

**MS Technology SureVistaVision™**

---

**SureVistaVision Platform V1.3 Reference Manual**



MS Technology Inc  
DOC-5156-02



# Notice

While MS Technology believes the information included in this publication is correct as of the publication date, information in this document is subject to change without notice.

UNLESS EXPRESSLY SET FORTH IN A WRITTEN AGREEMENT SIGNED BY AN AUTHORIZED REPRESENTATIVE OF MS TECHNOLOGY, INC. MAKES NO WARRANTY OR REPRESENTATION OF ANY KIND WITH RESPECT TO THE INFORMATION CONTAINED HEREIN, INCLUDING WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PURPOSE. MS Technology Inc. assumes no responsibility or obligation of any kind for any errors contained herein or in connection with the furnishing, performance, or use of this document.

Software described in MS Technology documents (a) is the property of MS Technology Inc. or the third party, (b) is furnished only under license, and (c) may be copied or used only as expressly permitted under the terms of the license.

All contents of this manual are copyrighted by MS Technology Inc. The information contained herein is the exclusive property of MS Technology Inc. and shall not be copied, transferred, photocopied, translated on paper, film, electronic media, or computer-readable form, or otherwise reproduced in any way, without the express written permission of MS Technology Inc.

Microsoft, MS-DOS, Windows, Windows NT, Windows 2000, Windows XP, Windows Vista and SQL Server are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

Adobe, the Adobe logo, Acrobat, and the Acrobat logo are trademarks of Adobe Systems Incorporated.

Sun, Sun Microsystems, the Sun Logo, and Java are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

Mac OS X, iPod, iPhone are registered trademarks of Apple Corporation the United States and/or other countries.

All other trademarks and registered trademarks are the property of their respective holders.

Manual Title: *SureVistaVision Platform V1.3 Reference Manual*  
Part Number: DOC-5156-02 Revision: 02

SureVistaVision Release Number: 1.3

Printing Date: June 2008

Published by MS Technology Inc. P.O. Box 471843, Charlotte, NC 28247 USA

©1991 - 2008 by MS Technology Inc. All rights reserved.



MS Technology's SureVistaVision Workstation provides DICOM Imaging Technology that makes vital functions such as viewing, rendering 2D and 3D images and annotating possible on any computer platform. Our powerful software accurately supports the DICOM file formats and is designed to increase productivity. The Software is created with the assistance of radiologists and hospitals across the country.

SureVistaVision is compatible with any PACS. It is thus ideal for cost effective and efficient initiation or expansion of your PACS, workstations or teleradiology services. First DICOM viewer designed by Radiologists for Radiologist.



## **DICOM Workstation Features:**

Multi-Platform Support (Windows XP, Vista, Mac OS X, LINUX)  
Multi Monitor Support  
PACS support  
Web Integration  
Stacking Of Images  
Cine  
Image Scroll  
Contrast/Brightness  
Advanced Zoom  
Rotate & Flip  
Imaging Filters (Edge Detection, Sharpening, Smoothing Images, Haze Removal)  
Annotations (Measurement , Angle, SureNote)  
Multiple Tools available by Mouse-Click  
Thumbnails  
Exclusive techniques for 2D  
Ultra fast Performance due to unmatched acquisition and processing speeds  
Images of importance can be starred and searched  
Cross-Reference Lines  
Advanced Multi-Planar Reconstruction  
Mpeg Video Display  
Export Images  
Print To Paper  
Quick and advanced search  
Intuitive interactive user interface  
Ideal for any teleradiology applications  
Zero Foot print  
PACS Compliant

## **Upgradeable Plugins :**

DictaVox Voice recording and transcription  
Exclusive techniques for 3D  
Molecular Imaging  
Pathology  
Cardiology  
Neurology  
Orthopedics  
Real time video acquisition  
Time lapse image acquisition

## Importing DICOM Files

The user can import DICOM files on to system from local workstation or from a local area network (LAN). The system supports a variety of DICOM files formats.

Before you can begin importing files, obtain the following information from your system administrator:

- The names of the files
- The location of the files
- The file formats

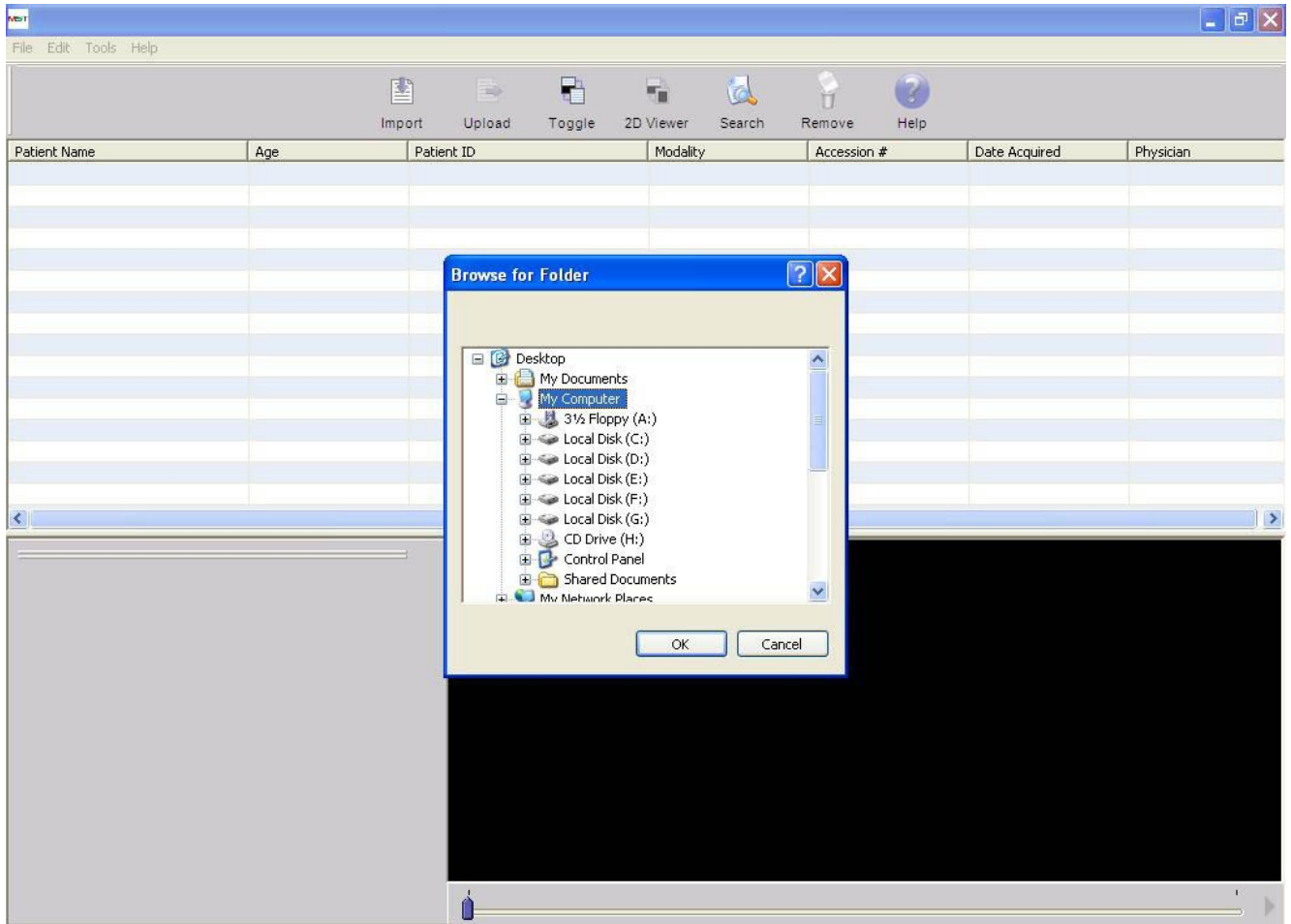
SureVistaVision supports files from following modalities: CT, MRI, X-Ray, Computed Tomography (CR), Nuclear Medicine, RF, OT, DX, MG, Positron Emission Tomography, Secondary Capture, DX, Ultrasound (US).

