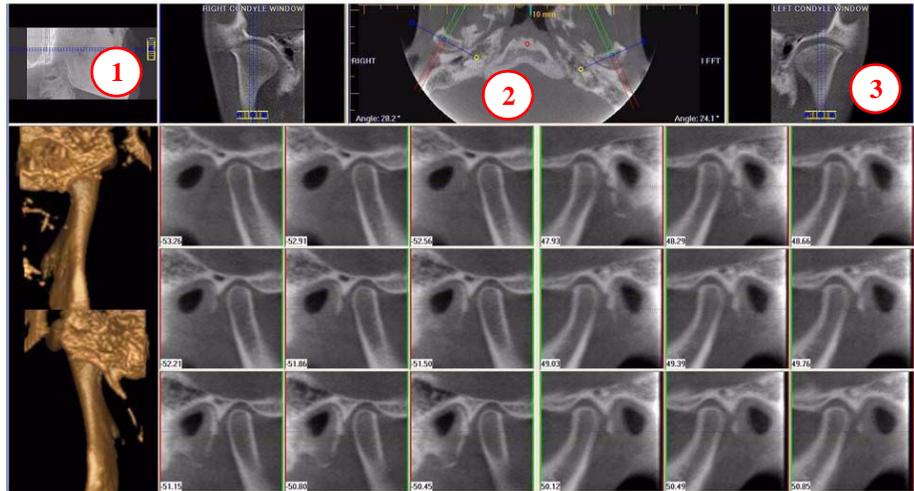
NOTE:

Make sure to Save Workups before attempting to burn to a CD,

Install Case Studies from CDs

The iCATVision program will auto-run when the CD is inserted into the computer drive. The User can choose to install iCATVision and the case(s) Permanently or Temporarily. Once installed, the iCATVision program opens and the new case is highlighted in the patient list and ready to be loaded. Just click the patient name.

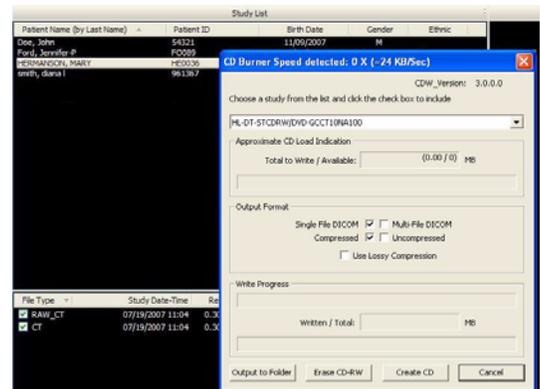
TMJ Planning Screen



1. Drag center tool to scroll up and down Sagittal view to locate condyles in the Axial view to display condyles properly for mapping.
2. **Create Lateral Slices:**
 Drag **center blue circles** to move condyle map (do this for each condyle)
 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.
Create Coronal Slices: Click red circle on either end map to create Coronal views.
3. **Horizontal Tool Bar:** Drag center tool left to right to move slice location of Cross Section views. Drag tool right to change slice thickness of Cross Section views

Create Export CDs

1. From the top Main menu, select **Tools > Create Export CD**.
2. If you have multiple CD drives, select the hardware from the drop down list. If using a CD-RW and need to erase data, choose Erase CD-RW.
3. Click the patient for burning to CD. If selecting multiple patients, hold down the CTRL key and click on additional patients. All highlighted patients are copied to the CD.
4. Click **Create CD** in CD burner window. A message is displayed when the burn is complete and the CD ejects.

