

The i-CAT Vision Training Manual



i-CATvision

CTdent
DENTAL IMAGING CENTRE

CT Dent – Dental CT Imaging Centre

CT Dent is a leading London based independent imaging centre with over 500 dental specialists who use us on a regular basis for their imaging needs.

We provide a flexible online appointment system and walk-in service that offers low dose Cone Beam CT scans at the lowest cost in the UK to dental practitioners.

The i-CAT scanner is the industry leading dental imaging system, which has been in use throughout the USA for the past 8 years in all areas of specialist dentistry. It outperforms all other existing scanning methods and is considered the industry standard of care in implant dentistry.

Dental practitioners, who routinely send their implant patients to CT Dent for CBCT Scans, achieve additional practical advantages when compared to traditional scans:

- CBCT scans offer legal protection from claims made by dissatisfied patients
- Free Planning software (i-CAT Vision) and 1:1 prints on request
- Digital imaging with unparalleled accuracy
- Low-cost element provides potential to add a mark-up

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i-CAT Vision is a unique planning software allows you to view, plan, measure, manipulate, print reports, create duplicates (for colleagues/patients) and most important show the actual treatment and assessments to your patients on your computer screen with all of his x-ray images and 3D images. The patient will understand the entire procedure and cannot fail to be impressed by the technology and your detailed assessment.

Benefits:

- FREE
- Real time manipulation of images
- Visual chairside tool providing effective communication to the patient
- Facilitates effective treatment planning!

i-CAT Vision Features:

- Interactive measurement of all images for surgical implant treatment planning
- Bone density measurement (HU)
- Automatic ID canal estimation with a highlight
- Basic 3D images with corss-sectional views
- Multiple customizable visual display modes available including:
 - Axial
 - Panoramic
 - Cross-sectional
- Auto loading – Installs itself!
- Easy to use

This
software
enables you to
manipulate the
data for your
patient
right on your
own computer
screen!

To install the software and start using it please follow the instructions on the next pages



i-CAT Vision Quick Reference

1. LOAD THE SUPPLIED CD INTO YOUR CD READER

- a The CD will start automatically (known as "Autorun")
- b A "Licensing Terms Agreement" screen will appear (Figure 1).
- c Click the "ACCEPT" option

2. INSTALL THE SOFTWARE

- a A screen will appear asking you to accept installation of the the "iVision" software onto your hard drive or to run the software from the CD (Figure 2). If this is the first time that you have used iVision, it is suggested to install the software.
- b A screen appears asking you to accept the location of the installation. (Figure 3).
- c Click "OK"

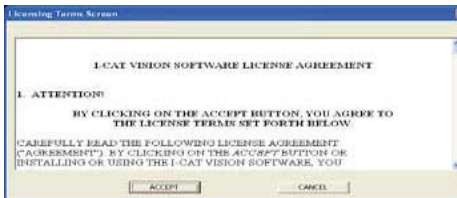


Figure 1. Screen shot showing the "Licensing Terms Agreement" screen

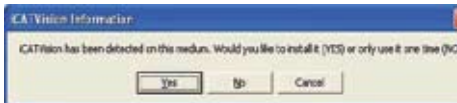


Figure 2. Screen shot asking whether to install iVision software or to run the software from the CD.

3. OPEN THE PATIENT FILE

- a Once installed the "iCAT Vision" software will access the patient DICOM files and request that you to access these files (Figure 4).
- b Click "Yes" icon on the desktop to launch the program.
- c Then the "iCAT Vision" software will ask if you only wish to read the patient data from the disc (click "No") or wish to load the patient data onto your hard drive (click "Yes"). We suggest that if you wish to have access to the data every time iVision starts that you click "Yes" so that the data is stored permanently (Figure 5).
- d Next a screen will be displayed ("Select a Workup") requesting loading of a plan for the specific patient accessed (Figure 6).
- e Highlight the name by clicking on the name of the plan (usually developed by the referring OMF Radiologist) to access the patient file. (Figure 7)
- f A preview screen will now launch from which you can alter the display of the patient data.

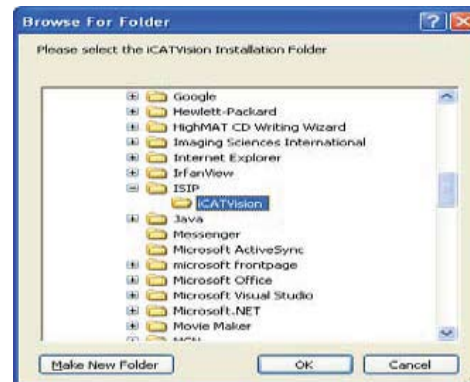


Figure 3. Screen shot showing the folder on the C: Drive under which the iVision software will be installed.