To import a document into the system, select **File -> Import**. OR click the Import button on the toolbar

The Import window opens. Browse to the folder where DICOM Files are kept in the local system or select DICOM DIR.

All DICOM Files will be imported to the viewer and stacked into the work list.

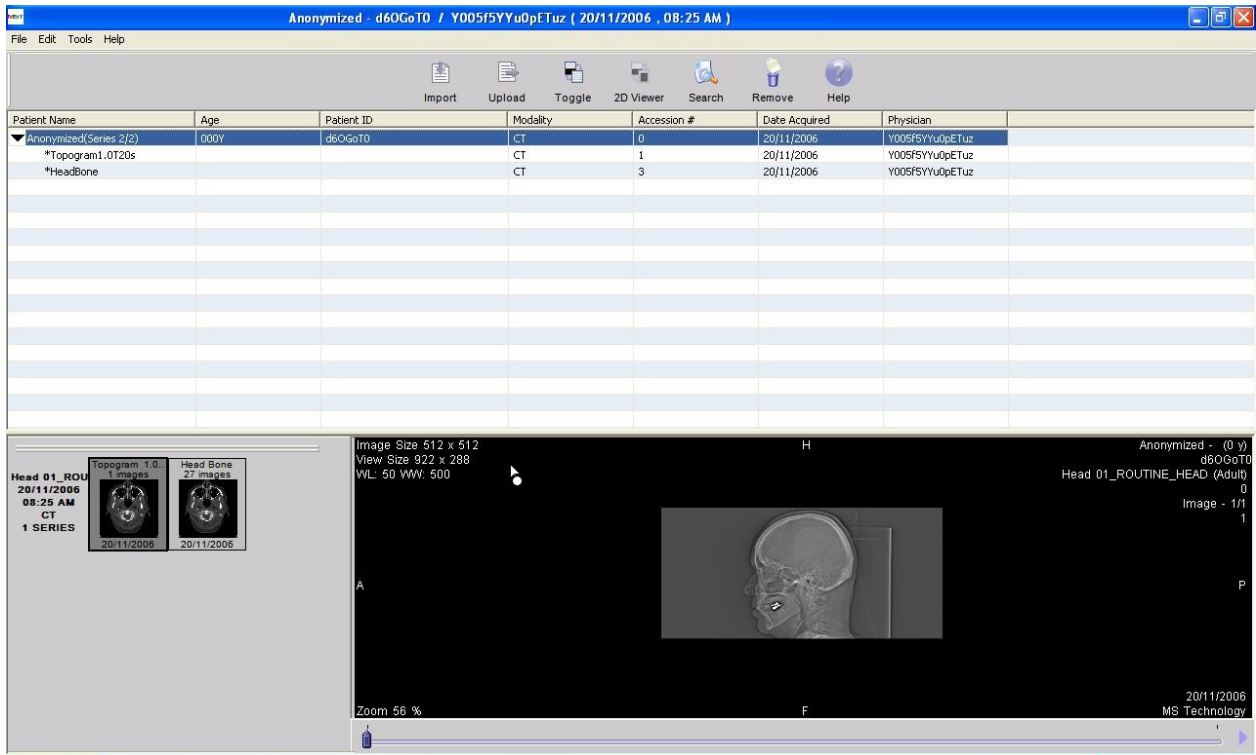
Work list is the database window which shows all information about the DICOM files.



### **Stacking Multiple Patients Data into work list.**

Work list currently displays data in the following columns:  
(i.e. Patients Name, Age, Patients ID, Modality, Accession no., Date Acquired & Physician's Name)

Each row present in the work list would display study information & on expanding the tree we would display all the stacked series present in the study.



### **Upload button to upload all study files in XML using study path**

When we click on the upload button all the data imported in the list view is uploaded in the database (currently written on XML files). Once data is uploaded we can reload that data in the list view directly from the database window.

**Toggle** Button to toggle between Database Window & List View.

**Search** Search Button to search any data.

**Remove** Button removes any series or study stacked in the list view.

**Help** Help document has been provided for the user.

## Sorting

Sorting data present in work list by any column, at study level, both in ascending & descending order, by a single click on the column header (e.g. . "Patient Name" or "Modality" etc...).

---

## Export

User can export DICOM images to JPEG , Tiff, AVI and PDF file formats .

PDA support would be added in later versions of the application.

We can write images on CD/DVD as well.

