

 Vitrea Advanced<sup>®</sup>

 Vitrea Workstation<sup>™</sup>

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Education and Reference Guide  
General

VITALU<sup>®</sup>

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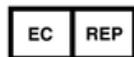
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# Safety and Regulatory Considerations

PLEASE REFER TO THE **ABOUT VITAL IMAGES MEDICAL IMAGING SOFTWARE** DOCUMENT BEFORE USING THIS PRODUCT. This document includes important information regarding general Vitrea Safety and Regulatory considerations.



**CAUTION: Federal law restricts this device to sale by or on the order of a physician, as directed by 21 CFR 801.109(b)(1).**

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## Contact Us

- For general, non-technical support questions, contact us through our Web site: [www.vitalimages.com](http://www.vitalimages.com).
- For customer technical support, contact us:
  - In the U.S., call the Customer Support line at 1.800.208.3005.
  - Outside the U.S., contact your Vital distributor.
  - Send an email to [support@vitalimages.com](mailto:support@vitalimages.com).
- For a printed version of the Release Notes, Education and Reference Guide, or Installation Guides, contact Customer Support at 1.800.208.3005.

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## Release Notes

Vitrea Release Notes contain late-breaking information not available at the time the Education and Reference Guide was released. This document is available from your System Administrator or from Vital Images.

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# Introduction to VitreaAdvanced® & VitreaWorkstation™

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## Contents

- VitreaAdvanced and VitreaWorkstation Overview
- Vitrea Windows
- The Study Directory Window
- The Gallery Window
- The Viewer Window
- The Report Window
- The Review Window (VitreaWorkstation only)
- Additional Information

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## VitreaAdvanced and VitreaWorkstation Overview

Vitrea® software is an advanced visualization solution from Vital that creates 2D, 3D, and 4D images of human anatomy from CT (computed tomography) and MR (magnetic resonance) image data. With this tool, physicians can easily navigate within these images to better understand disease conditions. The VitreaAdvanced and VitreaWorkstation products

address specialists' needs through various software options for cardiac, colon, vessel probe, and other applications. In addition, VitreaAdvanced software utilizes an intuitive clinical workflow and automatic settings to improve speed and simplicity.

With VitreaAdvanced and VitreaWorkstation, you can do the following things:

- Communicate with configured DICOM (Digital Imaging and Communications in Medicine) devices to retrieve and export patient data
- Load one or multiple CT or MR volumes for a patient
- Select from a gallery of predefined clinical viewing protocols
- Adjust visualization parameters to enhance images
- Review multiple image files in 2D, side-by-side views
- Measure regions of interest
- Locate and observe points of interest, using a mix of MPR (Multi-Planar Reformatted), 2D, and 3D images
- Trim with 3D and 2D segmentation to focus images on regions of interest
- Fly through or around anatomical images
- Save snapshots highlighting regions of interest for saving to PACS or to a printable, Intranet-ready report
- Capture image sequences in batches to create printed reports or make Intranet-ready digital movies

## User Help

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Click the Help tab at the bottom of the VitreaAdvanced window to access the Learning Resources Help.



To view the .pdf files, you need to have Adobe Reader.

# Vital U

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Vital U offers courses in a variety of settings to accommodate multiple learning preferences and schedules. We provide education at the Vital U customer education center, in cities around the U.S., at your facility, and on our Web site.

Learn advanced visualization software in our dedicated classroom or at a traveling classroom in a city near you. You can also bring a program to your facility and customize your education to your specific workflow. Our Web site offers distance learning through Vital U Live webinars and eLearning content that's available anytime.

In addition to our standard clinical applications, we offer specialty courses for applications in oncology, neurology, virtual colonoscopy, and cardiology. Select courses offer CME and CE credits to U.S. based physicians and technologists.

Call the Vital U education coordinator at 952.487.9559 or e-mail [vitalu@vitalueducation.com](mailto:vitalu@vitalueducation.com) to register for in-house, on-site, road show, or for any other education-related questions.

## Classroom Learning

### Fundamentals for Advanced Visualization Software

This three-day post-processing course teaches the fundamentals of Vitals' advanced visualization software that creates 2D, 3D, and 4D images of human anatomy. Participants receive an overview of the variety of applications and disciplines within the software including cardiac, peripherals, EP Planning, lung, tumor, joint disarticulation, perfusion, pulmonary, and renal. Learn to manipulate 2D and 3D images, including multi-planar reformatting (MPR), maximum intensity projection (MIP) and volumes, through hands-on exercises delivered by experienced Vital U clinical applications instructors. U.S. -based physicians and technologists can earn CME and CE credits from this course.

Each course module reinforces Vital U's standardized learning methodology with step-by-step instruction for image acquisition, protocol assignment, case analysis, and image distribution.

### **Fundamentals for VitreaCore**

This one-day post-processing course teaches the fundamentals of VitreaCore software that creates 2D and 3D images of human anatomy. Participants receive an overview of the variety of applications and disciplines within the software including basic 3D, MPR, PET/CT, and Vessel Probe. Learn to manipulate 2D and 3D images, including multi-planar reformatting (MPR), maximum intensity projection (MIP) and volumes, through hands-on exercises delivered by experienced Vital U clinical applications instructors.

Each course module reinforces Vital U's standardized learning methodology with step-by-step instruction for image acquisition, protocol assignment, case analysis, and image distribution.

### **Distance Learning**

Register for a schedule of live webinars demonstrating Vital software, while a physician or clinical applications instructor answers your questions. You can also explore a library of recorded webinars at your convenience. View the schedule of dates and topics or register at [vitalueducation.com](http://vitalueducation.com).

### **Administrator Education**

This course is designed for IT professionals, PACS Administrators, field engineers, or anyone who services, installs or supports Vitals' advanced visualization software. This course will teach your designated Vital software administrator how to get the most out of Vitrea by fully integrating it with your medical imaging systems. For more information, contact the Vital U education coordinator at 952.487.9559 or e-mail [vitalu@vitalueducation.com](mailto:vitalu@vitalueducation.com).

## On-site Learning

Any of our educational programs can be brought to your facility. Our experienced applications instructors meet your learning needs by bringing Vital U courses and hardware, if needed, to your site. On-site learning customizes your education program to the specific workflow of your physicians and technologists.

## Customized Options

Packages include multi-user and multi-session formats to meet your learning needs. To design your customized education program, contact the Vital U education coordinator at 952.487.9559 or e-mail [vitalu@vitalueducation.com](mailto:vitalu@vitalueducation.com).

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# VitreA Windows

## Tabs

Navigate through the VitreaAdvanced windows by selecting the appropriate tab located at the bottom of the screen.