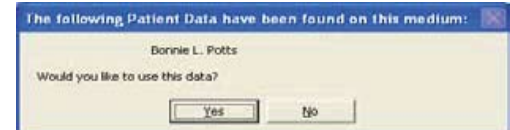


Figure 4. Screen shot showing request to access data on CD

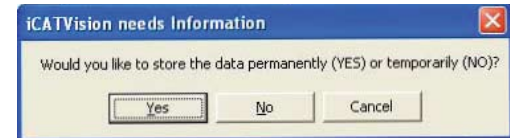


Figure 5. Screen shot showing request to permanently download data to the hard drive or access it from the CD



Figure 6. Screen shot showing available Workup 'plans'.



Figure 7. Screen shot showing available 'plans'

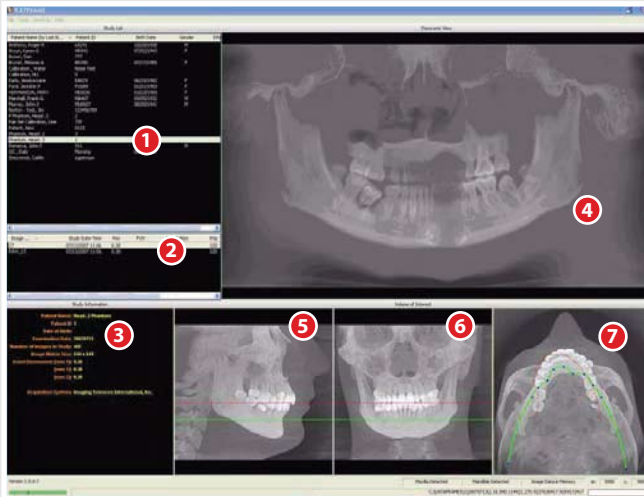
i-CAT Vision Quick Reference



Navigating the i-CAT® Interface

This guide shows you how to:

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



Tools for Viewing this Image

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.



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

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
> Opens to IMPLANT Screen
- 4 PANORAMIC View
> Opens to IMPLANT Screen
- 5 SAGITTAL View
> Opens to ORTHO Screen
- 6 CORONAL View
> Opens to MPR Screen
- 7 AXIAL View
> Opens to TMJ Screen

Hiding The Patient List

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

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 the 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.

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Panoramic 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 Slice Position

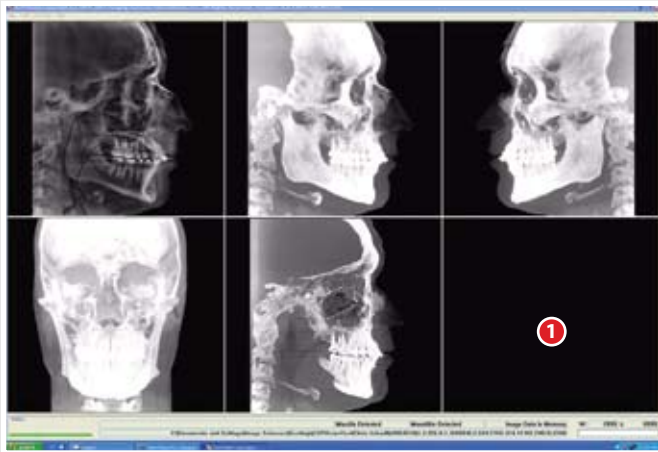


Axial Tools

- 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.

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Ortho 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 Ortho screen.

Displayed Views

The Ortho 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 Menus

Right click to display the Pop Up menu to select:

- Set Filters
- Save as JPEG
- Open Output Folder

Reminder

Ortho Screen is acquired by double clicking Sagittal View from Preview window.

Displayed Views

The MPR Screen allows you to scroll through the Axial, Sagittal, and Coronal Slices.

Cursor Tools

All views have Brightness/Contrast, Zoom and Pan.

Pop-up Menus

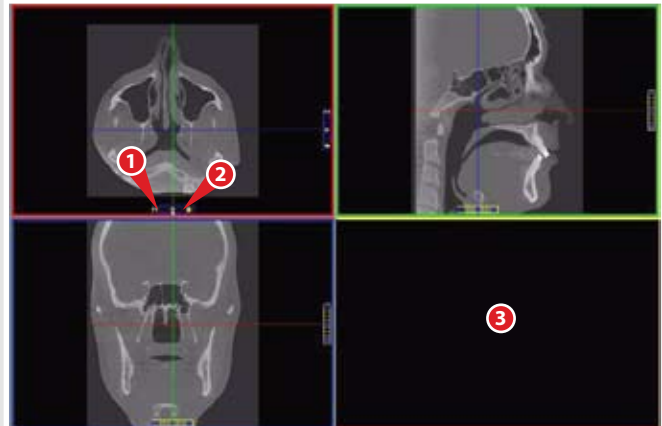
Right click to display the Pop Up menu to select:

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

Reminder

MPR Screen is acquired by double clicking Coronal View from Preview window.