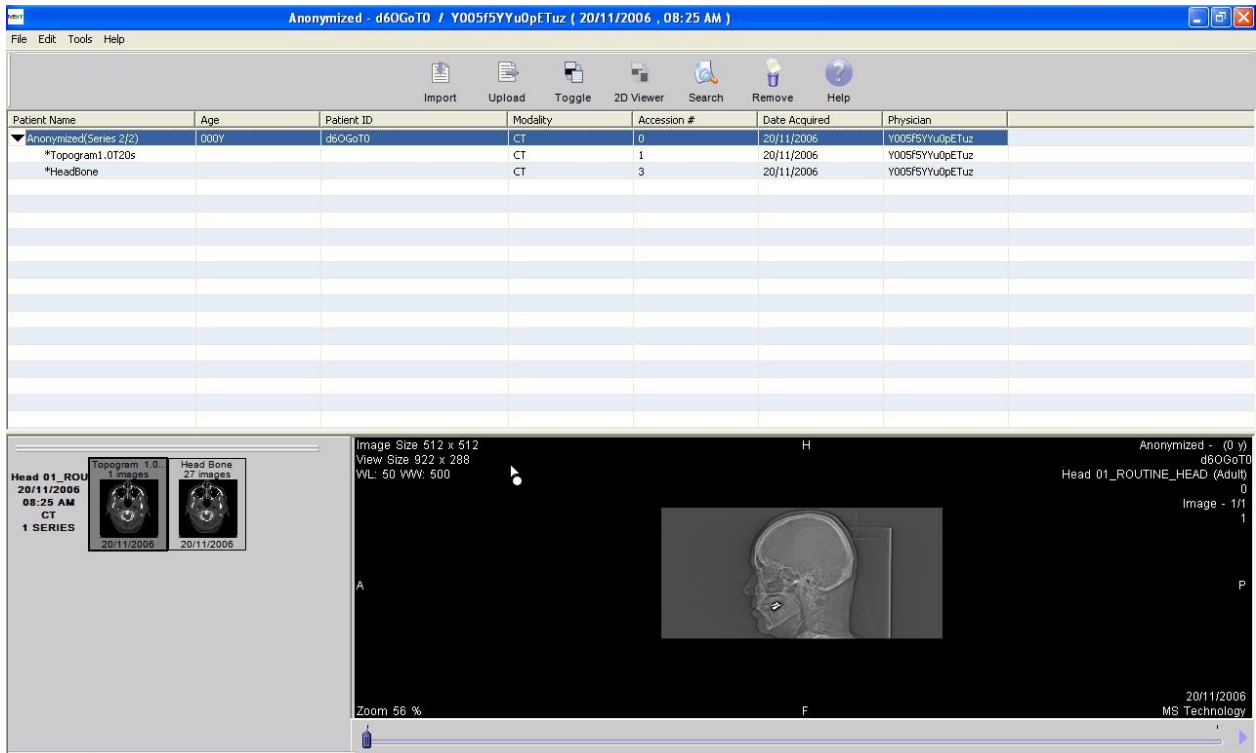
---

## Image Viewer

The Image Viewer is Synchronized with the study or series selection of the work list rows.

Image Viewer contains 3 components:

- a) **Thumbnails:** First Image of each series is displayed with information when Study is selected in the work list. And All images of series are displayed when series is selected in the work list .We can drag-drop images from thumbnails to the Image View.
- b) **Image View :** Displays data based on the selection made in the work list (i.e. Displays image data when series is selected in the work list & Series Data when study is selected in the work list).
- c) **Auto Play:** On the Bottom of the Image View is Seek Bar having play button on the right corner. On selecting the study in the list view first image of all the series is displayed in the thumbnail bar. We can drag any series from the thumbnail on to the Image View. The dragged series with all the images present in it is loaded in the Image View and auto play is enabled. As we click on the play button all the images of loaded series are displayed one by one in sequence with default speed. We can scroll images of series from the image view by using mouse scroll button or by moving the marker present on the auto play bar.



## Remove

Remove can be used for removing Study or Series from List View.

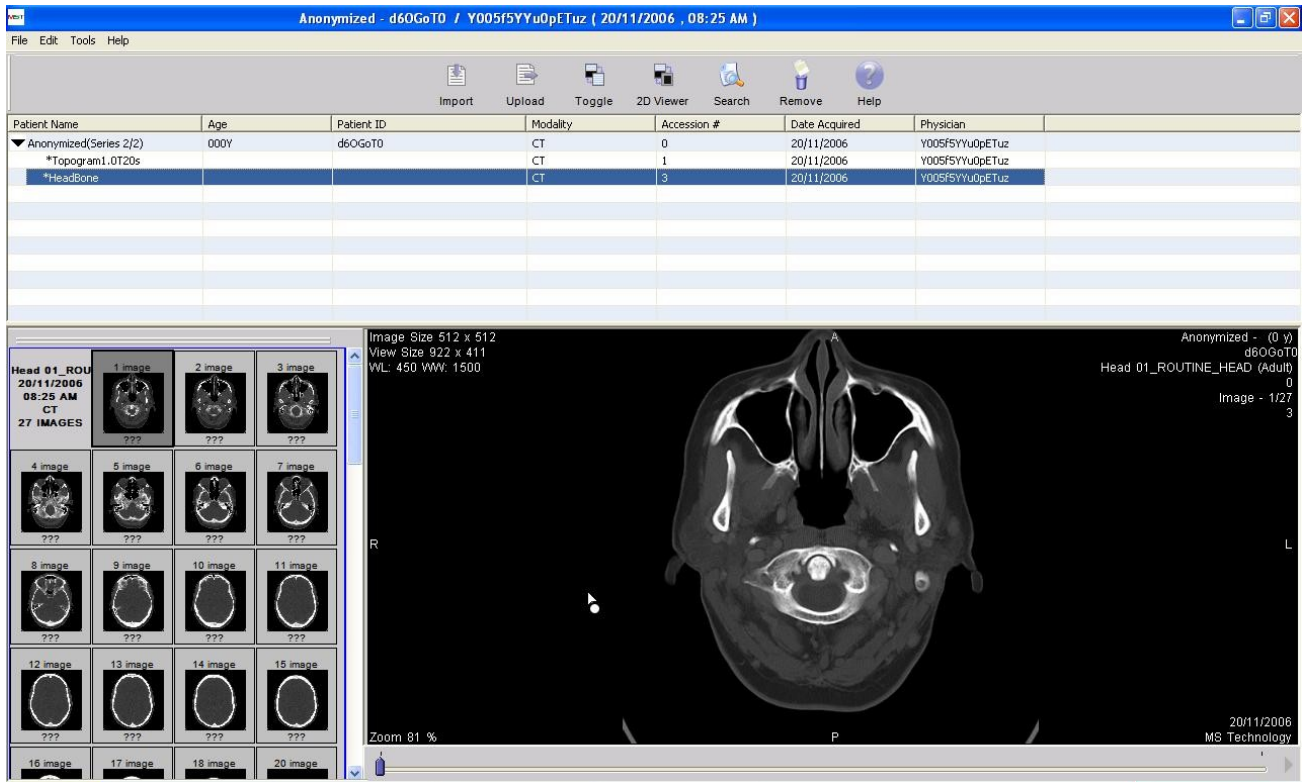
## 2D Viewer

To launch 2D Viewer on DICOM Monitor, double click of any study or series present in the work list

OR

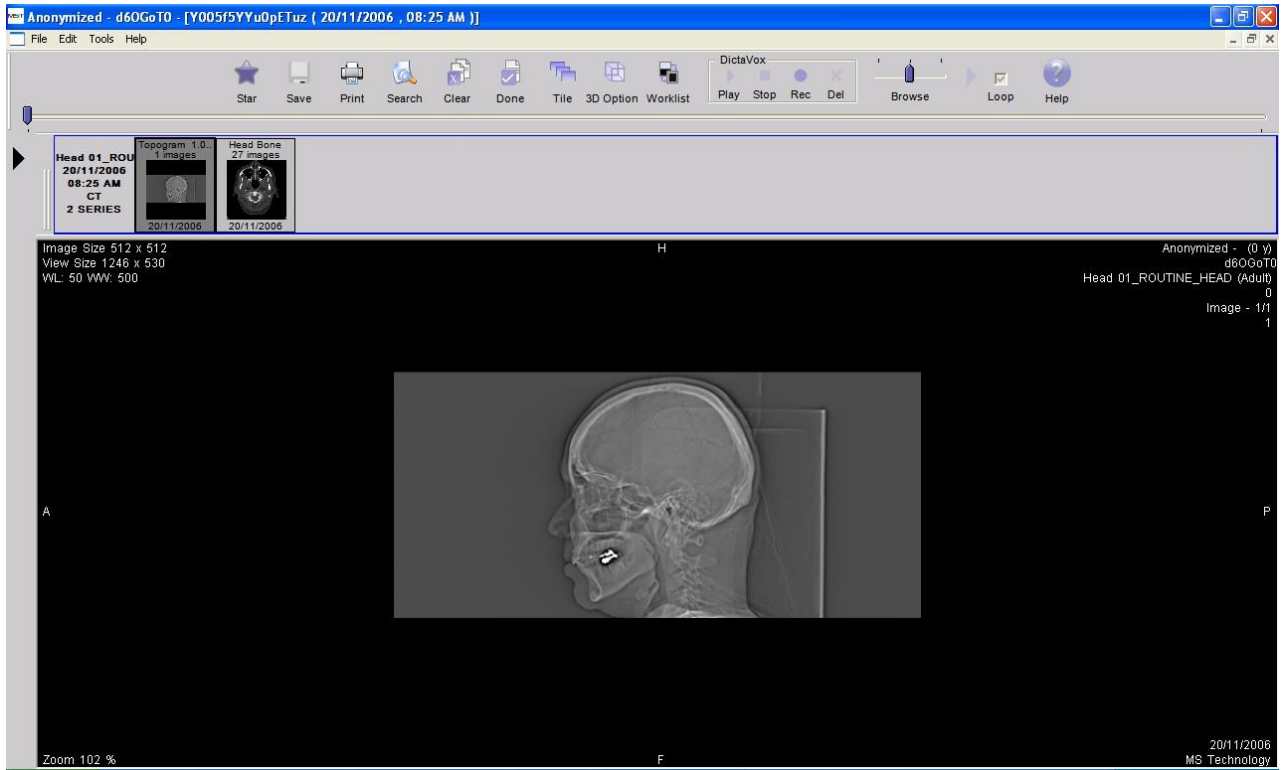
Double click on the image present in the Image View.

