

CubeVue Manual



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CubeVue Manual

Introduction

It is important to use and the software correctly, following all instructions and cautions in this manual and labeling/warnings on the software itself.

For technical support or questions contact CurveBeam at 267-483-8081

Cautions and Notes:

Before attempting to use the software, it is recommended that you read this manual thoroughly including all cautions and notes. This guide uses the following conventions to describe situations that are a potential loss of data.

CAUTION

Cautions are intended to alert the user that failure to follow the procedure could cause a loss of data.

NOTE

Notes are used to highlight important or unusual points to be brought to the attention of the operator.

Indications for Use:

CubeVue serves as an accessory to Cone Beam CT extremity imaging devices with the intended use to retrieve, display, and distribute 2D and 3D volumetric image data. The image displaying component allows users to manipulate the images to aid in diagnosis and treatment planning, including rotating and navigating through 3D renderings and 2D MPR slices, adjusting display settings, and making measurements.

It is the User's responsibility to ensure monitor quality and ambient light conditions are consistent with the clinical application.

Description of the Software:

CubeVue serves as an accessory to Cone Beam CT extremity imaging devices with the intended use to retrieve, display, and distribute 2D and 3D volumetric image data.

CubeVue provides a list of patient scans that have been sent to the its image database through its DICOM interface or imported locally by the user. Only DICOM Compliant data can be viewed. The user can browse, search, and sort the patient list to select a patient and open his or her image data.

The main screen displays a 3D rendering of the image in addition to axial, sagittal, and coronal slices. In the slices, the user can navigate through the volume by paging and rotating. The user can also adjust the window level, zoom, and pan of the 2D slices. In the 3D volume, the

user can rotate the volume, cut through a plane, and change the displayed tissue density threshold and rendering style. The user can make measurements on the image including distances, angles, and density values. The user can export patient data to a file or media, with the option to anonymize patient demographic information. It supports DICOM and JPEG for image communication. The software does not use any irreversible compression ratios. It only utilizes lossless JPEG compression.

The software is not indicated for use with mammography scans.

System Hardware Requirements

CubeVue requires 64 bit Windows 10 or higher operating system with a minimum of 8GB RAM and screen resolution with vertical height at least 1024. It can use any CPU that supports the Intel x64 instruction sets with SSE3 extensions, including AMD-based systems. Administrative rights on the computer are required for software installation.

About the Operators' Manual:

This documentation describes the safe and effective operation of the CubeVue software. The information is intended to provide trained Technologists and Physicians the necessary guidance to operate the software in a safe and effective manner. CurveBeam assumes no liability for the use of this document if any unauthorized changes to the content or format have been made.

Conventions Used in the User Manual:

Main Menu items and Tabs are in quotes (“ ”) or italics. Software Programs are in quotes (“ ”)

Cyber Security Recommendations:

CurveBeam uses commercially available software in the device that may be susceptible to unintended installation of malware or other malicious software that could compromise the full functionality of the device. Therefore, it is highly recommended that steps be taken to protect against possible vectors of infection. An industry standard, commercially available active monitoring program such as anti-malware and antivirus program should be installed to protect the device against such attacks. Other protections such as strong security policies, access control policies and strong network protection including the use of hardware and software firewalls are recommended in addition to active monitoring in order to avoid infection or otherwise unintended consequences related to infection. It is important to protect the equipment from unauthorized access, unauthorized software and insecure network access. Failure to sufficiently protect the equipment from possible attacks may result in unintended consequences including failure of the device.

Description of CubeVue software

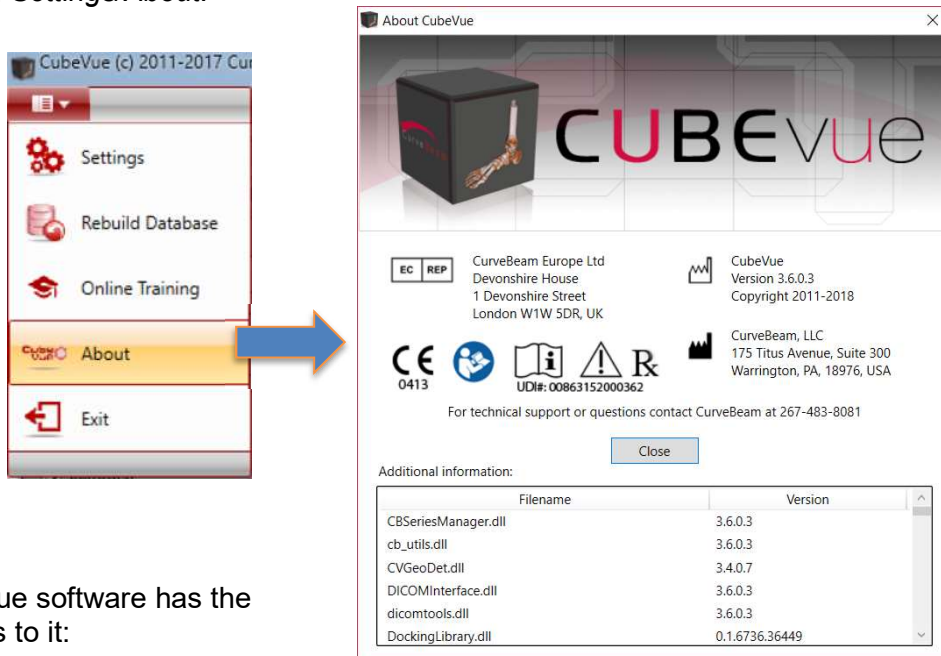
The data acquired from CurveBeam scanners can be reviewed and post processed within the viewing software, CubeVue.

CubeVue can be accessed by any computer that is connected to a PedCAT or InReach server via the facility network and has CubeVue software installed. Or can be accessed as a standalone software.



Then, to launch CubeVue, click on the CubeVue icon. A “waiting” symbol may appear next to your mouse and then disappear before the software loads. It may take a couple minutes for the software to load, but do not click on the icon again as this will cause two instances of the application to open.

The “About” Screen will appear showing software version & details. This can also be accessed by selecting *Settings/About*.



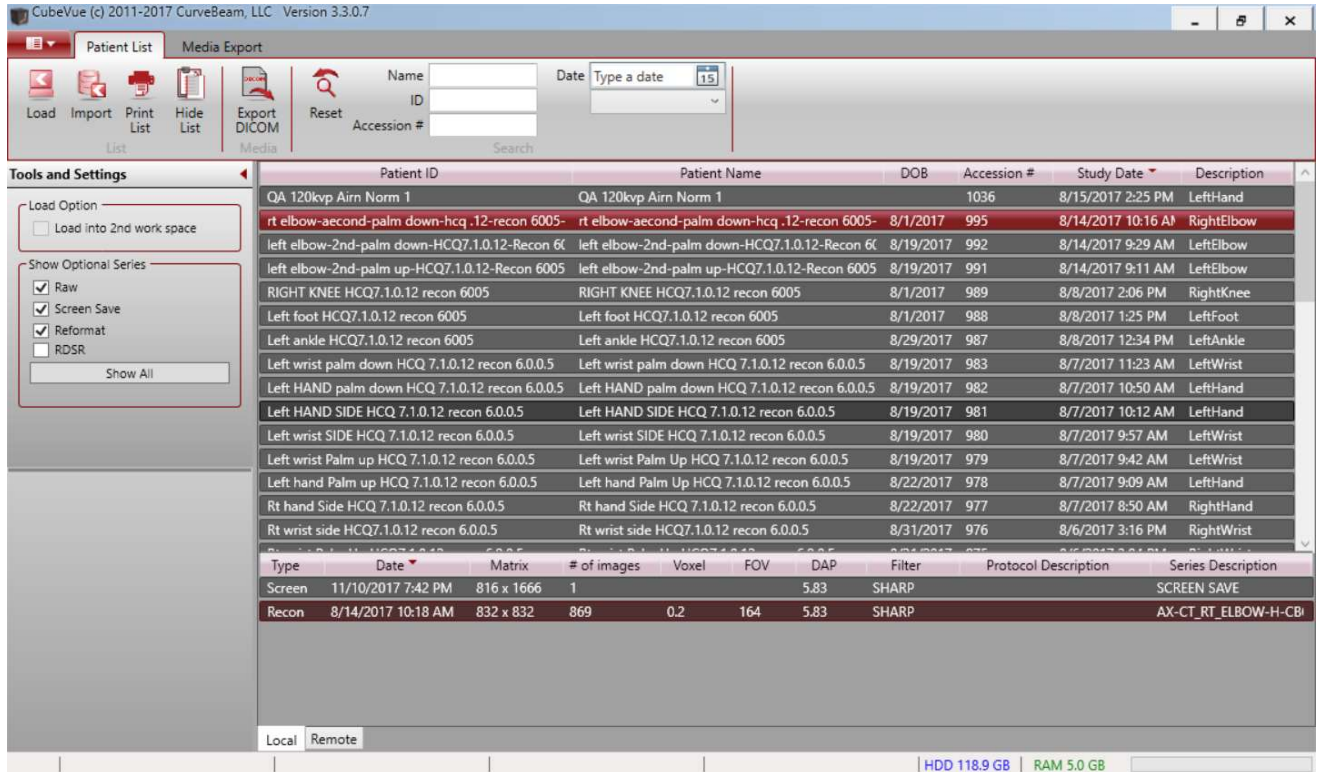
The CubeVue software has the components to it:

- Patient List: for accessing, importing & exporting patient datasets.
- Review: for reviewing and processing the patient datasets.
- Media Export: for transferring patient data and CubeVue installer to external media.

following

PATIENT LIST:

When CubeVue is launched, the “Patient List” will display the list of patients with their datasets for the user to load. The volume datasets will display as Raw or Reconstructed. The Raw data sets are listed with the description of “RAW”, the Reconstructed data sets are listed with the description being the protocol for which the scan was acquired.



After selecting the patient name from the list at the top, then select which type of scan to view. The Show Optional Series allow the list to be expanded to show all types of scans, or limited to only show the scans that are checked. Typically the Reconstructed study will be the type of scan to select for viewing the dataset. Once the scan is selected, the Review Tab will be active.

2D scans (also known as DX scans) acquired from LineUP scanner can also be opened in a similar way. Double click on DX image to view it full screen. These are currently displayed as Type “Raw” in series list on Remote Patient List tab and can be easily identified by the word DX in series description as shown in below screenshot:

Type	Date	Matrix	# of images	Voxel	FOV	DAP	Filter	Protocol Description	Series Description
Raw	7/8/2018 5:40 PM	3096 x 3096	1		209.2	0.1757		RAW-DX_KNEE_L-X-CBDX_KNEE_LATERAL_ST	
Raw	7/8/2018 5:39 PM	3096 x 3096	1		209.2	0.1098		RAW-DX_KNEE_L-X-CBDX_KNEE_LATERAL_UT	

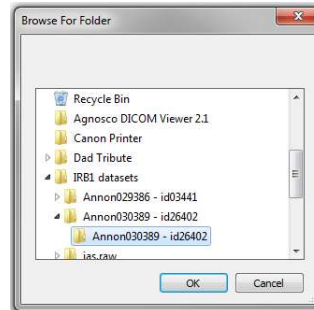
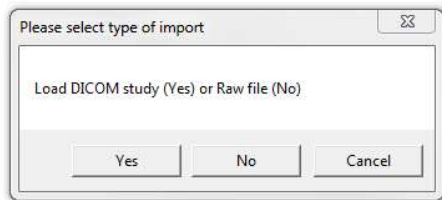
If the patient data that needs to be viewed does not exist in the patient list, it can be imported from an external location. The scan must have been taken using a CurveBeam Scanner

(PedCAT, InReach, or LineUP) in order to import the patient scan. To Import a study from a

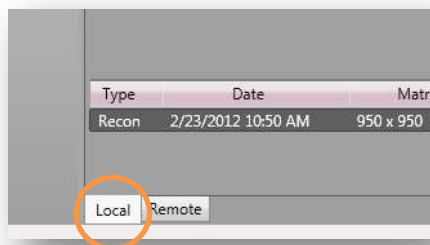
CurveBeam Scanner, select the Import Icon:



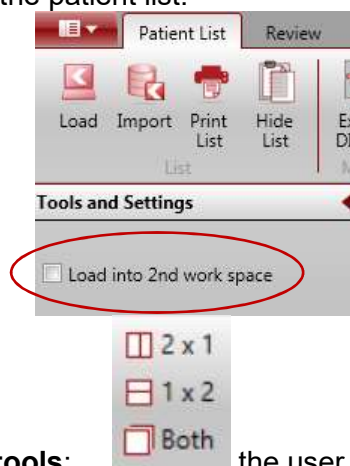
Once selected, a prompt will appear asking for DICOM Study or Raw File. DICOM Study would be the option to choose to navigate to the location of the study to import.



An Imported Study will reside in the “Local” Tab.



CubeVue allows for the user to have more than one scan loaded at the same time. This can be useful when comparing two scans done on the same person, a progression or a before and after type scenario. This is accomplished by first loading up a single scan. Then, from the Patient List tab (at the top), click first on “Load into 2nd work space” and then select the second series (scan) to open from the patient list.



Using the Series Layout tools: the user can select which way to view the images, either both of the scans in a vertical mode (select 2x1) or a horizontal mode (select 1x2). The limit to the number of scans that can be opened at once is just two scans. To remove the scan

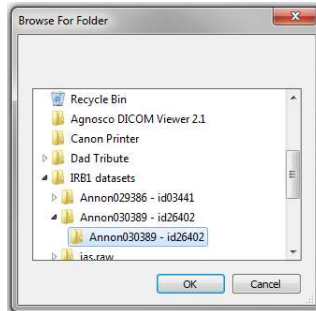
and load a different second scan, close the series to be unloaded and then return to the Patient List. Repeat the steps above to load a different series into the 2nd workspace.

Conversely, if the patient's DICOM data needs to be sent to another location, the user can



Export the DICOM data. To do this, select the Export DICOM icon:

Once selected, the user can Browse and select the location to export the DICOM data.



To put the study on a CD, have a CD in the drive and then navigate to the CD drive as the destination folder for the Export DICOM. This will then place the DICOM data on the CD using the Windows Burning Software program.

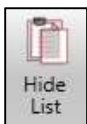
The Output location for Export DICOM can also be typed in the field shown in below screenshot but a blank space at the end should be avoided:



To print the patient list, select the icon:

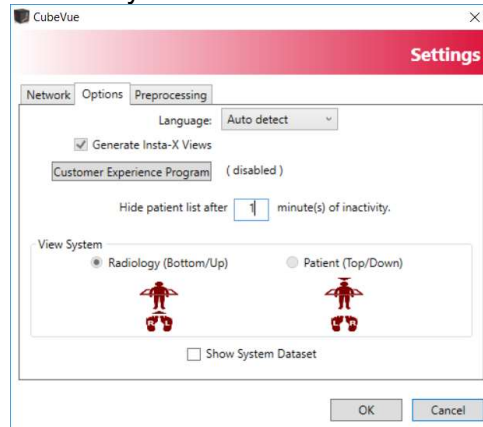


There is a button that will allow the user to hide and unhide the Patient List. To do this, select the icon:



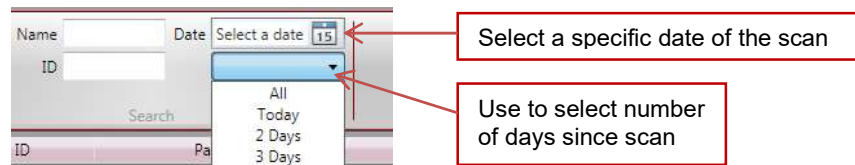
After 10 minutes of inactivity, the Patient List will be hidden for privacy purposes. In either case, when the list is purposely hidden or hidden after the 10 minutes, to unhide the Patient List, click on the Hide List icon to unhide the list. The default value of 10 minutes can

be changed to a desired value by putting the number of minutes in “Hide patient list after ___ minute(s) of inactivity” which is accessible from Settings\Options as shown below:



It is possible to view only a subset of the entire Patient List. This can be helpful when a portion of their name or ID is known, or when trying to locate a patient that was scanned today, on a known date, or within the last few days.

To locate a patient in the list using a partial (or full) name or ID, start to type in the “Name” or “ID” fields. As information is typed in, the Patient List will start to decrease as only the patients that match the criteria entered are displayed. To do this, select the pulldown shown below to select a number of days since the scan was acquired.



Additionally, typing in a partial name or partial ID will display all the scans listed with the matching Name or ID as a part of the patient’s information. Or, a specific date can be selected and all scans acquired on that date will be displayed. To select a specific date, click on the calendar next to “Select a date” in the image above.

REVIEW TAB:

Once the patient scan is selected from the Patient List, the scan will open in the Review Tab.

Some of the scans (some older scans) may present a pop up box to select which anatomy is represented in the scan and appears as follows:



Select the appropriate check box that matches the anatomy represented in the dataset.

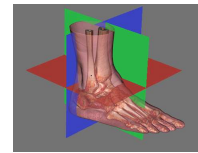
The Review Tab consists of 4 different Screens for viewing and processing data and a Main Menu Bar. The Tabs along the bottom are:

Combined 3D/MPR: contains a 3D rendering of the scan plus multiplanar reconstructed slices.

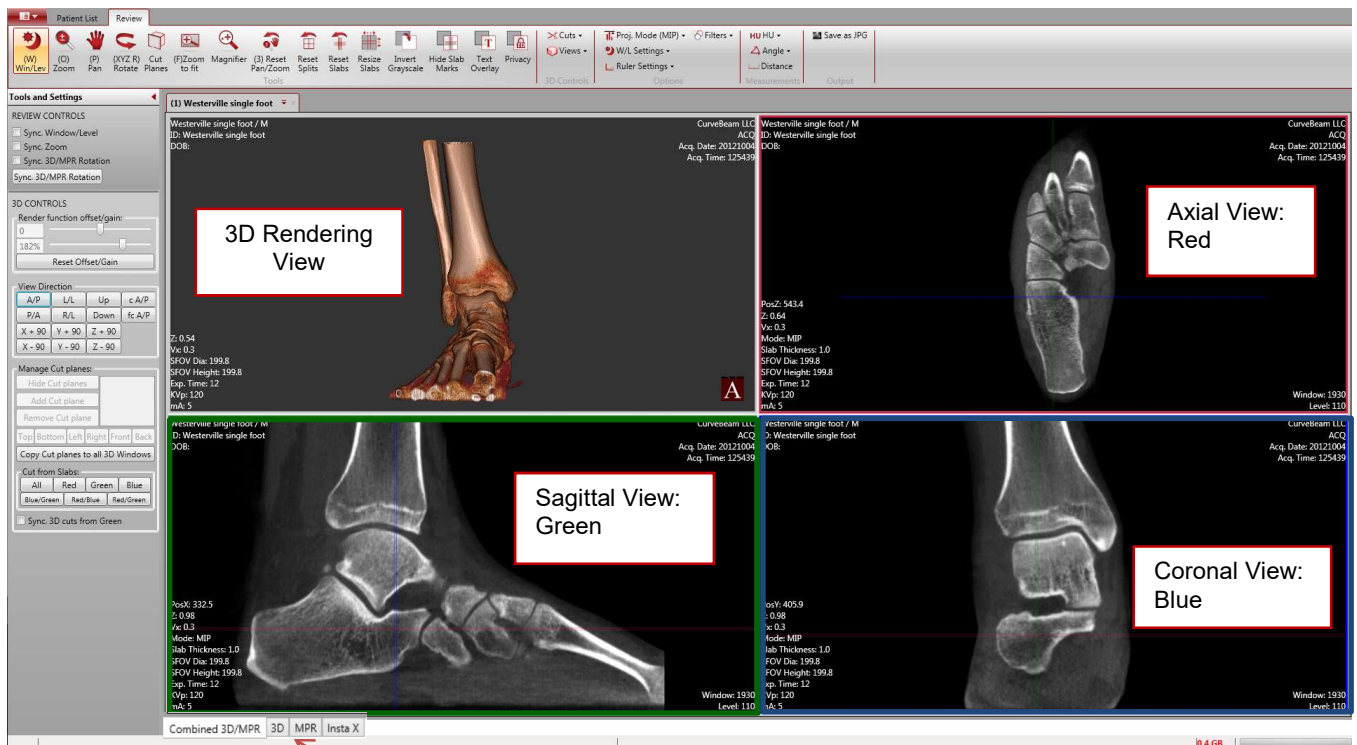
3D: contains the 3D rendering of the scan only.

MPR: contains the multiplanar reconstructed slices only.

Insta-X: contains the standard x-ray views.



Each "Plane" is color coded with Red, Green or Blue.



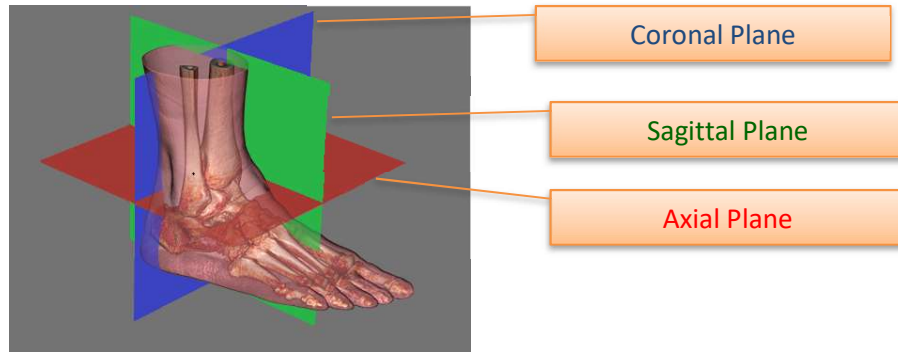
4 Review Tab Options

The Review Main Menu Bar (Ribbon):




Review Tab layouts.

MPR stands for Multiplanar Reconstruction. There are 3 views that are associated with MPR images. These views hold true for both the Combined 3D/MPR and the MPR Tabs: Axial, Coronal, Sagittal. Utilize the colored Slice Indicator Lines to know the slice locations.



- **Axial:** slices through the anatomy from top to bottom, bottom to top: **Red** plane. The “orientation of the image” is as if you were looking down on your foot/feet.
- **Coronal:** slices through the anatomy from back to front, front to back. **Blue** plane. The “orientation of the image” is as if you are looking at the foot/feet from behind.
- **Sagittal:** lateral slices through the anatomy. **Green** plane.

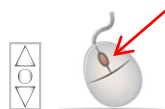
Scrolling through cross section images in the MPR views:

The scrolling cursor is the Default cursor.  To scroll through slices, hover the mouse cursor over a desired view and this cursor should be enabled. **Left Click, hold and drag to scroll through slices.**

Alternately, each colored line in a Window can be clicked and dragged to scroll through its corresponding colored views.

The red line that cuts through two images, the Coronal and Sagittal, is the reference point for the Axial slice that is shown in the red outlined box. Moving the red line in either the Coronal or Sagittal views will change the slice location and the image displayed in the Axial view. The red reference markers will always depict the location of the Axial slice. This reference is the same for both the Coronal and Sagittal views as well, with the Coronal in green and the Sagittal in blue.

Alternately, for scrolling through slices in fine increments, when the cursor is hovered over an MPR image, use the mouse wheel to scroll through slices.



Rotating MPR images:

MPR images can be rotated independently from 3D image by selecting “Rotate” button

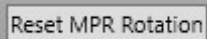


from Main Menu bar and then rotating the cross-reference lines within any desired MPR image. The angle of rotation will also be shown while rotating. As soon as the mouse cursor is released the MPR image rotation will be reflected on the images.

Another method to rotate MPR image is by holding SHIFT key on keyboard and then rotating the MPR image using mouse cursor. This method displays the rotation of the MPR image as the cursor is moved.

Angle of rotation can be seen any later time also. To view the angle, make sure Rotate button is selected and click and hold the mouse cursor on any of the MPR image.



MPR images can be reset to their default orientation by pressing “Reset MPR Rotation” button.



Each Tab has use of Universal Image Processing and Planning Tools:

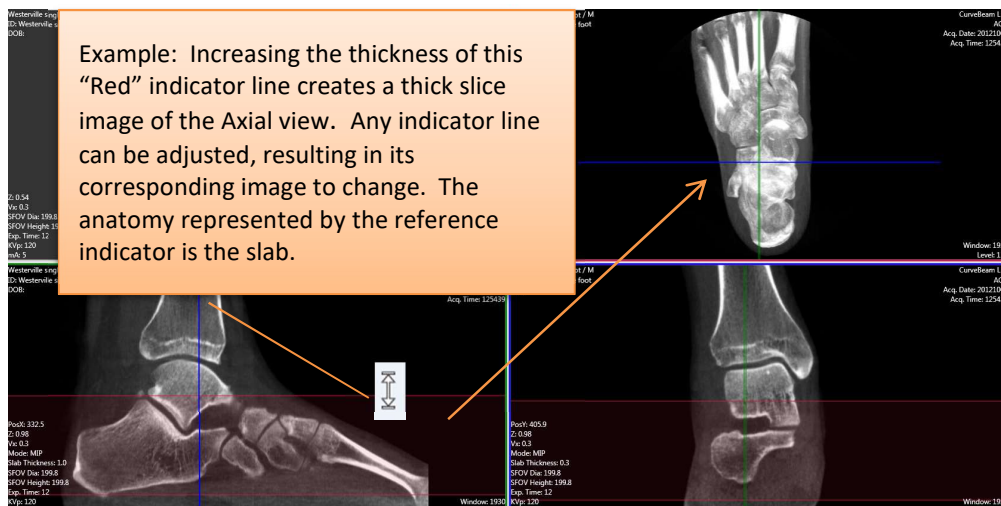
Slab/Slice Thickness:

There are 2 methods to enable the tool for changing the thickness of the anatomy viewed, Hold down the SHIFT key and click on any of the colored reference lines and then drag the mouse to change the width of the line to represent either a larger or smaller slice of anatomy.


The cursor should change to this:  for horizontal lines or  for vertical lines.



OR, click on the “Resize Slabs” button on the Main Menu Bar. This will change the cursor for resizing. To disable the resize, click on the icon a second time and the cursor will change back to normal.





To move a Slab to a new location, click the now toggled “Move Slabs” button on the Main Menu Bar and the cursor will change to its default  which will allow you to “move” the slab to a new location by dragging the slab.



To Reset the Slabs back to normal thin slices, click the “Reset Slab” button on the Main Menu Bar. If selected, a warning message will appear to verify that the slabs do need to be reset. The message will appear as shown below:

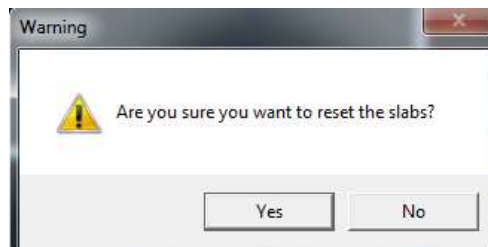


Image Enhancement Tools: These are functions that can be used to enhance and manipulate the image for optimal viewing.



Window / Level (Brightness / Contrast):

To adjust the Window/Level, select the Win/Lev icon and then selecting a window to make the window/level change to. Changes are made by first clicking in the window, then moving the mouse up and down and then left and right until the optimal window/level is achieved. To deselect the Window/Level function, click on the Win/Lev icon a second time.



Zoom:

If the image does not appear as close as desired, then select the Zoom icon and select a window to change the zoom factor on. If you drag your mouse up, the image will zoom in and appear closer. As the mouse is moved down, the image will appear further away. To deselect the Zoom function, click on the Zoom icon a second time.



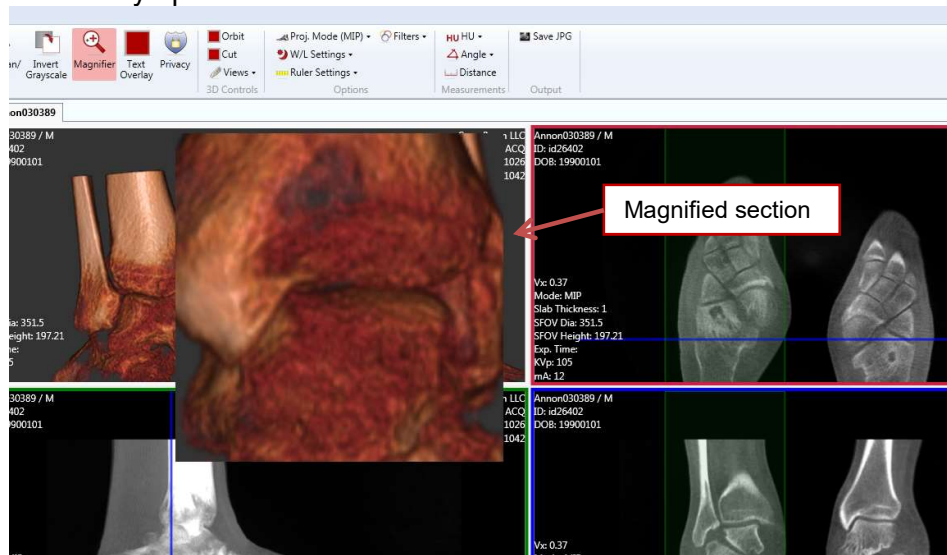
Pan:

To adjust the image to a different location inside the window, the Pan function can be utilized. To center the section of the image desired in the window, select the **Pan** icon and then select the window to modify. Click on the image and hold the mouse down, while moving the mouse around and the image will move with the mouse movements. To deselect the Pan function, click on the Pan icon a second time.



Image Magnifier:

The Magnifier icon will provide a magnification of the selected image. When the mouse is moved around the anatomy in the selected image box, the magnification box will be continually updated with the new location of the mouse.



Reset Pan/Zoom:

Once the Pan and Zoom functions have been used and a different section of the anatomy is of importance, then the user can begin the Pan and Zoom process again by selecting the Reset Pan/Zoom icon. When the Reset Pan/Zoom icon is selected, the image will appear as it did when the study was originally first loaded.



Splits / Reset Splits:

The individual windows can also be moved to allow for a larger window for any of the four windows. So that if the user would like to see a full screen of the Axial image, mouse click on the center of the four windows and adjust the window sizes so that the Axial image takes up the majority of the window.

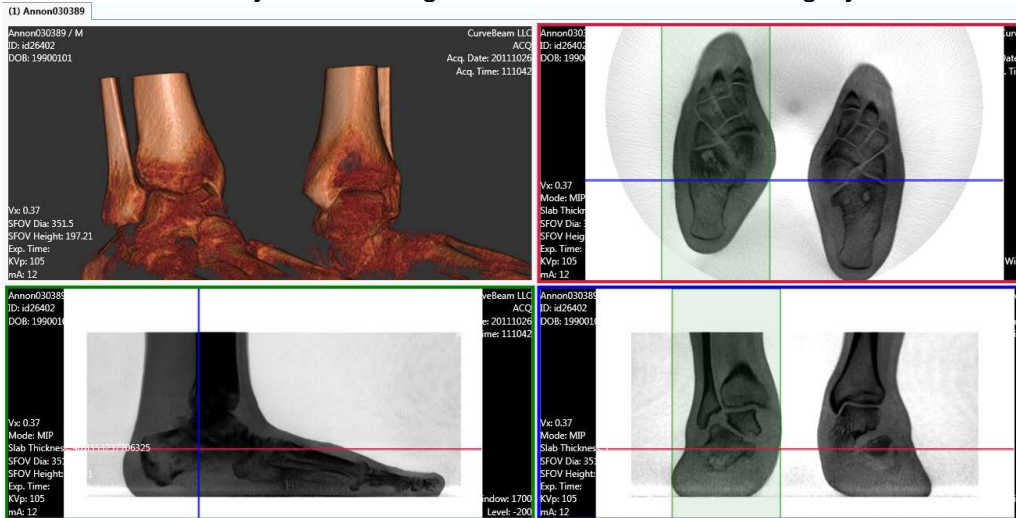


Once done with viewing the Axial window, the window sizes can be reset with the use of the Reset Splits icon. This icon will put the windows back into the configuration they were in when the software scan was freshly opened.




Invert Grayscale:

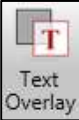
The Invert Grayscale icon will invert the grayscale on all the images, except the 3D image. Click the Invert Grayscale icon again to revert back to normal grayscale.



Text Overlay and Privacy:

The overlay on the images is most of the informative text on the image. If the user does not

want to display the information, there are two options available. The Privacy icon:  will remove ALL patient information from the image other than Patient ID#. This can be useful if the desire is to maintain a level of anonymity when viewing the scan on the screen. The image should NOT be printed when the Privacy icon is selected and no patient data is displayed. To

allow for the basic patient information, then the Text Overlay icon should be selected.  This allows the user to display some information but also remove the excess information from the Image Windows.

Projection Mode:

There are 2 options available for projection mode, one is "Radiographic", the second is "MIP".

Radiographic is the image displayed as a normal radiograph.

MIP stands for Maximum Intensity Projection. This is an image tool that is only useful for thick slice slabs. It will display for each pixel, the most dense valued pixel in the depth of the selected slab, which means it will display the brightest pixel (voxel). Below is a comparison of a thick slice slab as a Radiographic projection vs. an MIP projection.



Radiograph



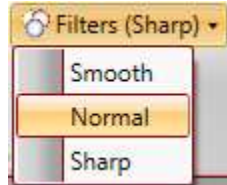
MIP

To alternate between Radiograph and MIP, click the Proj. Mode icon & select the desired option. It will also display which mode is currently selected.



Filters:

There are 3 filter options available; Smooth, Normal, Sharp. Filters can be applied to enhance images. The default filter type will be Normal. But if the image requires a little more detail, than the Sharp filter can be selected. Smooth will make the edges of the images appear more smooth, but may lose some detail. Filters are often a personal preference. Select the Filters icon to apply one of the 3 options.



Measurements: There are various measuring tools for treatment planning.

HU: These are for measuring Hounsfield Units, which is density value of an area of interest.

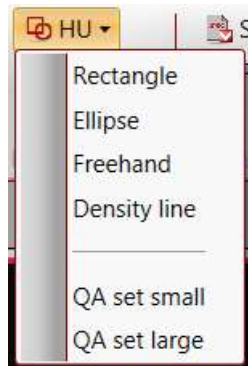
HU Range: For identifying area on MPR images within specified Hounsfield Units.

VOI: It displays the HU values graphically for a specified volume in anatomy.

Angle: These are for measuring angles on the anatomy of interest.

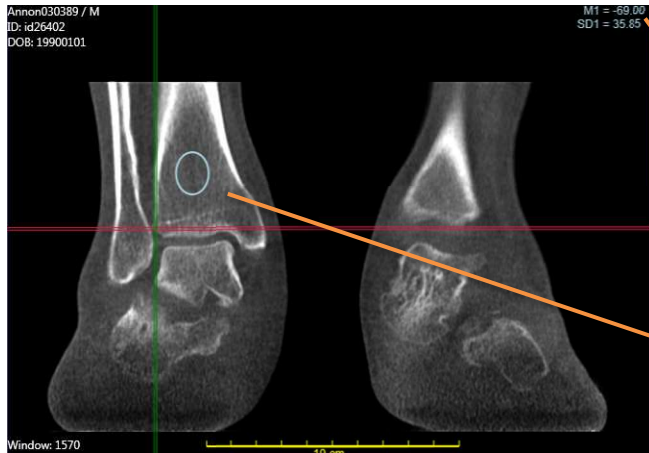
Distance: This is for measuring distances in millimeters. There is also a Ruler that can be displayed on the images to assist in quick visual reference of length.

HU Measurements: The HU tool has a drop down with 6 options; rectangle, circle, freehand and line for general use and then QA set Small and QA set Large for doing the QA procedures.