### VitreAWorkstation Tabs



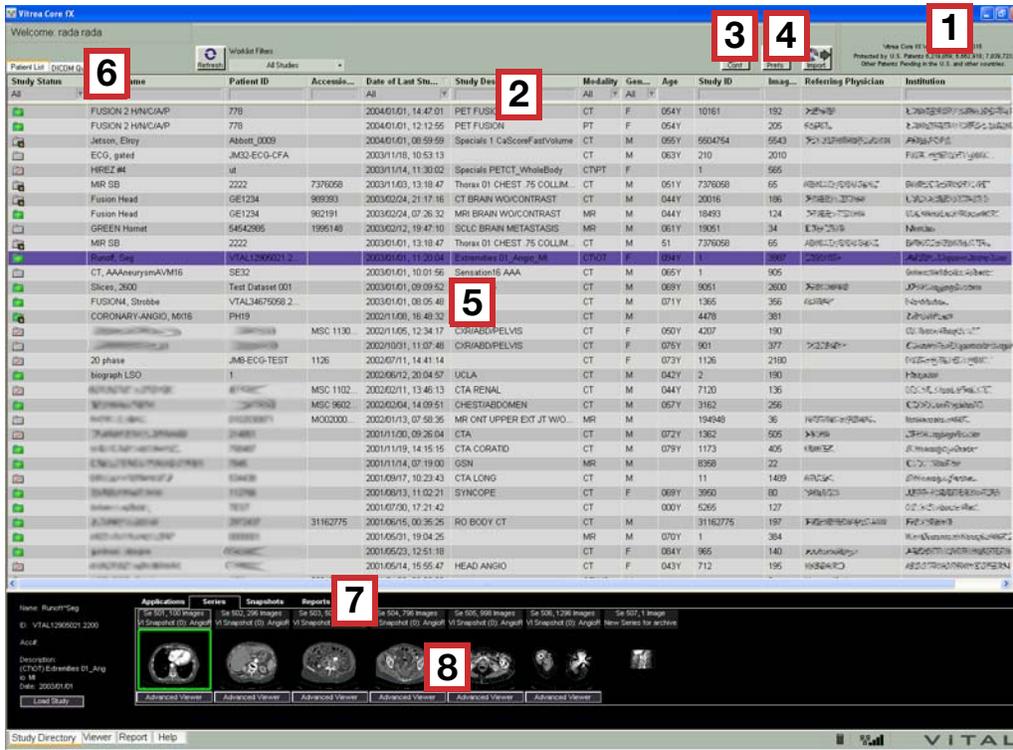
### VitreAAdvanced Tabs

**TIP:** The Gallery and Back tabs become active when a patient study is loaded.





# VitreiaAdvanced Study Directory



Callout Number	Description
1	Software Version
2	Column Headers
<b>NOTE:</b> Click to sort. Click then type the first few letters to search.	
3	Conference Button (also displays at the bottom of the Viewer window)
4	Preferences Button
5	Patient List
6	DICOM Query tab
7	Series/Snapshots/Reports/Applications Tabs
8	Thumbnail tray

## Study Status Icons

In the patient list, in the Status column contain folder icons. The color represents the state of that study. Filter the study list to find studies of a specific status.

Icons	Description
 (Blue with blue arrow)	Incoming/Processing
 (Green with yellow star burst)	Unread
 (Green with yellow star burst and snapshots)	Unread with evidence
 (Red outline with padlock)	Locked study
 (Gray)	Read
 (Gray with snapshots)	Read with evidence
 (Gray with red check mark)	Published
	Requested DICOM study
	Building DICOM study

**NOTE:** This icon is not an indication of the build process; it just indicates the data is received.

## Patient List Column Headers

Filter and sort studies using the Patient List columns. Once you identify studies, use the Series Thumbnail area to load images.

## Filter, Sort, and Search the Patient List

Use the column headers in the Patient List to filter the list, sort the list, or search for specific studies.

## Patient List Right-click Menu

When you right-click on a study, a menu displays containing the following options:

Menu Item	Description
<b>Load Study</b>	If there is more than one series in the study, it loads two series in a 2-up 2D viewer in VitreaCore. If there is only one series, it loads the first image into a 1-up 2D viewer. If there are more images in the study, click the forward arrow to step through the images.
<b>Delete Study by Schedule</b>	Deletes the study from the server.
<b>Email to Clinician</b>	Sends the images in an email.
<b>Change Status</b>	Changes the status of the study: <ul style="list-style-type: none"> <li>• Unread</li> <li>• Read</li> <li>• Published</li> </ul>
<b>Change Study Lock</b>	Lock a study from deletion, or unlock a study you have locked. <p><b>NOTE:</b> You can only unlock a study you have locked. To unlock a study someone else locked, contact your System Administrator.</p>
<b>Save Media</b>	Export data to media (CD/DVD/USB/Local Disk/Network Data).
<b>DICOM Export</b>	Export series to DICOM device.

## Mark a Study as Read

The Mark as Read option and the Status column in the Patient List are only available if Enable mark study **as read** check box is selected during server configuration, and if you are logged on with radiologist privileges. For information about configuring the Vital Image Management Server (VIMS), contact your System Administrator.

## Use DICOM Transfer

The Vitrea system consists of a server and one or multiple client PCs. The client automatically queries the server at regular intervals to check for new studies. You can export studies to, send queries to, and retrieve studies from other DICOM servers or devices on the network at any time. Manually query and retrieve studies from within the Vitrea server.

When finished working with a study on the client PC, you can export it to other devices or servers on the network. Use the Save as DICOM File option to save a worked-up study to the server. If DICOM forwarding is set up for one or more devices on the network, the study you save to the server automatically exports to the devices set up for forwarding.

## Automatic Query

Vitrea contains two automatic query/retrieve features:

- Configuring a scanner to send all studies to the Vitrea server automatically.
- Setting the client PC to query the Vitrea server at regular default intervals to refresh the Study Directory. As soon as the client PC receives them, studies display on the Study Directory screen.

## Advanced Session Timeout

If the Advanced Session Timeout is triggered, the session will close and no snapshot or batch is created. Any snapshots and batches that you created during the session are automatically saved to the server. If you did not create any snapshots or batches, no information is saved to the server in the event of a Advanced Session Timeout.

**TIP:** Take snapshots periodically throughout your VitreaAdvanced session to save your workflow.

## User Types (VitreaAdvanced)

Loading studies into VitreaAdvanced depends on your user type. The user types are determined by usernames and passwords. Your

organization assigns user types to individual usernames and passwords depending on the role of the user.

**NOTE:** Contact your System Administrator for information regarding the usernames and passwords associated with the different user types.

- Clinician
- Diagnostic User
- Advanced Diagnostic User
- Administrator (not covered in this book)

**NOTE:** See the Vitrea Installation and Administration Guide for information regarding the Administrator user type.

## Clinicians

- Access VitreaCore.
- Load and interact in VitreaCore workflows using the **Load** button.
- Restore snapshots for viewing in VitreaCore.



## Diagnostic Users

- Access both VitreaCore Viewer and VitreaAdvanced Viewer. The VitreaCore Viewer is the default viewer.
- Load and interact in VitreaCore Viewer workflows using the **Load** button.
- Load and interact in Advanced Viewer workflows by right-clicking and selecting **Load in Advanced Viewer**.
- Restore snapshots into Advanced Viewer.



## Advanced Diagnostic Users

- Access both VitreaCore Viewer and VitreaAdvanced Viewer. The Advanced Viewer is the default viewer.
- Load and interact in Advanced Viewer Workflows using the **Advanced Viewer** button.