It would display the Patients Name, Patient ID & Referring Physician's name on the viewer window caption.



## Scenarios for launching 2D viewer.

- If we double click on any study on the list view first series of that study would be loaded in the 2D viewer and first image of all the series present in that study will be displayed on thumbnail bar.
- If we double click on any series in the list view that series would be loaded in 2D Viewer and first image of all the series present in the study to which the clicked series belongs are displayed on the thumbnail bar.
- If we double click on the image in the Image Viewer present in the list view, 2D Viewer is launched showing first image of the series to which the clicked image belongs & first image of all the series present in that study are displayed on the thumbnail bar.



**Slider control on top of the 2D Viewer for traversing images of selected series.**

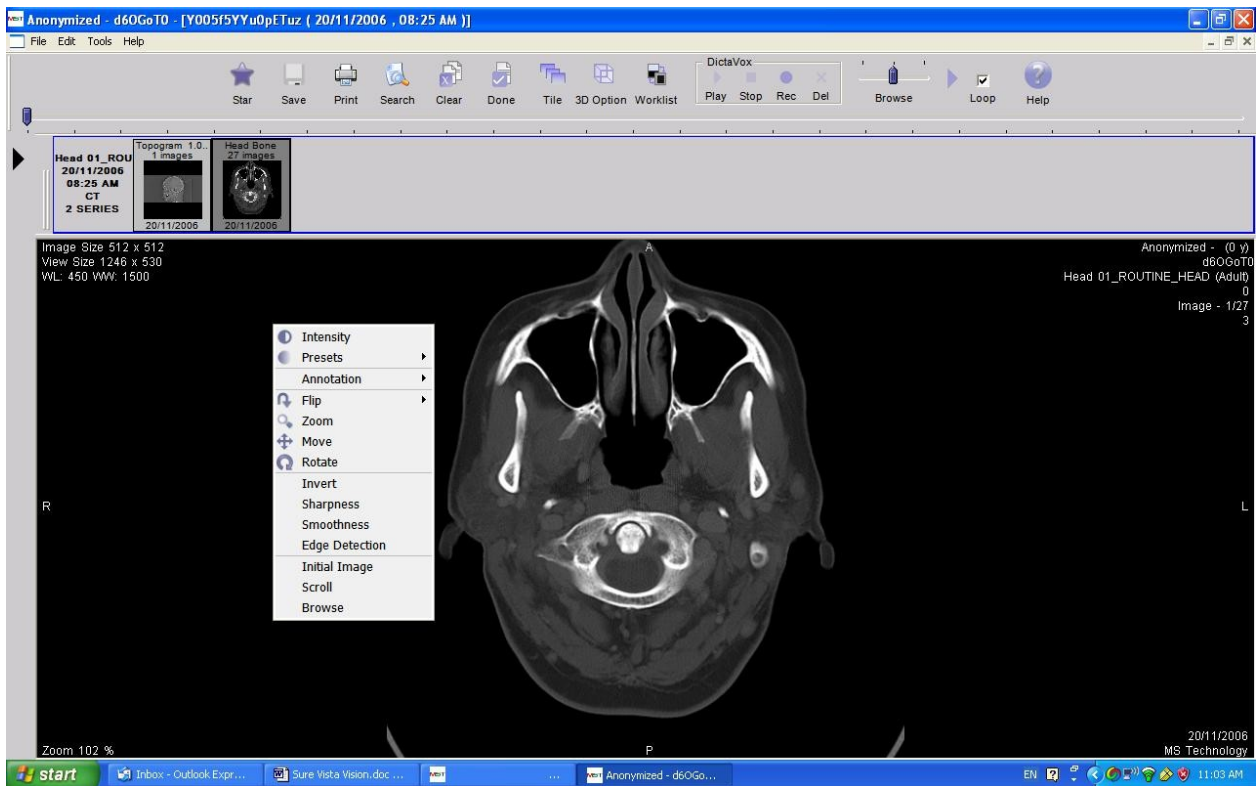
User can scroll through images for traversing images of series or use slider control to move to any image of series. The slider would work for the active window ( i.e. active study or window).

2D Viewer tiles multiple windows for enabling the doctor to compare different series.

## **Image Processing**

Following features of Image Processing are present:

- 1) **Intensity:** (Brightness & Contrast) : Applied by pressing the left mouse button and dragging it horizontally or vertically.
- 2) **Edge Detection:** Select Edge Detection from the down menu on the image, it is undone by reselecting it from the menu.
- 3) **Sharpness:** Select Sharpness from the drop down menu on the image, it is undone by reselecting it from the menu.
- 4) **Smoothness:** Select Smoothness from the drop down menu on the image, it is undone by reselecting it from the menu.
- 5) **Initial image:** The user can return to initial image after making any no of image enhancement operations.