Any of the general use regions can be selected for creating a region of interest (ROI) on the bone in order to obtain a density value reading. For example, if "Ellipse" is selected, an elliptical ROI can be drawn by point click and drag. Then click a final time to anchor the ROI. The measurement reading will display in the upper right hand corner of the image window. A maximum of 10 measurements can be made in one image window. This tool will remain enabled until disabled by clicking the selection again.

M = Mean, SD = Standard Deviation.



HU Measurement Values

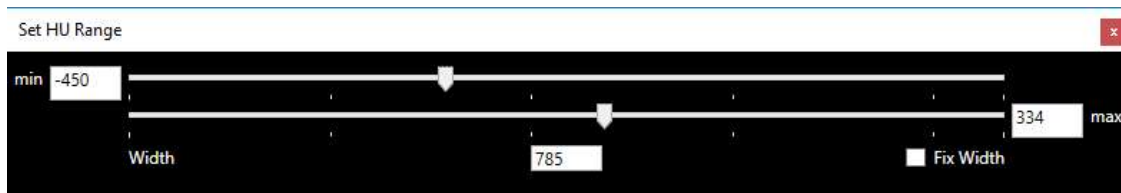
HU Ellipse ROI

Follow these instructions for the rectangle or freehand as well. The Density Profile line displays in graphical form. Draw a line and the graph will appear.



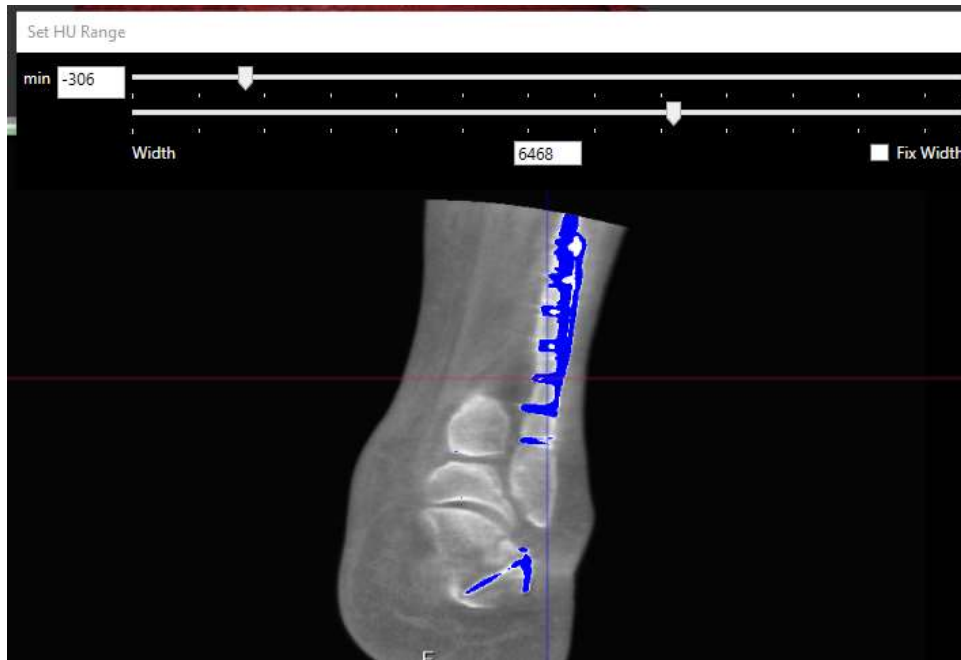
For doing the QA procedures, there are two sets of pre-sized HU regions. Selecting the “QA set Small” will draw small circles that are used to determine the HU of the various materials on the QA Line Pair Phantom. The “QA set Large” will draw large circles that are used to determine the HU of the water.

HU Range: HU Range feature is available from the Ribbon menu bar in measurements section. This feature enables user to view objects of desired HU range in blue color i.e. differentiate from the rest of the anatomy. To use this feature, click on HU Range نسب HU Range option under measurements section on the Ribbon menu. A new window titled Set HU Range appears as shown in screenshot below:




Min HU value and maximum HU value can be set by the use of two respective sliders as shown in screenshot above. Corresponding HU value for each slider position is updated in the min and max text boxes. Difference between the displayed max and min values is called the Width and is also shown on the Set HU Range window. Any area on MPR images (Axial, Sagittal and

Coronal) that falls within this Width value is displayed blue as shown in sample screenshot of one of the MPRs below:

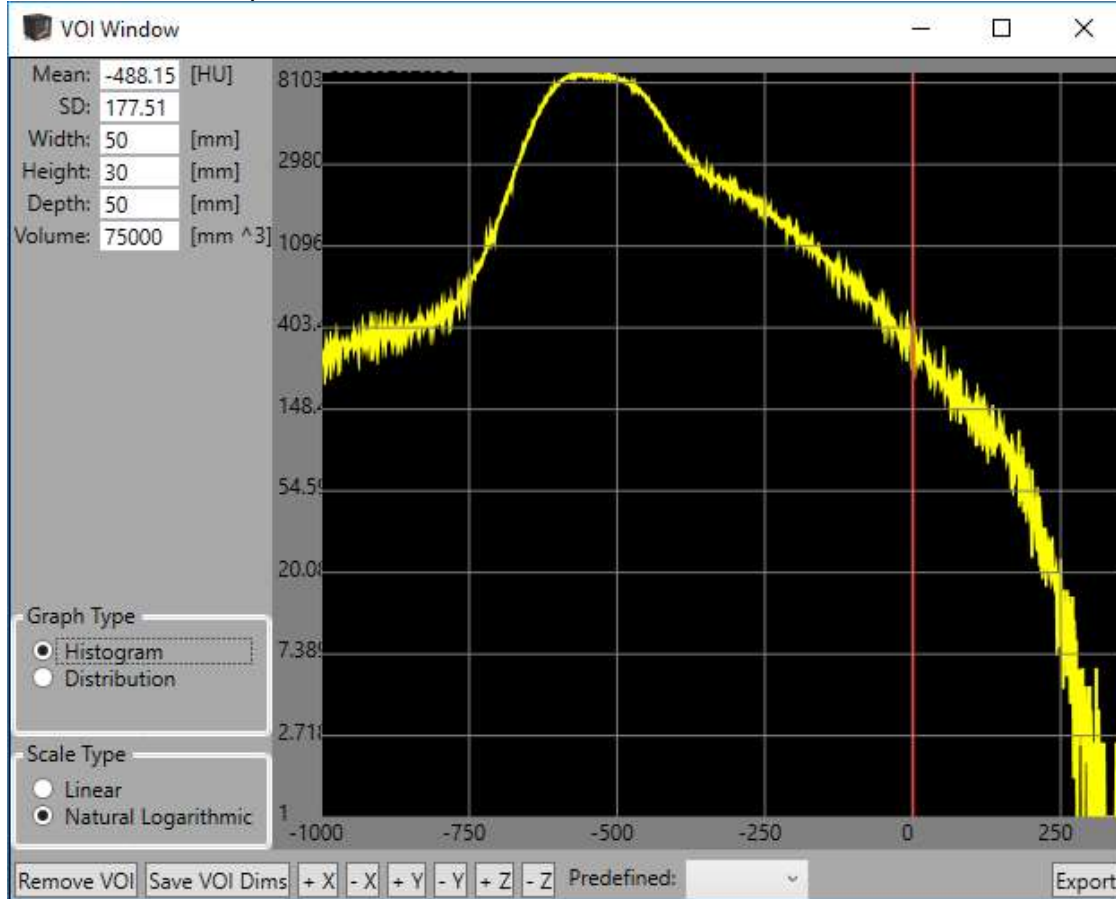


There is a checkbox named as Fix Width; using this checkbox the user can fix the Width after achieving its (i.e. Width's) desired value. If Fix Width checkbox is checked changing one slider will automatically move the second slider such that the difference between min and max value is maintained. To increase or decrease the Width value again, uncheck the Fix Width checkbox and move the min and/or max sliders.

Volume Of Interest (VOI):

It includes histogram graphing. This function is present as “VOI” button  on ribbon menu available only on ‘Combined 3D/MPR’ tab and ‘MPR’ tab.

When this function is used, a VOI is placed symmetrically over the current slab center and a statistics window opens.



Once the VOI is placed on the MPR images it can then be dragged to other locations within image area; can also be rotated.

The statistics window displays Mean and Standard Deviation of the VOI along with display of dimensions (Height, Width & Depth) and volume of the VOI. Graph type can be selected between Histogram and Distribution. Similarly, Scale Type can be selected as Linear or Natural Logarithm.

Dimensions of VOI can be changed using +X, -X, +Y, -Y, +Z & -Z from the statistics window. It also provides option to save these dimensions as a set under “Predefined” dropdown box such that these dimensions can directly be applied for any other dataset.

An “Export” button allow saving of the histogram information to a CSV file.

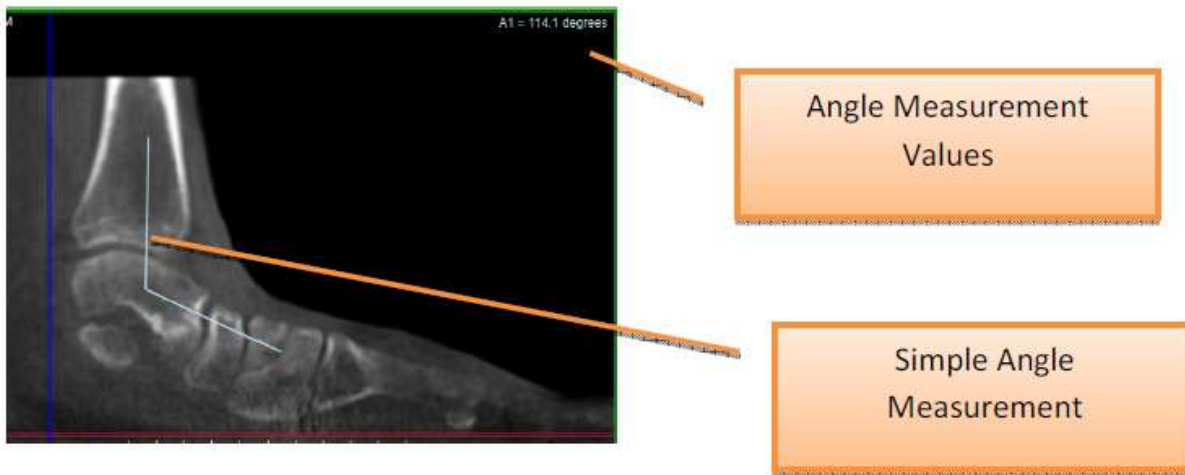
Note: Often the slab center is not located in the center of the window. A new SHIFT-Pan (i.e. Hold down SHIFT key on keyboard & click on Pan button on CubeVue ribbon menu) function will perform such panning automatically making it easier and faster to see the extent of the VOI.

Angle Measurements:

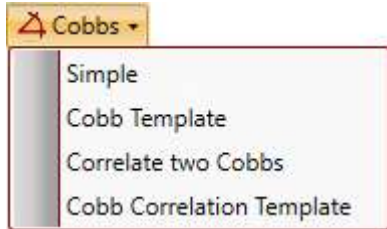
The angle tool is available on the Main Menu Bar:



Angle: Click on *Angles* to select the angle tool. The Angle has 3 points of reference. Point, click, move, click, move, click to finish (3 clicks). This will result in an angle in degrees, and the measurement will display in the upper right hand corner of the window. A maximum of 8 measurements can be made in one image window. This tool will remain enabled until disabled by clicking the selection again or pressing the Esc key from the keyboard.



Cobb Angle: Click on *Cobb*, then select “Simple” to enable the Simple Cobb angle Tool.



The Cobb angle requires creating 2 separate lines and the tool will calculate the angle at the point of “intersection” of those 2 lines:

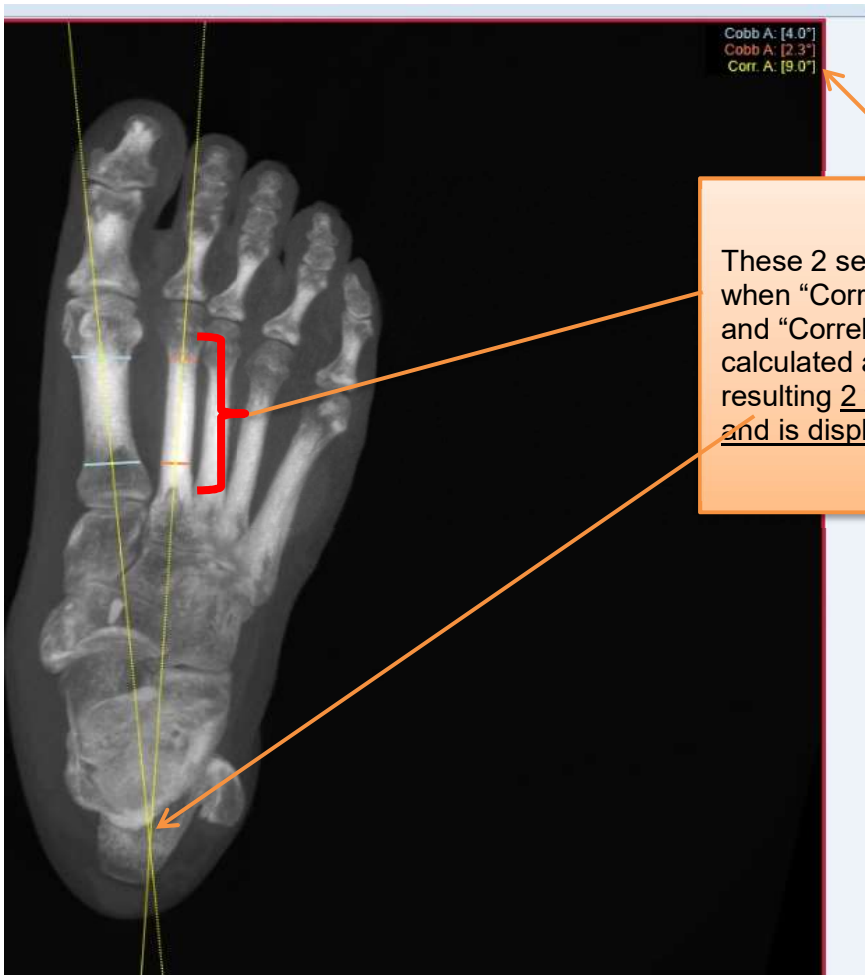


These 2 lines are drawn when “Cobb - Simple” is enabled (4 clicks). The calculated angle measurement is where these 2 lines intersect.

Cobb Template:

This option will place two lines of a Cobb angle which can be modified to have desired angle. To modify the Cobb angle lines, move the cursor over any of the two lines, two red dots will appear on the ends of the line which can then be dragged anywhere on the image using mouse cursor to have a desired placement of the line.

Correlate two Cobbs: Select *Correlate two Cobbs* from the Cobbs dropdown and create 2 sets of “Cobb” lines, the system will automatically calculate and display the angle where the 2 yellow dotted lines intersect:



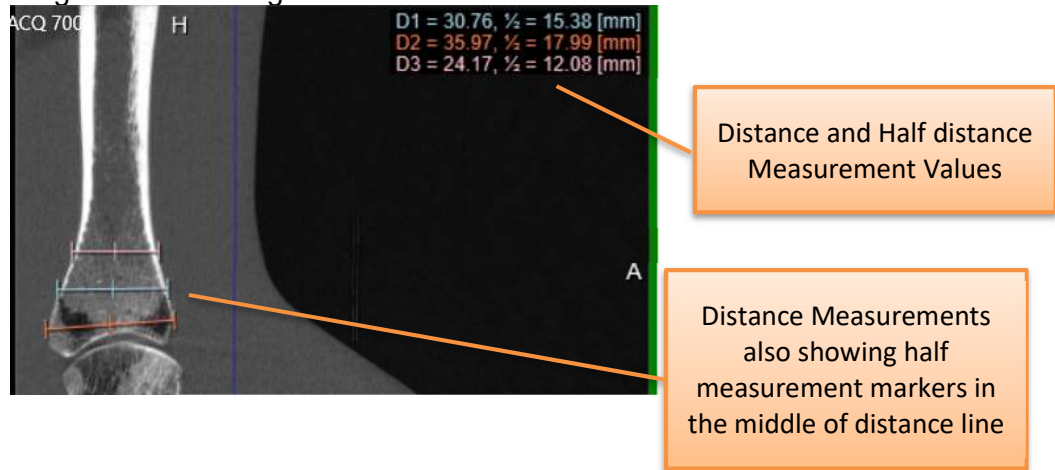
These 2 sets of Cobb lines are drawn when “Correlate two Cobbs” is enabled and “Correlation” is automatically calculated as the angle where the resulting 2 yellow dotted lines intersect and is displayed in upper right corner.

Cobb Correlation Template:

This option will place four lines of two cobb angles which can be modified to have desired cobb correlation. To modify the cobb angle lines, move the cursor over any of the lines, two red dots will appear on the ends of the line which can then be dragged anywhere on the image using mouse cursor to have a desired placement of the line.

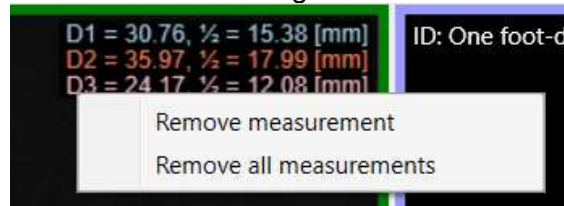
Distance Measurements:

Select the Distance Tool icon to enable the distance tool. Distance has 2 points of reference. Point, click, drag, release to create a line. This will result in length measurement in millimeters, and the measurement will display in the upper right hand corner of the window. A maximum of 8 measurements can be made in one image window. This tool will remain enabled until disabled by clicking the selection again.



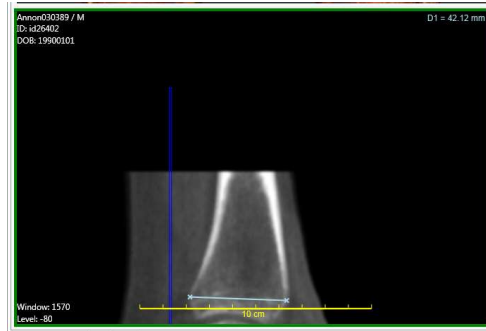
Removing Measurements:

All measurements can be removed by hovering over the values in the corner and right clicking on them. This will display a pop up window. Select either *Remove measurement* which will remove the last one drawn on or *Remove all measurements* which will remove all from both the corner and the illustration on the image.



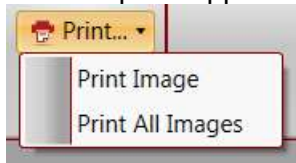
Ruler Settings:

Also Note that there is a Ruler Tool that can be displayed on the bottom of the image window for quick distance measurements. This overlay can be enabled or disabled by selecting desired options under the "Ruler Settings" icon. Select *Show all* to display the yellow ruler at the bottom of all MPR image windows. Select *Show active* to display the yellow ruler at only the currently active MPR image; click in the image area to make it active. Similarly the rulers can be removed from all or just active image by choosing *Remove all* and *Remove active* options respectively.



Print Images

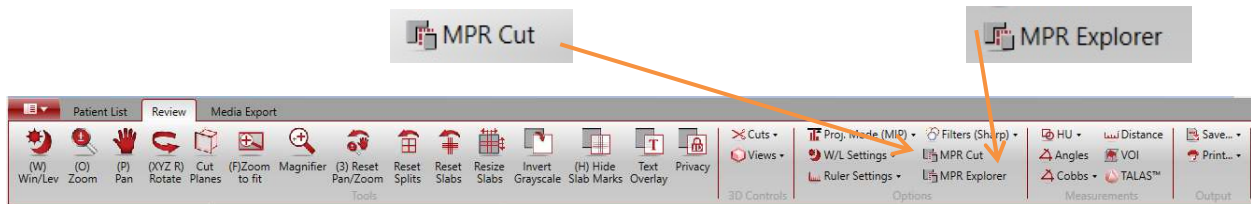
A Print option appears as an Output function along the top menus.



To use click on Print and then select either "Print Image" or "Print All Images". If Print Image is selected, the currently active image will be the one printed.

MPR Tab:

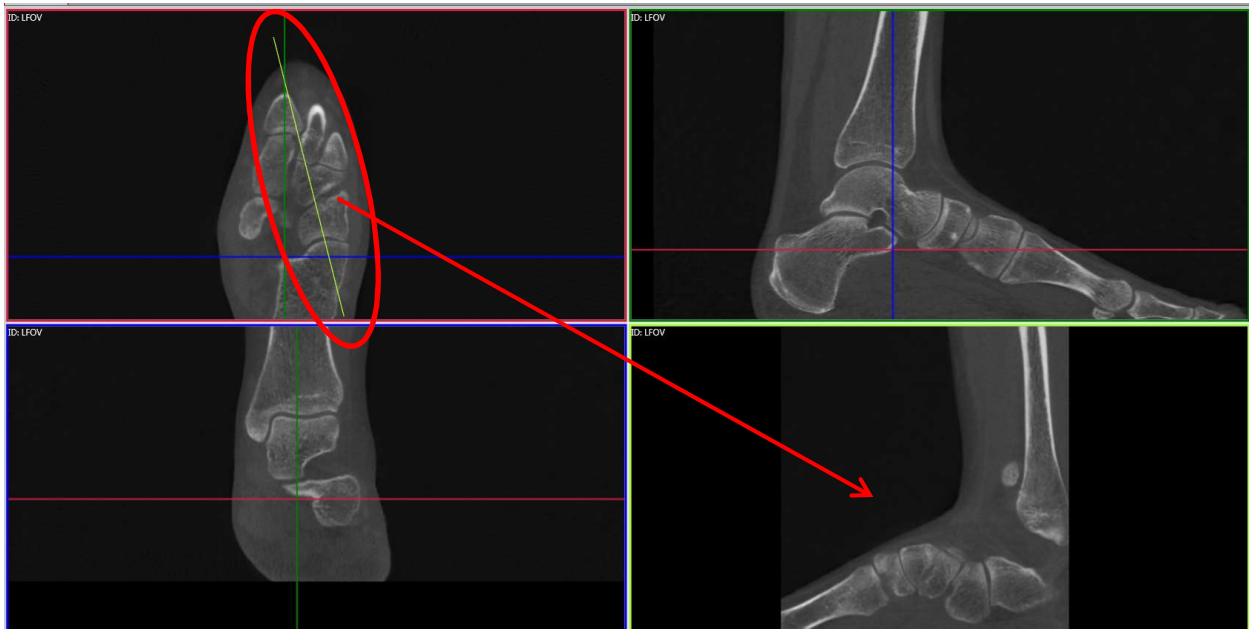
The MPR Tab has the 3 MPR views and no 3D Rendering. Two additional tools are available only within the MPR Tab, they are the “MPR Cut” tool and the “MPR Explorer” tool. These tools are only enabled when you are on the MPR Tab and are in the “Options” area.



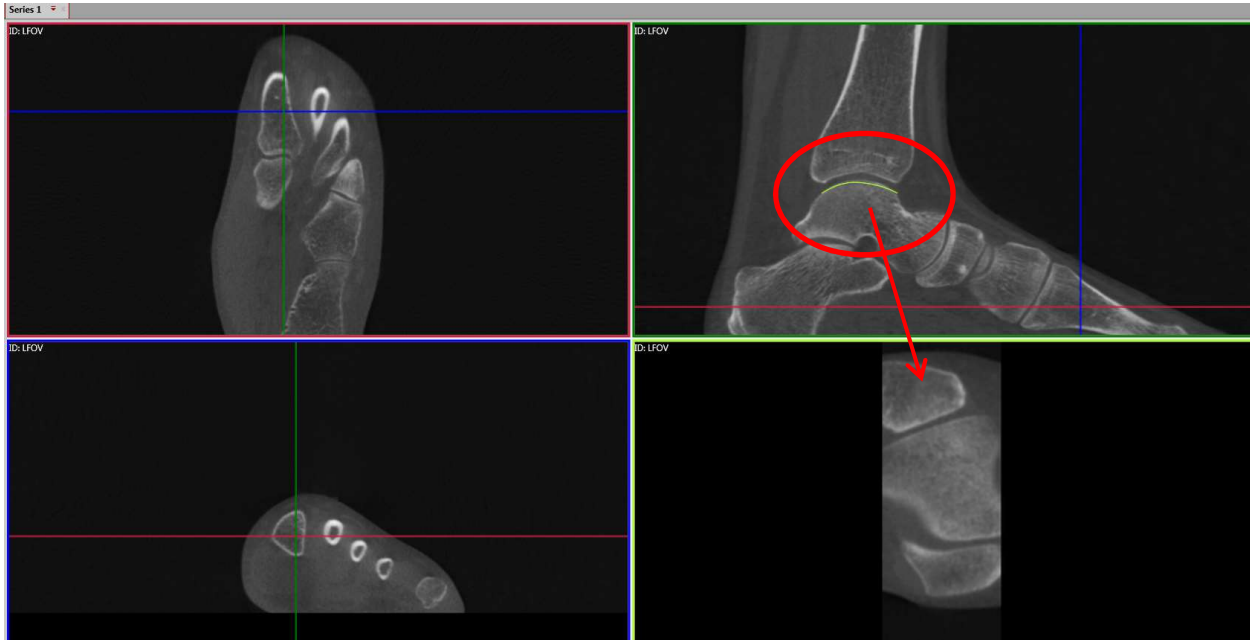
When MPR Cut is selected, the cursor allows the user to draw a “cut line” on any of the 3 MPR images in order to display a customized slice in any direction in the lower right hand corner window.

After selecting MPR Cut, click anywhere in an image to start the MPR Cut Line. The cut line can be straight or curved. For a straight cut line, click in 2 spots, then double click to complete the sequence. For a curved cut line, make multiple clicks in a curved direction.

MPR Straight Cut Plane: Created in the Axial view. The resulting cut displays in the lower right corner.

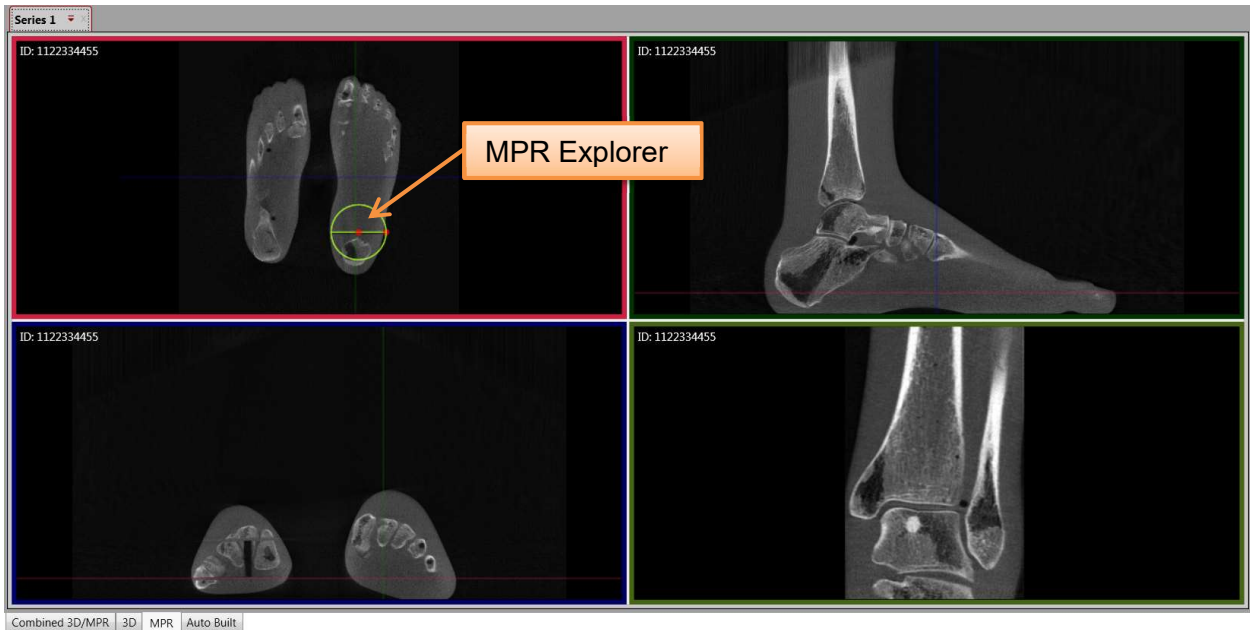


MPR Curved Cut Plane: Created in the sagittal view. The resulting cut displays in the lower right corner.

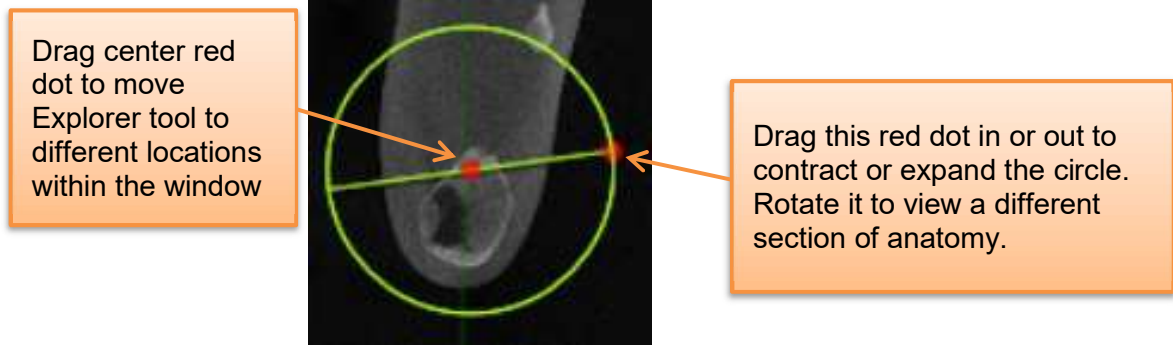


When the MPR Explorer is selected, the cursor allows the user to create the MPR Explorer tool on any of the 3 MPR images in order to rotate around a center point with the image displayed in the lower right hand corner window.

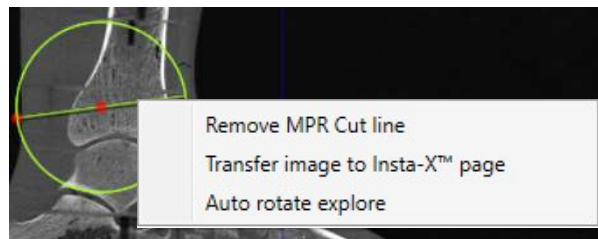
After selecting MPR Explorer, click anywhere in an image to start the MPR Explorer, which will appear as follows:



This tool can be moved around the image by clicking on the center red dot and dragging the tool to the desired location. To expand the area displayed, click on the red dot on the outer edge of the circle and drag the dot for either a larger or smaller region to view using the tool. Also use the red dot on the outer edge of the circle to rotate it around to view different images in the lower right window. The image shown will correspond to the green line drawn through the circle, so as the red dot is moved around the circle, the image in the lower right hand corner will adjust accordingly.



Right click on the center green line, with the cursor that points up, to get the following options:



The “Remove MPR Cut line” will remove the MPR Explorer tool from the image. This allows the tool to be placed in a different window if desired. The “Transfer image to AutoBuilt page” will transfer the image the tool is on to the Insta-X tab. To have the image represented by the tool, the image in the lower right hand window, moved to the Insta-X tab, right click on that image and select to move it from there. To allow the image to rotate freely without needing to manually rotate it, select the “Auto rotate explore” option. Right clicking on the outside of the circle will do all the same options except it will not allow for the auto rotate option.

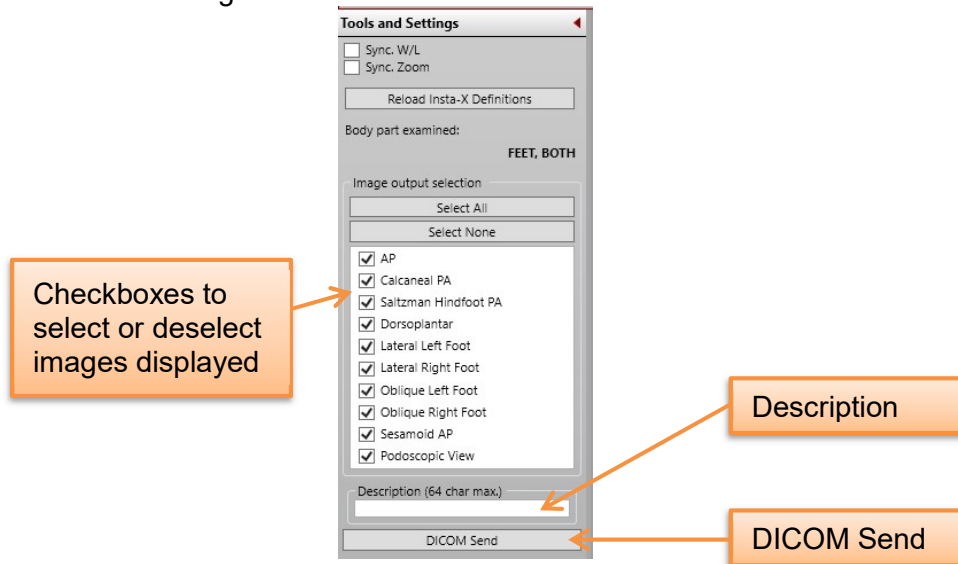
To use the MPR Explorer tool in a different MPR window, such as changing from axial to sagittal window, delete the tool from the axial window and redraw it in the sagittal window.

Insta-X Tab:

The Insta-X tab is used to display the standard x-ray views as shown below:



The number of default Insta-X images may vary depending on the type of anatomy scanned like a both feet scan will have more Insta-X images as compared to single foot scan. In order to show only certain images, the checkboxes, unchecked images will not be shown. *Select All* and *Select None* buttons help in selecting all or none images respectively with a single click. The Tools and Settings selection for the Insta-X tab is shown below:



The Description field in the above image depicts the description given for the selected image and can be changed as desired. Just type in the field and the corresponding image will have the description updated.

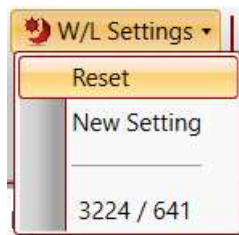
All images shown can be double clicked on to view the image full screen. All of the usual measurement and navigation functions, such as Pan, Zoom, etc are still accessible. *Sync. W/L* checkbox can be checked if Window/Level need to be changed for all the Insta-X images

simultaneously; the Window/Level for all the Insta-X images will become same in that case. *Win/Lev* button from the main menu bar can be used to change the Window/Level. Similarly check *Sync. Zoom* checkbox and then change the zoom level of a single image to change the zoom level of all Insta-X images to same level simultaneously.

Any of the non-3D images throughout the software can also be added to the Insta-X tab by right clicking on them and selecting “Transfer image to Insta-X page”.