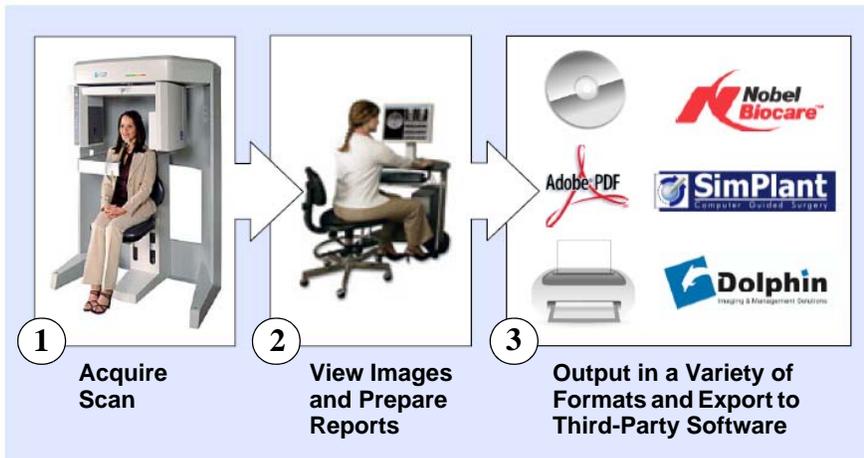


Getting the most from your i-CAT® Training Session

We want you to get the most out of your i-CAT® training session. Please review this information prior to this session.

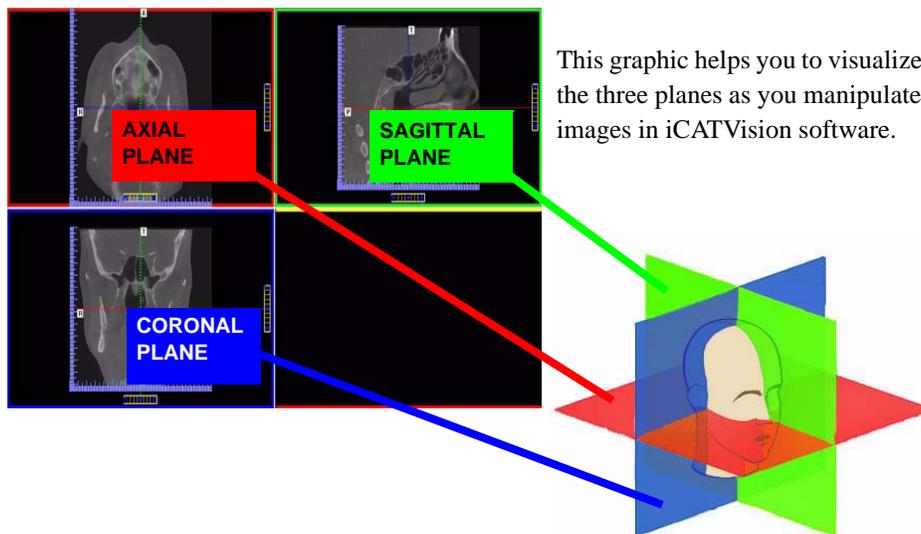
If you have any questions or concerns, call the ISI training number at the bottom of this sheet.

The i-CAT® Workflow at a Glance



Thinking in Three Dimensions

The Coronal, Axial, and Sagittal Planes are color coded in the iCATVision software interface as Red, Green, and Blue.



Click, Zoom, Burn: Are you ready?

All trainees must be proficient with the basic tools and functions of the Windows Operating System before beginning i-CAT® training. If you are new to computers or if your skills are rusty, please contact your ISI trainer at the number below to arrange Windows training.

ISI TRAINING HOTLINE: 1-800-205-3570 ext. 284

GLOSSARY

3-D Rendering: A method of depicting the anatomy as a true 3-D object as would be seen in real life.

Cone Beam Computed Tomography (CBCT): The latest technology that generates a three dimensional image of the skull while reducing radiation exposure substantially as compared to conventional CT scanners.

DICOM: A standardized file format and communication protocol for transmission and archiving of medical images.

Field of View (FOV): The diameter and height of patient anatomy seen in an i-CAT® scan.

Gantry: The rotating mechanism on the i-CAT® that is composed of the x-ray source and the image receptor at either side of the patient.

Hounsfield Unit (HU): A numerical value used in CT scan interpretation that characterizes the tissue density within the imaged anatomy.

Maximum Intensity Projection (MIP): A computer visualization method for 3-D data that depicts only the voxels with the highest density.

Reconstructed Data: The 3-D volume generated by software from the raw projections captured during the scan.

Resolution: The ability to see fine details in an object. A higher resolution implies finer detail.

Voxel: A voxel (a combination of the words volumetric and pixel) is a volume element which represents the density value of a point in 3-D space. This is analogous to a pixel, which represents 2-D image data. A smaller voxel size results in an image with finer detail.

Window/Level: Analogous to Brightness/Contrast.

QUIZ

Just for fun, we'll start the training session with a quiz!