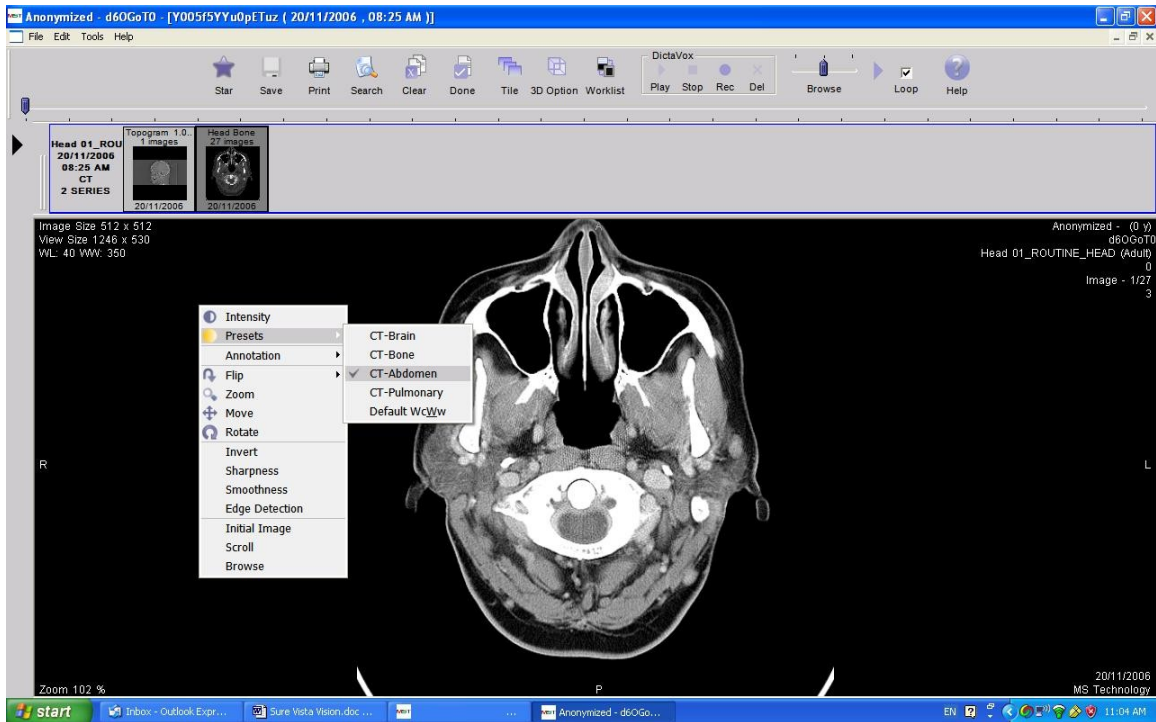


All operations are performed for the entire series and would add on to the previous operation. (i.e. User can rotate image then do Edge Detection on rotated Image etc...)

## Presets

We can use Presets for CT images. We are having 4 preset options in the popup menu on right click of the image. Presets are the predefined value of brightness & contrast on which a particular part of the image gets highlighted.

CT Brain, CT Bone, CT Abdomen, CT Pulmonary and default WcWw.

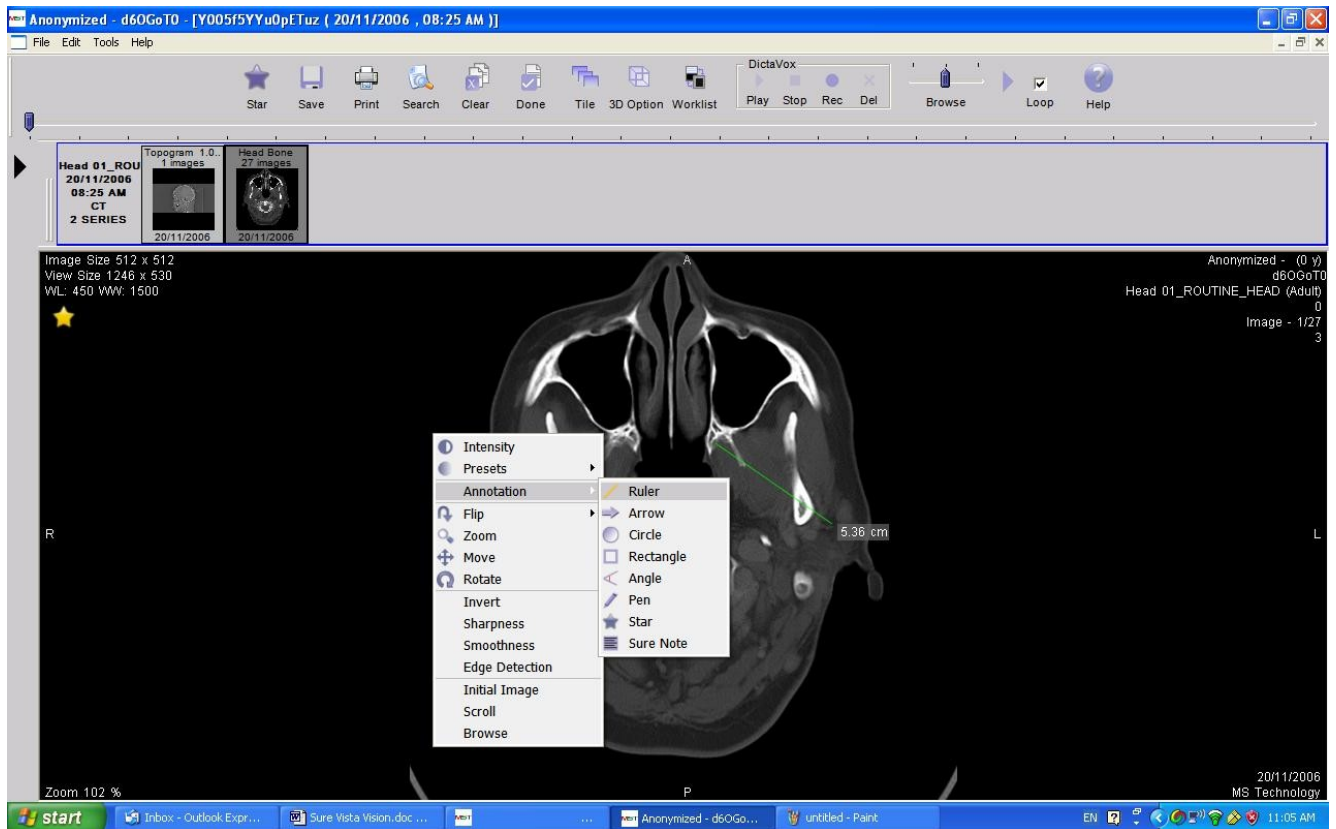


The intensity i.e. a mix of brightness and contrast is set to a pre-defined value where that type of image has a best view possible.

## **Annotating Images.**

Annotations are digitized versions of the marks commonly used on documents in a paper-based environment. For example, Pen, Circle and Text notes. Like their paper-based counterparts, digitized annotation marks are typically used to prepare documents for subsequent handling in a business process. However, digitized annotations provide additional benefits that paper-based tools do not.

Digitized annotations can be added, moved, and deleted at will. The attributes of digitized annotations (such as color, size, text, and visibility) can be readily modified.



### User can annotate images with following annotations:

- a) Pen : Used for writing some information over the DICOM Image, for example if the doctor has diagnosed the DICOM image and he wants to write some important information over some portion of the image.
- b) Rectangle : Used for highlighting a particular portion of the DICOM Image.
- c) Circle: Used for highlighting a particular portion of the DICOM Image, for example in an X ray highlighting the fractured bone part.
- d) Circle: Used for highlighting a particular portion of the DICOM Image, for example in an X ray highlighting the fractured bone part.
- e) Ruler: Used for measuring the dimension of a particular portion of DICOM Image, for example Measurement of Appendix size on an image of intestine.
- f) Arrow: - Used for pointing towards a particular portion of the DICOM Image. For example-If there is some text written over the image, arrow can be used to indicate to which portion of the image the text belongs.