Once the W/L is changed for any desired Insta-X from its default value, this change is retained; the dataset (e.g. Left foot) can be unloaded and if the same dataset is reloaded or similar type of other dataset (e.g. Left Foot) is loaded even for first time, then the Insta-X image will have the W/L value set by user. Following are the steps to undo or reset the W/L of any particular Insta-X image to its default value:

- Select the desired Insta-X by clicking on it.
- Make sure *Sync. W/L* checkbox is NOT checked if the reset is required for any particular Insta-X image.
- Now from the ribbon menu click on *W/L Settings* and select the *Reset* option as shown in screenshot below:

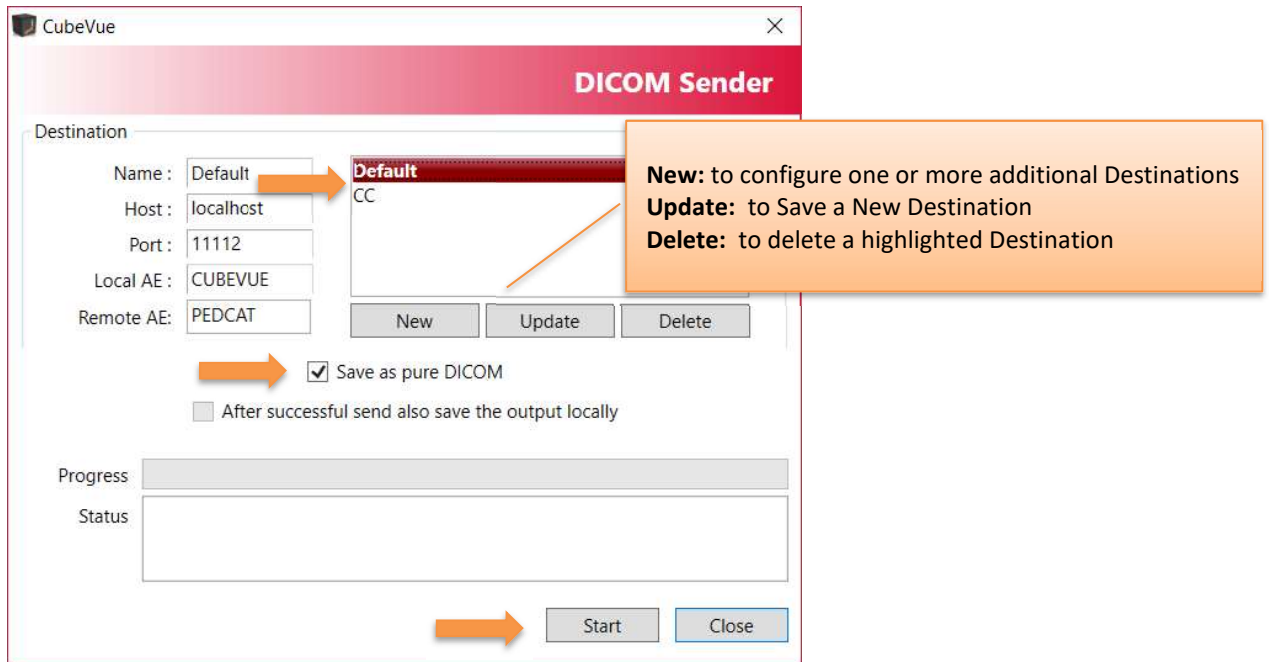


- If W/L of all Insta-X images need to be reset in one go, check the *Sync. W/L* checkbox and then from the ribbon menu click on *W/L Settings* and select the *Reset* option as shown in screenshot above.

Reload Insta-X Definitions: This button reloads Insta-X images and normally used when any change is made in Insta-X definitions. Pressing this button reflects the changes in Insta-X definitions without the need to restart CubeVue. It is recommended to contact CurveBeam technical support if the customer wants to make any change in definitions of Insta-X image.

✔ **NOTE:** Please be aware that if customer clicks on this button all the Insta-X images will be reloaded and all measurements on Insta-X images will be removed unless saved in the *Session*. If measurements are saved in sessions, then the Saved Session can be loaded to have the measurements back.

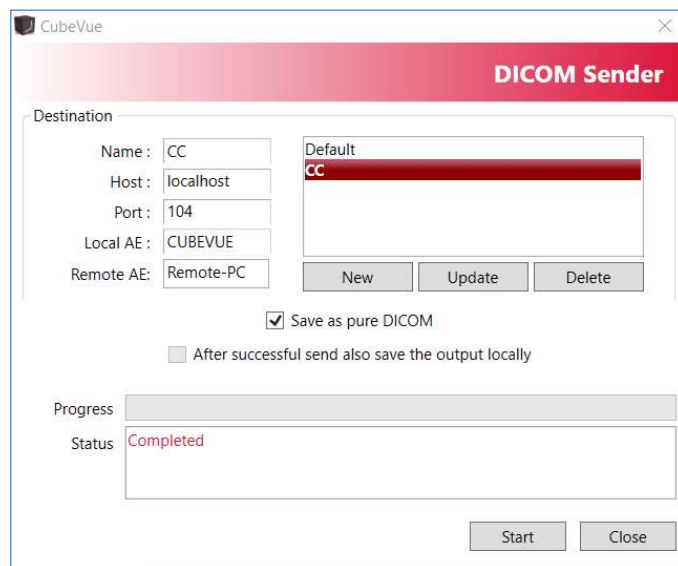
DICOM Send: When the *DICOM Send* button is selected, the DICOM Sender box will be displayed. In this window, one or multiple **Destinations** for the data send can be configured. Configure a Destination with the appropriate data and click the **Update** button to Save. To add another Destination, click on **New** and edit the Destination items, click Update to Save. Once there are Destination(s) configured, they will remain in the list unless deleted.



Insta-X images can be sent as pure DICOM objects or DICOM-wrapped JPG imagery. The first one allows HU based Window/Level manipulations while the latter allows alpha-numeric overlays, like distance and angle measurements, or the reference length scale.

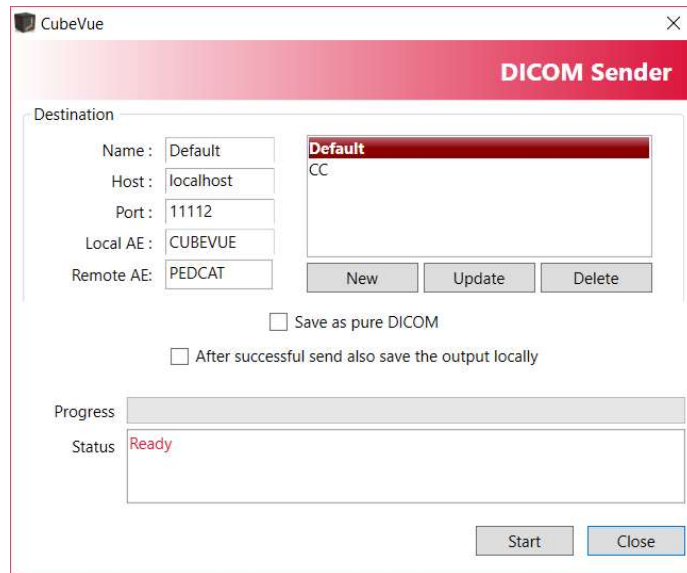
To send the Insta-X images as “pure DICOM objects”:

- Select the *Save as pure DICOM* checkbox shown in DICOM Sender dialog.
- Selecting *Save as pure DICOM* checkbox will disable the ‘*After successful send also save the output locally*’ checkbox. So, CubeVue currently does not allow local saving of pure DICOM Insta-X images.
- Make sure the correct and desired DICOM Destination(s) is(are) selected on DICOM Sender dialog.
- Click on Start button to send the Insta-X images as pure DICOM to a desired DICOM destination; the images will be sent and status bar will show “Completed” as shown in screenshot on right side.
- Close the DICOM Sender dialog.




To send the Insta-X images as DICOM-wrapped JPG imagery, un-check the “Save as pure DICOM” checkbox in above steps. This also enables the checkbox which when checked allows

the Insta-X images to be saved locally after successful send as shown in below screenshot (notice the enabled checkbox “After successful send also save the output locally”):



 **NOTE:** There will be no overlays on the receiving end on the Insta-X images sent as pure DICOM.

 **CAUTION:** All Insta-X images sent as pure DICOM do not have orientation markers and name information. This information is same for all Insta-X images i.e. all the images have same name and same orientation marker information. Please pay special attention when viewing these images on PACS.

Tools and Settings Panel:

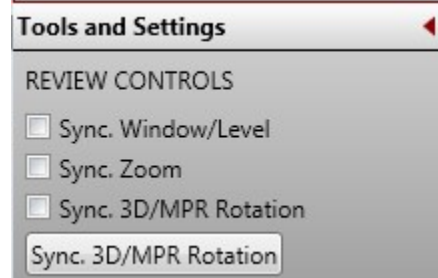
REVIEW CONTROLS:

Sync Window/Level: when this item is “checked”, any Window/Level adjustment to an MPR image will make the same adjustment to the other MPR images.

Sync. Zoom: when this item is “checked”, any Zoom adjustment to an MPR image will make the same Zoom adjustment to the other MPR images.

Sync 3D/MPR Rotation: When this item is “checked”, any rotation of the 3D rendering will also rotate all 3 MPR images to the same angle.

Sync 3D/MPR Rotation button: When this button is clicked on, the MPR images will snap to the rotation angle of the current 3D rendering rotation.



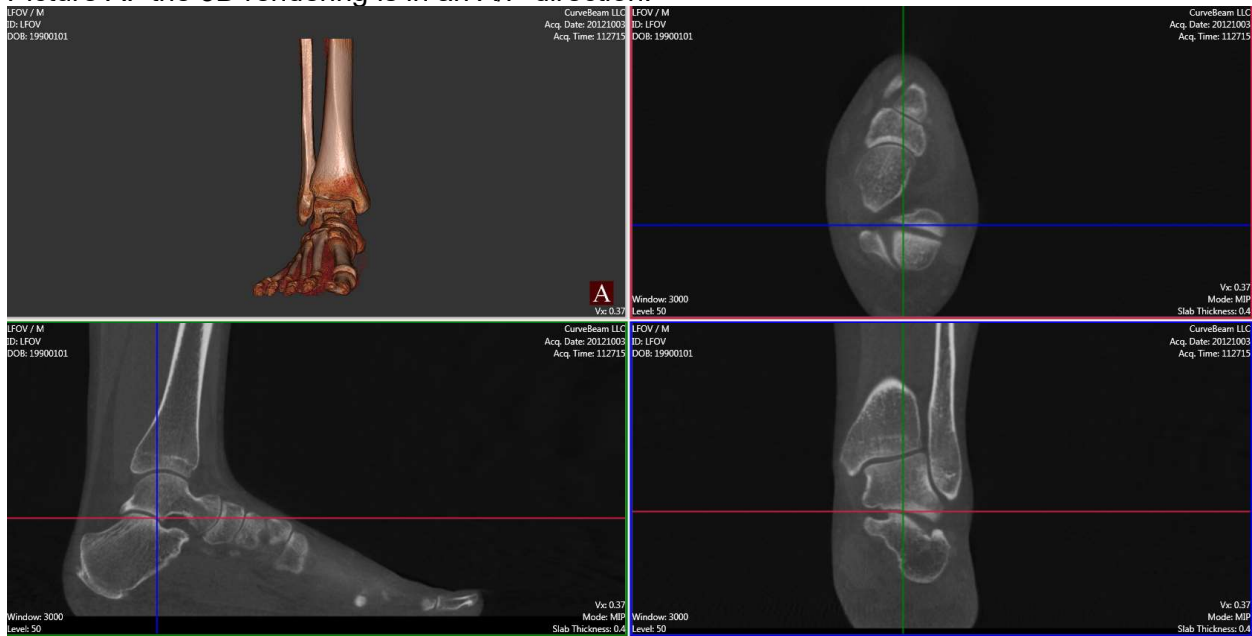
3D/MPR Rotation, (Volume Rotation, Volume Tilt):

The default image planes of MPR views are as the scan was taken. However, if you wish to rotate or tilt the MPR images to different planes, this can be achieved using the 3D rendering and the Sync 3D/MPR functionality.

Below is an example.

If this is the starting view below and then 3D image was tilted upwards either with the Sync 3D/MPR Rotation or by clicking the button after the rotation, then the MPR rotation will change from picture A to picture B:

Picture A: the 3D rendering is in an A/P direction.



Picture B: The 3D rendering has been rotated with the toes up slightly. Observe how the upward tilt of the 3D rendering is now reflected in the MPR views. The first metatarsal is now on the same horizontal plane.



For fine control of the X, Y and Z rotations of the 3D rendering, press the associated keyboard letter and HOLD while rotating the 3D image.



X key: Hold the key down and move the mouse up or down on the 3D rendering. This will tilt the rendering in an even up / down plane.



Y key: Hold the key down and move the mouse in a clockwise or counterclockwise direction and this will move the 3D rendering clockwise or counterclockwise.



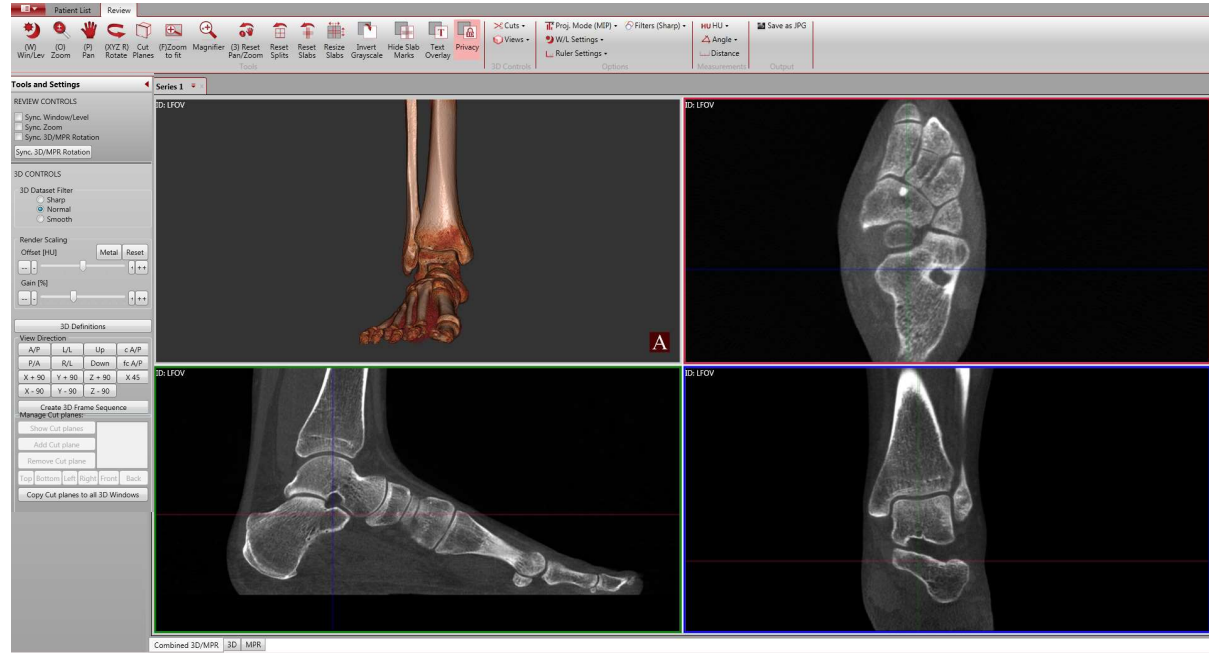
Z key: Hold the key down and move the mouse left or right on the 3D rendering. This will tilt the rendering in an even side to side plane.



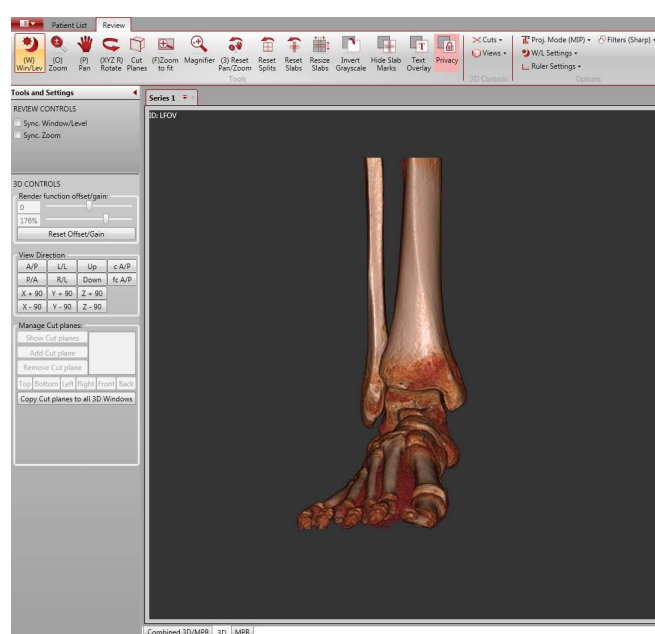
3D Renderings:

The 3D Rendering image displays in both the Combined 3D/MPR Tab and the 3D Tab. The combined allows the user to scroll through MPR slices for Viewing/Planning as well as edit and manipulate 3D renderings. The 3D Tab only displays the 3D renderings. However, the 3D Tools are similar for each.

Combined 3D/MPR Tab:



3D Tab:

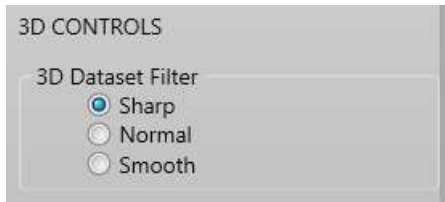


The Zoom, Pan & Rotate buttons on the Main Menu Bar all can be activated and used in the 3D Rendering window.



3D CONTROLS: the 3D CONTROLS within the Tools and Settings panel contains most of the 3D rendering functions.

3D Controls – Filter: Use the filters to adjust the image.



The Sharp selection will display the full resolution dataset.

The Normal selection will display the 2x2x2 resampled dataset.

The Smooth selection will display a smoothly filtered 2x2x2 resampled dataset.

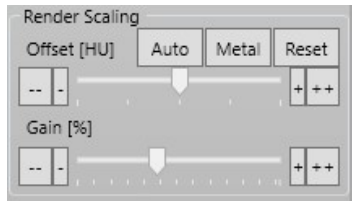
When first opening a patient scan, it will be depicted as Normal. When the selection is changed, it will be changed for all screen layouts, ie in Combined as well as 3D screen layouts.

Render Function offset/gain: These tools adjust the thresholding for the 3D rendering. Drag the slide bar to adjust from soft tissue to bone and vice versa. To reset both back to zero, click the Reset Offset/Gain button.

Slide to adjust thresholding for the 3D renderings from A to B.

Tune the thresholding in increments: when the slide highlighted in light blue use the keyboard arrow keys left and right

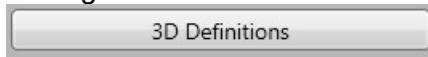
Buttons have an Auto, Metal, and Reset button for the Metal button can be used. The image is loaded for a piece of metal (screws, etc) is visible. Clicking on it repeatedly will apply the scaling multiple times and the render ranges will become useless. If this does occur, click on the Reset button to reset the image to the original render. Click on the Auto button to let software set an optimum value of Offset and Gain.



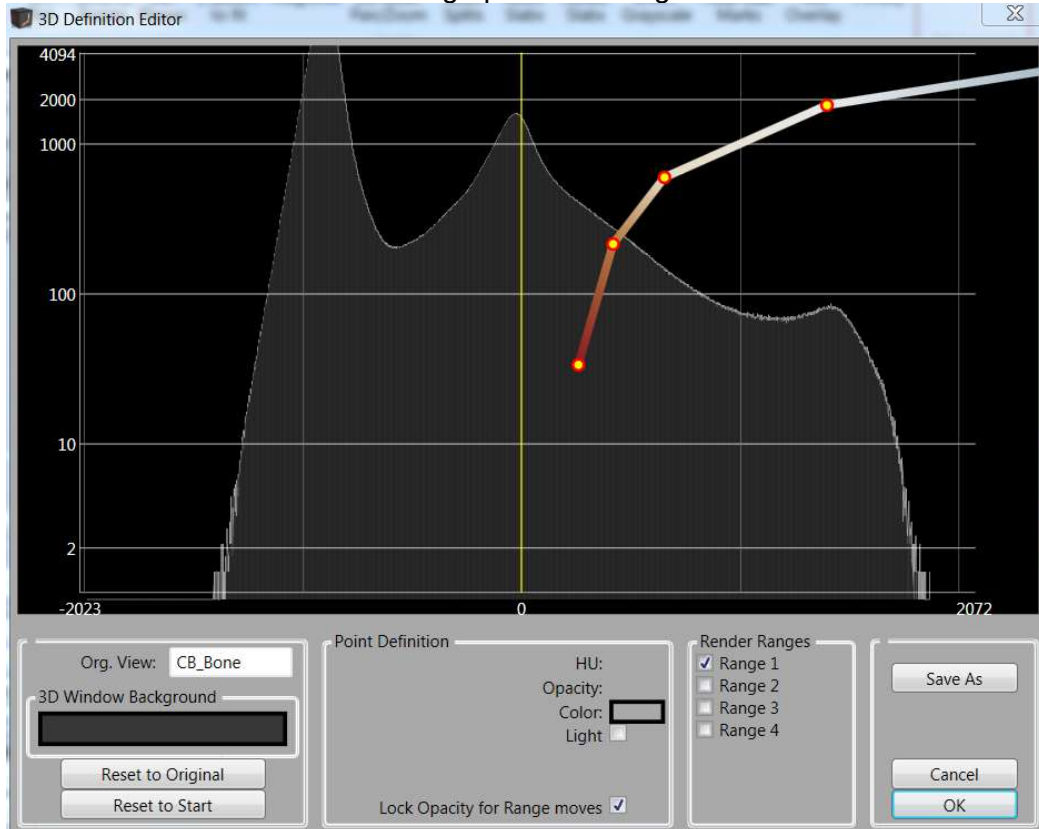
To make fine tweaks to the Offset and Gain, adjust using the sliders. The sliders will produce relative render scale changes, which means after the slider is adjusted, it will return to its “home” position. This allows for HU range coverage scaling, meaning a larger range is achievable in the small slider. After coarsely adjusting the sliders (Offset is recommended over Gain), then use the buttons on the ends of the sliders (--/+ /+ /++) for fine adjustment. Click on the buttons to the left or right of the slider then use left and right arrow keys on the keyboard also for fine adjustment.

3D Definitions

A way to edit the transfer function has been added, allowing the user the ability to create a new render type. The process is started by clicking on the “3D Definitions” button under Tools and Settings.



The 3D Definitions button will bring up the following 3D Definitions Editor window:



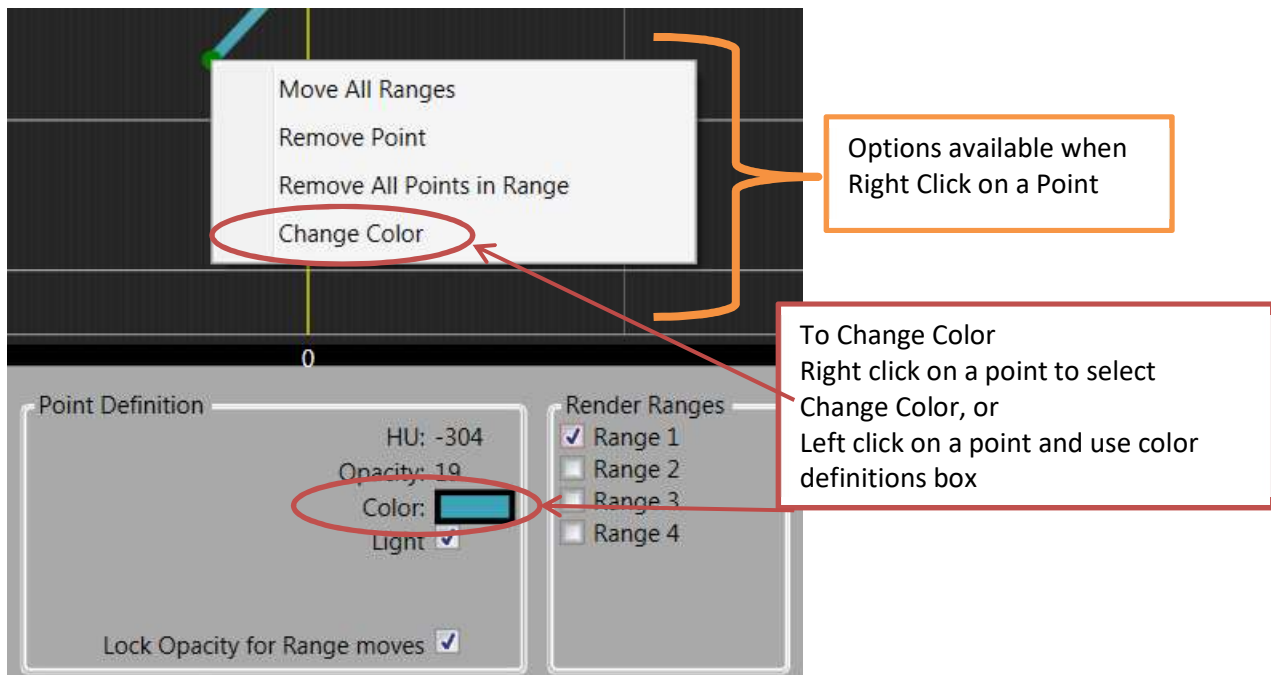
The 3D Definition Editor, also called Transfer Function Editor (TFE), once opened, shows the current volumes’ histogram along with some control points and a colored render line connecting them. The continuous connection from a very left to a very right control point is called a render range, and there can be multiple render ranges. These render ranges must not overlap. If they do you will get a red “collision” indication, sign for you to move a render range out of the way. The rendering of colliding render ranges is undefined and may give you unexpected results. The changes made in this TFE will be visible in the 3D window. It may help to adjust the location of the Editor window so that the 3D image is also visible when the Editor is being used.

To adjust the render line, hover over a point for the plus icon to move the single point. Hover over the line for the hand icon to move the entire line left and right. To adjust the Offset and Gain for the range, use the sliders under the Tools and Settings menu. It can be desirable to move the ranges with the sliders for different scans as the HU value can fluctuate from scan to scan.

The points on the graph can be moved by left clicking on the point and adjusting it. Also a right click on the point will allow the user to remove the point, remove all points, or change the color

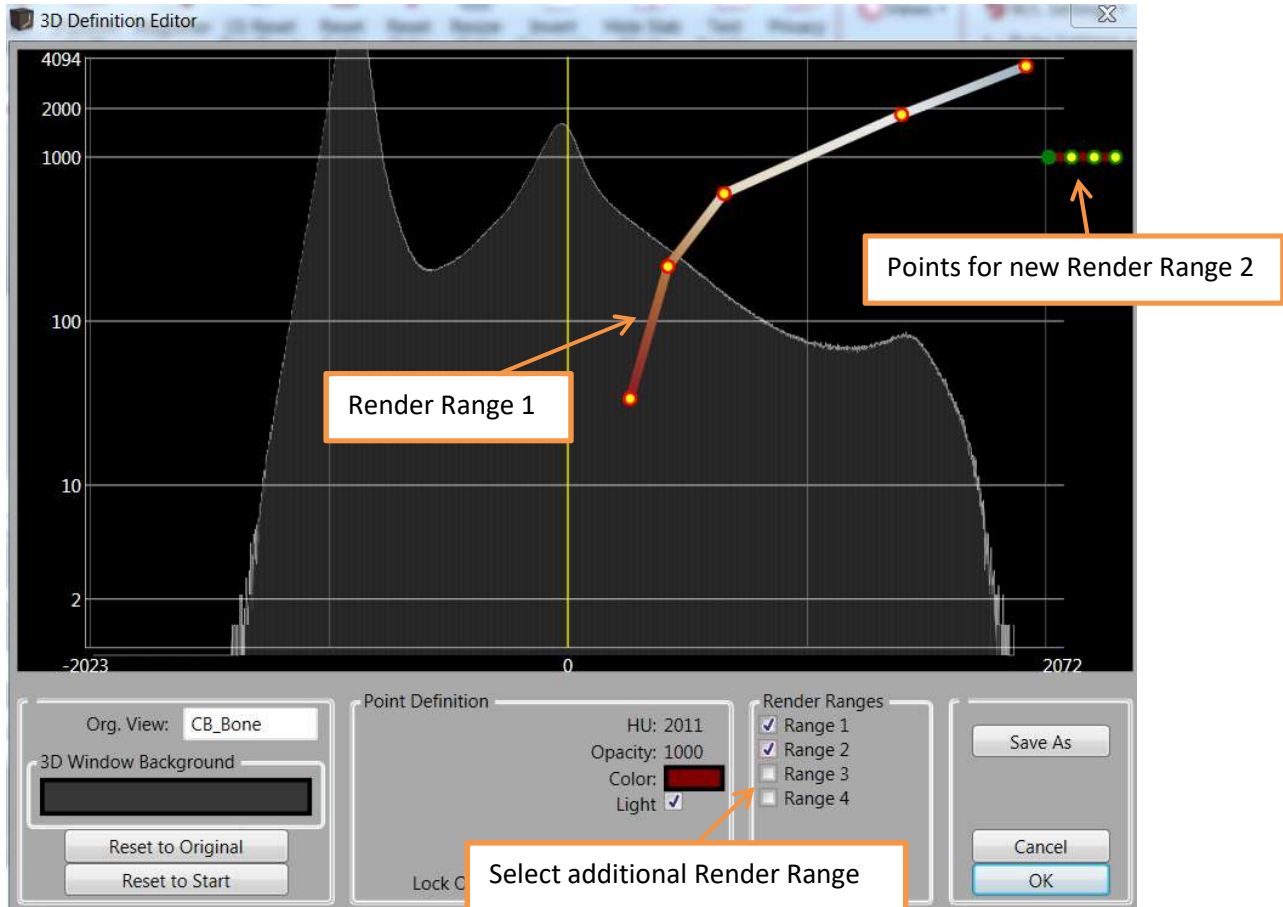
of the render. It is also possible to adjust the range, but making adjustments using the Tools and Settings slider allows for easier adjustments. To add a point, right click on the line where the new point is desired to add a point.

To adjust the color of the render, either left click on a point, then select the color box from the Point Definition section below. Or, right click on the point to change the color. See the image below for locations.

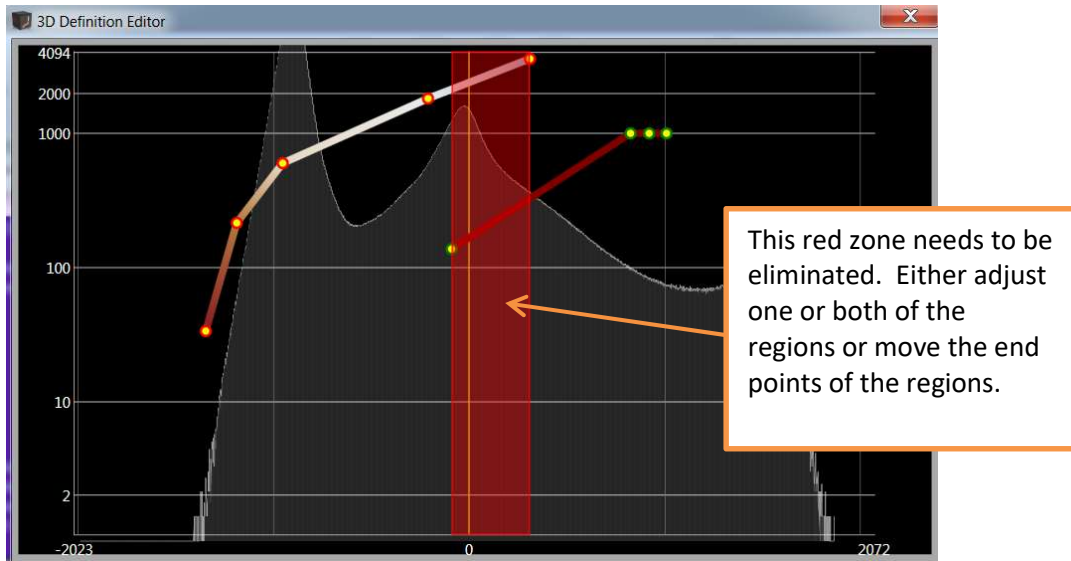


When adjusting the render range, the active range has the point that is solid green. The green point's values are listed in the Point Definition box, displaying the HU, Opacity, Color, and Light source. Use the Light check box to turn on/off a light source associated with that selected/green point.

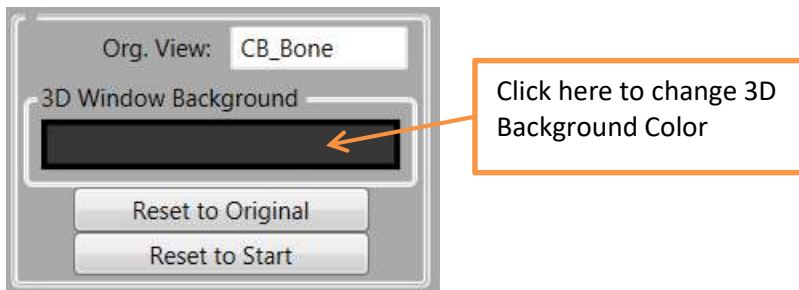
When the 3D Definition Editor starts, only 1 range is shown. To add additional Render Ranges, select the check boxes for additional ranges. There is a limit of 4 render ranges. The image below shows a second render range was just selected. The points for the new range appear at the top right.



Each point in the new render range can be moved, but each new render section cannot cross another render section. None of the points of this second render section will be allowed left of any of the points from the first render line. If moving a single point, a red line will appear and not allow the render sections to cross into each other's range. If moving an entire render range into another render range section, a red zone will appear. Adjust the two sections so that they are not overlapping each other. The image below shows what will appear if the sections do cross over each other.

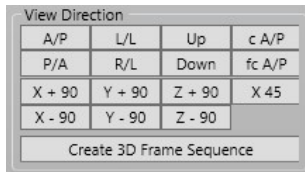


The background color of the 3D window can be adjusted by selecting a new color under “3D Window Background”. Click on the color box to change the color. The 3D window will update after the selection is made.










The underlying default render type is listed in the “Org. View” box – in the above it is “CB_Bone”. The “Reset to Original” button can be used to reset back to the default render type listed in the “Org. View”. Once completed with the changes to the render type, if you wish to save the changes, click on the “Save As” button in the lower right corner of the 3D Definition Editor (TFE). Maintain the default directory that appear with the Save As button. Provide a unique name so that it can be used with other scans in the future. The new render types created with this method will be available to select from under the Views -> Render Type. Once done with the 3D Definition Editor (TFE), select OK to maintain the changes to the current dataset.

View Directions:

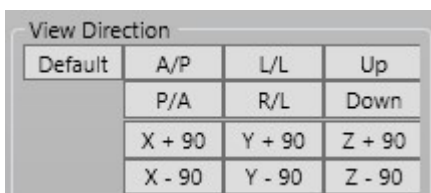


There are automatic snap to View Directions for a quick rotation of the Rendering to a desired view:

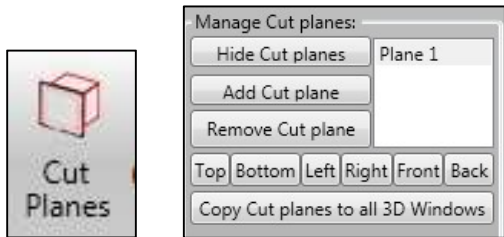
View Directions for pedCAT datasets			
A/P (Anterior / Posterior):		Up (looking up into bottom of foot/feet):	
P/A (Posterior / Anterior):		Down (looking down onto top of foot):	
L/L (Left Lateral):		C A/P (Conventional Anterior / Posterior): down, 15 degrees from vertical.	
R/R (Right Lateral):			

Similarly X 45 shows the 3D image rotated at 45 degrees around X-axis.

✔ **NOTE:** If an **InReach dataset** is loaded then *c A/P*, *fc A/P* and *X 45* View Directions options are not available. *Default* view direction button is given for InReach datasets which defaults the orientation of 3D image to its original view direction as if loaded for the first time. View direction options available for InReach datasets are shown in adjacent screenshot.



Cut Planes: To cut a 3D rendering from an entire plane, first click the **Cut Planes** icon from the Main Menu Bar to activate the functionality.