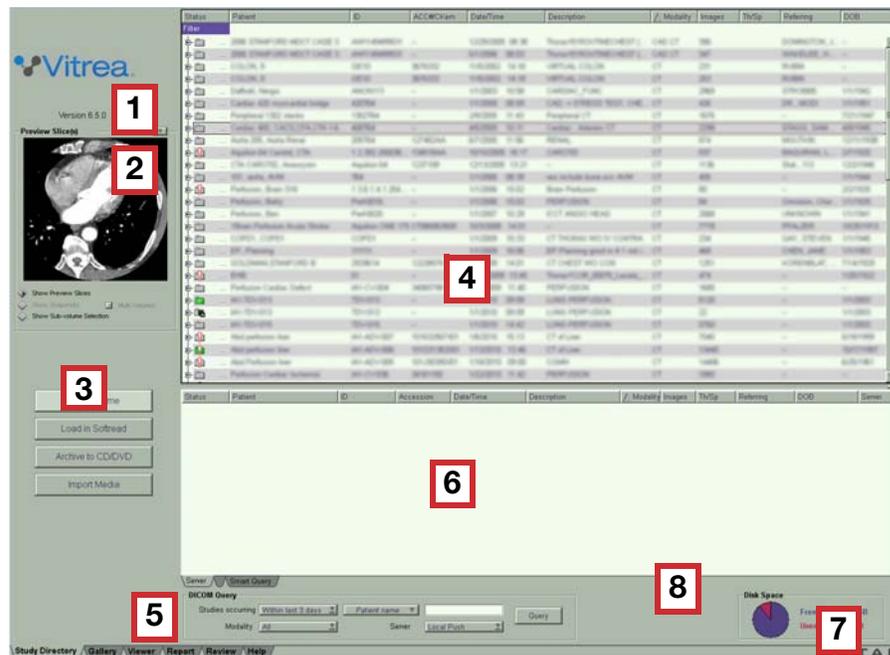
- Load and interact in VitreaCore Viewer workflows by right-clicking and selecting **Load**.
- Restore snapshots into Advanced Viewer.



	<b>Clinician</b>	<b>Diagnostic User</b>	<b>Advanced Diagnostic User</b>
Load into VitreaCore	Y	Y	Y
Load into VitreaAdvanced Viewer	N	Y	Y
Restore workflow into VitreaCore by default	Y	N	N
Restore workflow into Advanced Viewer by default	N	Y	Y
Send DICOM image	N	Y	Y
Publish to Clinician	N	Y	Y
Delete study	N	N	Y
Vessel Probe	N	Y	Y
DICOM query	Y (if configured by System Administrator)	Y	Y
Create evidence (snapshots, batches, movies)	N	Y	Y
Delete evidence (snapshots, batches, movies)	N	Y	Y

**From here, skip to the Gallery Window section on page 26.**

# VitreWorkstation Study Directory



Callout Number	Description
1	Software Version
2	Preview Pane
3	Load Buttons
4	Patient List
5	DICOM/CD/Smart Query Area
6	DICOM/CD/Smart Query List
7	Progress Bar
<b>NOTE:</b> The progress bar displays only when it is reporting a status.	
8	Disk Space Indicator

## Patient List

The Patient List displays all patient studies loaded in the VitreaWorkstation.

A volume is an image file that VitreaAdvanced builds from a DICOM dataset.

## Study Directory Icons

The patient list displays color coded icons to identify the studies (folders) and volumes (cubes)

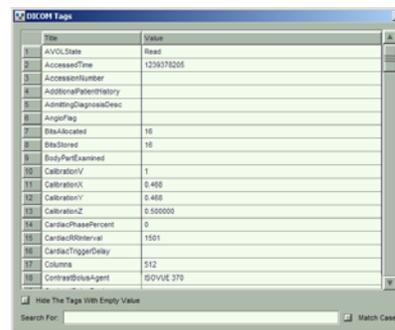
Icons	Description
 (Green with yellow star burst)	New study or volume
 (Gray)	Previously loaded study or volume
 (Gray with red check mark)	Reported study or volume
	Requested DICOM study
	DICOM transfer in progress
	Building DICOM study or building volumes
	<b>NOTE:</b> This icon is not an indication of the build process; it just indicates the data is received.
	Error while retrieving
	Error building volume
	Dataset is secondary capture
	Suspected duplicate patient name or ID
	Locked study
	Study has CAD results or CAD results building

## Right-click Menu

Right-click in the Patient List, then select from the menu to load or manage patient studies.

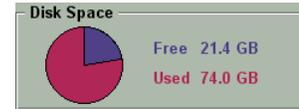
Load in Vitrea
Load in Softread
Load in Study Viewer
Load in Oncology Fusion ▶
Lock
Delete...
Edit Patient...
Export...
Archive to CD/DVD...
Process Colon CAD
Expand all
Collapse all
Refresh study directory
Show DICOM Tags

Menu Option	Description
<b>Load in Vitrea</b>	To load selected study/volume into VitreaAdvanced.
<b>Load in Softread</b>	To load selected study/volume into Softread.
<b>Load in Study Viewer</b>	To load selected study/volume into Study Viewer.
<b>Load in Oncology Fusion</b>	This option is only enabled if you are licensed for Oncology Fusion.
<b>Lock</b>	To protect study/volume from deletion.
<b>Delete</b>	To permanently delete a study/volume from Vitrea.
<b>Edit Patient</b>	To edit the patient information for a study/volume.
<b>Export</b>	To export DICOM images, snapshots, reports, batches, workflows, etc. to other VitreaWorkstations or DICOM devices.
<b>Archive to CD/DVD</b>	To save a study/volume to CD or DVD.
<b>Export to CAD Server</b>	This option is only enabled if you are licensed for Veralook Colon CAD or Visia Lung CAD.
<b>Process Colon CAD</b>	This option is only enabled if you are licensed for Veralook Colon CAD.
<b>Delete CAD</b>	This option is only enabled if you are licensed for Visia Lung CAD or Veralook Colon CAD.
<b>Launch MeVis Webpage</b>	This option is only enabled if you are licensed for MeVis Dynamic Review.
<b>Expand All</b>	To expand all the studies in the patient list.
<b>Collapse All</b>	To collapse all the studies in the patient list.
<b>Refresh Study Directory</b>	To refresh the listings in the patient list.
<b>Show DICOM Tags</b>	To display a table of DICOM tags for the selected patient.



## Disk Space Indicator

The Disk Space Indicator indicates available disk space.



If the system's available disk space drops below a pre-specified amount, you must delete studies or volumes to receive more data.

**NOTE:** For information about configuring the disk space limit, contact your System Administrator.

If Vitrea determines that performing AutoDelete frees enough disk space to continue receiving data, a dialog box displays asking if you want to run AutoDelete now.

If Vitrea determines that performing AutoDelete will not free enough disk space to continue receiving data (due to its settings or because it is not enabled), you must manually delete studies or volumes.

**NOTE:** For information about how your workstation's AutoDelete feature is configured, contact your System Administrator.

## Filtering Small Volumes

---

Vitrea automatically prevents the display of small volumes (such as scout, localizer, and MIP (Maximum Intensity Projections) images that are one slice in size. To turn off this filtering feature, contact your System Administrator.