- g) Sure Note: Used for writing some information regarding a particular portion of an image or for the entire image in a separate window which can be invoked by double clicking on the sticky note image. The sticky note image appears on that part of the image where the sticky note cursor is clicked.
- h) Angle: Used for measuring the Angle of a particular portion on the DICOM Image or Angle between two objects on the DICOM Image, for example Angle between two tumors on the CT scanned image.
- i) Eraser: Used for deleting annotations made on the DICOM Image.

You can also show and hide annotations, select them, change their size and location, and delete them.

### **Saving Annotations.**

Annotations created on different slides/images of series can be saved by clicking on the save button on the toolbar.

Dicta Vox : the user can make audio annotation at image level and refer to them at later stage, they can be deleted, played back again and again.

---

**Flip** We can flip the image in horizontal or vertical direction

---

### **Zooming**

When viewing a DICOM file you can zoom in or out by right click on the image and select zoom from drop down menu on the 2D Viewer.

Hold the left mouse button and drag the mouse upwards to zoom in and downwards to zoom out. Image is zoomed in or out by 1 percent.

### **Zooming Images at series level**

All Images of series can be zoomed up to 5000%. To Zoom In select the Zoom option from the right click popup menu on the image in 2D Viewer, the pointer becomes zoom icon, hold the left mouse button and drag it upwards.

To Zoom out select the Zoom option from the right click popup menu on the image in 2D Viewer, the pointer becomes zoom icon, hold the left mouse button and drag it downwards.

---

## Move

The user can select Move option from the right click menu on the image.

The pointer becomes a move icon, now hold the left mouse button and drag the mouse the image will move in the direction the mouse is moved centered at the point where it is held.

## Rotate

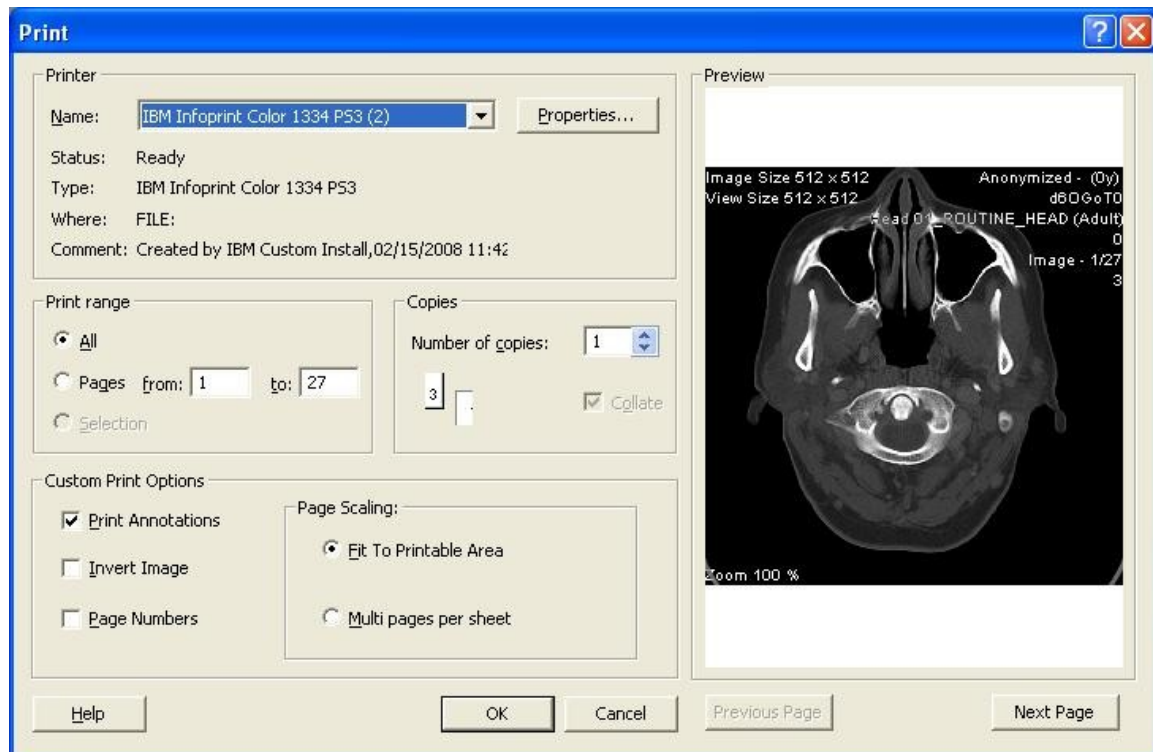
All Images of series can be rotated at any angle.

Images can be rotated to any value by dragging mouse horizontally on the image after selecting the Rotate option from the right click popup menu.

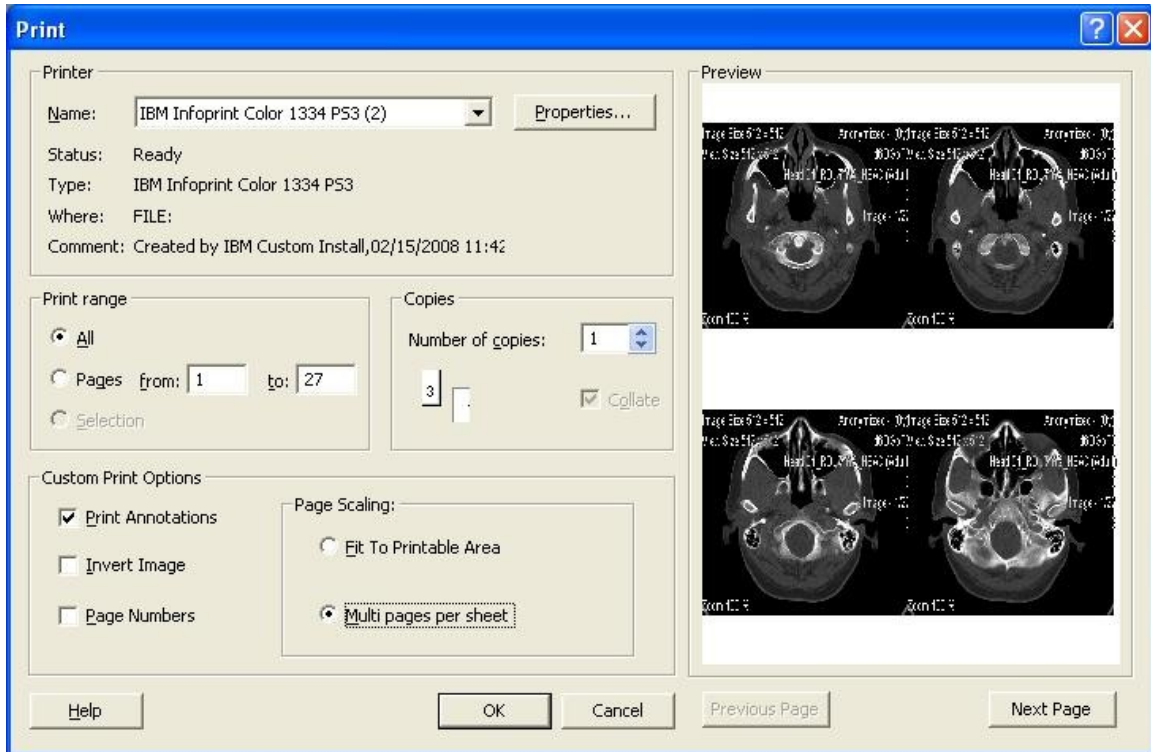
## Printing

The user can print all images of selected series in 2D Viewer.