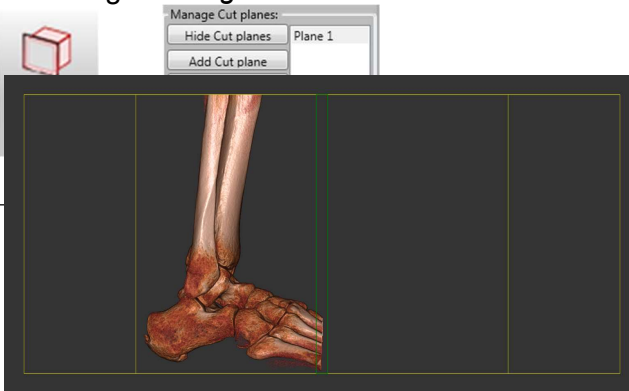


Once enabled, a cut plane is placed within the center of the 3D Rendering. Also, the “Manage Cut Planes” tools will be enabled in the 3D Tools area.



Original Rendering

After clicking on **Cut plane** icon. A cut plane will Auto drop into the center of the volume and cut out half the 3D rendering. *Manage Cut Plane Tools* will also be enabled.

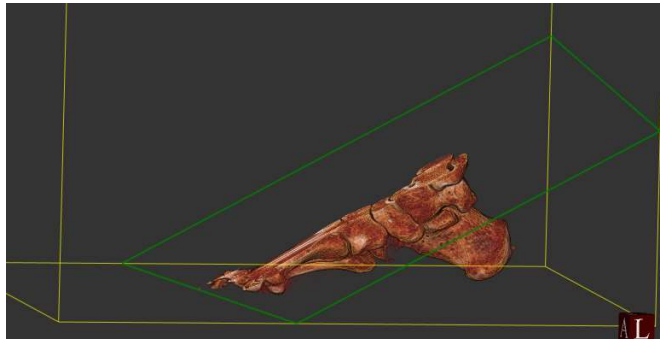


To Insert the Cut Plane in any direction, Utilize the “Direction buttons” in the *Manage Cut Planes* Tool area.



In this sample we clicked on the “Front” Button to cut away the front half of the rendering.

✓ **NOTE:** The angle of direction of the cut plane can be adjusted to any angle by holding down the CTRL key and dragging the mouse in any direction.



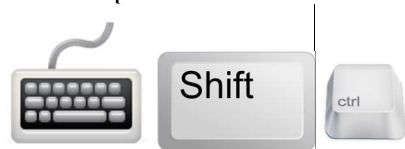
Peeling Away the rendering:

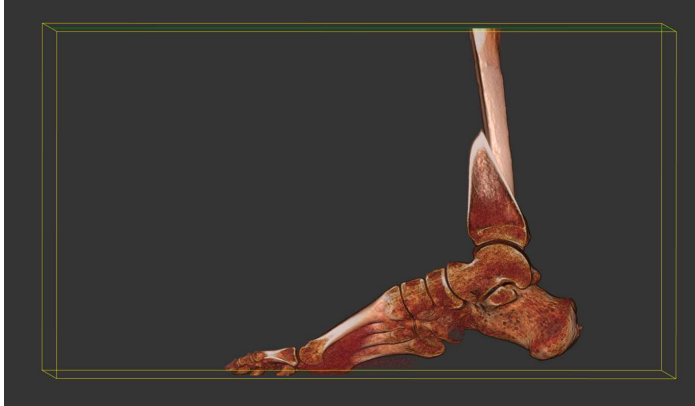


In this sample, the rendering has been rotated to an A/P view for viewing the metatarsals.



Now, the rendering can be cut more (peeling away) or restored more, by holding down the SHIFT key on the keyboard and moving the mouse up and down.

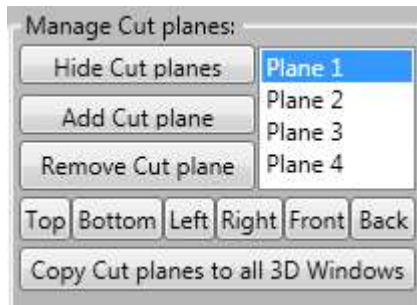




This cut plane was rotated to a sagittal plane by clicking the “Left” button to cut through the foot from the medial side.



Multiple Cut Planes can be inserted and manipulated by clicking on “Add Cut Plane” button. To Remove Cut Planes, highlight the Plane in the list (Plane 1, Plane 2, Plane 3....) & click on the “Remove Cut Plane” button. To Hide a Cut Plane, highlight that Plane in the list and click on the “Hide Cut Plane” button.



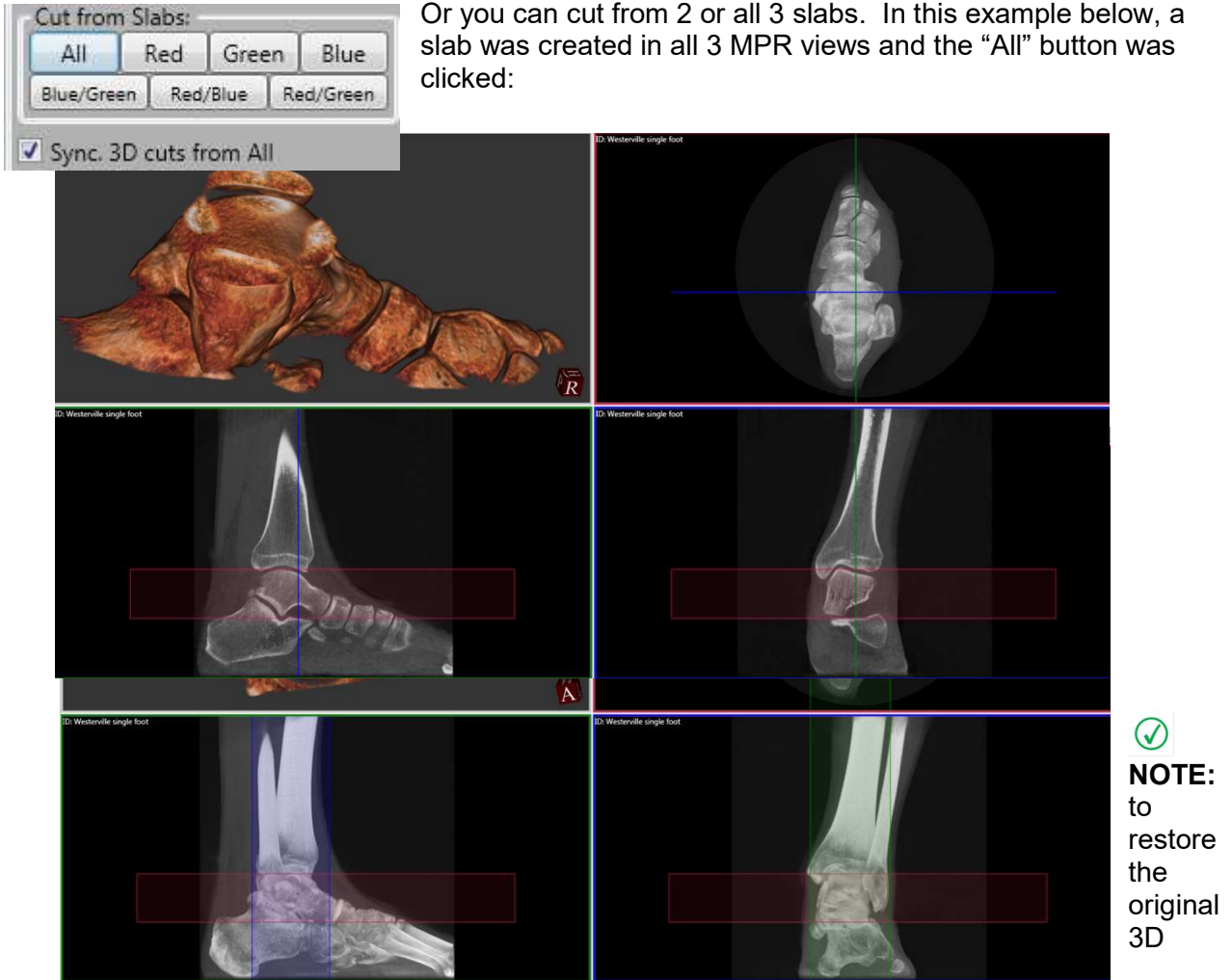
If desired, to transfer the 3D Rendering that was just designed to the other 3D Window click on the “Copy Cut Planes to all 3D Windows” button. Otherwise, the other 3D window will be a fresh rendering.

Cut From Slabs:

Another method of cutting a 3D Rendering is to “Cut From Slabs”. In order to Cut from Slabs, you must first create Slabs in the MPR image(s). Then use the “Cut From Slab” Buttons to make the cut(s) on the 3D image.

For example, if you wanted to cut just one section from the rendering, you could use the sagittal view to create a slab, and then click on the “Red” button.

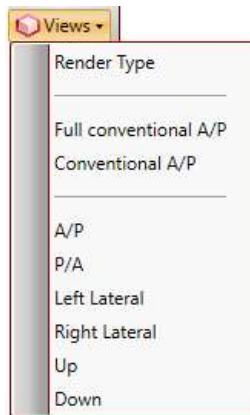
Or you can cut from 2 or all 3 slabs. In this example below, a slab was created in all 3 MPR views and the “All” button was clicked:



rendering, click on the “Hide Cut Planes” button under Manage Cut Planes.

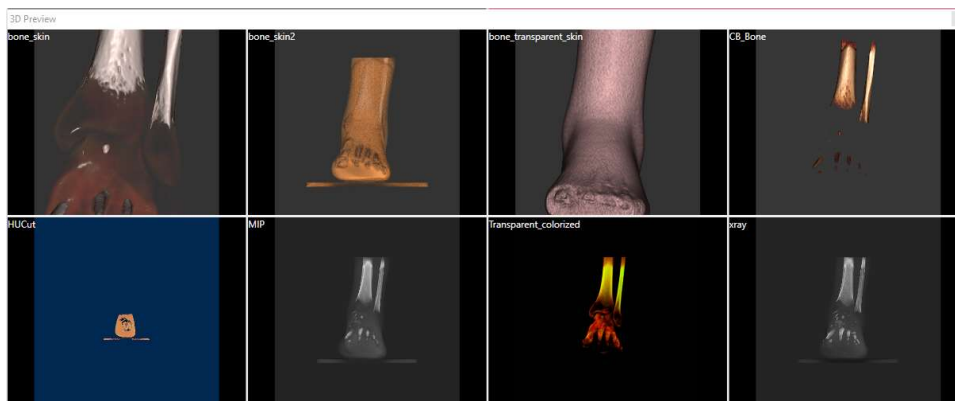
Render Types:

To select various 3D Rendering types, click on the Views icons in the 3D Control area. This will display a pop up window with various options to select from. Select Render Type.



When Render Type is selected, a window will display thumbnails of the various default types of 3D renderings currently available. They are:

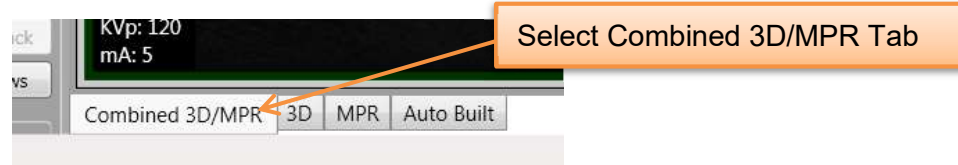
1. bone_skin
2. bone_skin2
3. bone_transparent skin
4. CB_Bone
5. HUCut
6. MIP
7. Transparent_colorized
8. x-ray



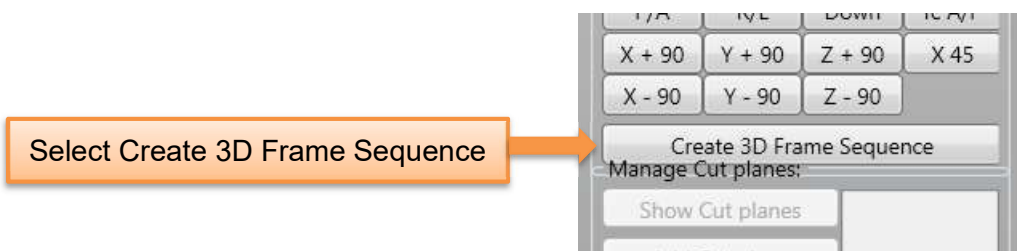
When one of these options is selected, that render type will display in the 3D Render window. Now you can adjust the rendering by using the Render function tools and dragging the slide bars. The most effective change of renderings will come from the slide bar.

Creating 3D Frame Sequences:

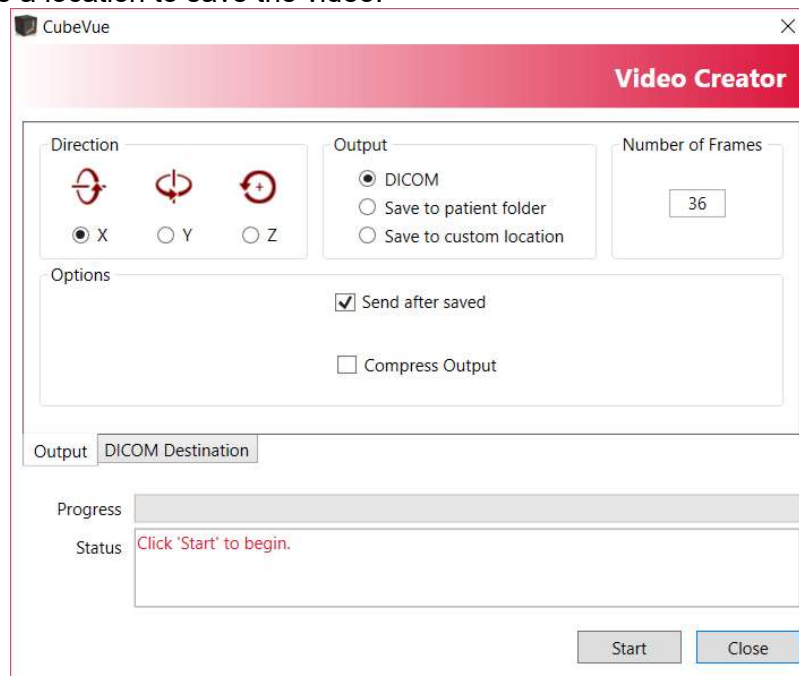
There is the ability to create a WMV video or frame sequence of the 3D image rotating around either the X, Y, or Z axis. To do this, select the Combined 3D/MPR screen at the bottom of the screen as shown below:



Then under the Tools and Settings on the left side of the screen, select the Create 3D Frame Sequence button:




A pop up window as shown below will appear that allows for the selection of which axis to rotate around, how to save the output and how many frames to use to create 3D frame sequence. For each of the different output selections, the pop up window will look slightly different to ask the user to provide a location to save the video.



Under the Direction heading, select the axis to rotate around, either X, Y, or Z axis.

Under Output, select where to output the video that will be created.

- If **DICOM** is selected, A new DICOM series is created and is automatically saved on the Local tab under file type “screen”. If the “send after saved” box is checked, the new DICOM series will also be automatically sent to the selected DICOM destination, found on the DICOM Destination tab. This DICOM destination can be user-configured. There is checkbox “Compress Output” which allows the Frame sequences to be saved as compressed or uncompressed; when unchecked uncompressed DICOM frames are created.

 **NOTE:** Compress Output checkbox is applicable only when DICOM option is selected.

- If **Save to patient folder** is selected, the video (.wmv file, not DICOM series) will be saved locally (your computer C:/) but will not be visible in the Patient List. This option is NOT recommended.
- If **Save to custom location** is selected, the location will need to be entered in the field below, or the Browse can be used to set the location. A .wmv file will be created and saved at the specified location.

The Number of Frames value represents how many total frames or images that will comprise the video and can be adjusted as desired. For example, in DICOM, 360 degrees rotation divided by an entry of 36 Frames means you will create a series of 36 images, each one appearing to advance approximately 10 degrees in rotation from the preceding frame. The other two output results in the creation of a Windows Media audio/Video file (.wmv) which requires using a video player to view.

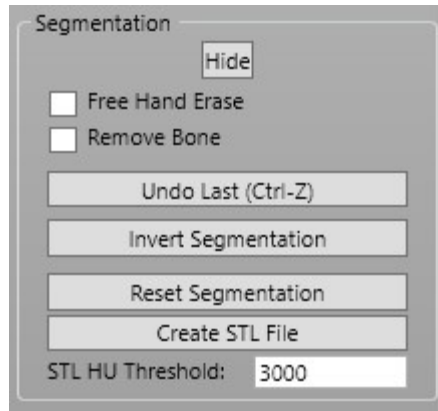
The Frame Rate shows how many frames will be displayed in Frames Per Second when the video is viewed.

Once all of the fields are set to the desired values, click on Start to create and save the video.

Segmentation

Segmentation function under 3D CONTROLS on Tools and Settings pane helps in bone-isolation as well as and removal of a region on 3D image. The Tools & Settings pane has two panels dedicated to cut planes and to segmentation. Only one can be shown at a time. The cut plane pane automatically opens when the cut plane function is invoked.

When the Segmentation pane is opened (“Show”), the following options are accessible:



Free Hand Erase: When selected, draw an arbitrary shape onto the 3D rendering, and as you release the left mouse button the drawn figure closes and all visible anatomy becomes invisible. SHIFT Key on the keyboard can be pressed & held to draw more regions while retaining the earlier drawn regions or bone removals (discussed below).

Remove Bone: When selected, click on a bony structure and it will disappear. If the 3D rendering offset is too low, too much anatomy may get removed. Offset can be adjusted from 'Render Scaling' under '3D CONTROLS' on 'Tools and Settings' pane. SHIFT key on the keyboard can be pressed & held to remove more bones while retaining the previous removals & free hand erase.

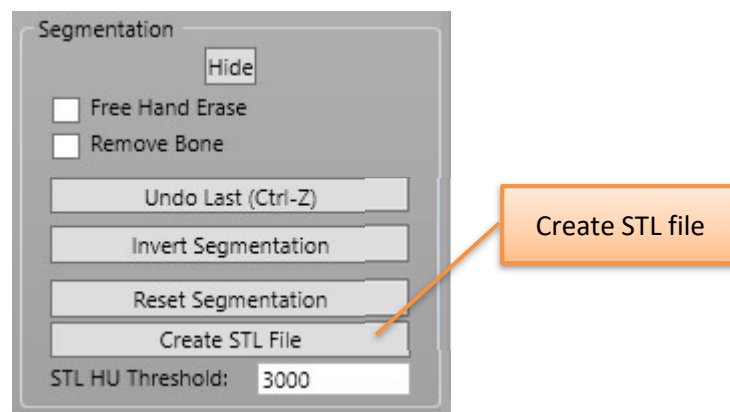
Undo Last: It restores the last segmentation action performed on 3D image.

Invert Segmentation: This inverts the segmentation selection and visible anatomy becomes invisible, while invisible becomes visible. No further segmentation can be performed when Invert Segmentation is applied. Invert again or perform Reset Segmentation (discussed below) to once again segment the 3D rendering.

Reset Segmentation: This removes all segmentation changes from the 3D rendering and it also "un-inverts" it if the Invert function had been applied.

Note: when segmentation is performed on a 3D rendering, changing the 3D filter, closing a study or shutting down CubeVue may take notably longer time.

STL files can be created from CubeVue software which is based on entering the threshold value in the 'STL HU threshold' field under 3D CONTROLS\Segmentation on Tools and Settings pane. Threshold value of 2000 can be considered as a starting point and it can then be increased or decreased based on review of output STL file.



Once the STL HU Threshold value is set, click on “Create STL File” button; a dialog box will appear asking for the path. Choose the desired path & give an appropriate file name to save the STL file.

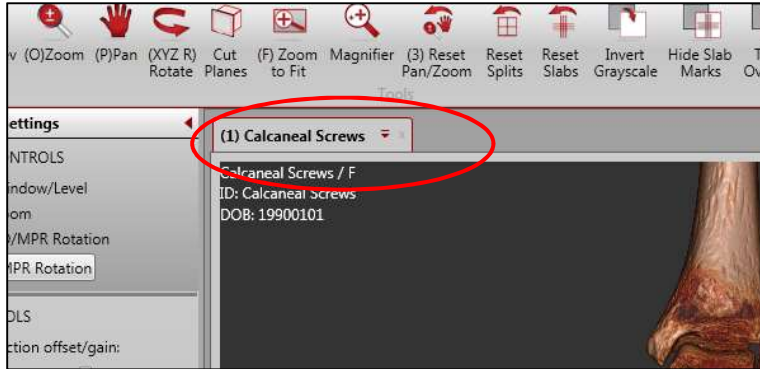
A third party STL viewer is required to open these STL files.

Correlation/Identify

On the ‘Combined 3D/MPR’ and ‘MPR’ screen layouts “i” (for identify) key on the keyboard can be held down while moving the mouse cursor over any part of MPR slab to see the location of the anatomy in other two MPR slabs. Additionally, in the ‘Combined 3D/MPR’ screen layout a temporary cut plane will cut the 3D rendering such that the location indicated by the current mouse position over an MPR slab, will reside on the cut plane and the location is also marked. This allows the identified locations to be viewed inside the 3D volume.

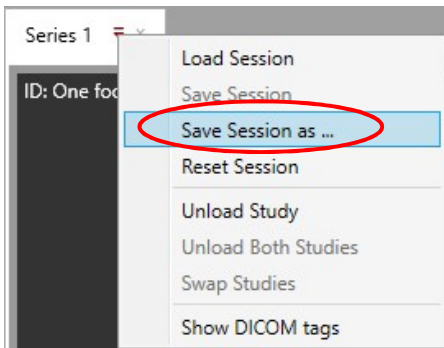
Saving Sessions and “Series” Tab Functions:

When a study is loaded, the Patient Series Tab will display that current study name. The dataset can also be closed or “unloaded” from this tab by clicking on the “x” in the corner. The session work that has already been completed will be auto saved, so when the study dataset is re-loaded again, the sessions work will automatically load.

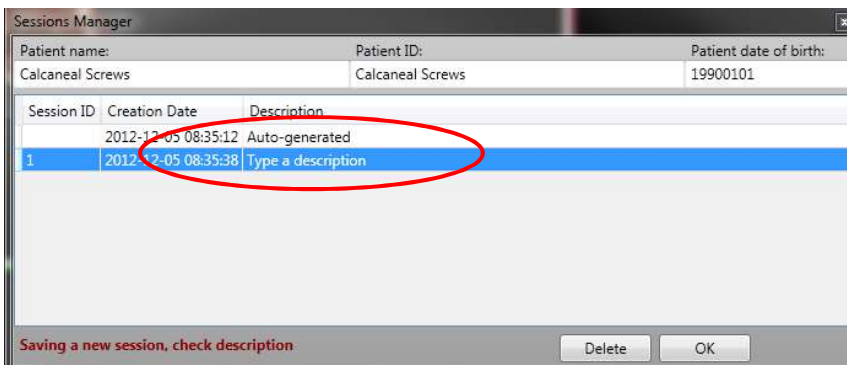


However, there is also a Drop Down Menu that provides a “Save Session” functionality so that you can save several different planning’s.

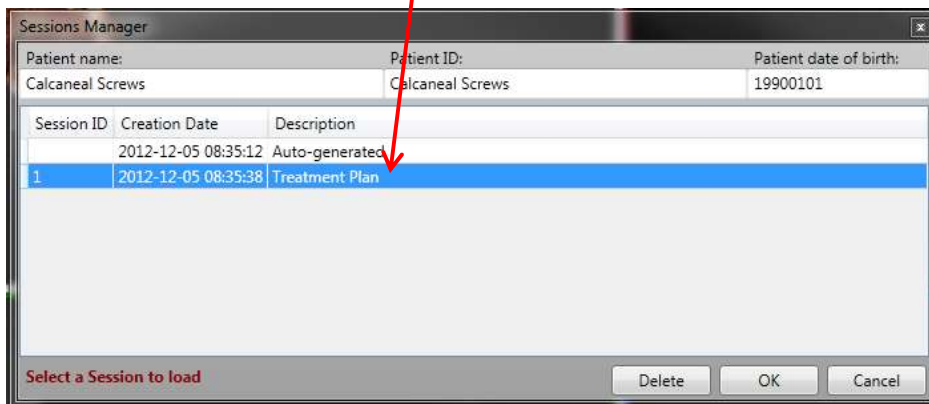
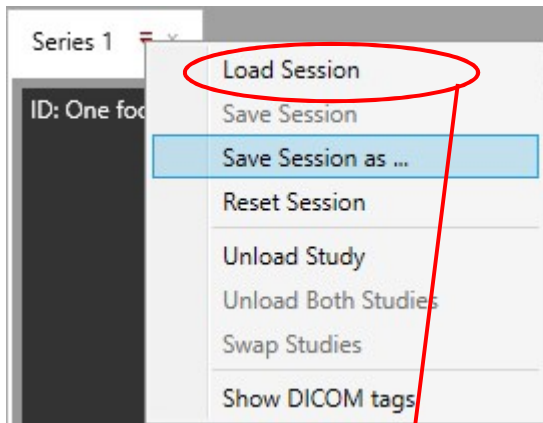
Click the Drop Down Icon to access the Drop Down Menu to Save Session:



From this menu, then select “Save Session as ...” for the Session Manager Dialog Box. Enter in an appropriate Session Name over the “Type a Description” Session Description. Click inside this text box to enable the cursor for typing. Click OK to close the Session Manager.



Then at any time, a Saved Session can be accessed and loaded by selecting “Load Session” from the Drop Down Menu. This will open the Session Manager where you can then highlight the desired Session and click OK to load.



From the Drop Down menu, the Dataset Study can also be Reset, which will re-load the original dataset to its pre-worked state. And a Dataset Study can also be “unloaded” from this drop down menu as well.

⚠ CAUTION – If a session is not saved before closing or not saved before Reset, the workup will be deleted and not available.

Load Function (Input):

The Load function is provided to allow the scan to be viewed in CubeVue, either the Raw or Recon file. But, when using the Load function, the patients scan will NOT be added to the existing Patient List. Any changes to the scan that are made, measurements, etc, will not be saved. The scan will not be added to the database of scans available to view.

To perform the Load function, click on the Load icon from the Patient List tab:



Then follow the steps to load the study into temporary memory for CubeVue. Remember, any plannings done will not be saved.

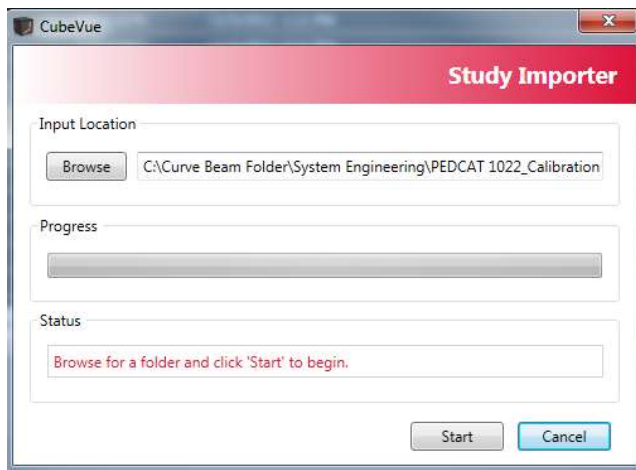
! CAUTION – Any changes made to the scan that was opened using the Load Function will not be saved. These changes are only effective while that scan is opened.

Import Function (Input):

A patient's study can be Imported to add it into the current patient database. When this is done, the patient's scan and any work done on that scan will be stored on the PC with the other scans in the Patient List. To Import a study, click on the Import icon from the Patient List:

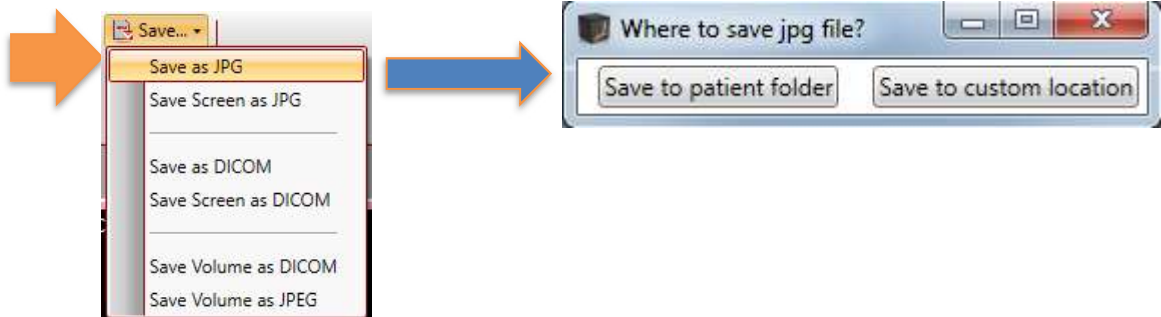


Then there will be a pop up box that will ask for the Input Location. Once that is provided, the study will be in the database on the current PC.

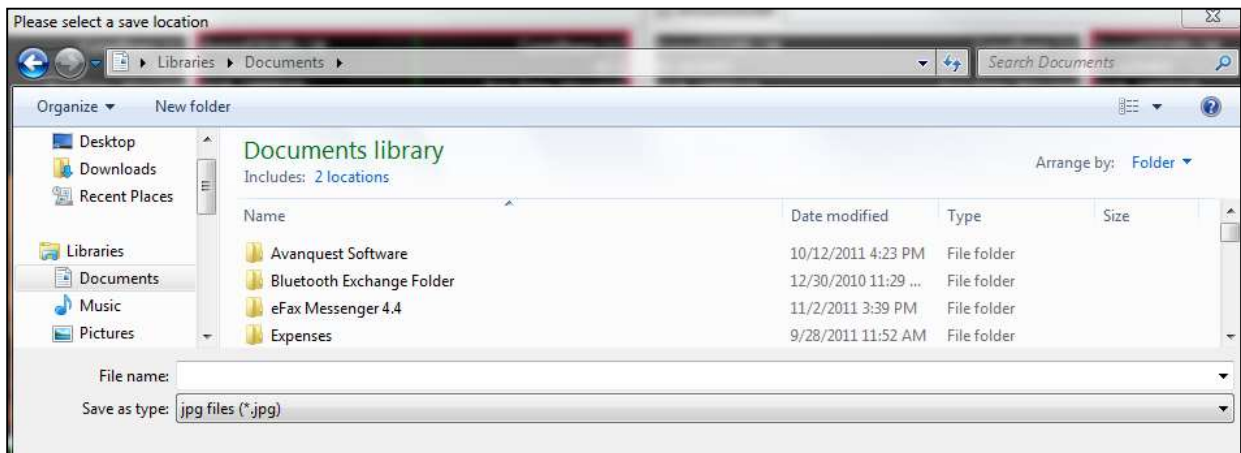


Saving Images as JPG images (Output):

To save any one individual image as a JPG, click it to highlight and then click on the Save.. icon and select *Save as JPG*, then select the location to save to.



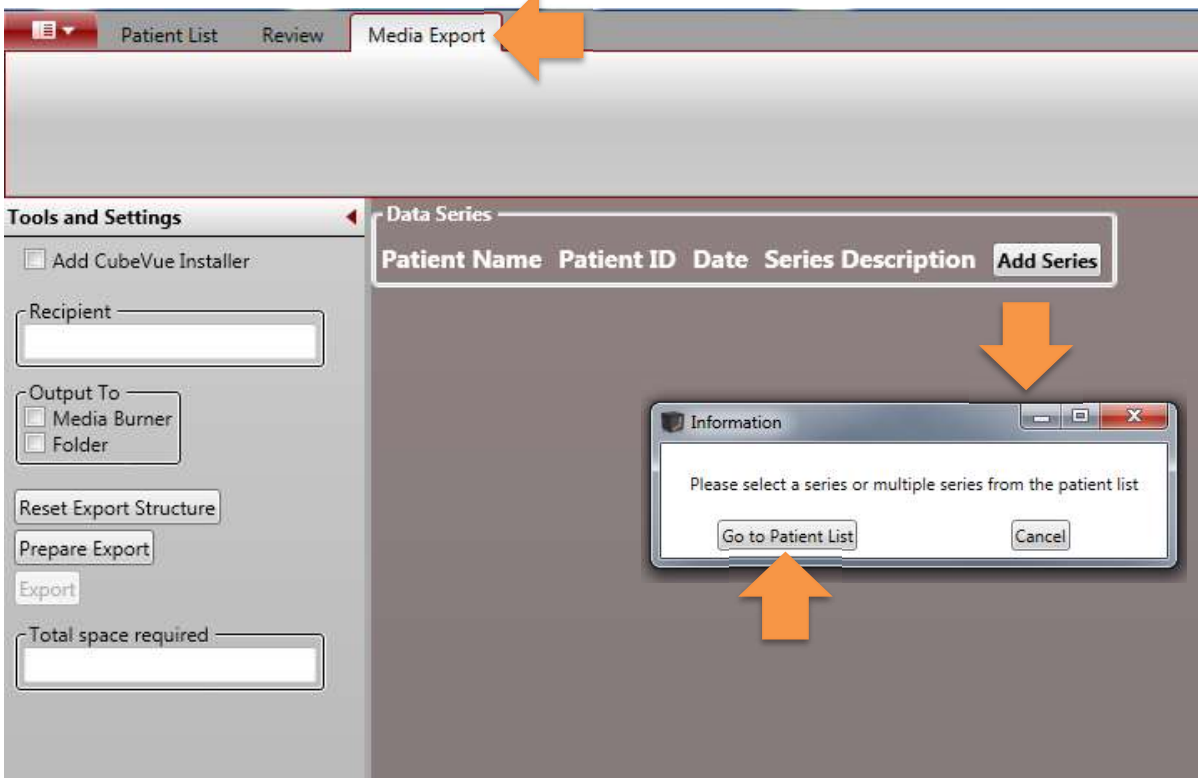
If *Save to patient folder* is selected, the file will save to the patient's folder and remain there. The JPG can then be exported using Media Export if desired. If *Save to custom location* is selected, there will be a prompt to browse to the desired location.



Similarly, *Save Screen as JPG* option under *Save...* dropdown can be used to save all the images in any particular tab under Review tab as a single image. Select the desired tab (like Combined 3D/MPR, 3D, MPR and Insta-X tab) and then click on *Save...* and select *Save Screen as JPG*.

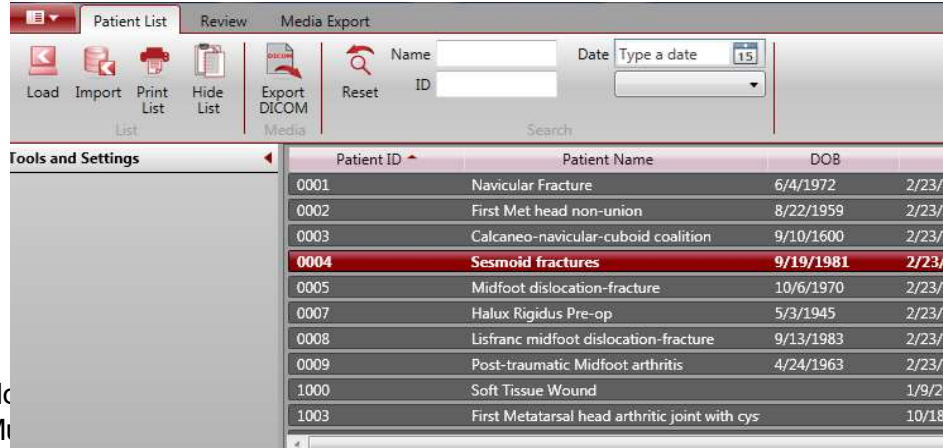
Media Export (Output):

Burning a DISK with a free CubeVue Viewer: The software has functionality that will allow for an auto burn of a disk that contains the desired dataset(s) along with a limited-function copy of the CubeVue viewing software. The limited-function viewer does not have volume render capability. The receiving user of this disk can then open the dataset(s) in the CubeVue software for viewing. This function allows the end user to also export and burn individual images of 3D renderings, or any image of choice to the disk which can then be viewed via the CubeVue viewing software. This is useful if the receiving user does not possess one of our 3D licenses necessary for building 3D renderings. (If the receiving viewer desires to have full 3D rendering functionality, they can purchase that license through CurveBeam). Media Export will also export any CubeVue Saved Sessions associated with a dataset. If there is an error with the export, or the DICOM data is incomplete or corrupt, an error message will be displayed. There is a Tab on the upper Menu which is called Media Export. This Tab is used specifically for creating a dataset CD with CubeVue self installer.