## Restoring Workflow From Study Directory

Restore the workflow of a study or volume by restoring its snapshot.

If the snapshot was saved with multiple volumes loaded, choose:

- load only the single volume that snapshot is associated with (may take less time)
- load all the volumes, and their workflow states, that were loaded when the snapshot was saved (may take more time)

**NOTE:** In order to restore a snapshot saved using a licensed option, a license for that option must be available.

1. Below the Preview pane, select **Show Snapshots**.
2. Click **Restore Snapshot**.

The Viewer window displays containing images with the visualization settings in place at the time of the snapshot.

**NOTE:** A multiple-volume snapshot displays in the preview pane with a multiple volume icon in the lower left corner.

If you selected the Multi-Volumes check box, the system loads all volumes loaded when the snapshot was saved and restores the workflow for all volumes.

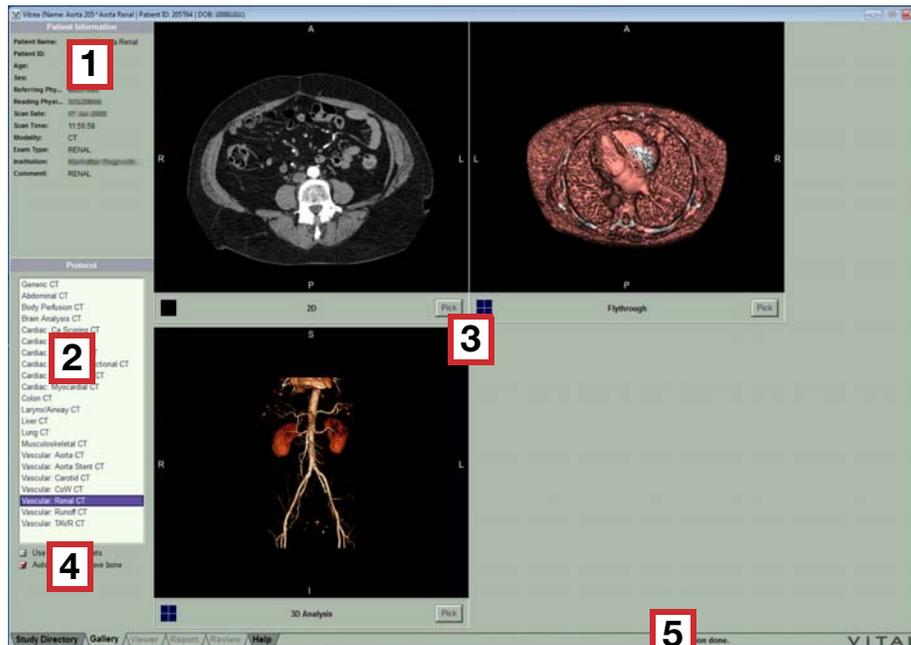
If any associated volumes are no longer available on the workstation, a warning dialog box displays. If you receive this dialog box, click **Cancel** to return to the Study Directory.



**CAUTION:** Load all associated volumes when you restore a multi-volume snapshot. Attempting to restore the snapshot without loading all associated volumes may yield different results than the original calculations.

# The Gallery Window

After you load a patient study, the Gallery window opens. Select the protocol and preset from the Gallery.



Callout Number	Description
1	Patient Information
<p><b>TIP:</b> If information is truncated, hover over the words. A tool tip with the complete information displays.</p>	
2	Protocol List
3	Gallery of Presets
4	Use Modified Presets and Automatically Remove Bone
5	Progress Bar
<p><b>NOTE:</b> The progress bar displays only when it is reporting a status.</p>	

## Patient Information

VitreaAdvanced displays the DICOM header information in the Patient Information section.

## Protocol List

The Protocol List contains the protocols available with the licensed features.

## Presets

Before you work with the images in the Viewer window, you must select a preset.

**NOTE:** It is important that you regard each protocol and preset as a convenient starting point for viewing the data.

## Automatically Remove Bone

Select the Automatically remove bone check box if you want VitreaAdvanced to automatically remove bone from the image.

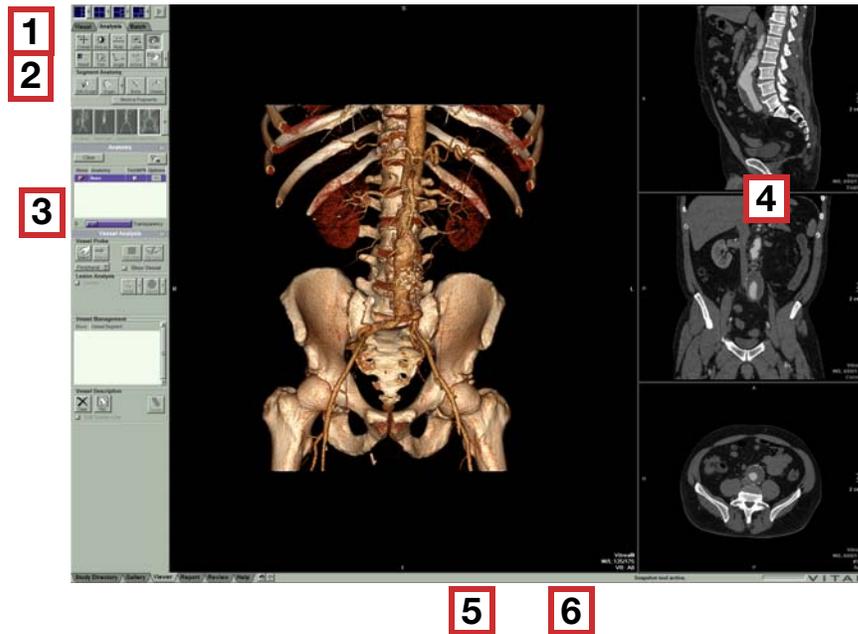
**NOTE:** This option is only available for certain protocols.



**CAUTION:** Verify the results of auto-segmentation. If necessary, use the sculpting tools to correct auto-segmentation.

# The Viewer Window

The Viewer window is the main working area in VitreaAdvanced and includes the tools necessary to complete your workflow.



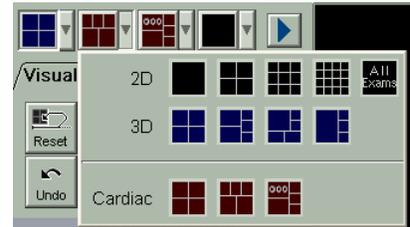
Callout Number	Description
1	Viewer Window Layout Buttons
2	Analysis, Visual, and Batch Tabs
3	VitreaAdvanced tools
4	In-view tools
5	Information area and Progress Bar
<b>NOTE:</b> The progress bar displays only when it is reporting a status.	
6	Conference button (VitreaAdvanced through Vitrea Enterprise Suite only)

## Viewer Window Layout



Use the Viewer Window Layout buttons to change the number or kind of views displayed in the Viewer window.

1. To change the Viewer window layout, click one of the Layout Buttons.
2. To access all available Viewer window layouts for the selected protocol, click one of the dropdown arrows next to a Layout button.