1. A smaller voxel size will result in:
 - A: Less detail
 - B: More detail
 - C: No change in detail
2. The Axial Plane in iCATVision software is color coded as:
 - A: Red
 - B: Blue
 - C: Green
3. During Day 1 of the training, the staff and doctors attending the training should plan to schedule:
 - A: No patients
 - B: 2 to 4 patients for scanning
 - C: Their normal patient schedule
4. Before the training session, future users should be proficient in:
 - A: Basic functions of Windows
 - B: Basic use of a mouse
 - C: Both of the above
5. "Window/Level" refers to:
 - A: The tilt of the monitor
 - B: The location of the image on the screen
 - C: The brightness and contrast of the image
6. Images taken with the i-CAT® can be exported as:
 - A: DICOM
 - B: FOV
 - C: MIP
7. Cone Beam Computed Tomography:
 - A: Provides a 2-D image
 - B: Provides a 3-D image
 - C: Exposes the patient to more radiation than a conventional CT scanner

Getting the most from your i-CAT® Training Session

A Typical Onsite Training Schedule

It is **required** for training participants to be present for the entire training without interruption.

On the first day of training, schedule only 2 to 4 patients for scanning. The first patient should be no earlier than 10 am.

DAY 1	TIME	ACTIVITY
	8:30 am – 8:45 am	Introduction to the i-CAT® and CBCT Technology
	8:45 am – 9:15 am	Physical Mechanisms and Safety Features
	9:15 am – 10:00 am	i-CAT® software basics
	10:00 am – 10:45 am	Positioning a patient and acquiring a scan
	10:45 am – 11:15 am	Acquire second patient scan
	11:15 am – 12:15 pm	Post-scan image processing
	12:15 pm – 1:00 pm	Lunch
	1:00 pm – 3:00 pm	Post-scan image processing, continued
	3:00 pm – 5:00 pm	Output of reports and exporting studies
5:00 pm – 5:30 pm	3DVR Software (3D Renderings)	

DAY 2	TIME	ACTIVITY
	8:00 am – 12:00 pm	Onsite Coaching: One Scan per Hour. Review as Needed.

During Training, you will Learn to:

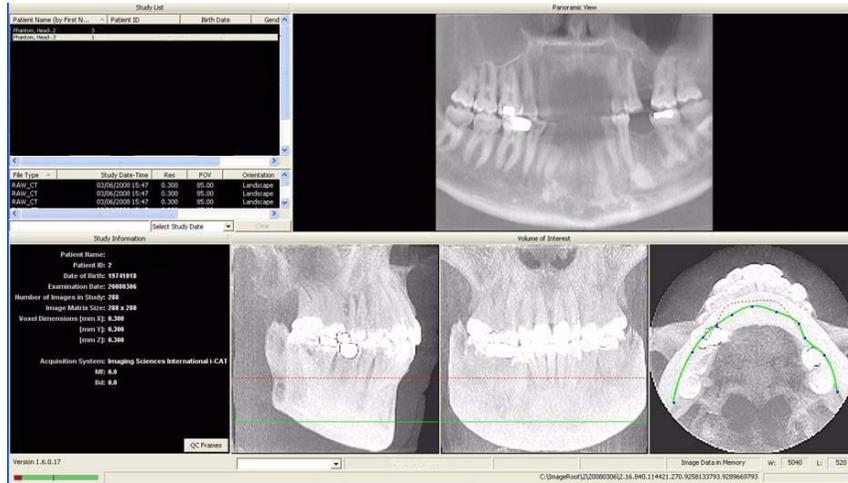
Position the patient to acquire the best possible scan

- Navigate the iCATVision Software Interface Quickly and Easily
- Visualize 3-D Anatomical Forms from 2-D Onscreen Images
- Map and Measure Anatomical Features
- Optimize Images for TMJ Treatment and Implant Planning
- Generate Panoramics and Cephalometrics
- Create, Modify, Print, and Save Reports
- Export in DICOM 3 Format for use in Third-party Software
- Save Studies to a Hard Drive or CD-ROM