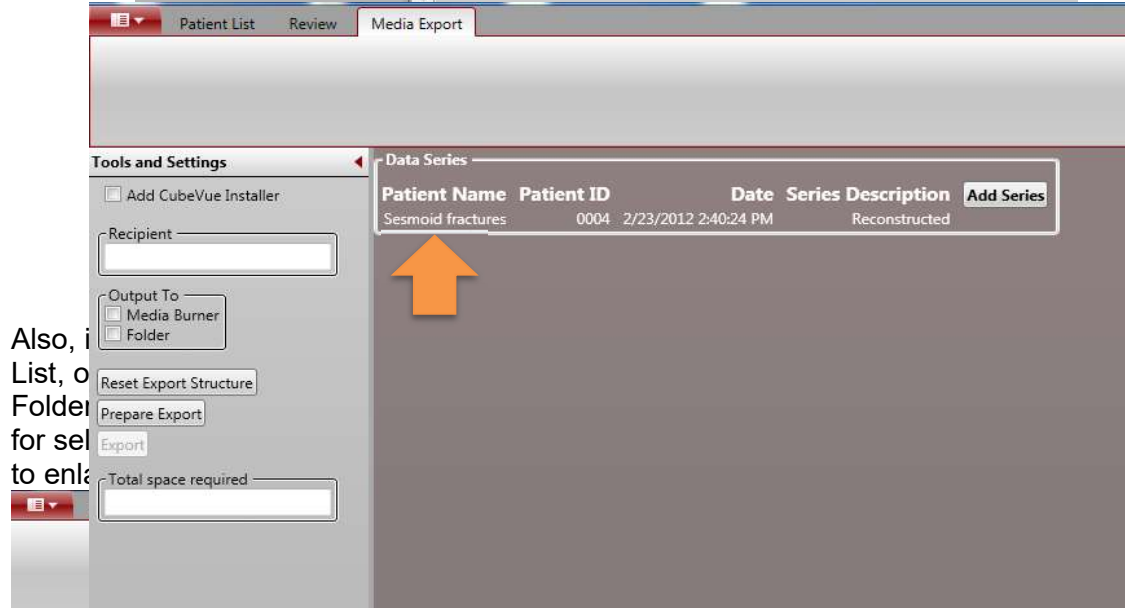


The first step is to click the Add Series button. This will return to the patient list for selecting a dataset(s) to burn.

- From the Patient List, highlight the desired series to be burned to the CD and right click on the series to access the new Pop-up box. Select the new item named “**Media Export**”. This will automatically add the series into the Media Export list.

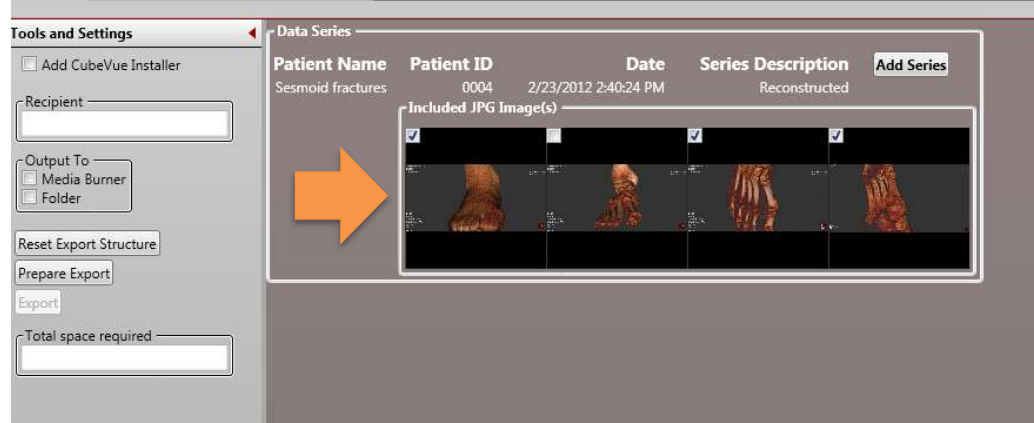


- No
- M

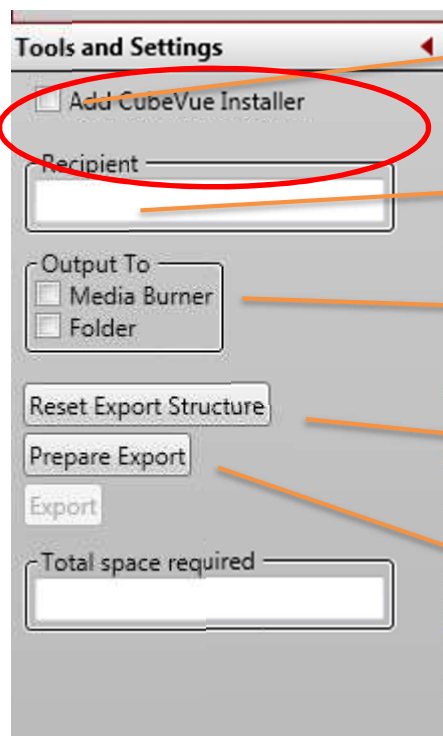


Also, in the Patient List, or Folder for selection to enl

Series present check box thumbnail



- Next, complete the items in the **Tools and Settings** section:



Always Check this box to add the CubeVue Installer to the Media.

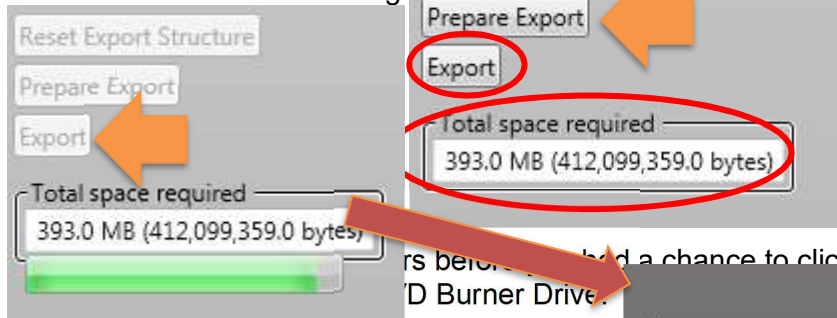
This box is **Mandatory**: A Recipient Name must be filled in or the Export button will not enable.

Choose the location for the output. If you want it to go to a folder or USB drive instead of a Disk, select "Folder".

If this button is clicked, all the data under Data Series will be reset to no data.

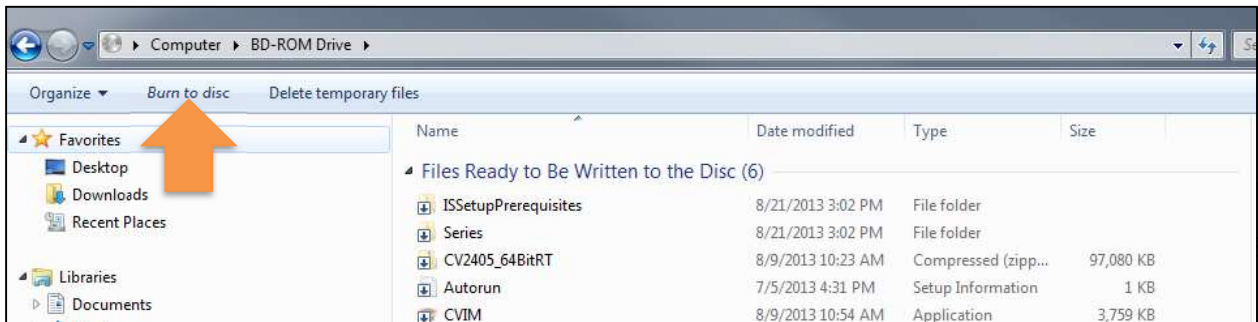
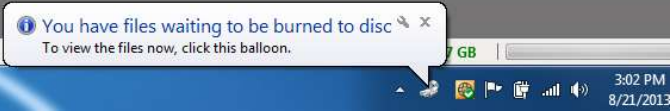
Once you have selected the Output To item, click the Prepare Export Button. This must be done before the Export button is enabled.

- Next, click the **EXPORT** Balloon at the lower right




ivate. When completed, a pop up. Click on the pop up.


- From this *Files Ready to Be Written to the Disc* button.
- This will open the *Burn a Disc* Window. Select **with a CD/DVD Player**, click **Next**.
- This will open the *Burn to Disc* Window. Click **Next**. This will initiate the auto burn. The CD will eject when completed.

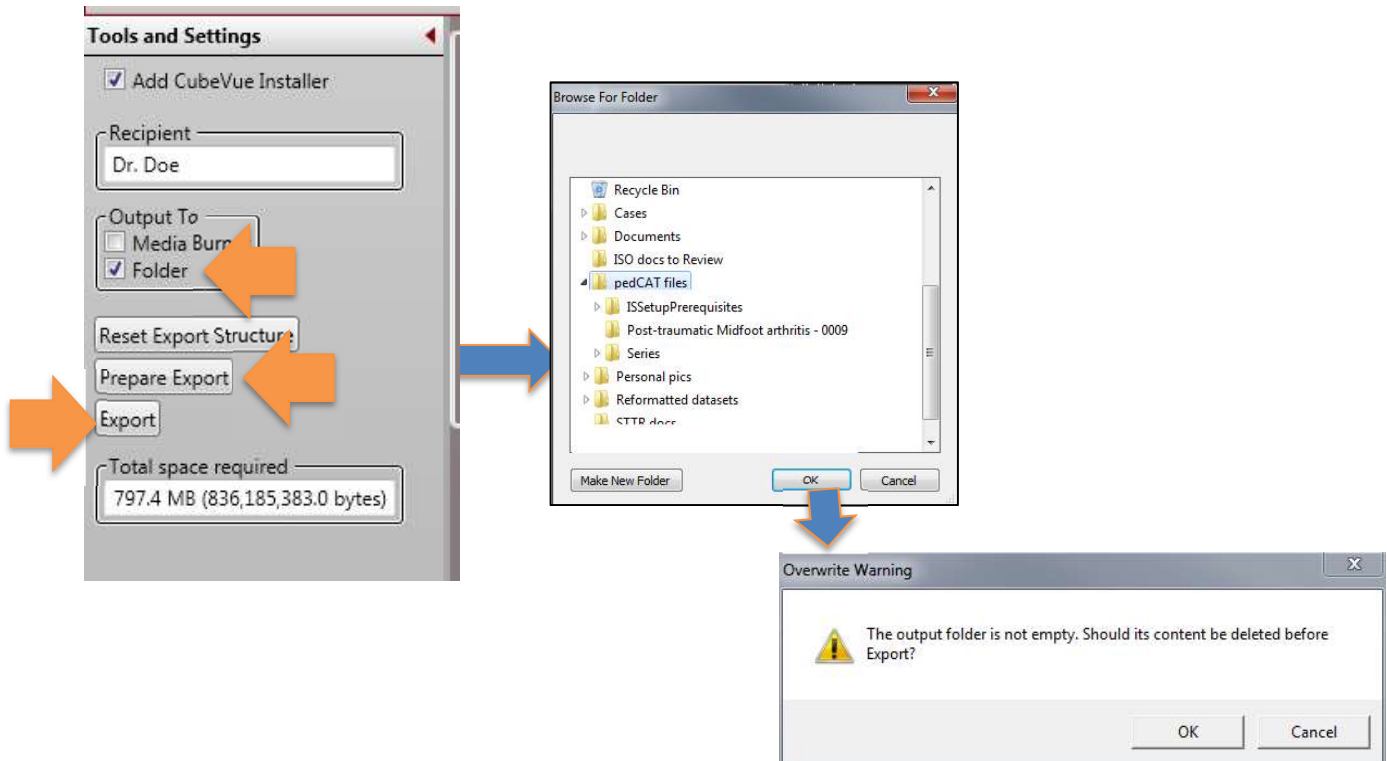


Media Export to a Folder:

- Add the desired Patient Series as described in the previous instructions.
- If you wish to perform a Media Export to a Folder or a USB Drive, select the **Output To** location as **Folder**.
-  **NOTE:** *a Media Export to a folder requires an Empty Folder, so it would be best to Create a New Folder to export to.*
- Select **Prepare Export**
- Select **Export**, there will be a prompt to **Browse to** the desired folder. If there was no folder previously created, select “Make New Folder” and then name appropriately.
- Click OK.
- The **Overwrite Warning** message will appear if the selected folder contains ANY files. **ALWAYS select an empty folder or click “Make a New Folder” to create a new folder for export**, or if you click OK, then the existing files will be deleted and the Media Export files will replace them.

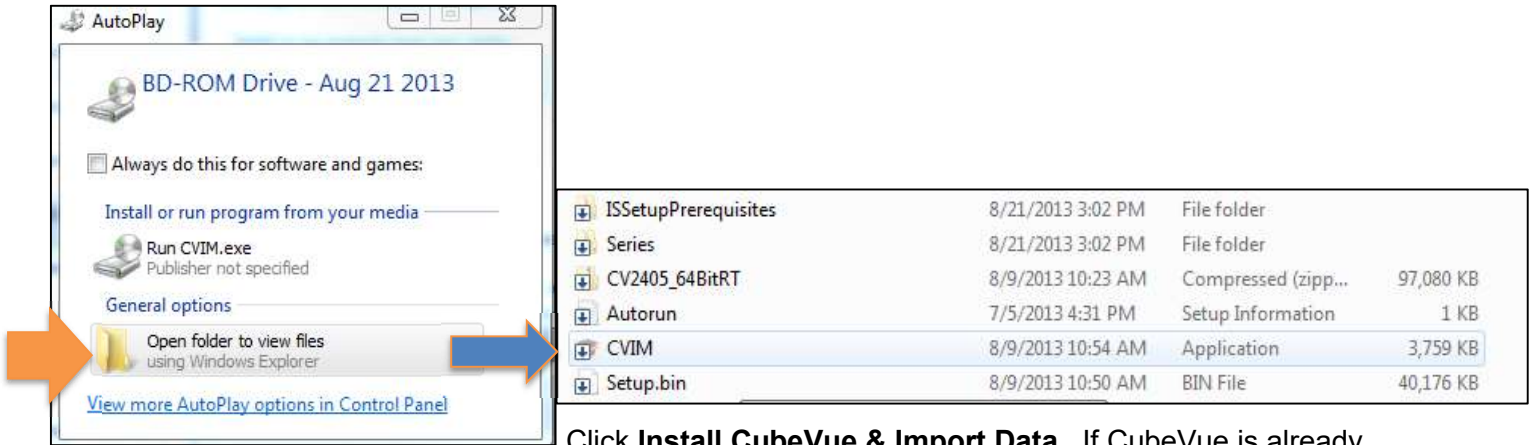
If there is an error with the export, or the DICOM data is incomplete or corrupt, an error message will be displayed.

 **CAUTION** – If the folder is not empty, and the overwrite warning is ignored, the folder contents will be erased prior to export.



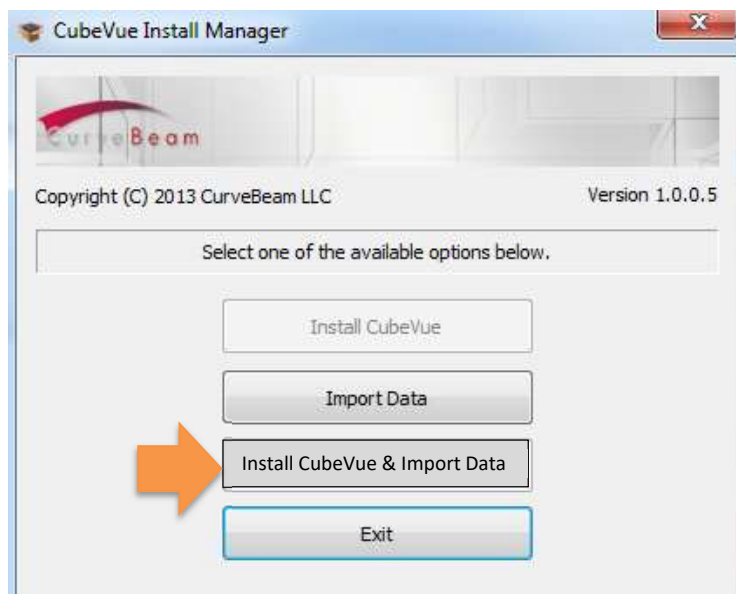
Installing a Media Export CD on a fresh computer, with CubeVue Installer

- Insert the disk into the disk drive. From AutoPlay, select **Open folder to view files on the disk**.
- Run the **CVIM.exe application** file As Administrator to launch the CubeVue Install Manager.



In the CubeVue Install Manager, Click **Install CubeVue & Import Data**. If CubeVue is already installed the Install CubeVue button will be disabled, so just import the data by clicking the **Import Data** button. The dataset as well as any Saved Session files and Save as JPG to

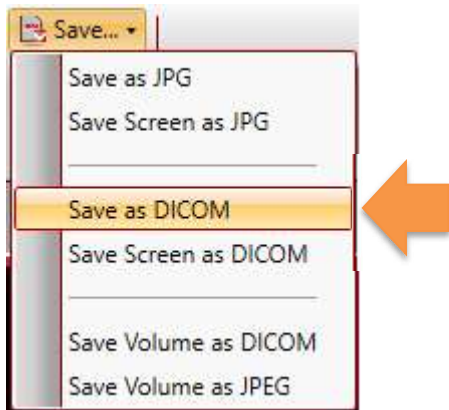
patient folder files will import. ✓ **NOTE:** If there were JPEG images that were Saved to Folder on this Media, then those can now be viewed in the 3D rendering window in the Review Tab/Combined 3D/MPR Tab



Save As DICOM

The Save As DICOM function is used to save static images in the DICOM format. The purpose of Saving static images, in DICOM format, which is simply an extension of Saving static images in JPEG format. However, the intent of this is more specific to saving images that can be sent to a PACs server or DICOM Application entity, as the JPEG images are not compatible with such systems. This would most commonly be used for saving static 3D rendering images as DICOM files

To Save an Image as DICOM, click on any desired image. The last image window that has been clicked is the Active window. Next, Click on *Save...* in the Output section of the Main Menu Bar and select **Save as DICOM**.



There will be an audio sound when clicked and the image will automatically be saved to the Patient Output folder. There will also be a message in green color at the lower left hand corner of the program that reads “**DICOM IMAGE SAVED**”

Save Screen as DICOM

Save Screen as DICOM option under *Save...* dropdown can be used to save all the images in any particular tab under Review tab as a single image. Select the desired tab (like Combined 3D/MPR, 3D, MPR and Insta-X tab) and then click on *Save...* and select *Save Screen as DICOM*.

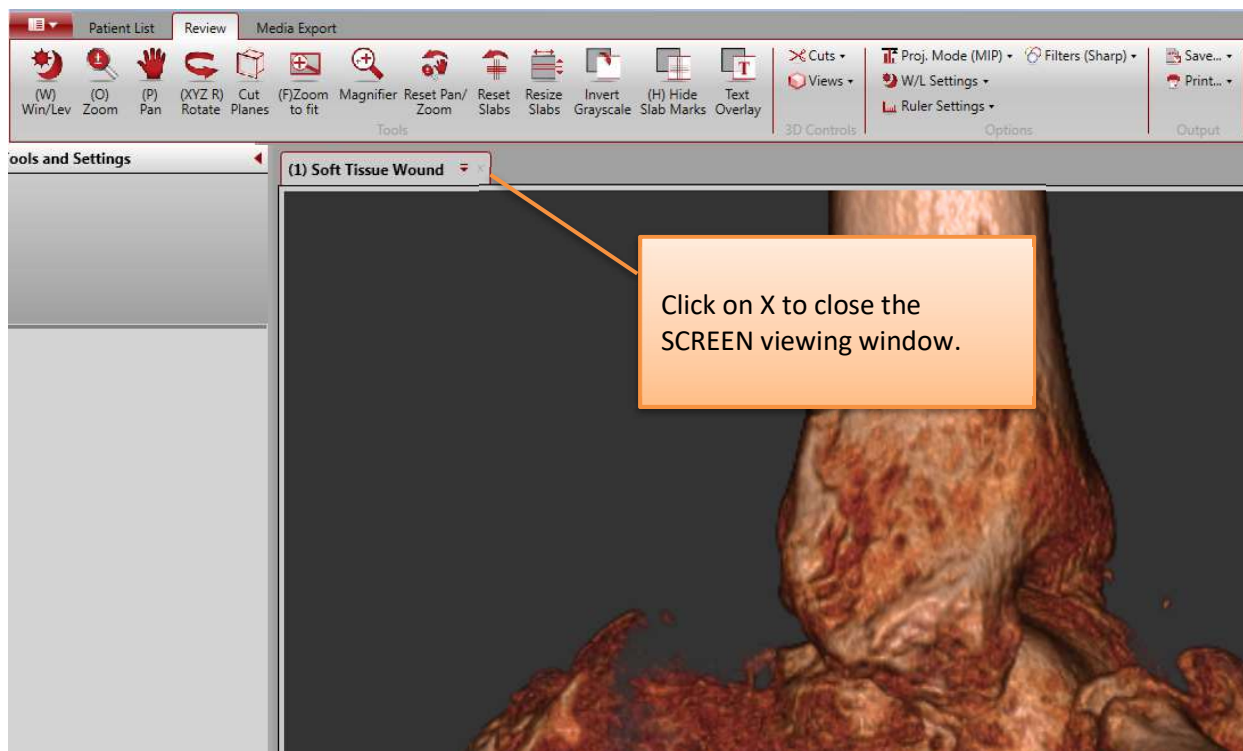
Multiple images can be saved in this fashion. These images are then accessible ONLY from the Patient List LOCAL Tab. These images can be loaded and viewed, Exported as DICOM, Media Exported, or also sent to a PACs server or DICOM AE. (see section on DICOM Send for instructions on sending).

The screenshot shows a software interface with a patient list table. The table has the following columns: Patient ID, Patient Name, Type, Date, Matrix, # of images, Voxel, and FOV. The first row is highlighted in red and contains the following data: Patient ID: 1000, Patient Name: Soft Tissue Wound, Type: Screen, Date: 8/23/2013 9:25 AM, Matrix: 404 x 838, # of images: 7, Voxel: 666, and FOV: 200. Below this row are four rows of Reformat data. An orange callout box points to the '# of images' column with the text: "Notice the # of Images. This is the total amount Saved as DICOM on this date." An orange arrow points to the 'Settings' sidebar on the left.

Patient ID	Patient Name	Type	Date	Matrix	# of images	Voxel	FOV
1000	Soft Tissue Wound	Screen	8/23/2013 9:25 AM	404 x 838	7	666	200
		Recon	2/9/2013 3:30 PM	666 x 666	666	0.300	200
		Reformat	8/23/2013 9:22 AM	666 x 666	135	0.300	200
		Reformat	8/23/2013 9:23 AM	666 x 666	137	0.300	200
		Reformat	8/23/2013 9:23 AM	666 x 666	137	0.300	200

To View the SCREEN, double click to load. Scroll the mouse wheel to advance to the next image in the series. This series can also be loaded into the 2nd Workspace.

The usable functions for SCREEN series are W/L, Zoom, Pan, Zoom to Fit, Reset Pan/Zoom and W/L Settings (reset). To close the SCREEN viewing window, click the “X” on the patient name Tab.



Save Volume as DICOM

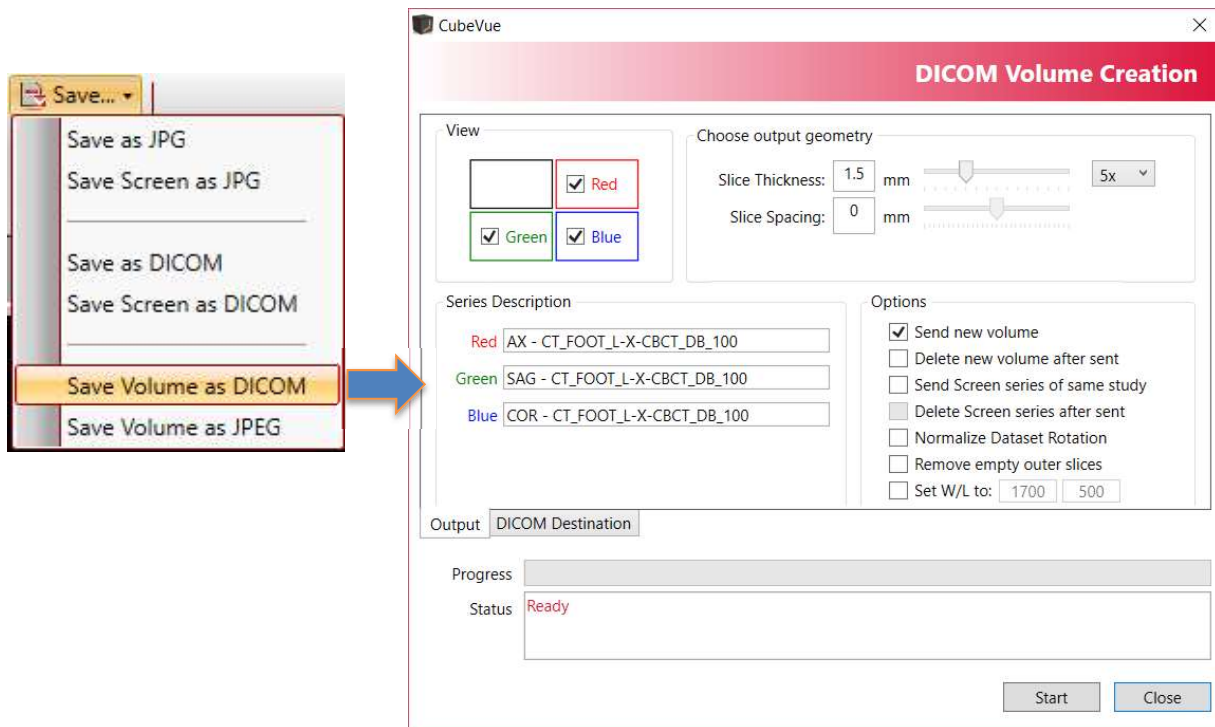
The Save Volume as DICOM feature provides a method to re-save your dataset after a re-orientation (volume rotation) in DICOM format. At the same time, it provides functionality to reconstruct the datasets in a format that has a larger slice thickness.

For example, the original datasets are currently reconstructed and saved at 0.3 mm voxel for PedCAT MFOV scans, 0.37 mm voxel for LFOV PedCAT scans and 0.2 mm for InReach scans. We can utilize this new function if the dataset is desired to be sent to a PACs or DICOM server with a larger slice thickness. This may be a common need as PACs servers might not easily import the large volume of data at the smaller slice thickness.

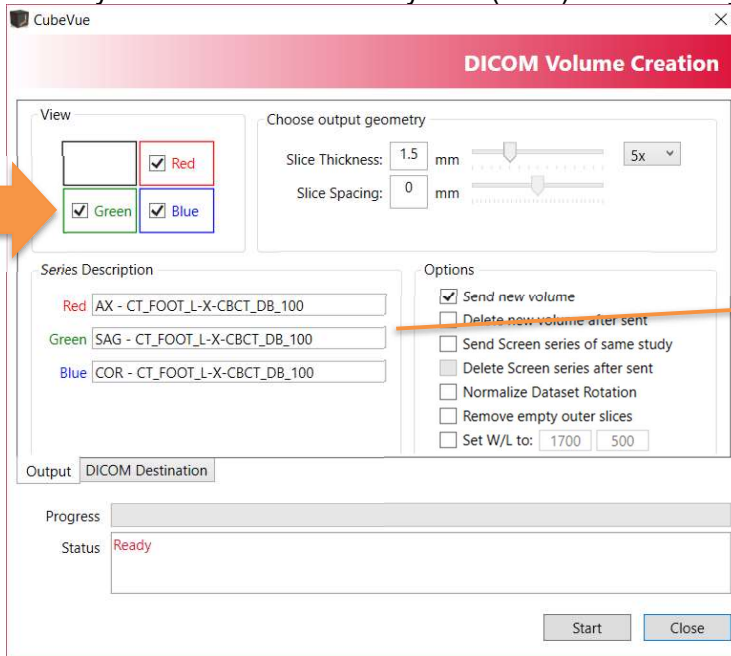
This Save Volume as DICOM function also provides a method for reconstructing the volume in axial, coronal and sagittal planes as opposed to the original dataset, which is saved strictly as axial slices. This again may be needed for many PACs/DICOM servers.

Ultimately, from CubeVue we can now re-orient datasets and save the dataset with various slice thicknesses and outputs. We refer to these new saved datasets as “Reformats”. Then we can manually send these reformatted datasets to a PACs/DICOM server as needed. (see section on DICOM Send for instructions on sending).

- To initiate the Save Volume as DICOM feature, first create the orientation that you would like to save or export, then click on the **Save Volume as DICOM** button from the Main Menu Output section from the Review Tab/Combined 3D MPR Tab. This will open the DICOM Volume Creation Window.



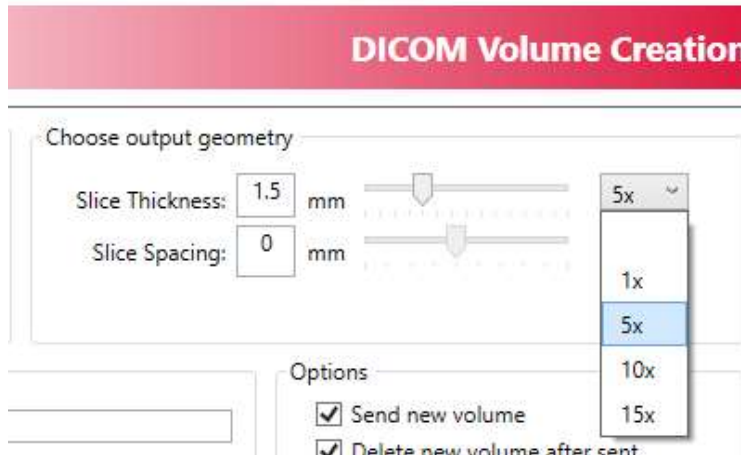
From this window, first select the desired **View Direction**: In most cases, all of the view directions would be selected. *Red = axial, Green = sagittal, Blue = coronal*. However, there may be an event where only Red (axial) is necessary.



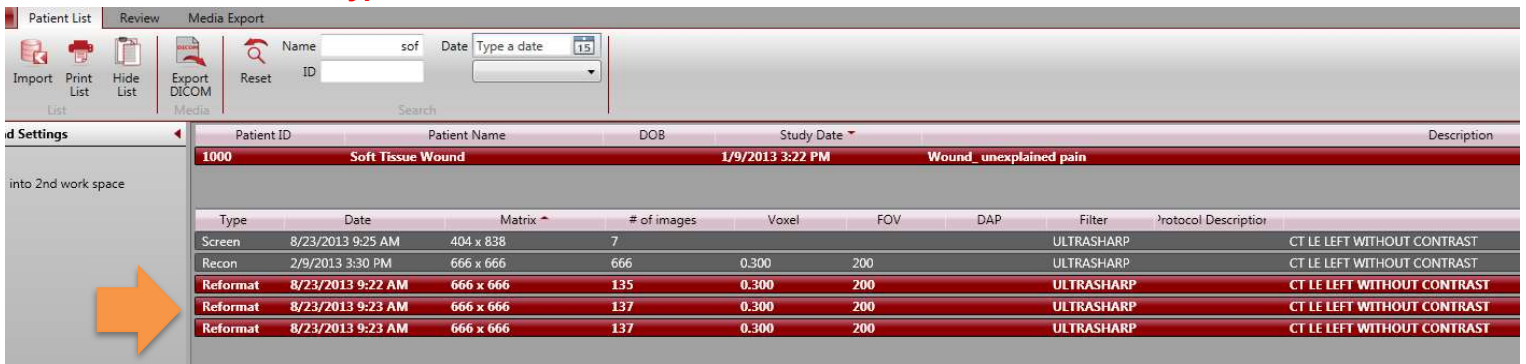
Notice that once the view direction is selected, the series description for each is displayed. These descriptions can be edited, click inside the field for access to the text.

click **Start**. The default for slice V scan or 0.37 for a LFOV scan. The options are to either click on the drop down menu and select 5x, 10x or 15x. Or you can drag the scroll bar for additional options in the current slice thickness with increments.


- 5X is recommended in most cases and should be suitable for most needs.
- For a PedCAT MFOV, 0.3 mm voxel scan: 5x = 1.5mm slice thickness**
- For a PedCAT LFOV, 0.37 mm voxel scan: 5x = 1.85 mm slice thickness**
- For an InReach MFOV, 0.2 mm voxel scan: 5x = 1.0 mm slice thickness**

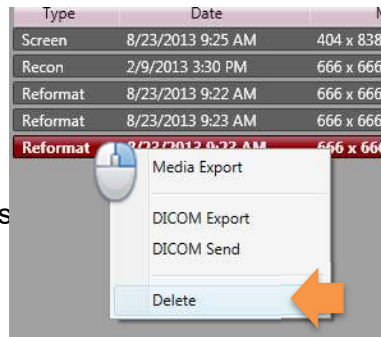


- Once the Status reads **Completed**, click **Close**. **The new Reformatted Datasets will reside under the Patient ID, Series Type in the Patient List LOCAL Tab only. The Series Type will be called Reformat.**



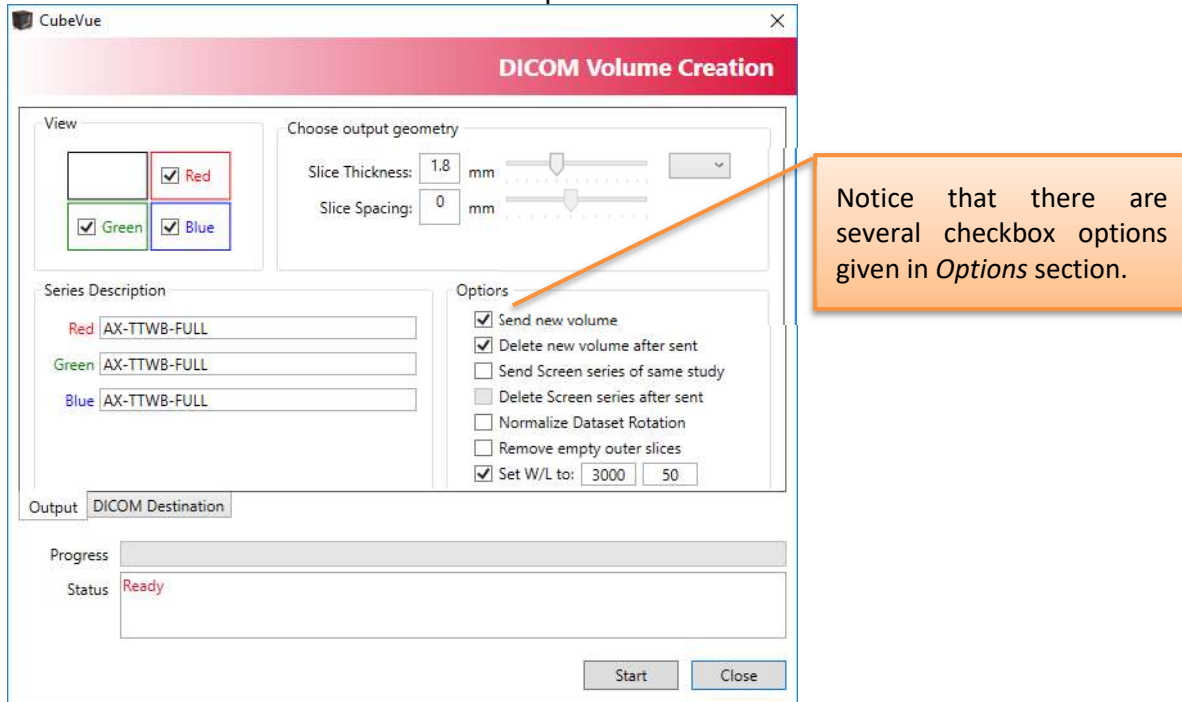
If you desire to delete any of these datasets, click on to highlight, right click for the pop up menu, select **Delete** from the menu. Select multiples by holding down the CTRL button then click each desired dataset.