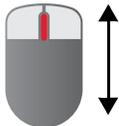
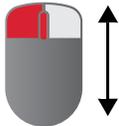
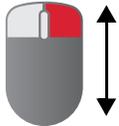
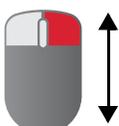
**TIP:** 2D Montage formats use black layout buttons, MPR/3D formats use blue layout buttons, and special protocol-specific formats use red layout buttons

Button	Format	Description
   	2D Montage formats	Display 2D slices as acquired by scanner in one, four, nine, or sixteen slice images.
	All-Exams	Two to nine 2D views displayed side-by-side.
	4-up	One 3D view and three MPR views. The 3D view displays in the lower left, and MPR views display in the upper left (sagittal), upper right (coronal), and lower right (axial).

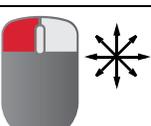
Button	Format	Description
	5-up	<p>Two 3D views and three MPR views.</p> <p>The 3D views display in the upper and lower left, and the MPR views display in the upper right (sagittal), middle right (coronal), and lower right (axial).</p> <p>This format is useful for:</p> <ul style="list-style-type: none"> <li>• flying through a volume in the lower 3D view while maintaining an outside or point-of-interest viewing perspective in the upper 3D view, or</li> <li>• for viewing the global perspective in the lower 3D and a focused point-of-interest view in the upper 3D view.</li> </ul>
	Targeted Navigation	<p>Two 3D views and three MPR views, with one larger than the others.</p> <p>3D views display in lower right and left, and MPR views display in upper left (axial), upper right (sagittal), and middle right (coronal).</p> <p>This format is useful for selecting a target, such as an anatomical feature or lesion, in the large MPR view and eyepoint in the upper left, large MPR view, and viewing the target in the lower left 3D view.</p>
	Runoff	<p>One large 3D view with three MPR images.</p> <p>Use this format to view large datasets.</p>
	Dual Volume	<p>Two volumes displayed side-by-side, 2-up (one MPR and one 3D) views.</p> <p>Use this format for side-by-side comparative review of two volumes (prone and supine, for example).</p>

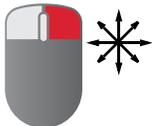
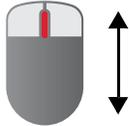
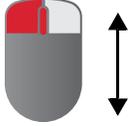
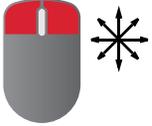
Use the dropdown arrows to customize the four instant-format buttons that display for any preset so they represent formats used most frequently. Then save your changes as part of a modified preset.

## 2D and MPR Mouse Functions

Mouse Button	Press to:
 Click	<b>Activate Tool</b>
 Middle-click and drag	<b>Pan</b>
 Left + Middle click and drag	<b>Zoom</b>
 Right-click and drag <b>OR</b>	<b>Scroll</b>
 Roll the mouse wheel	
SHIFT +  Press SHIFT, right-click and drag	<b>Auto-scroll</b>
 Left + Right click and drag	<b>Window/Level</b>

## 3D Mouse Functions

Mouse Button	Press to:
 Click	<b>Activate Tool</b>  <b>Click, then pause a moment to activate the tool</b>
 Click and drag	<b>Rotate</b>  <b>Click then drag right away</b>

Mouse Button	Press to:
SHIFT + 	<b>Auto-rotate</b> Press SHIFT, right-click and drag
	<b>Pan</b> Middle-click and drag
 <b>OR</b>	<b>Zoom</b> Left + Middle click and drag
	Roll the mouse wheel
	<b>Window/Level</b> Left + Right click and drag

## Keyboard Shortcuts

Adjust views and perform other operations using keyboard shortcuts

Key	Function
E	Activate Ellipse tool
F	Activate ROI tool
H	Activate Crshair tool
L	Activate Label tool
A	Activate Arrow tool
R	Activate Ruler tool
S	Activate Snap tool
T	Activate Trim tool
W	Activate Win/Lev tool
CTRL-I	Toggle the patient information on or off
CTRL-Y	Re-do last undone action
CTRL-Z	Undo last action (repeat to undo multiple actions)

### 3D Keyboard Shortcuts

Some VitreaWorkstation systems include keyboard shortcuts, identified with blue keycaps, for certain functions.



**NOTE:** If you run VitreaAdvanced on a PACS, your shortcuts may differ or you may not have blue keycaps.

Key	Function
<b>S-I [F2]</b>	Rotate volume Superior to Inferior -- 180° azimuth, 90° elevation, 0° twist
<b>I-S [F3]</b>	Rotate volume Inferior to Superior -- 0°, -90°, 0°
<b>A-P [F4]</b>	Rotate volume Anterior to Posterior -- 0°, 0°, 0°
<b>P-A [F5]</b>	Rotate volume Posterior to Anterior -- -180°, 0°, 0°
<b>L-R [F6]</b>	Rotate volume Left to Right -- -90°, 0°, 0°
<b>R-L [F7]</b>	Rotate volume Right to Left -- 90°, 0°, 0°
<b>OBLIQUE [F8]</b>	Rotate volume to oblique orientation -- 40°, 30°, 0°
<b>PREVIOUS [F9]</b>	Display previous image, or previous series or volume if multiple series or volumes loaded.
<b>NEXT [F10]</b>	Display next series or volume if multiple series or volumes loaded.
<b>UNDO [F11]</b>	Undo last action in Viewer window. Press repeatedly to undo multiple actions.
<b>REDO [F12]</b>	Redo last "Undo" in Viewer window.
<b>ARROW</b>	Press an ARROW key to rotate volume by 10 degree increments.

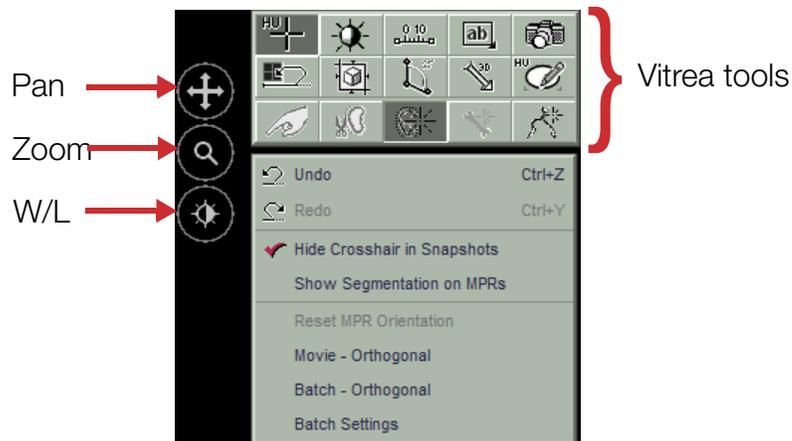
Key	Function
<b>SHIFT + ARROW</b>	Press and hold SHIFT and press an ARROW key to rotate volume by 90 degree increments.
<b>SPACEBAR</b>	Display arrows or annotations in the order they were added. Press repeatedly to cycle through the objects.
<b>Left SHIFT AUTO-VIEW</b>	3D: Auto-rotate. 2D/MPR: Auto-scroll.
<b>Left ALT 3D TOOL</b>	Press and hold to use left mouse functions in 3D view(s).
<b>&gt; NAV FWD</b>	Fly forward.
<b>&lt; NAV REV</b>	Fly backward.
<b>? 180°</b>	Flip the fly through view direction 180 degrees.
<b>SHIFT+ &gt;</b>	Fly forward with continuous assisted navigation.
<b>SHIFT + &lt;</b>	Fly backward with continuous assisted navigation.
<b>Right SHIFT MULTI-CONTOURS</b>	Press and hold, then press DELETE to delete all contours.
<b>Right ALT POINT &amp; GO</b>	Press and hold for point-and-go fly through navigation.
<b>A, E, or T</b>	Adjust the 3D rotation to a specific Azimuth, Elevation, or Twist value. Type a valid value followed by the appropriate letter: <ul style="list-style-type: none"> <li>• <b>Azimuth (a)</b> [valid values -180 to 180] - degree of rotation right or left around the center of volume</li> <li>• <b>Elevation (e)</b> [valid values -90 to 90] - degree of rotation forward or backward from the center of volume</li> <li>• <b>Twist (t)</b> [valid values -180 to 180] - degree of tilt left or right around the center of the volume</li> </ul>