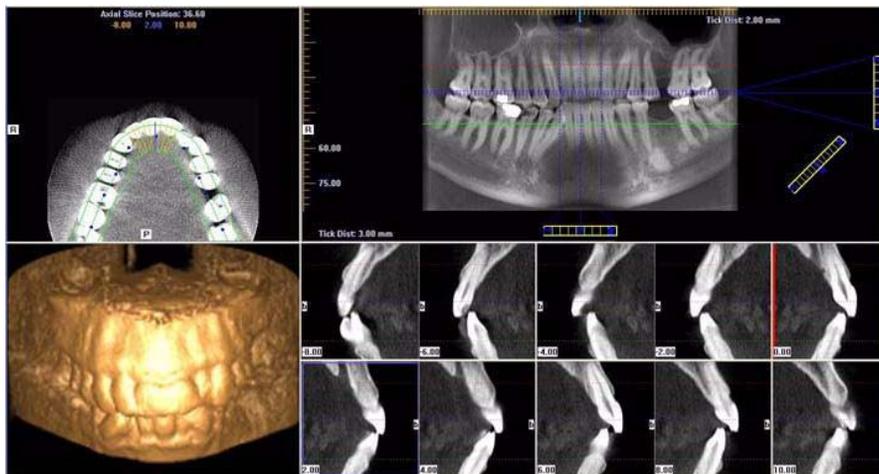
ISI TRAINING HOTLINE: 1-800-205-3570 ext. 284

GXCB-500™ Image Examples

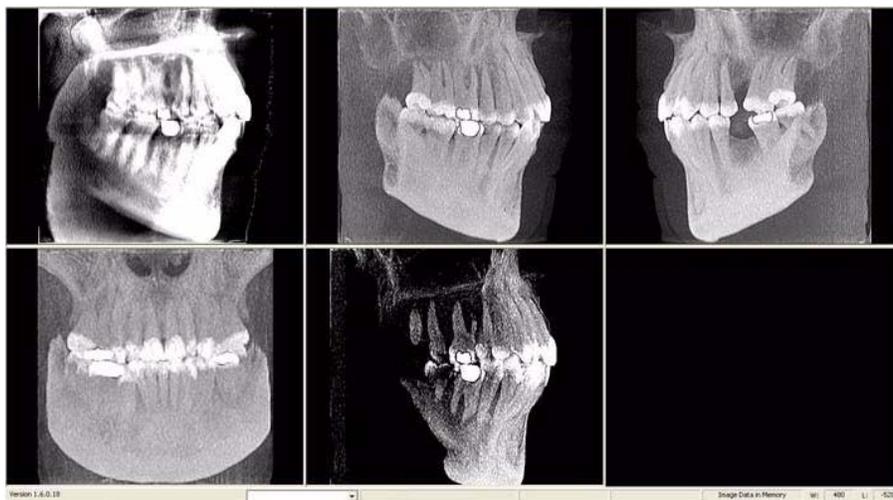
Preview Screen



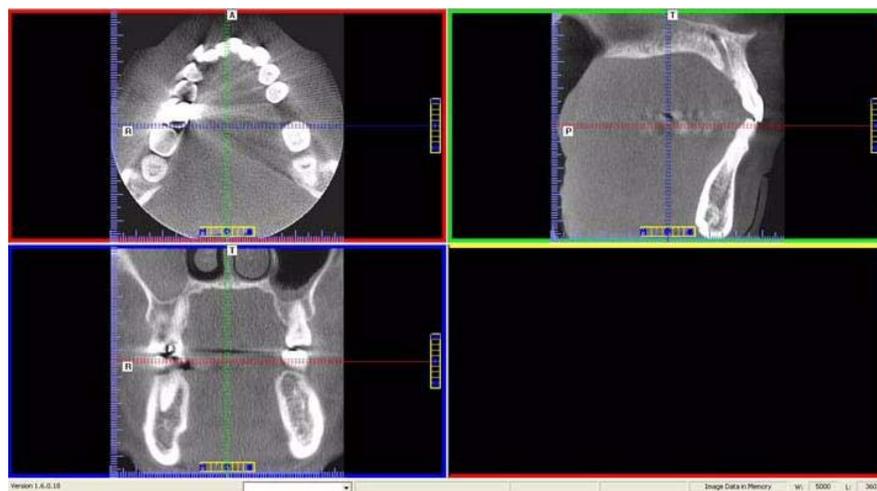
Implant Planning Screen



Ceph Screen



MPR Screen



TMJ Planning Screen