 **CAUTION** – Once the scan is there.



base it will no longer be accessible

There are several checkboxes on the Output tab of DICOM Volume Creation.



Send new volume: This checkbox should be checked if the Reformat(s) need to be send to a desired DICOM Destination. DICOM Destinations can be configured as described in DICOM Send section.

✔ **NOTE:** DICOM images sent via “Send new volume” will be uncompressed.

Delete new volume after sent: Select this checkbox if the Reformat(s) are not required to be saved in the Local Patient List. This is some times required when the user wants to send the Reformats just to a DICOM Destination.

! **CAUTION** – Reformat datasets will be deleted after they are sent. They will not be saved.

Send Screen series of same study: If there are any screenseries already present for that particular scan, then those can also be sent to DICOM Destination along with the Reformat(s).

Delete Screen series after sent: The screenseries sent to DICOM destination in above steps are automatically deleted from local patient list if “Delete Screen series after sent” checkbox is checked.

! **CAUTION** – Screen Series datasets will be deleted after they are sent.

Normalize Dataset Rotation: If this checkbox is checked the Rotation of dataset will be normalized. Please note that the axial image should have toes pointing up in Combined 3D/MPR tab prior using Normalize Dataset Rotation function.

✔ **NOTE:** This option is not available for InReach datasets currently.

Remove empty outer slices: This checkbox can be selected to have outer blank/empty slices removed when creating Reformat(s).

✔ **NOTE:** This option is currently available for pedCAT scans only and not for InReach scans.

Set W/L to: This checkbox can be checked and the desired values for Window and Level can be defined in the given boxes. The Reformats will have the defined Window and Level as default.

✓ **NOTE:** Reformat datasets **Will NOT open** in CubeVue software. These datasets are no longer isotropic and not intended to be viewed in CubeVue. The original Reconstructed (RECON) datasets should be used to view in CubeVue.

Save Volume as JPEG:

Save Volume as JPEG feature provides a way to save the axial, sagittal and coronal slices as JPEG images on a desired location on the computer. Click on Save... dropdown and select Save Volume as JPEG option. JPEG Image Stack Creation dialog will pop-up as displayed below:

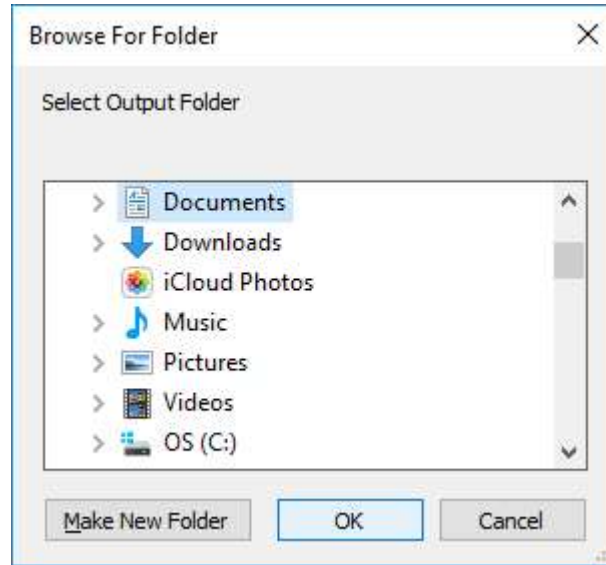
Select the desired View(s)

Select the desired ratio from the available options of 1x, 5x, 10x and 15x.

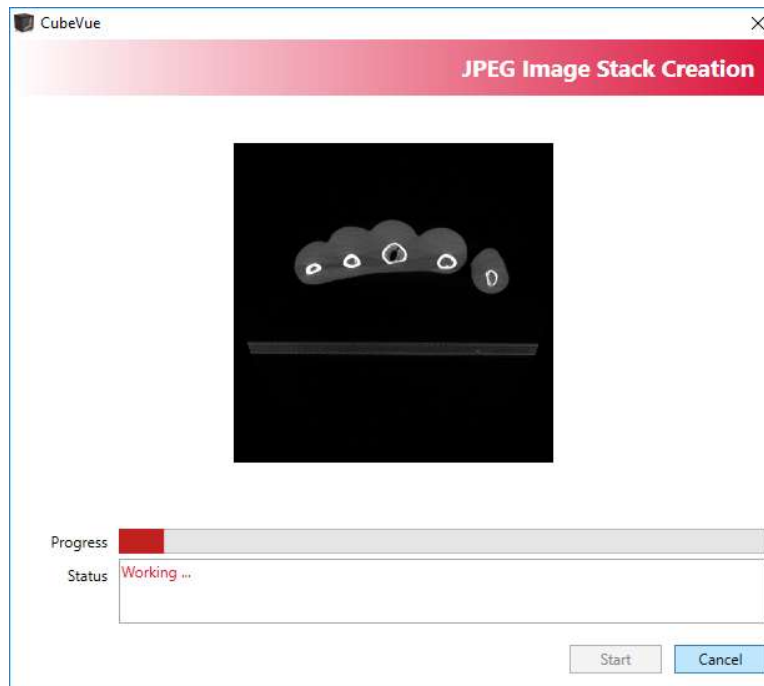
Click on Start button.

Select the desired View option (like Red/Green/Blue), then Choose the desired output geometry using the Slice thickness slider or drop-down options. Click on Start button.

Once the Start button is pressed, a dialog box will appear asking for the folder:



Select the desired folder (or create a new folder if required) and click on OK button. The software will start the process of saving the images and display the progress:



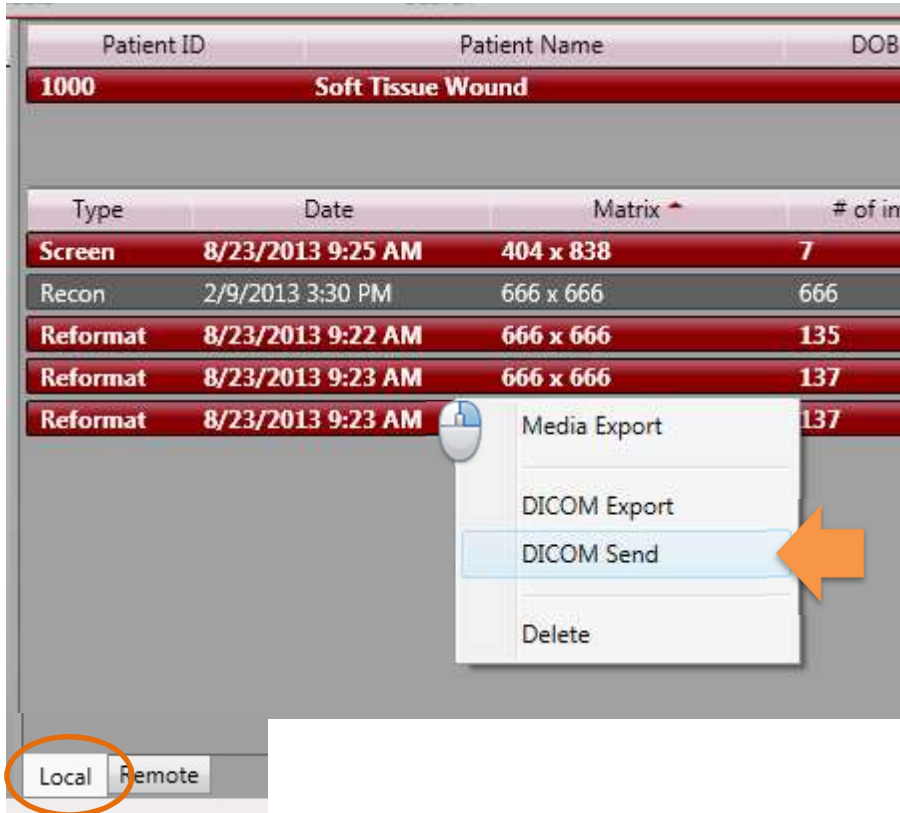
The status will change to Complete when all the images are saved.

DICOM Send

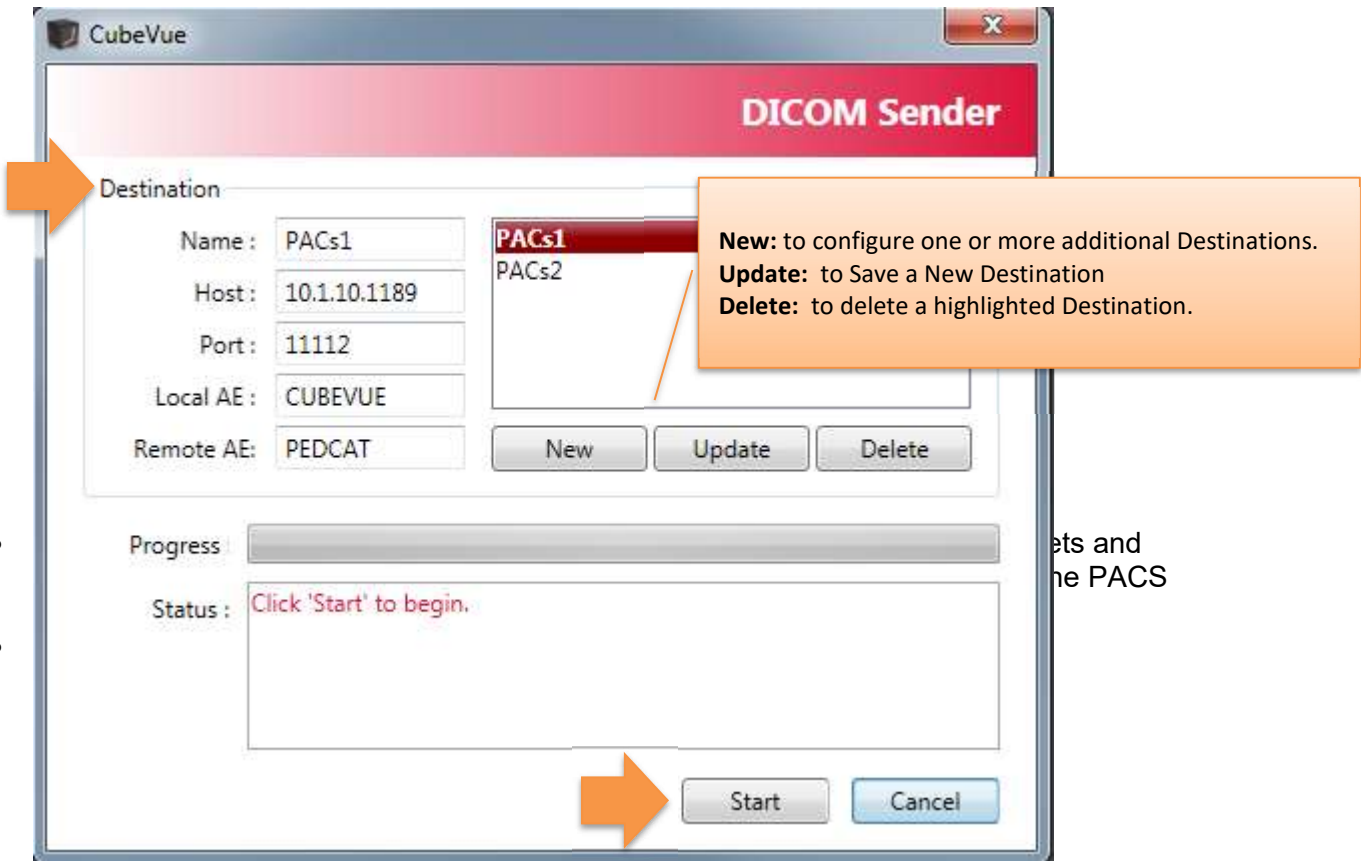
Any of the datasets that reside in the Patient List LOCAL Tab can be sent to a PACs/DICOM server via the DICOM Send functionality. In most cases, the Series Types that will be desired to send via this method would be SCREEN and REFORMAT datasets.

From the Patient List LOCAL Tab, **highlight any or all of the desired Series to send.** Highlight multiples using the traditional method of CTRL click, or highlight all using the traditional method with SHIFT, click on the first and SHIFT click on the last.

- Right click on the highlighted dataset(s) to access the Pop Up menu and select **DICOM Send**.



multiple **Destinations**
the appropriate data
click on **New** and edit
tion(s) configured,



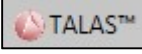
-
-

ets and
 he PACS

TALAS™ (Torque Ankle Lever Arm System):

TALAS™ is a software algorithm developed with the help of leading foot & ankle surgeons that can be used to automatically calculate hindfoot alignment based on reproducible three-dimensional anatomical landmarks. TALAS™ introduces the concept of 3D-specific biometric measurements, as opposed to 2D biometrics (ex. tibia-calcaneus angle), which are subject to projection and rotation error.

! CAUTION Please note that this tool is currently being used for research purposes and is not approved as diagnostic tool yet.

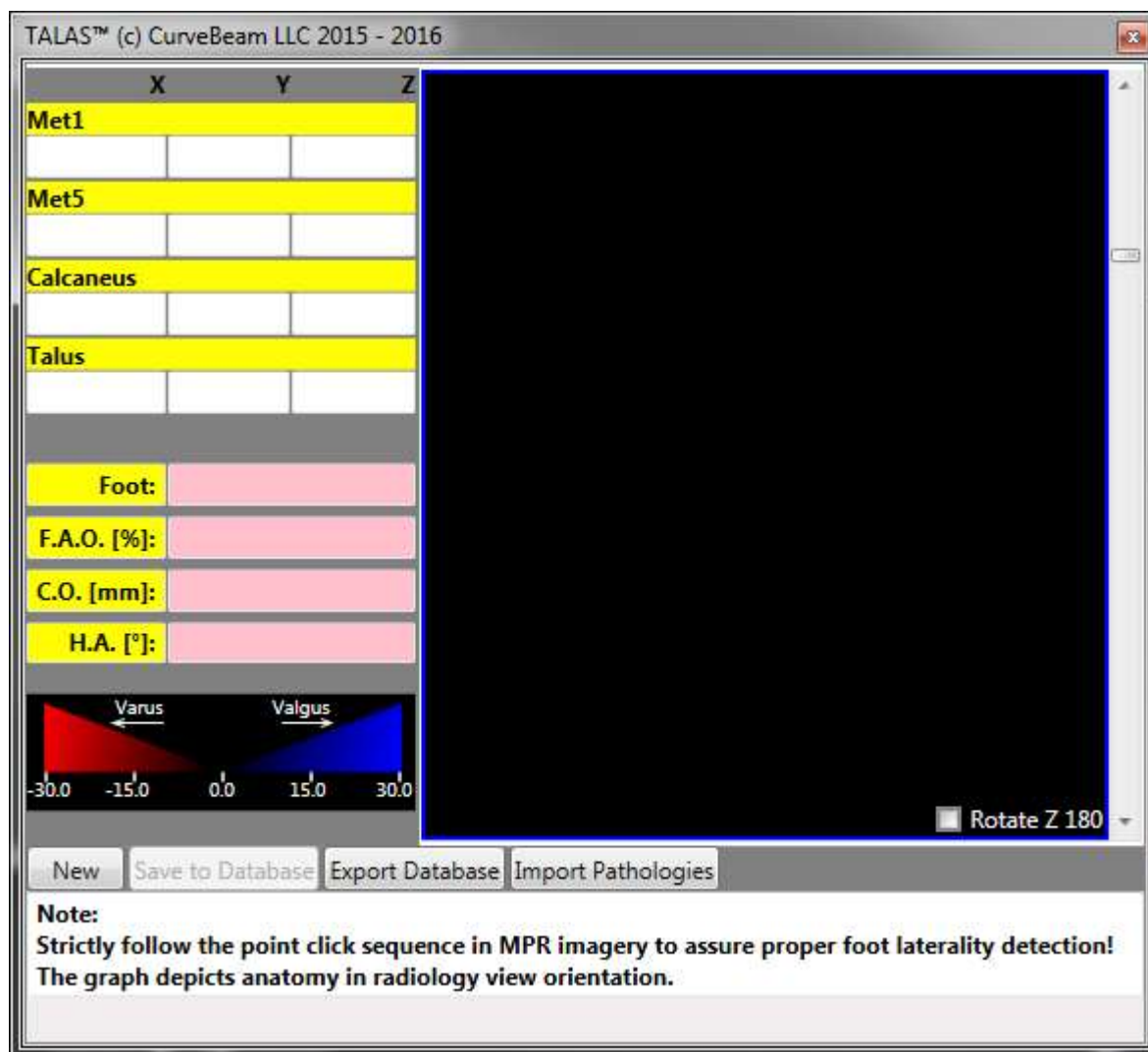
Once the patient scan is opened in CubeVue, TALAS™ functionality can be used from the Combined 3D/MPR tab using the TALAS™ button  from the ribbon menu.

✓ NOTE: TALAS™ feature is available only for pedCAT scans. The button will not be available when viewing a scan acquired from InReach dataset. TALAS™ feature needs a license to be accessible for pedCAT datasets.

Once the TALAS™ button is pressed an Information dialog box is displayed as shown below. Choose “Yes” to use the function. Please note that this tool is currently being used for research purposes and is not approved as diagnostic tool yet.



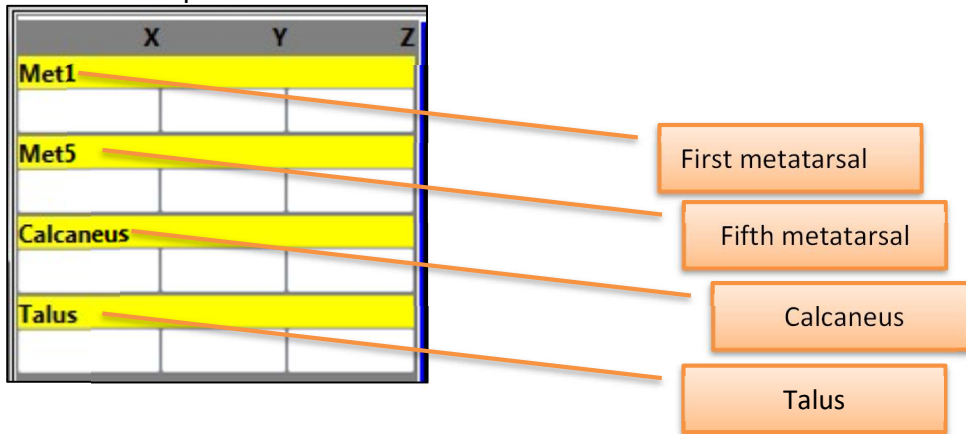
TALAS™ window is then displayed as shown below (may need to be resized to view all the contents when displayed for the first time):



To use TALAS™, the user must first mark four critical points on any MPR view (i.e. axial, sagittal, or coronal). The sequence of click is important, the user need to follow it strictly to get the correct results. The points (to be marked on the bones in MPR image) are in following order:

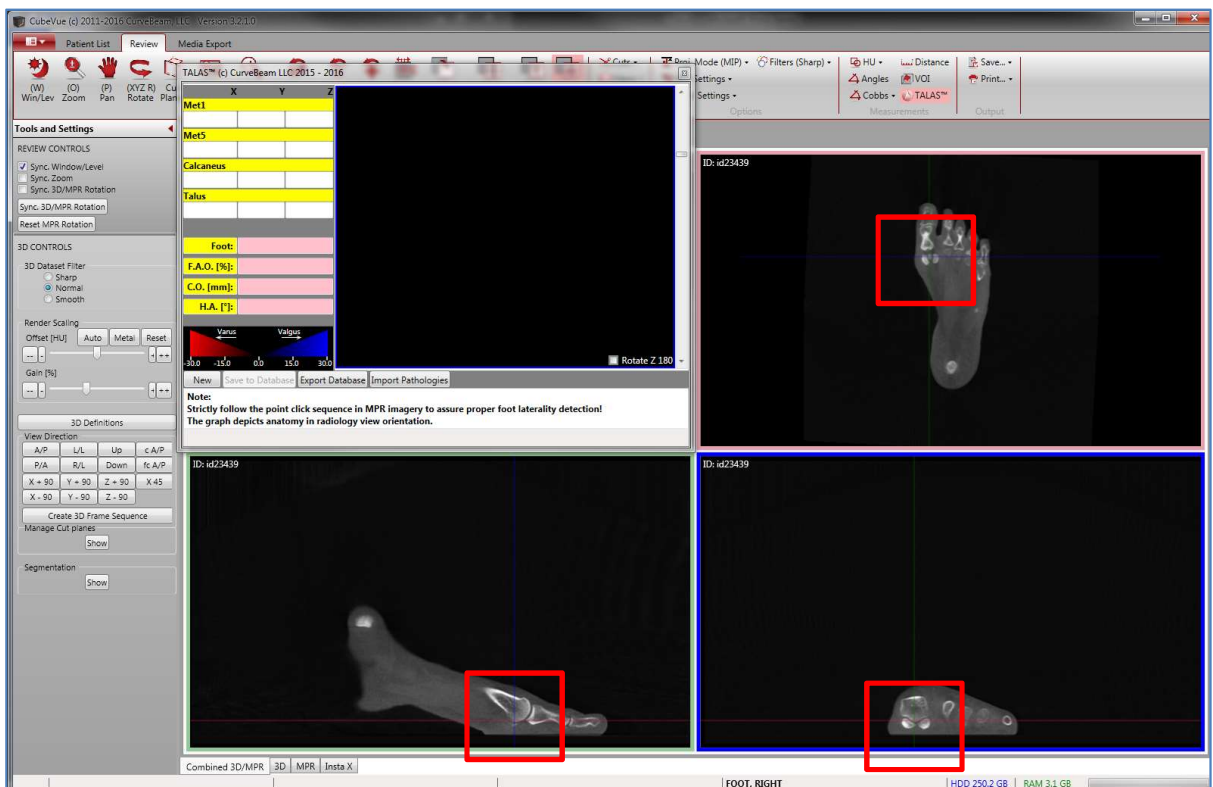
1. First metatarsal
2. Fifth metatarsal
3. Calcaneus
4. Talus

The same sequence is also mentioned on the TALAS™ window as shown below:

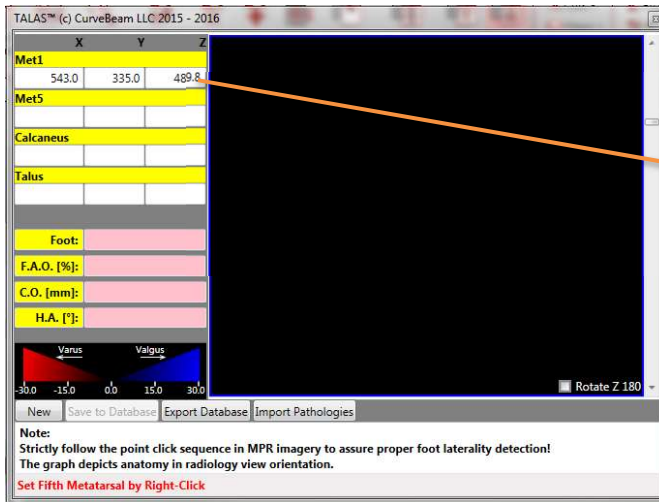


These four points are explained in more details below:

1. **First metatarsal:** Identify the lowest point of the distal first metatarsal head, move all 3 slab lines to that point to verify the accuracy as shown in screenshot below:

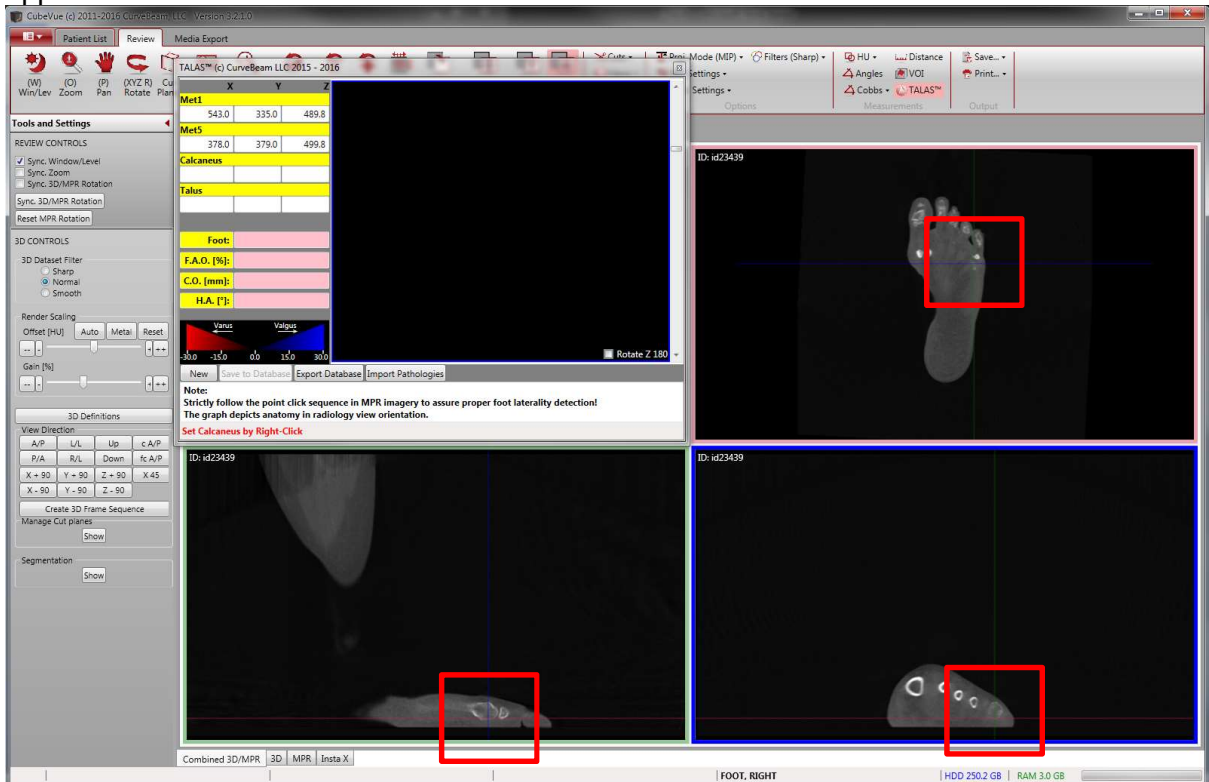


“Right click” at the point of intersection of slab lines in either of axial, sagittal or coronal image (shown inside the green boxes in above screenshot). Once a right click is made, values of X, Y and Z coordinate of that point will automatically appear in the Met1 field on TALAS™ window similar to below screenshot:

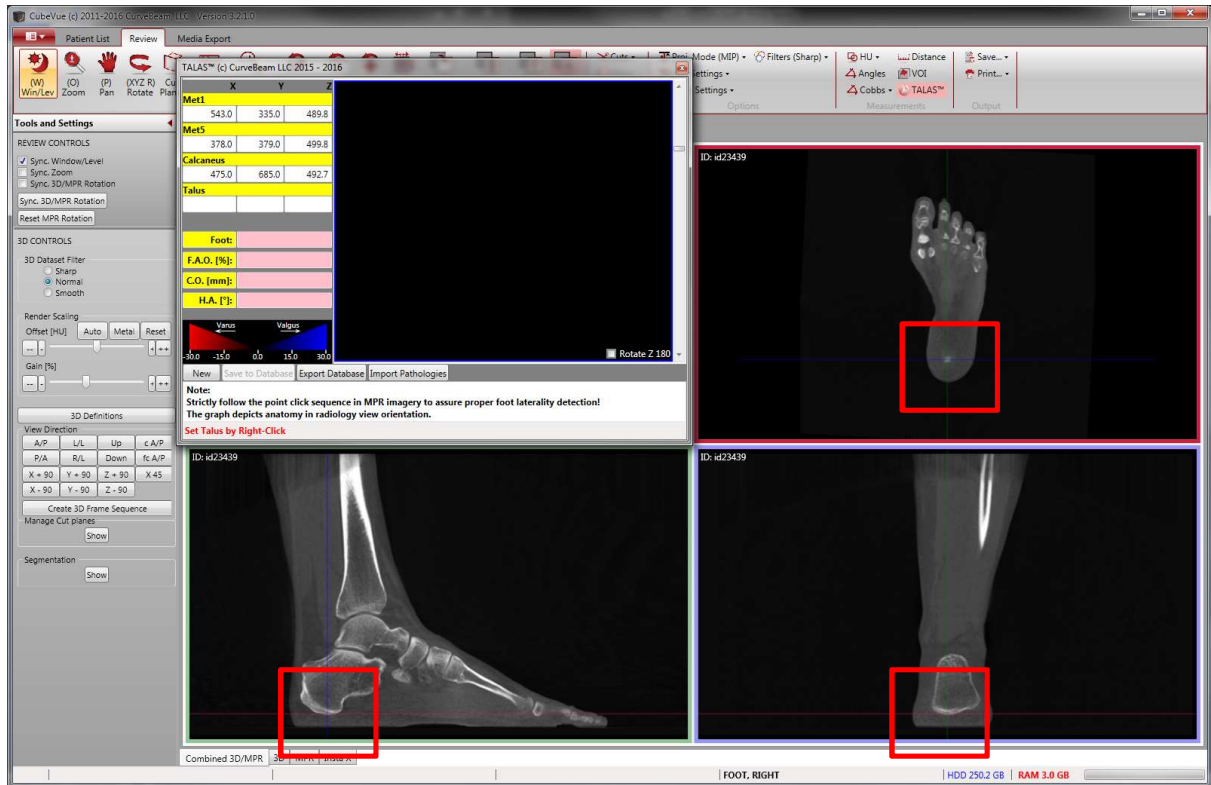


Values for First metatarsal point

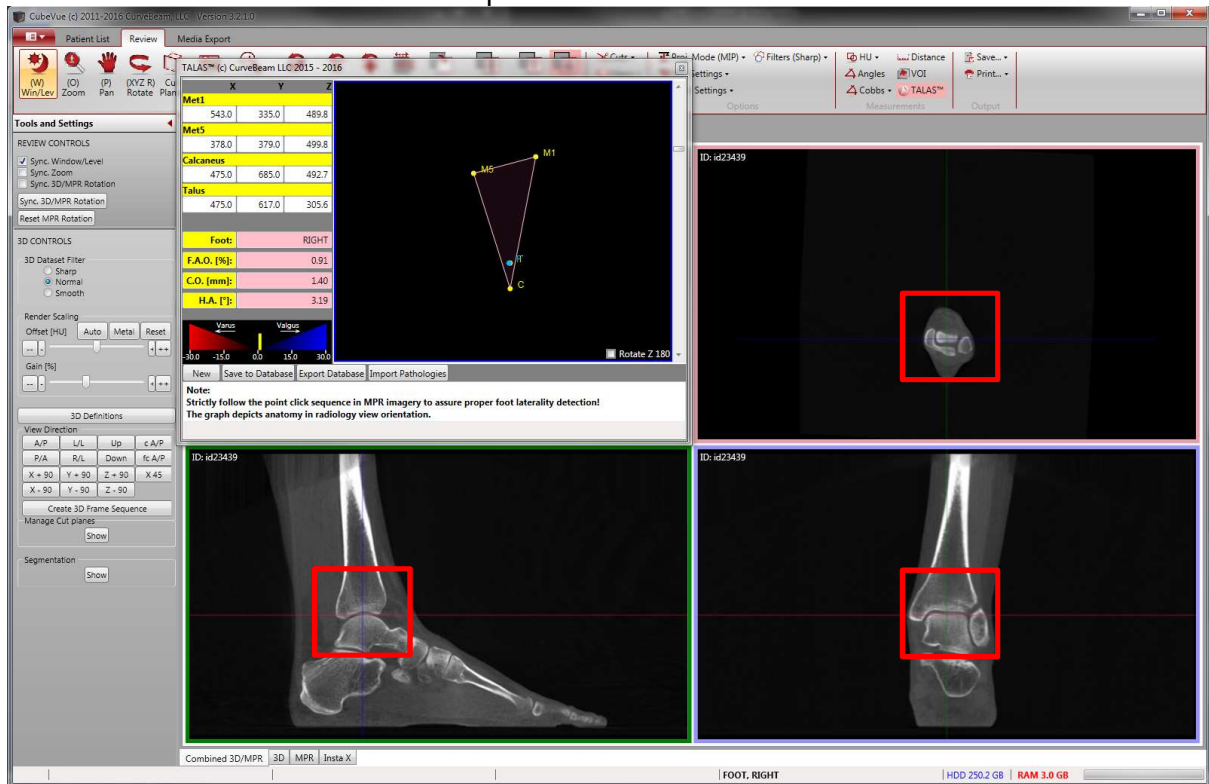
2. Fifth metatarsal: Now, locate the lowest point of the distal Fifth metatarsal head and right click to mark it. Three dimensional coordinate's values of that point will automatically appear in the TALAS™ window as shown in below screenshot:



3. Calcaneus: Similarly, locate the lowest point of the calcaneus and right click to mark it. Respective values will be shown in the TALAS™ window under Calcaneus field as shown in below screenshot:





4. **Talus**: Now locate the highest point of the talar dome, then the midline and right click at the intersection of slabs to mark that point.



As soon as fourth point is marked, TALAS™ does the calculations automatically and displays several values in TALAS™ window as shown in TALAS™ window in screenshot above.

The points of click are also demonstrated on the TALAS™ window represented as M1, M5, T and C letters; an additional letter “F” is also displayed which represents the center of load bearing or where the center of gravity of foot lies. This graph depicts the anatomy in radiology view orientation (i.e. patient foot being viewed bottom/up). The graph can be rotated by 180 degrees about Z axis by the use of “Rotate Z 180” checkbox Rotate Z 180.

In the above screenshot, TALAS™ have identified this as a Right foot, with a Foot Ankle Offset of 0.91%, a calcaneus offset of 1.40mm, and a hindfoot alignment of 3.19 degrees. It also displays if there is Varus or Valgus condition on the gradient on the TALAS™ window. The detailed information about these can be obtained from <http://www.curvebeam.com/products/cubevue-software/automatic-measurement-tools/>.

 **NOTE:** if the user have marked in the wrong order, or misplaced the mark, “New” button  on the TALAS™ window can be selected to start over.