MPR Screen

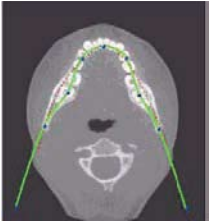


- 1 Drag center tools from any view to move slice location. The views are colored coded to correlate which view will adjust.
- 2 Drag tool to the right for horizontal and bottom for vertical bars to adjust slice thickness of the corresponding color coded view.
- 3 Right click any of the 3 views and select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

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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** all images.
- ② Implant Screen: **Hard** all images.
- ③ TMJ Screen: **Hard** for first 3 and **Normal** for Condyle Ortho Images.
- ④ MPR Screen: Normal all images.
- ⑤ Ceph (Ortho) Screen: **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 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 your workup or choose an existing workup name (if one) from the list to overwrite. Once the workup is named, click **OK** to save.

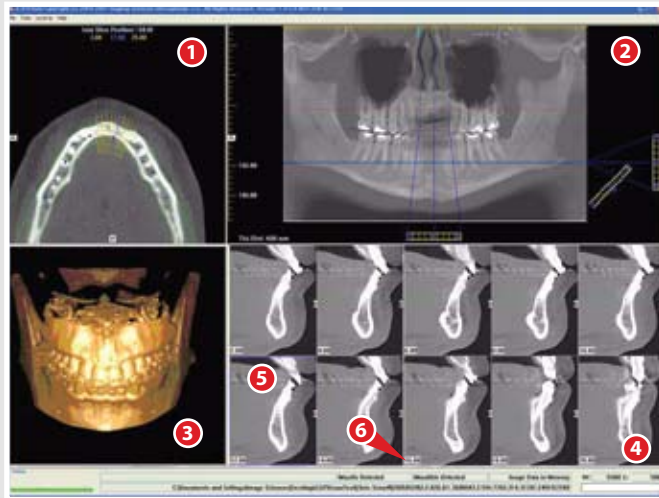
Or, before exiting or switching patients, from the Preview Screen, right click to access the pop up menu and select **Save this Workup**. Then proceed as instructed above.

To load a workup, click a Patient Name, and Patient Image, and then a workup. If you want to select another workup (if you have multiple workups), right click the screen to access the pop up menu and select **Load Different Workup**. Then select the workup from the list.

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Implant Planning Screen



© Double click an individual Cross Section to zoom in. Double click again to reduce to original size.

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.

Reminder

Implant Screen is acquired by double clicking Panoramic View from Preview window

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

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)

Cursor tools:

- All views, except the 3D Model, have Brightness/Contrast, Rotate, Drag, Zoom and Pan. 3D Model only has Rotate.
- **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 **Level Up** button on the Main Menu bar.

Pop up Menus

Right click cross section views to display the Pop Up menu to select:

- HU Statistics
- Distance
- Display Formats : The default is 5 x 2. The other options are 7 x 3 and 3 x 1. Nerve Canal detection is not yet functioning.
- Set Filters
- Save as JPEG
- Open Output Folder

The Imaging Systems We Use

The i-CAT™ scanner is specially designed for dental use and its technology is known as Cone Beam CT (CBCT). It is non-invasive, comfortable, safe, quick, precise (accuracy, up to 0.1 mm) technique with amazing results guaranteed.

What is CBCT Scanning?

Cone beam CT provides high resolution, volumetric images that provide complete three-dimensional views of critical anatomy for more thorough analysis of bone structure and tooth orientation. Cone beam CT delivers accurate scans with images comparable to medical CTs with a much lower radiation dose, in-chair patient positioning (as opposed to a tunnel) and quicker scan times.

Cone beam CT is different from typical dental X-rays that focus on a small area to produce flat, 2-D pictures. 3-D cone beam images provide more complete, accurate, and visual images to study your case, with greater accuracy and less radiation than ordinary medical CT machines. 3-D cone beam images can be duplicated and are always stored in case they are needed in the future.

This allows dental specialists to dramatically enhance their patient care in a variety of ways.