User can Invert all images while printing, and do multi page printing, with a live preview.



By selecting the multi pages per sheet option in the Page Scaling we can print 4 images on one sheet.



---

## **Plug Ins**

We have the following plugins available with SureVistaVision:

T2 Fit Map

Invert: We can invert image by selecting Invert option from Tools menu under Plug ins

Orthogonal Re slice

Fill Gaps

---

**Invert** We can image by selecting Invert option from Tools menu under Plug-ins.

**Clear** is used to close one instance of 2DViewer while **Done** is for closing all instances together.

**Auto Play** is same as browse, which can be used to scroll though all the images of the series in a frame-by-frame view.

It has three variable speeds to choose from, slow, medium and fast.

There's option of playing the images in loop OR to and fro motion.

---

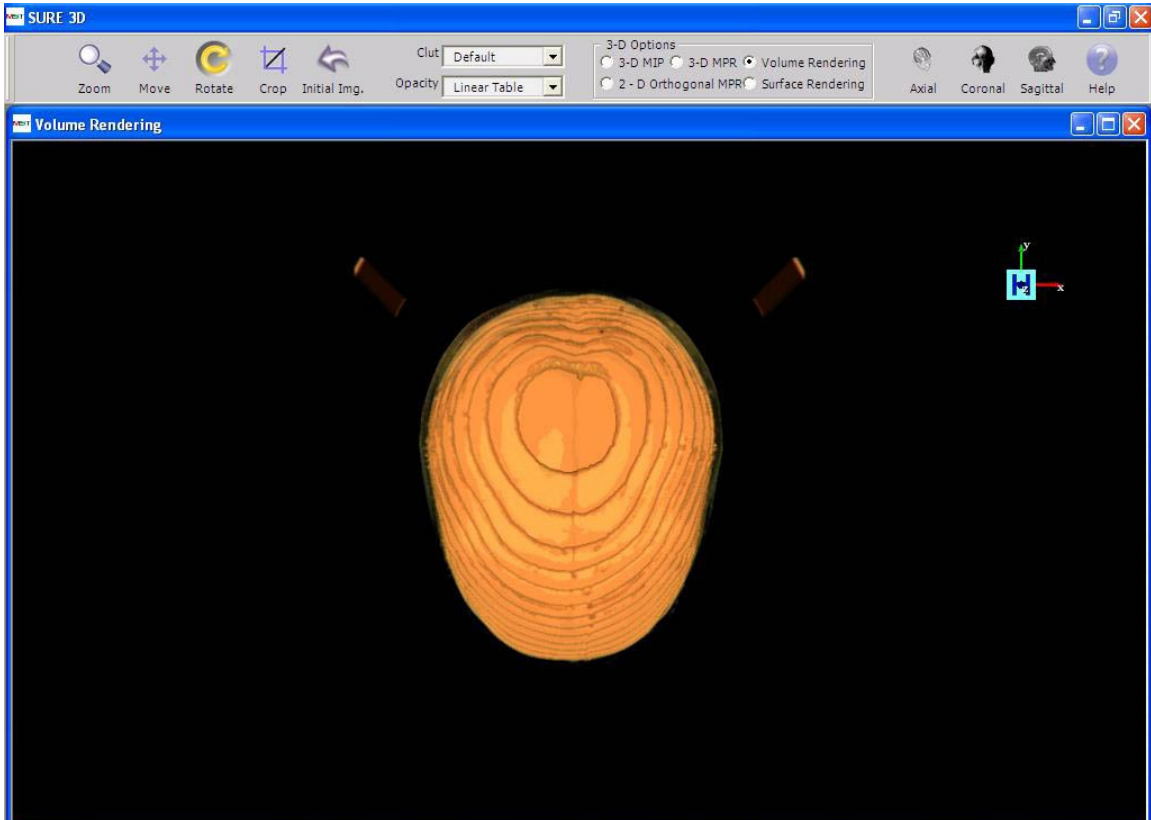
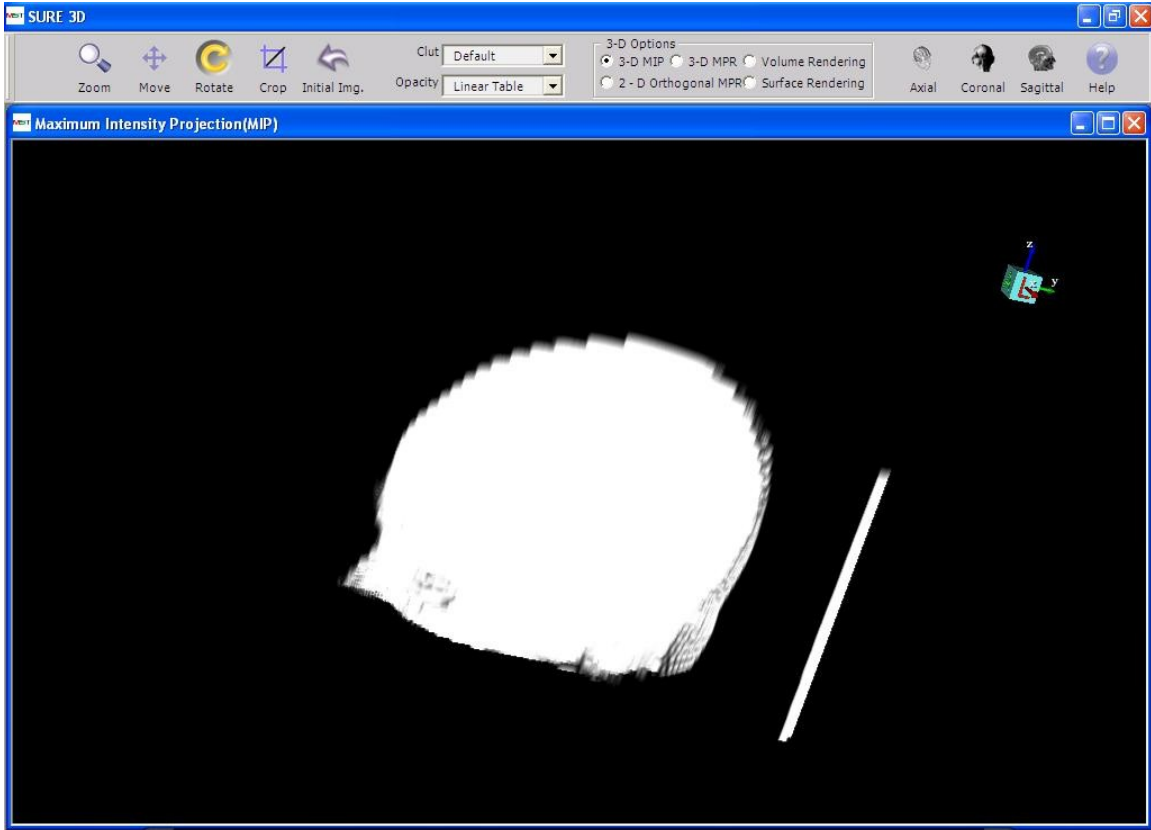
### **3D Viewer**