TABLE 1. **3D Cardiac Quick Views:**

Press...	To rotate the volume...	Press...
SHIFT-F2	Right 25 degrees, caudal 20 degrees	CX and LAD
SHIFT-F3	Right 30 degrees, cranial 25 degrees	CX
SHIFT-F4	35 degrees cranial	LAD
SHIFT-F5	Left 45 degrees, caudal 20 degrees	Left Main (SpiderView)
SHIFT-F6	Right 10 degrees, cranial 30 degrees	LAD
SHIFT-F7	Right 30 degrees	RM
SHIFT-F8	Rotate left 30 degrees	Ostium of RCA and PDA/PLA
To switch the Viewer window to display the...		
F9	Previous loaded volume	
F10	Next loaded volume	

## Right-click Menu and Tool Pane

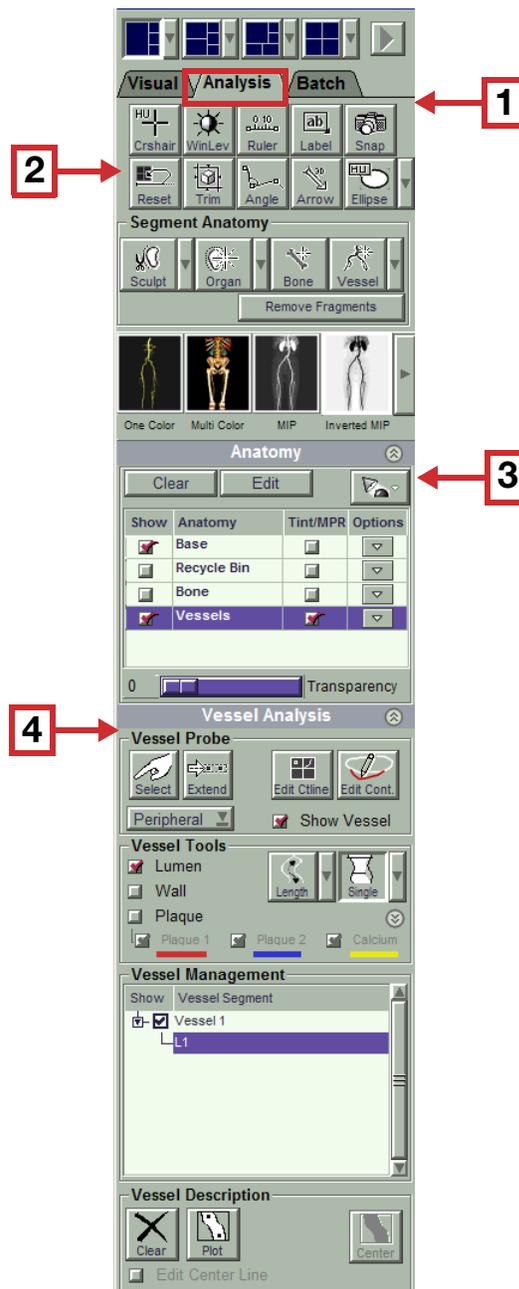
For easy access to common tools used for the selected protocol, right-click within a view.



- Click and drag to use the Pan, Zoom, and W/L buttons.

# Analysis Tab Controls

Tools available on the Analysis tab depend on the protocol and preset selected on the Gallery window.



#	Description
1	Viewer window tabs
2	VitreaAdvanced tools
3	Anatomy Segmentation Area
4	Vessel Analysis Area

 See the Common Tasks chapter for step-by-step instructions for using the Analysis Tab tools.

# Visual Tab Controls

On the Visual tab of the Viewer window, change imaging controls or set display options.

The screenshot shows the 'Visual' tab of the software interface. It is divided into three main sections: 'Imaging Controls' and 'Display Options'. The 'Imaging Controls' section includes a 'Window/Level' dropdown menu currently set to 'Vascular 600/150'. The 'Display Options' section contains a 'View Options' group with various checkboxes, some of which are checked. Red callout boxes with numbers 1, 2, and 3 point to the top row of buttons, the 'Window/Level' dropdown, and the 'View Options' group respectively.

#	Description
1	Visual tab buttons
2	Dropdown for selecting preset window/level settings
3	Options for determining what objects display along with the images in the views and other controls for dictating view behavior

See the Common Tasks chapter for step-by-step instructions for using the Visual Tab tools.

## View Options

Option	Description
<b>Patient Info</b> check box	Show or hide patient info.
<b>3D Crosshair</b> check box	Show or hide the crosshairs in the 3D view.
<b>Field of View</b> check box	Show or hide the field of view cone in the MPRs.
<b>AV Stats</b> check box	This feature is enabled when you use the AVM tool. Once you locate a vessel using AVM, use the AV Stats check box to turn on the Auto Vessel measurements and cross references in the viewer.
<b>Target Nav</b> check box	Activate or disable targeted navigation in fly through mode.

Option	Description
<b>Interact Fast</b> check box	Activate or disable fast interaction between MPR and 3D views.
<b>Noise Reduction</b> check box	Activate or disable automatic reduction in visual noise in the 3D view.
<b>Measurements</b> check box	Show or hide measurements in the views.
	<b>TIP:</b> Also shows or hides reference scale on the right side of the 2D and MPR views.
<b>3D Box</b> check box	Show or hide an outer box in the 3D view.
<b>Full Crosshair</b> check box	Show full crosshairs (including intersection) or partial crosshairs (not including intersection).
<b>Oblique Trim</b> check box	Activate or disable trimming on an oblique plane.
<b>Lock 3D</b>	Lock or unlock the 3D view while working with MPRs.