Once TALAS™ has calculated the results, these can be saved to the Database. Click on “Save to Database” button on the TALAS™ window & a TALAS™ Database Entry Form will be displayed as shown below:

TALAS Database Entry Form	
Patient Name (*)	pc58404
Patient ID (*)	id23439
Patient D.O.B. (*)	
Acquisition Date	20131010
Acquisition Time	164818
Voxel Size [mm]	0.37
Foot	RIGHT
Foot-Ankle Offset	0.914705561753057
Calcaneal Offset	1.40107005010874
Hindfoot Angle	3.19203499336396
Please select Pathology	---
and Pathology	
and Pathology	
Please enter age [Years]	
Please enter height[cm]	
Please enter weight[kg]	
Please select sex:	<input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Other
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	
Note: (*) This information will be scrambled in the database for patient anonymization.	

Some values (Patient Name, Patient ID etc.) will be pre-filled in the form. Select the Pathology, if any, by clicking on the “Please select Pathology” dropdown. Please note that more than one pathology can also be selected from subsequent dropdown which gets enabled after the selection from previous pathology dropdown as shown in next screenshot:

The screenshot shows a window titled "TALAS Database Entry Form" with a table of patient data and a list of pathologies. The table contains the following information:

Patient Name (*)	pc58404
Patient ID (*)	id23439
Patient D.O.B. (*)	
Acquisition Date	20131010
Acquisition Time	164818
Voxel Size [mm]	0.37
Foot	RIGHT
Foot-Ankle Offset	0.914705561753057
Calcaneal Offset	1.40107005010874
Hindfoot Angle	3.19203499336396

Below the table, there are three dropdown menus for selecting pathologies. The first dropdown is labeled "Please select Pathology" and has "Metatarsalgia" selected. The second dropdown is labeled "and Pathology" and has "---" selected. The third dropdown is labeled "and Pathology" and has "---" selected. A list of pathologies is shown below the dropdowns, including:

- None
- Pes Planus
- Pes Cavus
- Hallux Valgus
- Hallux Rigidus
- Metatarsalgia
- Toe deformities
- Sesamoid pathology
- Ankle instability
- Ankle arthritis
- Osteochondral lesion of the Talus
- Subtalar arthritis
- Tarsal coalition
- Chopart arthritis
- Lisfranc arthritis
- Haglund's
- Plantar fasciitis
- Diabetic Foot
- Rhumatoid Foot
- TRAUMA Ankle
- TRAUMA Tibial Plafond
- TRAUMA Subtalar
- TRAUMA Chopard
- TRAUMA Lisfranc
- TRAUMA distal tibia

There are also input fields for "Please enter age [Years]", "Please enter height[cm]", "Please enter weight[kg]", and "Please select sex". A note at the bottom left states: "Note: (*) This information anonymization."

A maximum of 3 pathologies can be selected.

Further, enter the age (in years), height (in cm) and weight of the patient (in kg) followed by the selection of gender. Click on “Save” button to save the database as highlighted by the use

The screenshot shows a window titled "TALAS Database Entry Form" with a close button in the top right corner. The form contains several input fields and dropdown menus. A red rectangular box highlights a section containing three dropdown menus for pathology selection, followed by text input fields for age, height, and weight, and radio buttons for sex selection. Below this highlighted section are "Save" and "Cancel" buttons. At the bottom of the window, there is a note about data anonymization.

Patient Name (*)	pc58404
Patient ID (*)	id23439
Patient D.O.B. (*)	
Acquisition Date	20131010
Acquisition Time	164818
Voxel Size [mm]	0.37
Foot	RIGHT
Foot-Ankle Offset	0.914705561753057
Calcaneal Offset	1.40107005010874
Hindfoot Angle	3.19203499336396
Please select Pathology	Metatarsalgia
and Pathology	Rhumatoid Foot
and Pathology	Diabetic Foot
Please enter age [Years]	50
Please enter height[cm]	178
Please enter weight[kg]	75
Please select sex	<input checked="" type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Other

Note: (*) This information will be scrambled in the database for patient anonymization.

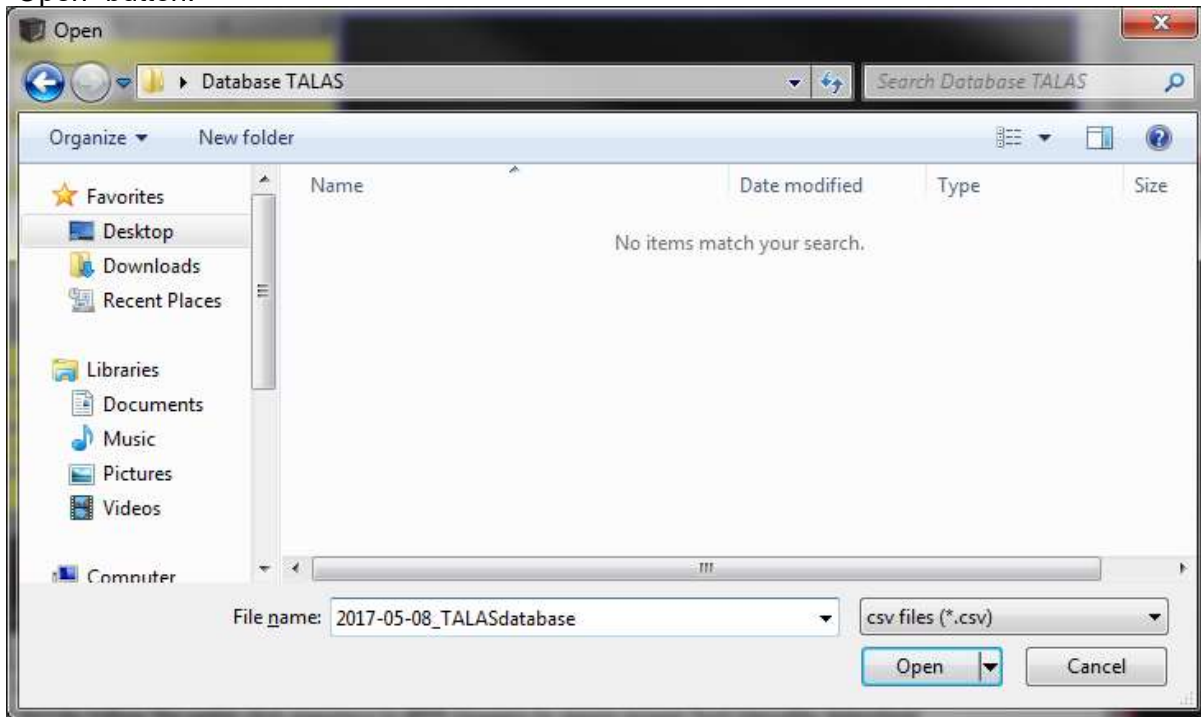
TALAS™ Database Entry Form will close automatically when “Save” button is pressed. Please note that the patient information saved in the database will be anonymized automatically.

Similarly data of several patients can be saved to database. Different patient's data will be appended in the database. If the same patient dataset is re-used, its data in the database will be overwritten; a warning message with the choice of Yes and Cancel will be displayed before overwriting the data.



The database can be exported using the “Export Database”  button from the TALAS™ window.

A dialog box will open up to browse the desired path & to specify the desired file name. Browse to an existing folder or create a new one if required; give the desired file name & click on the “Open” button.

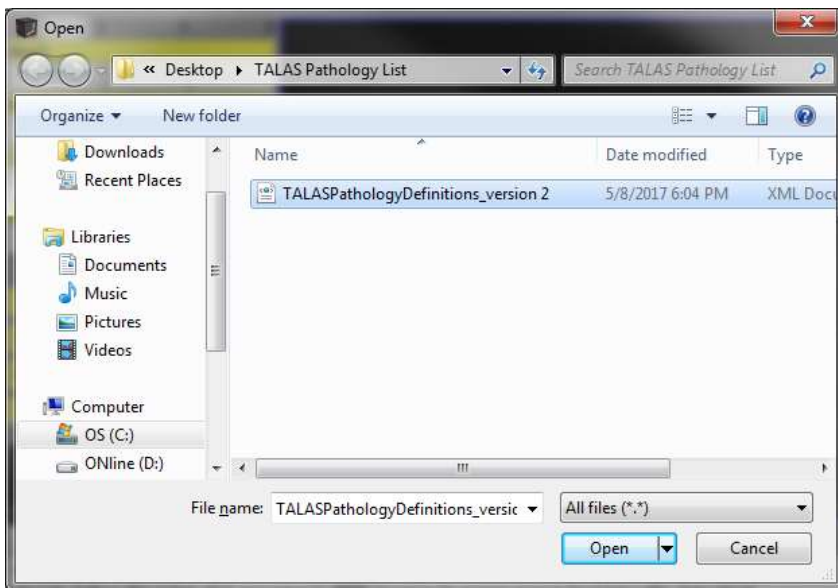


The database will be saved at the desired location in .csv format which can be opened in MS-Excel to view the contents. Please contact CurveBeam Technical Support to provide this database to contribute in TALAS™ research.

Import Pathologies: New pathologies may be added to the Pathologies' list for TALAS™ in the due course of time. New/updated list (when available) can be imported by the use of "Import Pathologies" **Import Pathologies** button from the TALAS™ window. The user may contact CurveBeam Technical Support to check if a new Pathology list is available.

Also, if the user has new pathologies to add to the list, they can contact CurveBeam Technical Support with the new entries and obtain a file which can be used to Import the list of Pathologies as mentioned below:

To start the import process, select the "Import Pathologies" button, browse to the file location and click on "Open" button:



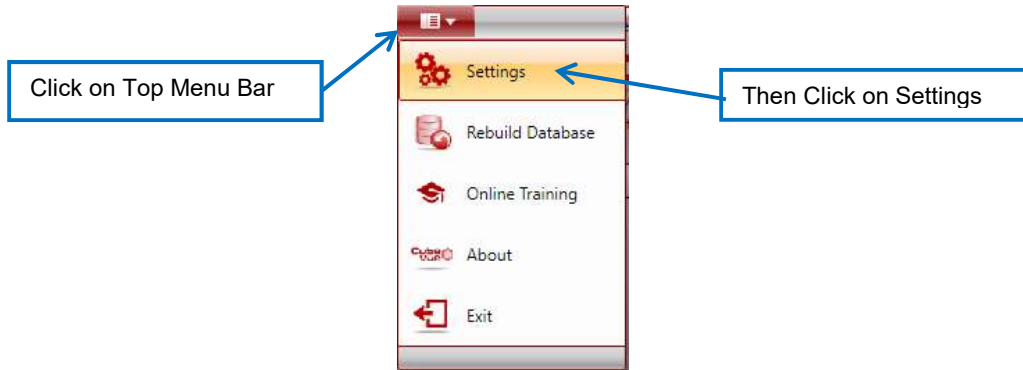
A warning message shall be displayed before the list is updated:



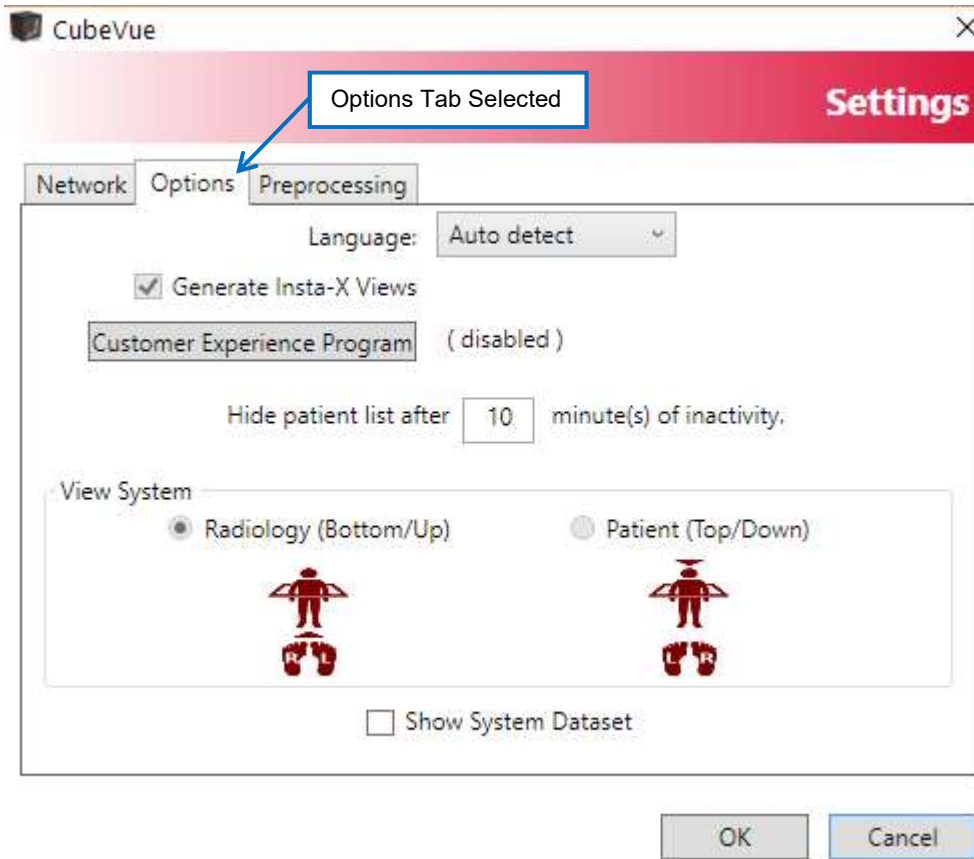
Choose "Yes" button to complete the process of Import of Pathologies list. The next time user saves a patient to the database; this updated Pathologies list can be viewed and used.

Settings Options in CubeVue:

There are various options available under the CubeVue Settings described in subsequent sub-headings. From the upper left most menu button, click on Settings as shown below:

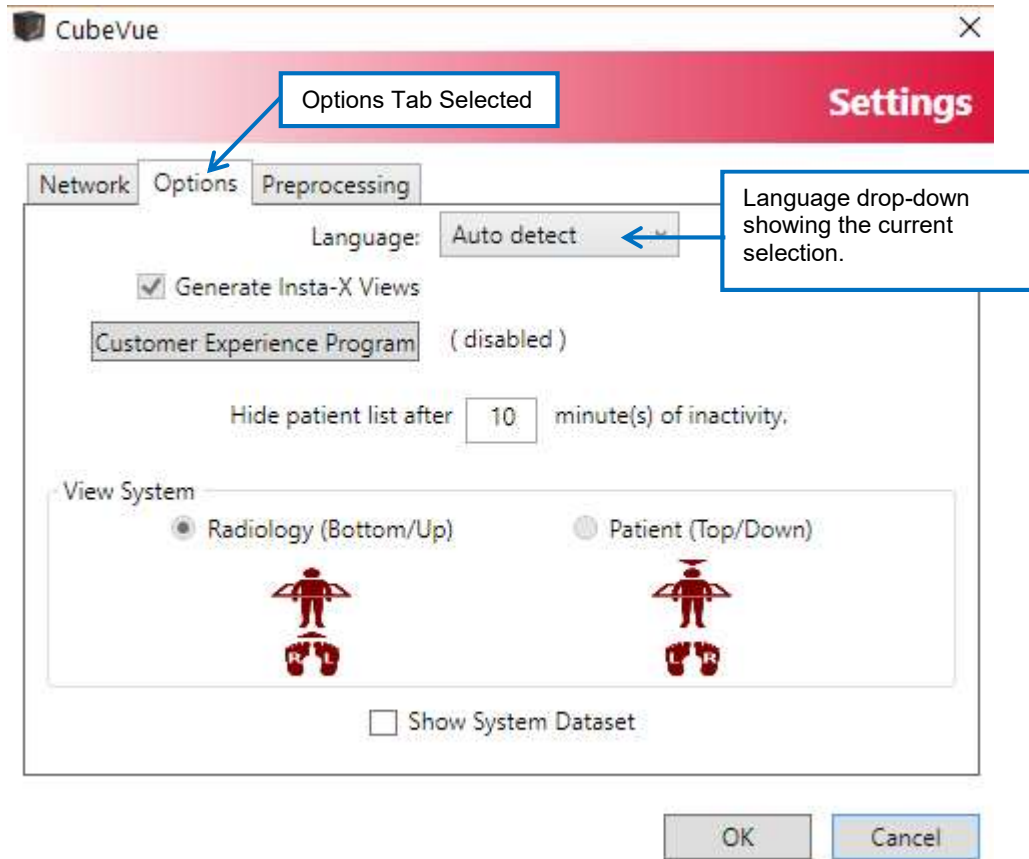


And the Setting pop-up window will appear. Click on the Options Tab as shown below:

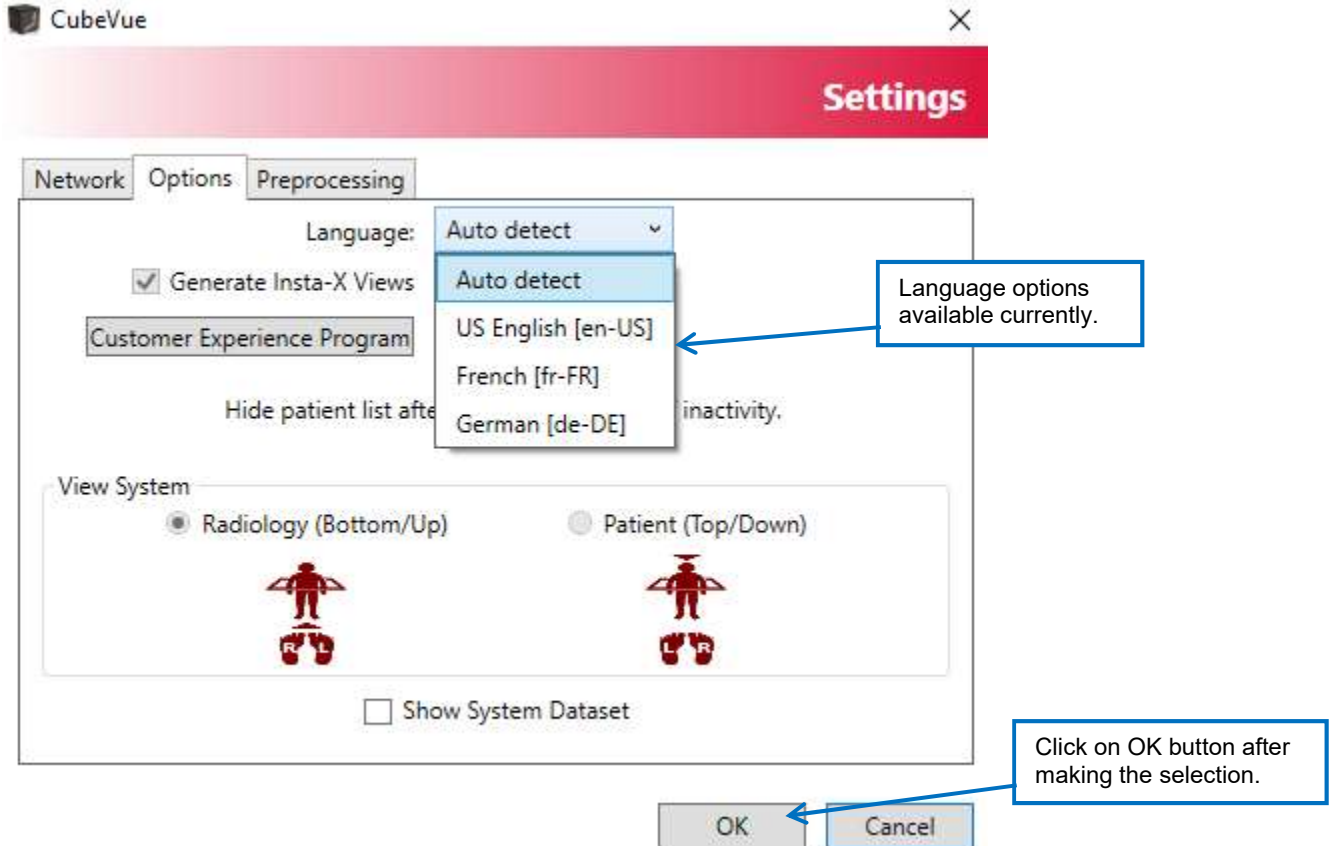


Language Support:

CubeVue supports French, German and English (US) languages. Under Options tab, the *Language* option is visible along with the current selection, if the *Auto detect* is selected it will automatically detect the language selected for the Operating System and display the CubeVue text (like menus, buttons, information messages) accordingly.



The user can also manually select the desired language. To do so click on Language drop-down which will then display the available options as shown below:

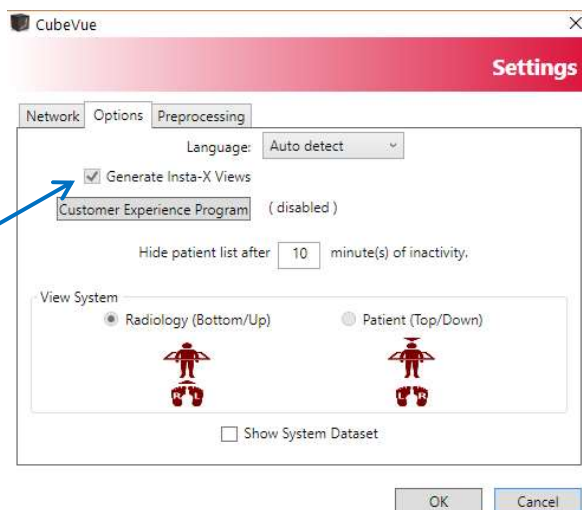


The desired choice can be selected from the displayed Language options. Click on *OK* button on *Settings* dialog to confirm the selection.

Generate Insta-X views:

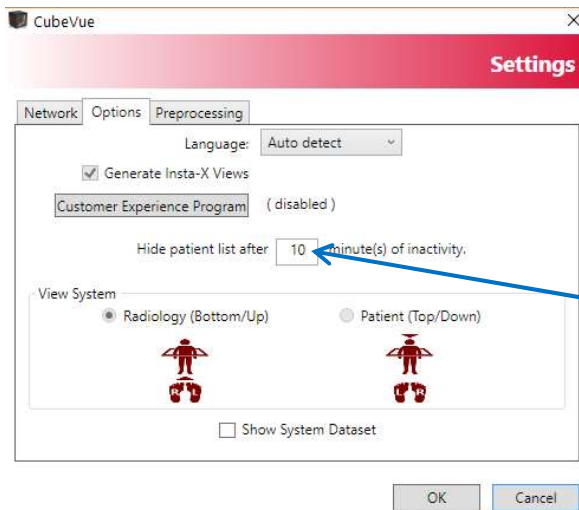
On the Options tab of Settings a checkbox is present which gives the option to enable or disable the generation of Insta-X views. Check the box to generate Insta-X views and click on OK button to confirm the selection.

Checkbox to choose if Insta-X to be generated automatically or not. Click on OK button to confirm.



Automatically hide patient list and images after a desired amount of time:

On the Option tab of Settings Hide patient list after ___ minutes of inactivity. A desired amount of time can be entered in the box and click on OK to confirm the selection. The default value set is



10 minutes. When the system is idle for the defined amount of time the software will hide the patient scan (if already opened) and display the patient list tab with patient list also hidden. *Hide List* button on the main menu bar can be clicked to display the scan (if it was already opened) and the patient list.

Select the desired amount of time and click on OK to confirm the selection.

User can also click on the *Hide List* button to manually hide the opened images and patient list.

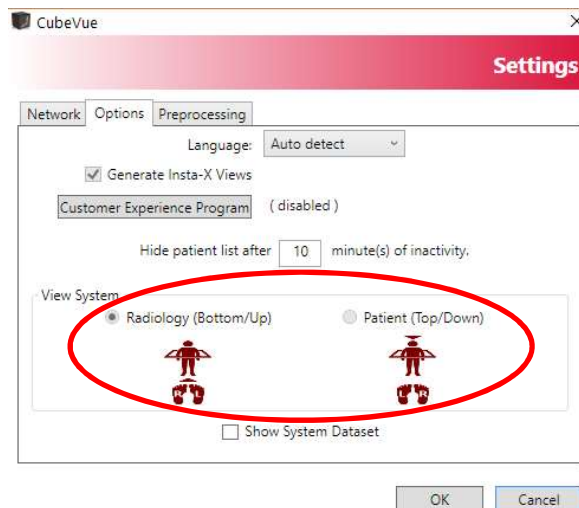
Changing View System:

This option allows the user to configure how the scan is viewed, either from the Radiologist perspective or from the Patient perspective. The user can view the scan by using the typical Radiology view, or view the scan as if you were the patient from the patient's perspective looking down. Radiology View will be set as the default view after a new CubeVue installation. This can be changed from the the Options tab by selecting the desired radio button from the Radiology (Bottom/Up) or Patient (Top/Down) and clicking on OK button to confirm the selection.

The Radiology View is the typical view used in most Radiology – viewing the patient from the bottom up, as if you are below the patient looking up. So the foot on the left side of each window is the patient's right foot. The Patient View is the view as if the user is looking down at their own feet on the screen. So the foot on the left of each window would be the patient's left foot.

The selection of View is retained when upgrading the software.

✓ **NOTE:** InReach scans are always displayed in Radiology View.

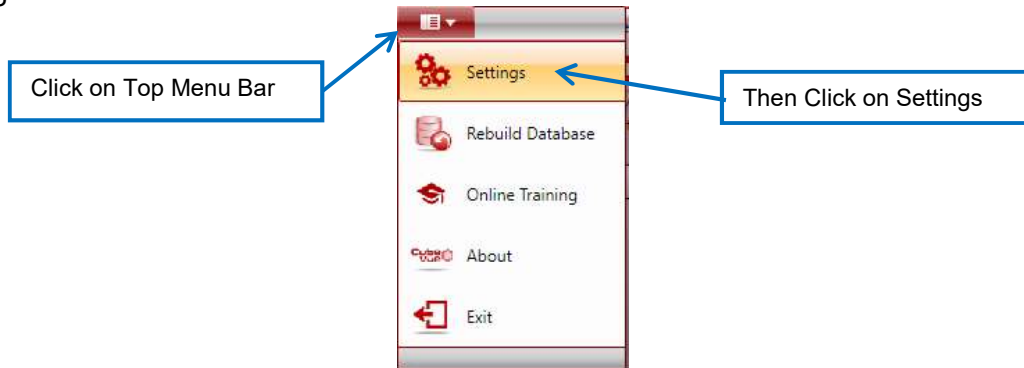


Customer Experience Program:

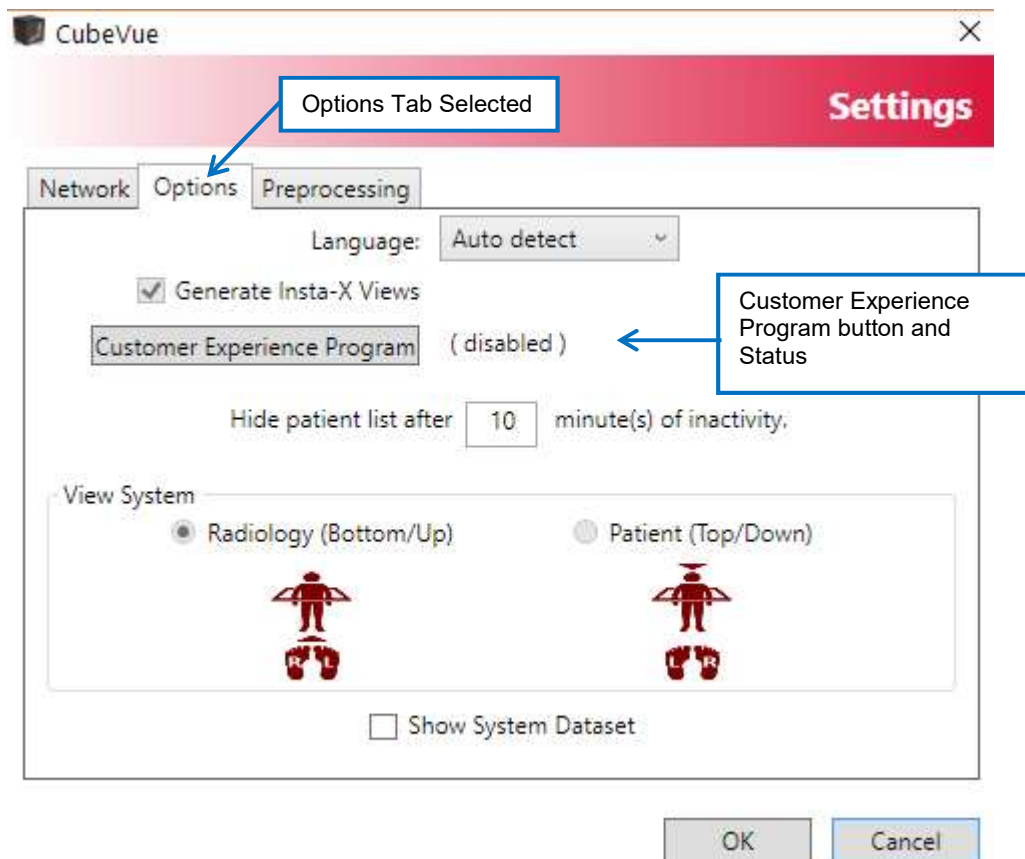
The Customer Experience Program (CEP) is used by CurveBeam as part of development to enhance the software products and services offered to customers. The CEP uses 3rd party analytics software data relating to how you use the software, which features are used, how long

the software is used, and other usage information. All usage data is collected is stored anonymously and no IP address or personally identifiable information is ever stored.

To enable or disable the Customer Experience Program, or to view the End User License Agreement, first open CubeVue software. From the upper left most menu button, click on Settings as shown below:



And the Setting pop-up window will appear. Click on the Options Tab as shown below:



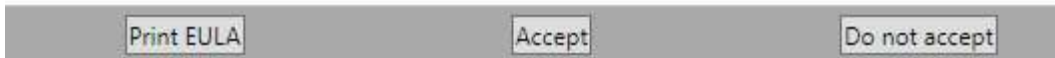
From there, the Customer Experience Program button is visible along with the current status, if the CEP is enabled or disabled. To enable or disable the CEP, click on the Customer Experience Program button. This will then bring up the End User License Agreement for the CEP, as shown below:

CurveBeam, LLC
Software License Agreement

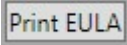

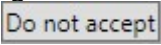
PLEASE REVIEW THE FOLLOWING PROVISION ON DATA USAGE:

USAGE DATA AND ANALYTICS. CurveBeam, LLC ("CB") is continually seeking to develop and enhance the software products and services CB offers to customers. To facilitate this process, CB may integrate third party analytics software into the Software that automatically collects and analyzes certain anonymous data relating to how You (and users of the Software) use and interact with the Software ("Usage Data"). Usage Data may include (a) platform/architecture data where You run the Software, such as operating system, language, CPU, memory and resolution; (b) data regarding Your use of the Software and associated features, such as when You run the Software, how long you run the Software, and which Software features You use; and (c) other anonymous information relating to the Software version, build number and license key. All Usage Data collected and stored is anonymous, and no IP addresses or personally identifiable information are ever stored. CB may rely on third party analytics providers to collect and process Usage Data on CB's behalf, and such Usage Data is stored and processed on servers located in the European Union and United States. By installing and using the Software and opting in as set forth below, You authorize CB (and CB's third party analytics providers) to collect, maintain, use and otherwise process Usage Data as described in this Section

If You agree to such collection and use of the Usage Data, please opt in to this provision as provided immediately below by clicking the Accept button. If, subsequent to opting in to this usage data collection, You decide to reverse that decision, please disable the Customer Experience Program by clicking on it's button in CubeVue under Settings|Options.



At the bottom of the Software License Agreement, there are three options, you can:

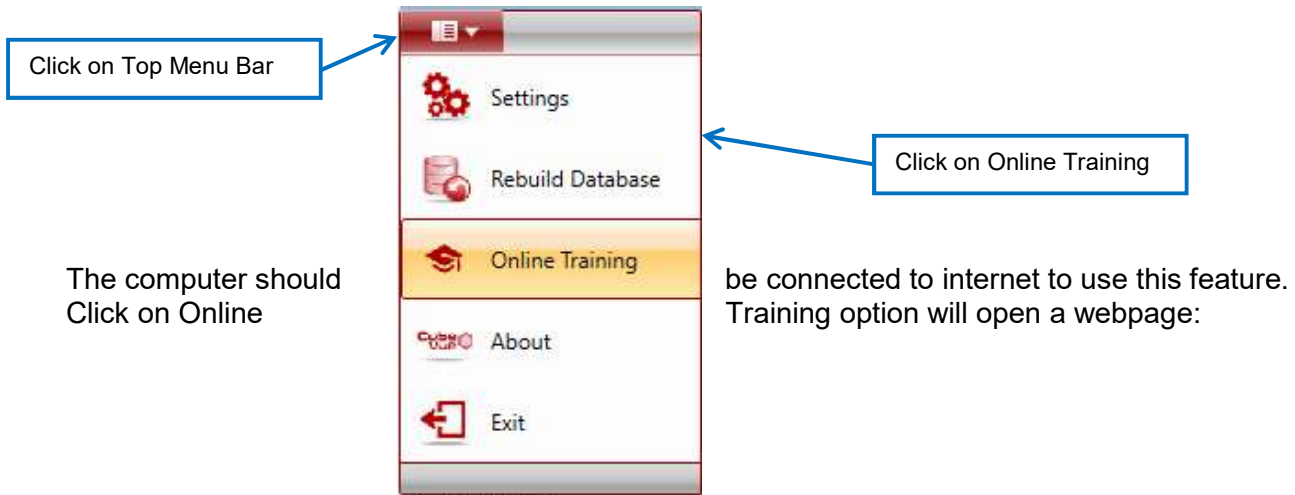
- Print the End User License Agreement, by clicking on 
- Accept the License Agreement and Enable the CEP, by clicking on 
- Not accept or Disable the License Agreement, by clicking on 

The CEP can be accepted and enabled on each workstation running CubeVue.

Additionally, on the initial install of CubeVue on a new system, there is the ability to install the CEP at install. Presently, you can accept CEP at install, but you also need to enable it as shown in the steps above.

Online Training:

Online training option available under the Menu Bar can be used to access the video tutorials of CubeVue software.



<http://www.curvebeam.com/products/cubevue-software/cubevue-tutorials/>

This webpage will display the video tutorial of Cubevue.

Shortcuts in CubeVue:

The following is a list of the shortcut keys that are available in CubeVue.

When in Patient List

Esc - To cancel dataset load

When in Patient List and at least one dataset is already loaded

2 - Toggles the "Load Into Second Workspace" checkbox

When in Review and at least one dataset is loaded

W - Toggles W/L function

O - Toggles Zoom function

P - Toggles Pan function

F - Toggles Zoom-To-Fit

H - Toggles Slab Marks

Esc - Deselects W/L, Zoom, Pan, Rotate, Cut Planes and Measurements

X, Y, or Z - Turns on rotation function

X while rotating 3D image - constrains volume to rotate around the X axis

Y while rotating 3D image - constrains volume to rotate around the Y axis

Z while rotating the 3D image - constrains volume to rotate around the Z axis

Hold 3 while clicking "Reset Pan/Zoom" - Resets pan/zoom for 3D image

Hold shift while clicking Pan - centers MPR images at slab centers

Hold shift while using the mouse scroll wheel - Toggles scrolling through 10 slices at a time

Magnification

F2 - Choose magnifier option from ribbon menu, magnify an image area and press F2 to set magnified area in the image window.

3D/MPR Correlation

Press I while hovering over MPR images - 3D image is cut as per the location of the cursor on the MPR image.

When cut plane function is turned on

Hold shift + left mouse button - Enables ability to move the cut plane

Hold Control + left mouse button - Enables ability to change the angle of the cut plane

When segmentation function is turned on

Holding shift down while clicking will add the newly removed volume to the already removed volumes

Esc - Deselects "Free Hand Erase" and "Remove Bone", if checked

Known Issues in CubeVue:

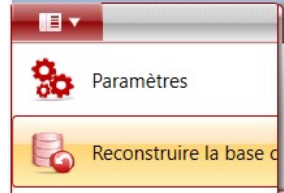
The following table lists out the known issues with CubeVue along with the solutions to manage them.