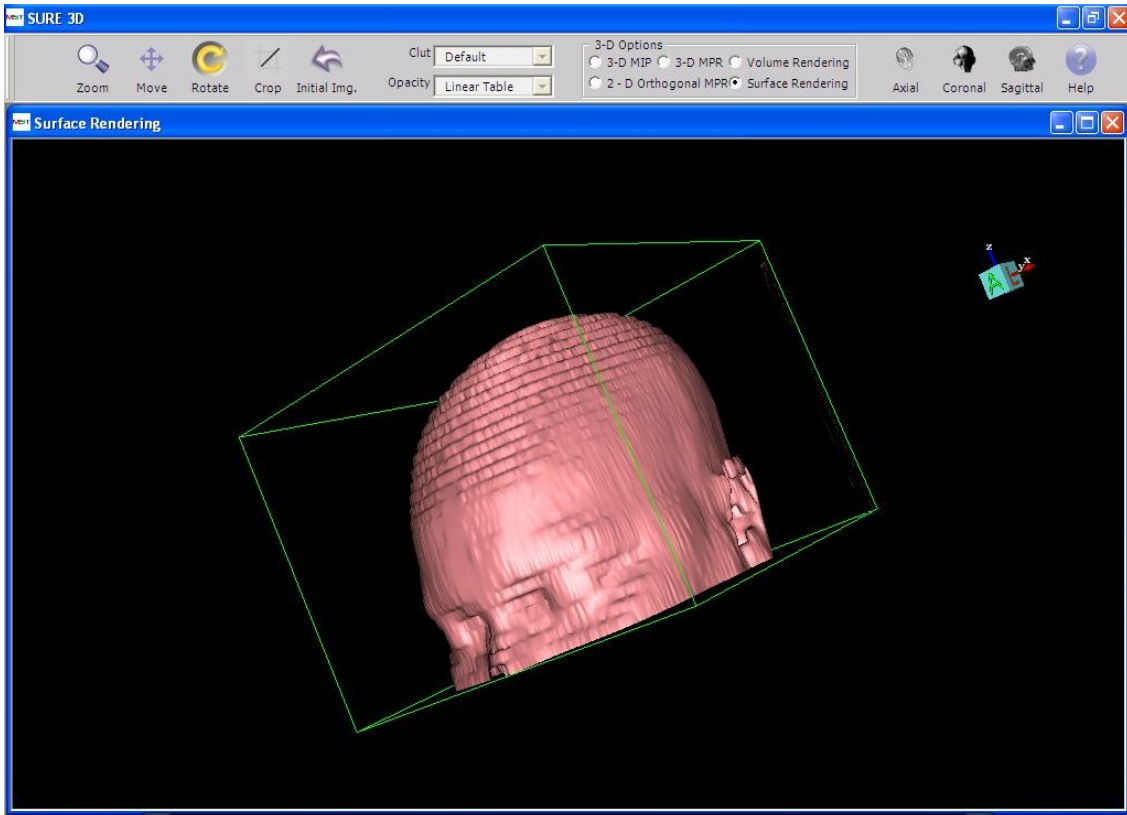
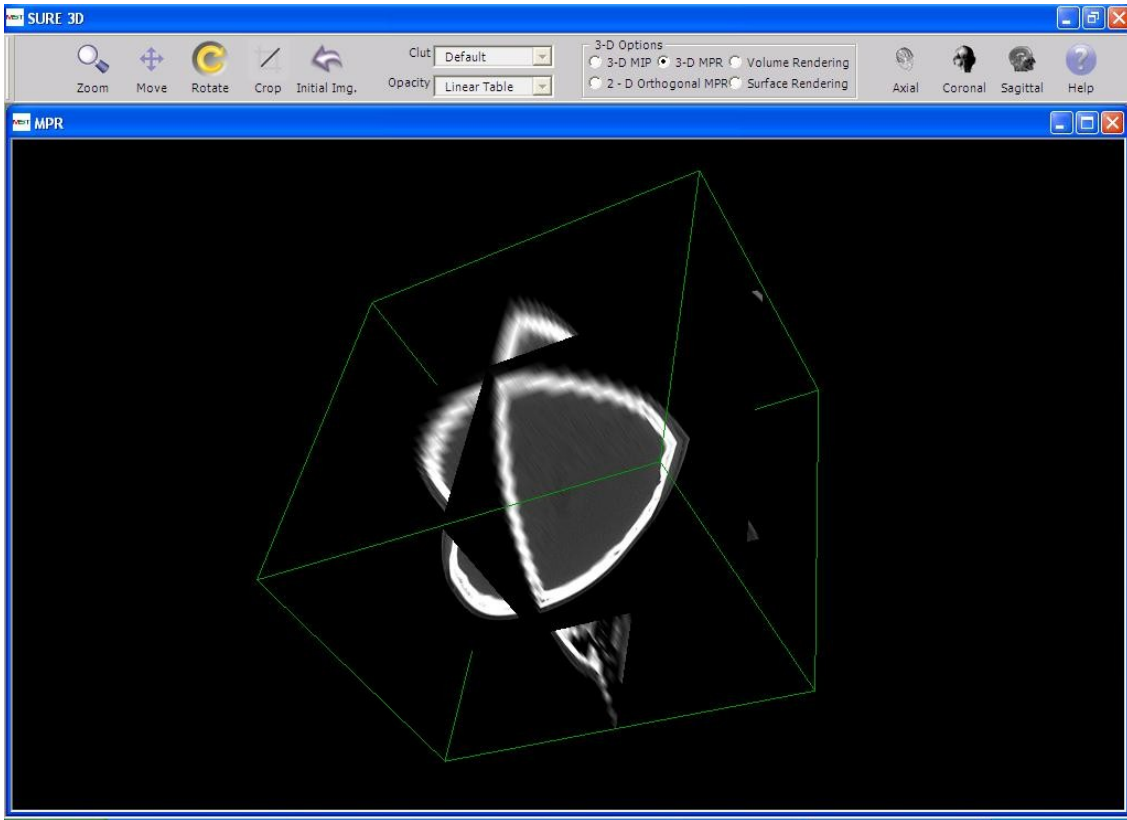
3D Viewer can be invoked by clicking on the 3D Options button present on the toolbar of 2D Viewer. Following 3D options are available.

- 1) 3-D MIP
- 2) 3-D MPR
- 3) Volume Rendering
- 4) 2-D Orthogonal
- 5) Surface Rendering

We have the following options when viewing 3D Images

- a. Zoom
- b. Move
- c. Rotate
- d. Crop
- e. Initial Image
- f. Cut
- g. Opacity
- h. 3-D MIP
- i. 3-D MPR
- j. Volume Rendering
- k. 2-D Orthogonal MPR
- l. Surface Rendering
- m. Axial View
- n. Coronal View
- o. Sagittal View





---

## **MPEG2**

Stacking DICOM Files with MPEG2 DICOM Data.

On Double Click of series in work list MPEG2 Evincere would launch to play the selected series (with MPEG2 data).