# Batch Tab Controls

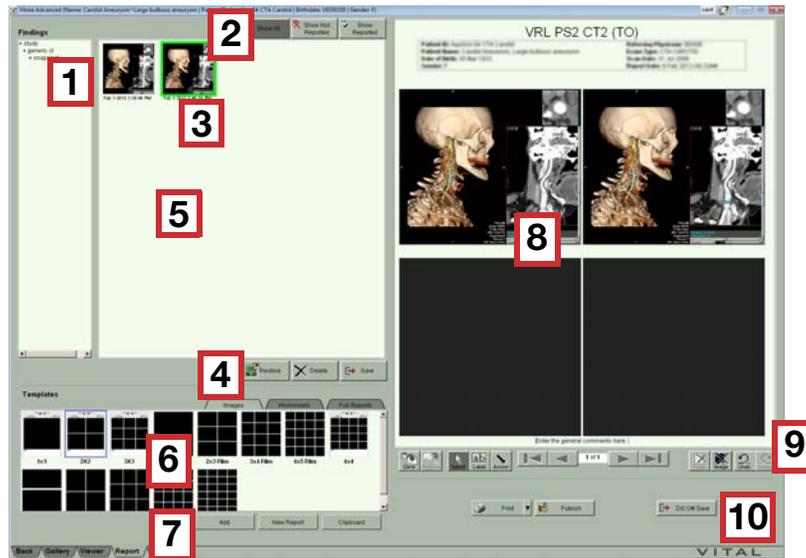
Make batches and movies on the Batch tab of the Viewer window.

#	Description
1	Scripted batch controls
2	Directional controls for scripted batches
3	Manual batch buttons
4	The interval (in mm) between images in the batch
5	Total number of images in the batch
6	Entries for changing the series description or adding a cover page
7	Buttons for creating a batch or movie
8	Controls for including patient information or forcing to secondary capture
9	Button to display more batching options

See the Common Tasks chapter for step-by-step instructions for using the Batch Tab tools.

# The Report Window

VitreAdvanced saves snapshots, batches, and movies you create to the Report window. From here, create and distribute reports.



Callout Number	Description
1	Findings list
2	Filtering buttons
3	Findings tray
4	Findings management buttons
5	Findings management right-click menu
6	Template Layouts
7	Templates buttons
8	Report page
9	Report tools and navigation buttons
10	Report distribution buttons

 See the **Distribute Findings** chapter for more information regarding reporting.

---

# The Review Window (VitreaWorkstation only)

Use the Review window to view reports posted to your facility's intranet. Reports you post on the VitreaWorkstation can also be viewed from other workstations.

1. Select the **Review** tab.
2. Enter information such as patient name or report date to see specific reports

**OR**

Leave all the fields blank to see all posted reports.

3. Click **Search**.
4. Click **Review** next to the patient name for the report to view.

**TIP:** If the report includes a digital movie, the movie plays when you view the report.

5. If the report contains more than one page, click **Next Page** or **Previous Page** to view other pages.

Print reports posted to the Review window.

1. From the Reports List, display the report to print.
2. Click **Print** at the bottom of the Review window.

Delete posted reports when you no longer need them.

- Click **Delete** next to the report you want to delete.

---

# Additional Information

## Storage Commitment

Storage Commitment is a transfer of data ownership between devices, typically Modality or Workstation to an Archive or Storage Device in such a way that the Storage Devices commits to storing the data and the Workstation is no longer responsible for the ownership. The Vitrea Workstation requests a Store of the data and then a Storage Commitment for that data through DICOM messages.

Storage Commitment can be configured. Any exports on the configured Entity will automatically request storage commitment for the data export. There is no other requirement for requesting storage commitment.

Contact your System Administrator for information regarding configuring Storage Commitment.

# Select a Study

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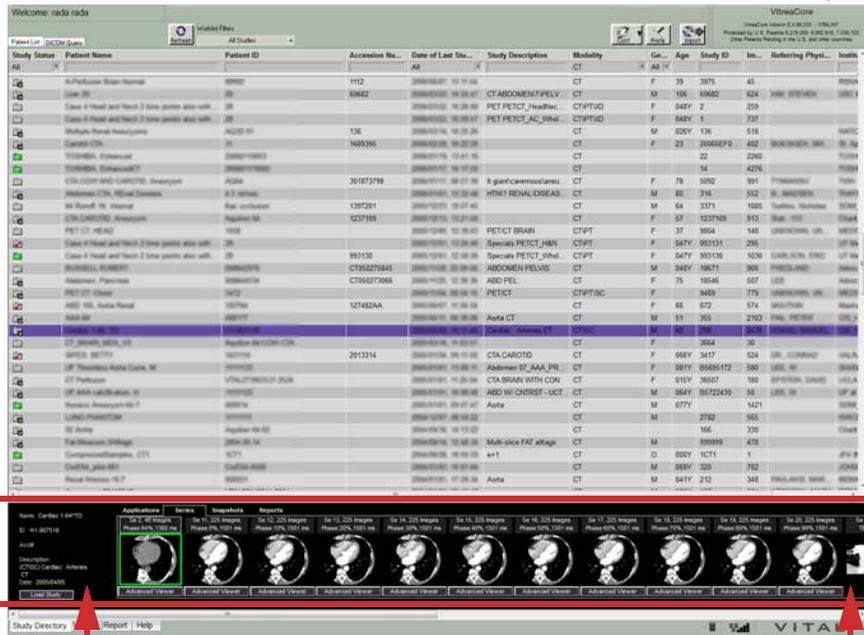
## Contents

**NOTE:** This module demonstrates the various scenarios for loading studies into Vitrea. Be sure you understand which type of Vitrea you are using as the procedure varies depending on the type.

- Loading Studies Through the Data Manager
- Loading Studies into VitreaWorkstation
- Loading Studies Through a PACS Integration
- Loading Studies into VitreaCore

# Loading Studies Through the Data Manager

Use this procedure if the Study Directory contains the Data Manager.



Data Manager

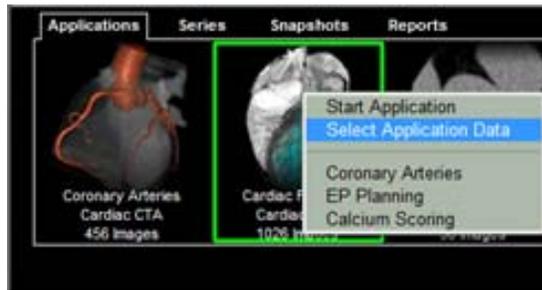
1. From the Study Directory, select a study.
2. Select the **Applications** tab.
3. Select the appropriate application view and double-click,

**NOTE:** This option loads all the data.

**OR**

Load a subset of the data:

- a. Right-click on the appropriate application view and select **Select Application Data**.



- b. Select a series to load and click **Start**.