Main Applications of CT Imaging:

Dental Implants: 3D CT scans allow the surgeon and restorative dentist to optimally plan and place dental implants. Their uses and benefits are present throughout the continuum of care from diagnosis to treatment to post-op examinations.

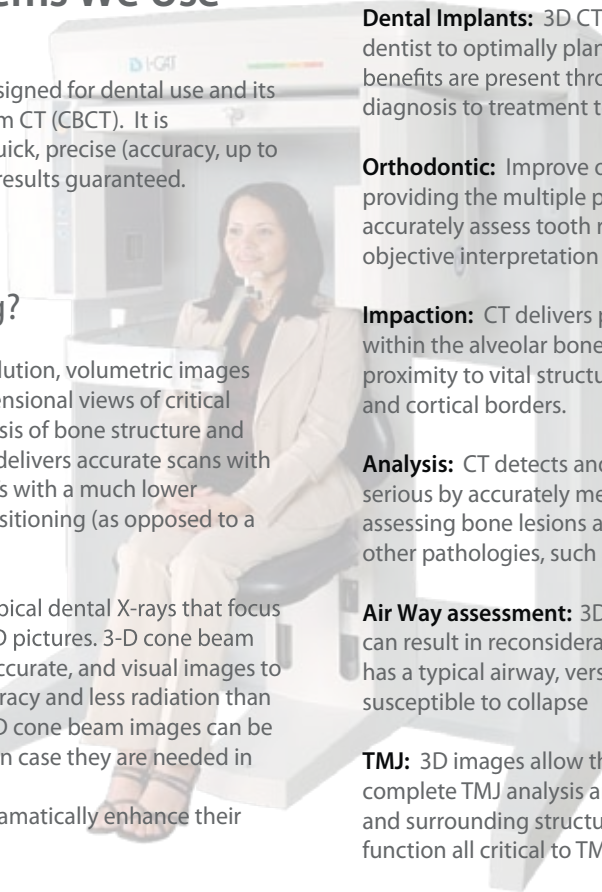
Orthodontic: Improve orthodontic diagnosis and treatment by providing the multiple projection perspective necessary to accurately assess tooth relationships and further support the objective interpretation of anatomy.

Impaction: CT delivers precise 3D views of impacted molars within the alveolar bone, location relative to adjacent teeth, and proximity to vital structures, such as the nerve canal, sinus walls, and cortical borders.

Analysis: CT detects and evaluates problems before they become serious by accurately measuring bone and jaw deformities, assessing bone lesions and changes of the jaw, and detecting other pathologies, such as cysts, tumours, and disease.

Air Way assessment: 3D data enhances airway assessment and can result in reconsideration of the treatment plan if the patient has a typical airway, versus a restricted airway, which may be susceptible to collapse

TMJ: 3D images allow the specialist to view critical structures for complete TMJ analysis and diagnosis clearly showing the condyles and surrounding structures, of bone morphology, joint space, and function all critical to TMJ dysfunction treatment and care.



To watch a **tutorial movie** for i-CAT Vision please log on to:
www.ct-dent.co.uk > formats > i-CAT Vision > i-CAT Vision Tutorial

The screenshot shows the homepage of CT Dent, a dental imaging centre. The header includes the logo 'CTdent DENTAL IMAGING CENTRE', navigation links (Home, About us, Services & Formats, i-CAT, Testimonials, Booking, News, Contact us, Samples), and contact information (Login | Register, Call: 0800 0842 417, 2 Devonshire Place | London | W1G 6H). The main content area features a 'Welcome to CT Dent' message, a 'Cone Beam CT Scanning' section with a list of benefits, a 'What we do' section, an 'Our services' section, and a 'New Technology' section. A search bar is located at the bottom left.

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Welcome to CT Dent
The UK's leading cone beam imaging centre.

Cone Beam CT Scanning

- Low radiation
- Minimises risk
- Surgical predictability
- Saves surgery time & reduces costs
- Decreased medical & legal risks

What we do

We offer dental CT scans using state-of-the-art technology at the lowest prices in Britain. We are the only independent CT scanning centre, which means your clients won't have to visit a competitor's premises or queue at a hospital for their scan.

Our services

At CT Dent we want to help you to get the maximum diagnostic yield out of your patients' 3D scans.

Scan data may be viewed using a number of different systems, all of varied sophistication, which should be used according to the complexity of the treatment that is planned.

New Technology

CT Dent is proud to introduce the unparalleled i-CAT Cone Beam 3-D Imaging System for dental and maxillofacial imaging.

This cutting-edge technology produces better results, reduces costs and provides more accurate information for expanding general dentistry, oral and orthognathic surgery, implantology, TMJ analysis, spinal studies, airway assessment...

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