Item	Issue ID	Summary	Issue description	Suggested Workaround
1	257	Resolution of the characters when making measurements are different in between screens	The characters (the values of measurements) displayed in upper right corner of axial and coronal image windows looks a bit different. The letters in axial are sharper as compared to coronal.	It is just the sharpness of characters displayed. The characters can be easily identified in both the mentioned screens.
2	475	Unable to Print EULA during installation	During the installation of CubeVue, when an attempt to print EULA is made, it gives an error message "The file could not be found".	The EULA can be printed if the radio button "Agree with terms and conditions" is selected. The user still has option to proceed further or abort the installation after printing the EULA. Also, a shortcut is placed on the desktop after the completion of install process which can be used to print.
3	484	Inclusion of CV user manual along with install package.	The inclusion of "CubeVue user manual" along with Install package, so if the installer + patient series goes to other doctor via any Media (CD/DVD etc.); the other doctor may use the help/manual if needed.	The user can contact technical support for help. CubeVue video lectures are also available on Curvebeam website.
4	485	Giving an option for opening help/user manual from within the CubeVue.	There should be an option to open the help/user manual from within the CubeVue.	The user can contact technical support for help. CubeVue video lectures are also available on Curvebeam website.
5	560	Keyboard control keys	Demonstration of a mouse controlling (in SolidWorks) the pan, rotation & zoom by of a 3D object: 1. Rolling towards the user to Zoom in, away from the user to Zoom out, 2. Press down on the roller and hold (middle button) to Rotate 3. Press and hold Control key while pressing down on the roller (middle button) to Pan. This functionality can always be there & left up to the user whether or not to use it	There are separate buttons on the ribbon menu bar to perform all the mentioned functions.
6	708	3D frame sequence saved to patient folder does not appear on Media export tab.	A video file containing 3D frame sequences can be saved to patient folder but does not appear on Media Export tab if user want this file to be saved to a media.	There is a method in CubeVue which allows video file to be saved to a desired location on the computer which can be manually burned to media.
7	715	DICOM export gives error -6 with datasets acquired with ACQ version 'prior 1.4.0.6.'	DICOM export gives error -6 with datasets acquired with Acquisition software version "prior 1.4.0.6".	Entering the Patient name, Patient ID and description on the "DICOM export" dialog box allows data to be exported. Anonymizing the patient data also allows it to be exported.
8	776	Saving Segmentation in sessions	Segmentation can't be saved in sessions. Also, 'reset session' option resets everything except segmentation.	Segmentation can be drawn on the image again after reload of dataset. The dataset can be reloaded to reset the segmentation. Also, there is a dedicated button to Reset the segmentation which can be used.
9	777	Some un-used ribbon menu items when viewing screen-save series	When viewing a ScreenSave series, there are some ribbon menu items which are of no use in case of ScreenSave series, for example, (XYZ R) Rotate, Cut Planes, Reset Slabs. These may be disabled when loading a ScreenSave series.	Does not affect the functionality of software and

Item	Issue ID	Summary	Issue description	Suggested Workaround
10	794	Zoom to fit on Full screen 3D image	It is a zoom to fit issue when viewing full screen 3D image. To get this issue: 1. Load a dataset & double click on 3D image to make it full screen. 2. Rotate 3D image beyond certain degrees (this exact value is not known but rotate is by approx. 45 degrees to immediately view this issue). 3. Hit F button from keyboard to Zoom-to-Fit. 4. 3D image becomes small. Same is applicable for 3D tab as well.	One more click on F button is required to view Zoom-to-Fit image.
11	816	Sync. Series / Render scaling @ ABS when changing offset it applies more offset to one dataset than the other one.	When two datasets are loaded side by side and we want to sync their Offset via slider, one image has more changes compared to other. The difference is more drastic is used ++ or -- buttons to change the offset.	Click on 'Now' button to have the same Offset after the changes are made via slider or ++ or -- buttons.
12	823	Remove Measurement does not work on some of Insta-X images in first attempt.	If several measurements are drawn on all the Insta-X images, then removing these measurements one by one may not allow the removal of some measurements in first attempt.	The measurements can be removed in second attempt.
13	865	Dual screen display mode causes TALAS dialog to not appear when switched back to single screen display.	It is a Display mode related issue. When running 2 displays in extended mode and when running CubeVue in extended display, the TALAS would continue to launch in the primary display. It would then need to be manually moved to the extended display. Then when switching back to single display. CubeVue would launch as normal but TALAS would appear not to launch. Reason being it is launching in the now de-activated extended display.	Reconnect extended display and switch mode and then TALAS will appear in extended display. Move the TALAS dialog to primary display and then the TALAS would appear in primary display after de-activating the extended display.
14	879	Zoom factor is applied when scrolling through images under certain conditions.	Some images zoom automatically when scrolling through image slices in certain conditions. Open a new dataset when Radiology view direction is selected in settings. On Combined 3D/MPR tab adjust individual zoom factor of each MPR image (like zoom in the last MPR image). After this switch to MPR tab and check Sync. zoom checkbox and change zoom level of MPR images to a desired level. Now switch back to Combined 3D/MPR tab and scroll through slices, the image would change the zoom level.	The zoom level can be re-adjusted to any desired level by using Zoom button from ribbon menu.
15	881	Zooming out / Panning a screen type series image is having a cascade image effect.	The screenSave image window shows cascade effect (window within window) when Zooming out or using the Pan function.	This is a temporary effect and goes away automatically when the mouse button is released after using the Zoom or Pan function.
16	882	Screen Type loaded: Reset W/L applies a zoom factor on the image.	When the W/L is changed on a ScreenSave series followed by changing the Zoom level, performing a Reset W/L for any image applies the zoom to fit function, which is not desired.	The zoom level of the image can be re-adjusted to a desired level using the Zoom function from ribbon menu.
17	885	Axial image resets zoom when scrolling through slices.	When a dataset is loaded & it is zoomed to fit, checking 'Sync. Zoom' and then attempting to scroll through slices in any MPR image resets the zoom level of MPR images. It is applicable for Combined 3D/MPR tab and MPR tab.	The zoom level of the image can be re-adjusted to a desired level using the Zoom function from ribbon menu.
18	887	Auto Rotate explore missing one slice.	Using MPR explore function on sagittal image sometimes miss to show one slice when continuously displaying all the slices.	MPR explore function can be rotated manually to view all the desired slices.
19	888	MPR cut image does not correspond to the actual cut line drawn after making MPR cut for another dataset.	When a dataset is loaded and MPR cut image is drawn and then the cut line is moved away from the original position followed by reloading of the same dataset (or followed by loading of another dataset & then reloading same dataset), the MPR cut image may not correspond to the position it was drawn on initially.	Click on the MPR cut line brings back the image or cut line can be redrawn.

Item	Issue ID	Summary	Issue description	Suggested Workaround
20	889	No HDVR license, 3D demo image (and JPEG images if any) are displayed upside down.	If the HDVR license key is absent, 3D images are not displayed, instead a 3D demo image is displayed. This space is also used to display any JPEG images saved in patient folder. These image(s) appear upside down in the 3D tab.	Zoom to fit corrects the upside-down images.
21	890	Reset Splits displayed on series sync. controls window when User is on 3D Tab.	Since there are no split windows on 3D tab, Reset Splits function is of no use there. It should be disabled.	It is just the presence of a non-usable function on the 3D tab which does nothing when clicked upon.
22	893	Reset session (dual series) after swapping series.	When two series are loaded side by side, performing a swap series and then doing a Reset Session (on the right side dataset) displays the 'Select Dataset Anatomy' dialog box on left side.	The selection of anatomy still applies to the correct dataset.
23	894	Dual series can't be loaded side by side after unloading a study.	When two series are loaded side by side, unloading left side dataset and then going to patient list to load another series with intent to load another series side by side does not occur. Only one series load is allowed.	If both series are unloaded, two desired series can be loaded side by side.
24	895	DVC: Remove Empty Outer slices does not remove the slices beyond the sagittal posterior anatomy side	Selecting the Remove Empty Outer slices during Reformats creation does not remove all the empty slices from the posterior anatomy in sagittal reformat.	Some extra blank slices exists in sagittal reformat.
25	897	CV crashes when toggling between 3D Dataset filters without waiting for the previous filter to set	Toggling between three 3D dataset filters quickly may result in crash of CubeVue for a LFOV dataset.	It works fine if the controls are used at a normal rate. CubeVue can be started again & the same dataset can be loaded in case of a crash situation.
26	899	InstaX: Simple angle measurement on images, can't be dragged and placed into another area.	If a simple angle measurement is drawn on Insta-X images, it can not be moved from its position.	Existing angle measurement can be removed and a new can be drawn at a different desired position on Insta-X image.
27	901	Sync. Series (Rel.) - 3D images become same size when zoomed out to smallest possible zoom and then zoomed in.	Load two datasets side by side; set different zoom level for 3D images in both datasets; open sync. Series dialog box and select the Rel (i.e. relative) checkbox; zoom out any of the 3D image, both 3D images zooms out relatively which is expected but once the zoom level reaches to the lowest, both 3D images becomes same size and then remain at same zoom level when zooming in (and later on zooming out).	The rel (i.e. relative) zoom level can be set again at the desired level.
28	906	SYS- 606: failing on certain conditions JPEG Output cut off edges of the peripheral bone more than 5mm	Edges of bones are cut beyond 5 mm (the permissible limit) for MFOV (sagittal and axial cuts) when using the option Save Volume as JPEG.	There is option to save any desired slice to JPEG image using Save as JPEG option if some desired slices are not saved by Save Volume as JPEG.
29	907	Point on 3D definition editor window jumps if we try to hold & move it with mouse pointer.	When render range in 3D definition editor is modified by using any of the 4 or 5 points on render range line, the point that is moved jumps downward.	If the mouse cursor is held even after the jump, the point can be moved to a desired location to change the render range.
30	948	Save Volume as DICOM cuts off anatomy in some images when volume is rotated	If 3D or MPR images are rotated before saving the reformats, some part of the images on the edges is cut off in the output.	The amount of rotation can be decreased if there is any viewable data on the edges.
31	957	DICOM tag (0008,2218) data not viewable	The DICOM tag (0008, 2218) for anatomic region sequence is not viewable in CubeVue.	This tag is displayed properly in dcm4chee. The mentioned tag is a sequence and sequences are not parsed in CubeVue dialog display. A third party DICOM parser can also be used to view the details of this DICOM tag.

Item	Issue ID	Summary	Issue description	Suggested Workaround
32	967	Gain/Offset changes in 3D rendering image on Combined 3D/MPR tab not retained after reload of dataset	Run CV and load a dataset; change the HU offset of 3D image & close the dataset; now load the same dataset & notice the HU offset; it is retained which is fine. Change the "View Rendering Type" to something different (e.g. colorized). Now go back to original Rendering Type (i.e. CB bone); change the HU offset of 3D image & close the dataset. Load the same dataset & notice the 3D image for HU offset; it is not retained.	The offset can be changed to a desired value using the HU slider bar.
33	979	Value of available RAM displayed in CV have a dot instead of comma even for French and German	When French or German is set as the system language, CubeVue displays the available RAM with a dot between the numbers (like X.X GB instead of X,X GB).	This does not affect the usage and functions of CubeVue.
34	981	New install of CV does not actually enable the Customer Experience Program if accepted during install.	If CubeVue is installed on a fresh or new computer, Customer Experience Program is not enabled even if accepted during the install process.	There is option to enable the Customer Experience Program from CubeVue Settings which can be used after installing the CubeVue.
35	988	With InstaX disabled, RESET Session from 3D tab or MPR tab presents the Select anatomy Dialog off center.	If Insta-X images are disabled from Settings, then performing a reset session from 3D tab or MPR tab presents the Select dataset anatomy dialog box off center.	The dialog box is present within the viewable area of computer screen and the desired option can be selected.
36	990	Unable to Export/Send/Save to Local the DICOM RDSR	RDSR (Radiation Dose Structured Report) can not be Exported, DICOM Send or Saved to local.	It can still be viewed from Remote tab.
37	997	CV - Settings box, click top X, changes remain in Settings box (not cancelled) for language	Change the language in Settings box, it changes the language of Settings dialog box right away. Now if the dialog box is closed by using X in upper right corner, the language in Settings dialog changes but rest of CubeVue displayed the previous one.	The language can be changed in Settings dialog and instead of X clicking on OK or Cancel accepts or rejects the changes appropriately.
38	999	The distance between the point of click vs point drawn varies between ~2 mm to ~7 mm on 3D image	If a measurement is drawn on 3D image, the point of click versus the actual placement of point varies by 2 to 7 mm on 3D image.	The point of click can be offset by user manually.
39	1007	CV Accession Number Search only matches exact number, not partial	The search for patients via Accession Number does not work as the Patient Name or ID search works. For Name and ID the search starts as soon as a single letter is typed, but Accession number search need all the characters to be filled in followed by press of Enter button on keyboard.	Accession number search function works fine when all the characters are filled in and Enter is pressed on keyboard.
40	1009	Two datasets loaded side by side - Saving Axial image on 2nd dataset results in saving of 3D image in certain condition.	Load two datasets side by side; on Combined 3D/MPR tab, zoom in axial images of both datasets by Double click on both axial images; click on left side axial image and Save JPEG image (either to custom or patient folder); click on right side axial image and Save JPEG image (either to custom or patient folder). For the right-side dataset, instead of axial image 3D image is saved.	One more click on right side axial image selects the axial image (as confirmed by the highlighted red boundary) and the desired image can be saved.
41	1013	Red dots are missing in MPR cut for angles/HU/distance measurements	In MPR tab, when MPR cut is drawn on any of the MPR images, an MPR cut image appears in upper left corner. If a measurement is drawn on this image the red dots do not appear when attempted to move the drawn measurements to a different location.	The measurements can be moved as desired.
42	1034	3D tab displays fingers pointing down unlike Combined 3D/MPR tab.	For InReach Hand and Wrist datasets, 3D tab displays fingers pointing down instead of the up.	Orientation markers are displayed fine. 3D tab displays the fingers up if A/P view direction button is clicked.
43	1036	"Save..." ribbon menu dropdown does not work as expected when clicked upon to access options.	When the resolution of computer screen is set to 1920 x 1080 and French Language is selected from CubeVue Settings, the click on 'Save...' dropdown does not allow selection of sub-option like other function Ribbon menu of CubeVue.	Click on 'Save...' and hold the mouse cursor and release it when on desired sub-option.

Item	Issue ID	Summary	Issue description	Suggested Workaround
44	1043	Insta-X images do not load for 2nd dataset loaded side by side.	When two datasets are loaded side by side, Insta-X images do not appear for the 2nd dataset on Insta-X tab.	Click on 'Reload Insta-X definitions' button displays all the Insta-X images for 2nd dataset.
45	1044	Right Wrist Palm down scan shows only two insta-X images when loaded instead of 3.	In some cases two Insta-X images are displayed for Right Wrist Palm down dataset instead of three.	Click on 'Reload Insta-X definitions' button' one or two times display all the desired Insta-X images.
46	1046	net cache default size of 50gb causing performance issues on load when cache full	If default size of net cache is 50 GB, it may cause delay in CubeVue load when net cache is full.	No functionality is affected.
47	1047	Create 3D frame sequence for Hand and Wrist.	When using '3D frame sequence' for Hand or Wrist anatomies, the fingers are pointing down when the 3D image rotate about Z axis.	The anatomy is displayed properly although with fingers pointing down and the required information can be obtained from the sequence.
48	1050	No 3D license: MPR images does not zoom to fit automatically when a new scan is opened.	If 3D license key is not present, MPR images do not zoom to fit automatically when a new scan is opened.	Zoom to fit button can be used if required.
49	1051	No 3D license: MPR images have fingers pointing down in Combined 3D/MPR & MPR tabs.	If 3D license key is not present, MPR images in Combined 3D/MPR tab and MPR tab displays the InReach hand/Wrist images (MPRs) with fingers pointing down instead of up.	Orientation markers are displayed fine. Reset MPR rotation button displays the MPR images as desired (i.e. with fingers pointing up).
50	1052	CubeVue crashes if two Screen series are opened & unloaded one after other after opening CubeVue.	When a new instance of CubeVue is started and same or two different Screen series are loaded and unloaded one after other, CubeVue may crash.	CubeVue can be started again and desired ScreenSeries can be loaded after the crash.
51	1053	Name of Left Elbow Insta-X image "AP Left" should be updated to "Left Elbow A/P" to maintain the consistency with other anatomies.	Name of Left Elbow Insta-X image "AP Left" should be updated to "Left Elbow A/P" to maintain the consistency with other anatomies.	This issue is for better consistency of words but still convey the correct words.
52	1054	For both hands dataset, name of "Both Hands" Insta-X image may be updated to "Both Hands A/P" for better clarity.	For both hands dataset, name of "Both Hands" Insta-X image may be updated to "Both Hands A/P" for better clarity.	A single Insta-X image is displayed for Both Hands dataset which is A/P; no other Insta-X image is applicable.
53	1057	Click on Reset MPR rotation for Left Hand Palm Up scan changes the orientation (i.e. presentation) of MPR images.	Run CV and load "Left hand Palm Up" dataset; 3D and MPR images appear fine on Combined tab; click on "Reset MPR Rotation" button; MPR images changes the orientation 180 degrees about Z axis. In other words MPR images becomes same as if Sync. 3D/MPR Rotation checkbox is checked & P/A button is pressed under 'View Direction'.	Orientation markers are displayed fine. Click on sync. 3D/MPR rotation button when 3D image is in default orientation corrects the orientation of MPR images. Reset Session option can also be used to correct the orientation.
54	1068	"Select dataset anatomy" dialog box too narrow for French language	French text does not fit in the "Select dataset anatomy" dialog box for pedCAT datasets.	All the options are displayed completely.
55	1069	French language: Settings drop-down does not display complete text for 'Rebuild database' option.	Rebuild database' option in Settings drop-down is not displayed completely. Some text is missing.	Icon and partial text sufficient to identify the function. Here is the screenshot in French for the "Rebuild database" (2 nd option highlighted) for user reference: 

Item	Issue ID	Summary	Issue description	Suggested Workaround
56	1070	French language: Save as JPG dialog box does not display complete text.	Text in 'Save as JPG' dialog box is not displayed completely (some text does not fit the screen) when French language is selected from CubeVue Settings.	The dialog box can be resized to read the complete text.
57	1079	Reverse correlation for New LP Water Phantom scan acquired from CBtoolshed	1. Load a new LP water Phantom scan acquired from CBtoolshed (delete session file if it was already opened). 2. While in Combined 3D/MPR tab, move red correlation line from sagittal/coronal image to see the correlation in axial image. It is reverse. Similarly green and blue lines also perform the reverse correlation.	Only affects the scan after QA has been performed in CB-ToolShed. Only an issue on Combined tab. It works fine in MPR tab.
58	1084	Sync W/L and Zoom will autocheck box on user w/ 2 series open.	When user has 2 series open. If in one of the series the "Sync Window/Level" box is checked, when you move to the other series, the W/L check box becomes checked in the 2nd series as well w/o user checking it. The same behavior is exhibited for the "Sync Zoom" check box.	The checkbox can be unchecked manually for the dataset not required.
59	1085	CV - AP and PA can be displayed upside down in 3D window on MPR; Flickering images while changing view direction	When changing to select PA (or AP) there is sometimes a flicker of an upside down version of the PA and AP images or even up to a couple different images displayed, then the correct orientation is displayed. And other times, the incorrect (upside down) image remains as the image displayed to the user as the PA (or AP) image.	One more click on the desired view direction (A/P, P/A etc.) button corrects the image display.
60	1086	Distance and angle measurements on 2D image are displaced to right after reloading 2D image	1. Load a 2D image. 2. Draw distance and/or angle measurement at a desired location within image. 3. Unload the 2D image. 4. Load the same 2D image & notice that the measurements are displaced to the right.	Measurements are disabled for 2D scans in latest version of CubeVue (3.6.0.3).
61	1090	Size of image Window reduces after every load-unload for 2D scans	1. Load and unload a 2D scan few times. 2. Notice that the image window which displays the 2D image (i.e. upper right image window) reduces in size with each unload.	Size can be manually changed to desired if needed. Double click on image to view it full screen.
62	1092	2D scans displayed as Raw type in CubeVue series list.	In series list on Remote Tab of CubeVue 2D scans are displayed as "Raw" type.	2D scans can be identified from Series Description, where DX is used.
63	1096	RDSR appears as SDR in Type column.	When viewing InReach scans in CubeVue, the RDSR Scans are listed as Type "SDR" should be Type "RDSR".	SDR here stands for Structural Dose Report and RDSR stands for Radiation Dose Structured Report. No workaround required as such.
64	1097	Measurements on Insta-X are not retained after upgrade or normal reload of datasets.	When a dataset is reloaded after drawing few measurements on Insta-X image(s), these (measurements) are not retained. Similar results were obtained when upgrade from CV 3.3.0.7 to 3.4.0.10 was performed, i.e. datasets that had measurements on Insta-X drawn in 3.3.0.7 and then opened in 3.4.0.10 didn't display measurements on Insta-X image(s).	Insta-X measurements can be drawn manually when needed.
65	1104	3D image area after Invert segmentation does not look as clear.	1. Run CV and load a dataset. 2. Select Free Hand Erase or Remove bone option. 3. Erase/Remove a bone area/bone; the desired area is hidden (which is as expected). 4. Click on Invert Segmentation; the earlier hidden bone/bone area is displayed back, but it does not appear as clear as it was at the time of removal. 5. Click on Invert Segmentation again; first time removed area is hidden again but some remnants of removed area are displayed which were completely removed initially. The same results were obtained using "Undo Last" option.	The clarity is still sufficient to identify the objects in the anatomy.

Item	Issue ID	Summary	Issue description	Suggested Workaround
66	1105	Some Cuts verbiage isn't translated into German and French.	The pulldown Cuts menu has 3 items that weren't translated from English. They are "Free Hand Erase", "Remove Bone", and "Undo last Free Erase". They are however translated on the left menu bar.	These options are translated properly on the Tools and Settings tool bar on the left side.
67	1107	Insta-X for InReach Ankle dataset displays only one Insta-X image	Sometimes all Insta-X images are not displayed in the first attempt. It was first noticed for Ankle dataset acquired from InReach but not limited to this dataset.	Click on Reload Insta-X definitions button once it is enabled & both the Insta-X images are displayed. Later on both the images are displayed every time.
68	1108	Create 3D frame sequence: 'Compress Output' checkbox should be invisible for videos.	'Compress output' checkbox is available for all the Output options i.e. 'DICOM', 'Save to patient folder' and 'Save to custom location'. This checkbox is applicable only for DICOM output. The last two options are for generating videos and the availability of checkbox for these two options could be confusing.	Output in case of 'Save to Patient folder' and 'Save to custom location' is not affected whether the 'Compress output' checkbox is checked or not.
69	1109	Segmentation does not work if 3D dataset filter is changed while using segmentation tools	<ol style="list-style-type: none"> 1. Run CV and load a dataset; by default Normal 3D dataset filter is selected. 2. Select 'Free Hand Erase' checkbox under Segmentation. 3. Draw an area on 3D image; it works fine. 4. Change the 3D dataset filter to Sharp/Smooth. 5. Use the Free Hand Erase option; it does not work. 	Reload the dataset & segmentation starts to work again.
70	1110	Insta-X images saved as pure DICOM on local machine do not appear good	<ol style="list-style-type: none"> 1. Run CV and load a dataset. 2. Go to Insta-X tab and click on DICOM Send button. 3. On the DICOM Send dialog box select "Save as pure DICOM" checkbox. 4. Also select "After successful send also save the output locally" checkbox. 5. Click on Start. 6. Open the locally saved Insta-X images in CubeVue; these does not appear good. 	Saving of Insta-X pure DICOM images as local series is currently disabled; they can be transferred to remote location only. These appear good in third party DICOM viewers (tested on ClearCanvas and Radiant).
71	1111	Pure DICOM Insta-X not appearing in local series list randomly for some datasets, when Save to local option is checked.	<ol style="list-style-type: none"> 1. Run CV and load a dataset. 2. Go to Insta-X tab and click on DICOM Send button. 3. On the DICOM Send dialog box select "Save as pure DICOM" checkbox. 4. Also select "After successful send also save the output locally" checkbox. 5. Click on Start. 6. Make sure Completed is displayed as status & close the DICOM Send dialog. 7. Go to patient list & check if new Screen Series appears under the patient name. It does not appear in the list. 	Saving of Insta-X pure DICOM images as local series is currently disabled; they can be transferred to remote location only.
72	1115	2D scans can not be DICOM exported.	Some of the 2D scans acquired with older version of ACQ and Recon can not be DICOM exported.	DICOM export works fine with latest version of ACQ and Recon (tested on KCQ 1.2.0.2 and Recon7.4.0.1).
73	1116	2D scans display the zoom level toggling between options 'Zoom to fit' and 'Reset zoom' when opening.	Sometimes the 2D appear as 'zoomed to fit' and on 2nd or 3rd load it appears as if the zoom level is 'reset'.	The zoom level of image can be set to desired level after load by using 'zoom to fit', 'Reset' or manually changing it using 'Zoom' option from ribbon menu.
74	1117	TALAS database save dialog appears twice	After selecting to export a database, selecting a filename, and saving successfully, a second dialog box with the title "Select Research Export Filename" appears. If the user choses to add in a filename, an error message that the file is open and cannot be written to will be displayed.	The second box that appears can just be cancelled and there is no change to the already saved file. If a filename is entered in 2 nd box, the warning message can be closed by selecting "ok" with no ill effect.

Item	Issue ID	Summary	Issue description	Suggested Workaround
75	1118	2D scans Imported or copied to Local does not display the image with good quality.	<ol style="list-style-type: none"> 1. Import a 2D scan to local tab or perform 'Copy to Local' from Remote tab to local tab. 2. Load this 2D scan from Local tab. 3. The image quality is degraded. 	2D scans are displayed fine in Remote tab and third party DICOM viewer (tested on Radiant and ClearCanvas).
76	1119	2D scan changes series type from 'Raw' to 'System' when Imported or copied to local	When a 2D scan is imported to local series list, it is displayed as type 'System' whereas it is displayed as type 'Raw' in Remote tab.	2D scans can be identified by the series description ("DX" word is used in the series description). Also Show System Dataset' checkbox need to be checked in CubeVue Settings\Options to have the type 'System' displayed in series list.
77	1120	2D scan does not appear good quality in Remote tab in certain scenario.	<ol style="list-style-type: none"> 1. Run CV and go to Remote tab on patient list. 2. Select a 2D scan and perform 'copy to local'. 3. The same 2D scan now appears in local tab as well. 4. Load the 2D scan from local tab; the image quality is not good as mention in bug 1118 above. 5. Now load the same 2D scan from Remote tab; the quality of this scan is not good (it is similar to what was displayed in 2D scan from local). 	On the remote tab, unload the 2D scan & load a different scan (2D or any other type) and re-load the earlier 2D scan, now it will be displayed as expected.
78	1126	Sometimes 3D and MPR images do not appear after loading a dataset.	Sometimes 3D and MPR images do not appear after loading a dataset.	Images appear fine after Reset Session.
79	1127	There are blank slices in Sagittal view when using JPEG Stack creation.	Some blank slices in Sagittal view remains when using JPEG Stack creation function (i.e. option Save Volume as JPEG).	The un-desired slices can be removed manually.
80	1130	Hide List (timeout) does not apply to DICOM Tags.	When "Show DICOM Tags" is selected, the Hide List never hides that information after the set timeout.	Show DICOM tags maybe closed manually after viewing the information. Alternatively the computer may be set to show screensaver after a desired time of inactivity.
81	1131	Export DICOM not allowed if there is blank space at the end of ID in ID field on Study exporter dialog.	<ol style="list-style-type: none"> 1. Run CV and select a patient from patient list. 2. Select a Recon series from the series list. 3. Click on Export DICOM button from ribbon menu. 4. On the Study Exporter dialog, check the Replace dataset identity checkbox. 5. Select the 'with the following text' radio button. 6. Enter Name, ID and Study description. 7. Leave a blank space (using space bar on the keyboard) at the end of the ID field. 8. Click on Start button; Status bar displays error message. 	Blank space at the end of the ID field can be deleted manually and the DICOM export proceeds as desired.
82	1134	Default W/L of 2D (DX) images	With the default W/L (which is 3000/50) 2D scans (or DX images) appears bright.	Window/Level can be changed manually to a desired value.
83	1135	Grayscale appears inverted for 2D images by default	When 2D images are initially opened, the grayscale is inverted from what was expected.	Window/Level can be changed manually to a desired value.

Item	Issue ID	Summary	Issue description	Suggested Workaround
84	1136	Elbow Palm down position on In Reach data set doesn't represent the correct orientation markers.	Examined orientation markers on the left elbow-palm down (<= 45-degree rotation) and the orientations are not correct. The reconstructed sagittal should represent A-P-F-H, however the sagittal shows R-L-F-H. Same issue for Coronal plane. This set up is tested on 3rd party DICOM viewer (ClearCanvas) and the Orientations are presented correctly in double letters.	It is because of the rotation of anatomy in Elbow Palm down configuration. The orientation markers are displayed correct when the MPR images are rotated slightly more than the default or by clicking on A/P button with 'Sync. 3D/MPR Rotation' checkbox on Tools and Settings side bar. Orientation markers in third party DICOM viewer are displayed by double letters in this case and are correct.
85	1137	HU Values (Ar, SD, M) change slightly when dataset is reloaded.	When HU is measured, then scan is closed and reopened, the HU values will change very slightly. But if reopened a second time, values remain the same.	Adjust the HU shapes to ensure value is accurate when utilizing data.
86	1138	When an Insta-X image is de-selected, the other Image that comes in its place also attains the W/L of this new place.	1. Run CV and load a dataset. 2. Go to Insta-X window. 3. De-select, for example, 2nd last Insta-X image. 4. Insta-X image windows on Insta-X tab now reduces by one number. 5. Last Insta-X image goes to the place of 2nd last Insta-X image which is fine, but last Insta-X image also attains the W/L of this second last window.	W/L can be reset, using the "W/LSettings\Reset" button from ribbon menu. Alternatively, Insta-X images can be Re-loaded using Reload Insta-X Definitions or W/L can be adjusted to a desired value manually.
87	1140	Insta-X for Left or Right Knee (or Foot) scans from LineUP displays both the knees (or feet) where a left or right is expected.	1. Run CV and load a Right Knee scan. 2. Go to Insta-X tab and notice that image window (e.g. Right Knee Oblique) displays both the Knee scans. This is because both the knees are scanned in LineUP even if Left or Right is the anatomy of interest. Similar is applicable for foot scans if both feet are scanned even when the anatomy of interest is one of those.	The information of both anatomies is present in Insta-X images. More detailed information can be obtained/confirmed from MPR images. MPR images can be transferred to Insta-X page as well.
88	1141	DICOM tags window is not displayed if attempted to open from Insta-X tab.	If DICOM tags window is attempted to open from Insta-X tab, it does not open.	It can be opened from Combined 3D/MPR, MPR and 3D tabs.
89	1144	3D definition render range check boxes don't correspond to the actual lines displayed	When using 3D Definitions feature the editor window opens with only "Range 1" checked under Render Ranges by default. Select, Range 2, 3 and 4 and make sure they are not overlapping. Deselect Range 4, 3, and 2. when deselecting Range 4 the line that was associated with Range 1 disappears. Checking Range 4 again the first default line (range 1) shows up.	All the lines are still there and can be used as desired to get the desired result. Reset to original or reset to start options can be used in case of any undesired result.
90	1145	Translation of ensuring Monitor quality and ambient light related text needs to be translated to French	When the language in CubeVue is set to French, the text related to ensuring monitor quality and ambient light conditions (displayed on splash screen) is not translated to French.	Customer may contact CurveBeam customer care if the text on Splash screen can not be interpreted. No other CubeVue functionality is impacted due to this.
91	1151	Autobuilt may be replaced with Insta-X when sending to remote.	Send Insta-X image(s) as pure DICOM to remote Location; the text "Auto Built" appears on the remote location instead of "Insta-X".	Insta-X images can be identified clearly by viewing.
92	1157	Rotation of VOI rectangles reset automatically if their size is changed.	Open VOI window by clicking on VOI button on the ribbon menu. Rotate any of the VOI rectangles on MPR images. Click on X+, X- etc. button to change the size of the VOI rectangles on MPRs. Notice that the rotation of VOI rectangles is reset.	After changing the size, the rotation can be performed again.

Item	Issue ID	Summary	Issue description	Suggested Workaround
93	1158	For reformats opened in CubeVue, slab thickness is displayed equal to voxel size.	<ol style="list-style-type: none"> 1. Run CV and load a PedCAT or LineUP dataset. 2. Open DICOM Volume Creation window using the Save.../Save Volume as DICOM option from ribbon menu. 3. Create reformats with reformat ratio greater than 1x (e.g. 5x). 4. Open the Reformats in CubeVue and notice that the Slab Thickness overlay on MPRs; it should be equal to the value of Voxel Size multiplied by the reformat ratio. This value is correctly displayed as Slice thickness in DICOM tag (0018, 0050). 	Third party DICOM viewers also displays the correct value.
94	1159	Minimize, maximize and close buttons sometimes disappear on CubeVue.	Sometimes 3 buttons (Minimize, maximize and close) in upper right corner are not visible.	These buttons are just hidden but present there which was confirmed by closing and minimizing by taking the cursor to the button's location by estimate and clicking. Hint labels also appear for these buttons which confirms that the position of cursor is as desired.
95	1160	Some part within metal area in case of reformats appears black.	<ol style="list-style-type: none"> 1. Run CV and load a LineUP dataset having some metal in it. 2. Create reformats with higher reformat ratio (15x, 10x, 5x) and DICOM Send to third party DICOM viewer. 3. Notice that the metal part shows some middle part black. 	Anatomy remains unaffected and appears fine.
96	1161	Reformats created from rotated 3D and MPR are not in the correct plane.	<p>When sagittal reformat is opened, the sagittal foot is displayed in the top right window and same scenario for coronal foot.</p> <p>Expectation: axial image is always displayed on the top right window, sagittal image is on bottom left window and coronal is on bottom right window regardless of the type of reformat.</p>	Reformats are not expected to be viewed within CubeVue. Reformats are display correctly in third party viewers.
97	1162	Remove Bone option in Segmentation does not work for LineUP dataset	Remove Bone option under Segmentation does not work when used for LineUP dataset.	Free Hand Erase option can be used for LineUP datasets. Remove bone option works fine for InReach and PedCAT datasets.
98	1164	CubeVue crashes when attempting to open the green and blue rotated reformats.	<p>Steps to reproduce:</p> <ol style="list-style-type: none"> 1. Run CV and load a pedCAT dataset. 2. Make sure sync 3D/MPR rotation box is checked and rotate the 3D image (less than 45 degrees) 3. Create reformats via Save Volume as DICOM option (set the ratio to 5X or 10X). 4. Locate the reformats in patient list and try to open them one at a time. 	Reformats are not expected to be viewed within CubeVue. Reformats are display correctly in third party viewers.
99	1165	LineUP single knee- not maintaining the characteristics of true radiograph projection.	When reviewing the single knee image from LU 1.4.1.1, it was noted that the image did not look like a true radiograph projection. The Both Knee scan did look fine.	Insta-X images are not required to be of diagnostic quality, and therefore there is no risk to the patient.