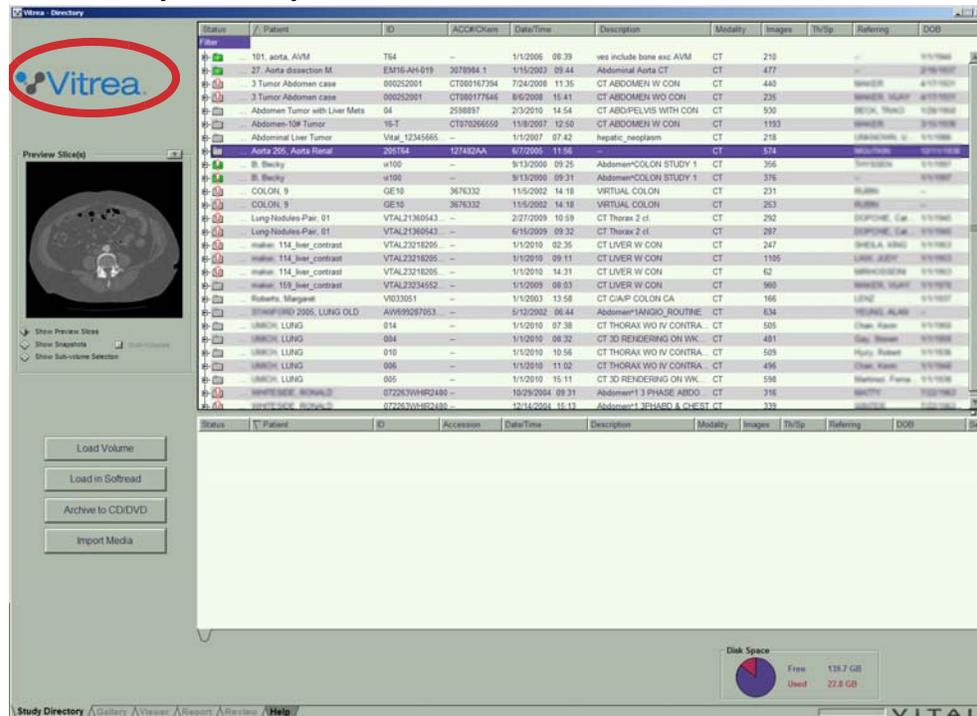
**TIP:** If you do not see the application that applies to the workflow you are using, double-click the **Core 3D** thumbnail and choose a protocol and preset.

**NOTE:** Once the study loads, VitreaAdvanced displays in the upper-left corner.



# Loading Studies into VitreaWorkstation

Use this procedure if  displays in the upper-left corner of the Study Directory.



1. From the Study Directory, select a study.
2. From the open folder, select a series.
3. Click  .
4. From the Gallery, select a protocol and preset.

---

# Loading Studies Through a PACS Integration

There are two ways to load studies through a PACS integration.

## Option 1

With PACS-Integrated VitreaAdvanced, VitreaAdvanced automatically launches and loads the patient study or series you select from the PACS client.

**NOTE:** If Data Manager is not selected in the VES Administration Tool, see the VIMS Installation Guide.

1. From the PACS client, right-click on the image for the patient study and select **Load in VES** (or similar option).

**NOTE:** See the PACS user documentation for specific instructions on launching Vitrea this way.



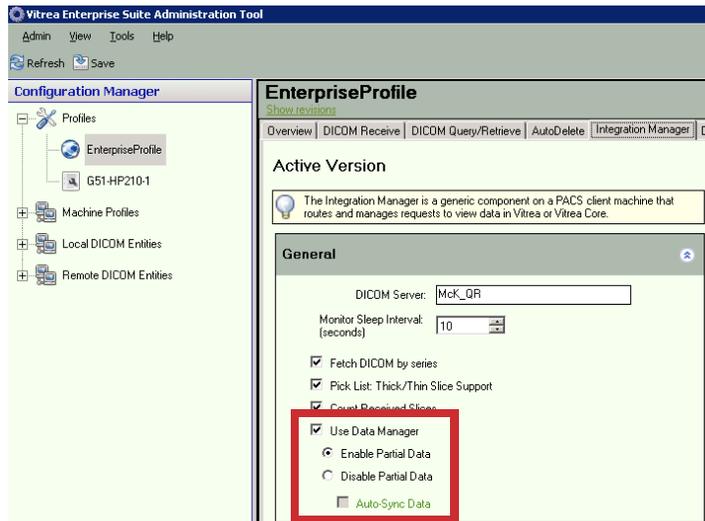
**CAUTION:** Verify that you have loaded the study you intended to load. If you load a study that contains multiple series or contains 3D reconstructions, a dialog box displays that asks you to select the series you want to load. Make sure to respond to dialog box. If you do not, it is possible to return to PACS and load a different study.

2. Select a protocol and preset from the Gallery window.

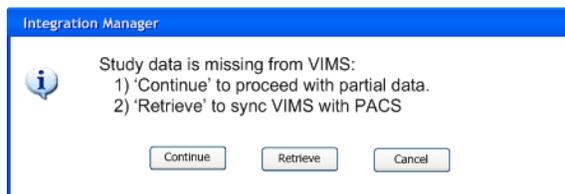
## Option 2

1. Use the procedure below to load a study from the Data Manager.

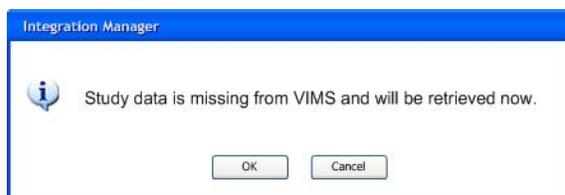
**TIP:** The Data Manager displays at the bottom of the screen if **Use Data Manager** is selected in the VES Administration Tool.



If **Enable Partial Data** is selected in the VES Administration Tool, you may be prompted to confirm if you would like to retrieve missing data for the request, or to proceed to the Data Manager with the data currently available on VIMS.



If **Disable Partial Data** is selected and **Auto-Sync Data** is unchecked in the VES Administration Tool, you may be prompted to confirm if you would like to retrieve the missing data, or return to PACS.

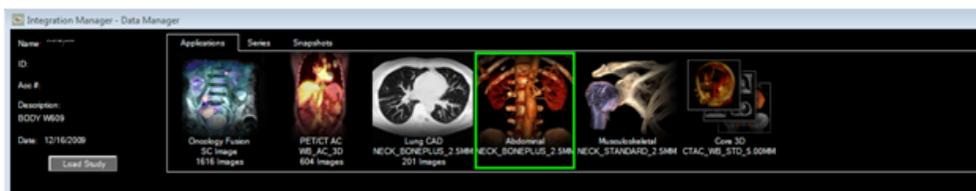


**NOTE:** If Auto-Sync Data is selected in the VES Administration Tool, the system will automatically determine what (if any) study is missing and will automatically begin retrieving the data.

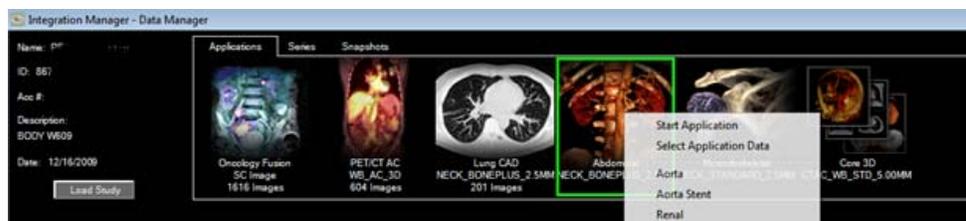
2. On the Applications tab, perform one of the following:

- Select the appropriate application view and double-click to launch the study.

**TIP:** This method of launching only loads the series that are defined as “best candidates” and are pre-selected.



- To select Application Data:



a. Right-click on the Application and select **Select Application Data**.

b. In the application selection dialog, select the appropriate selections and click **Start**.



**TIP:** Click **Cancel** to close the Application Selection Dialog.

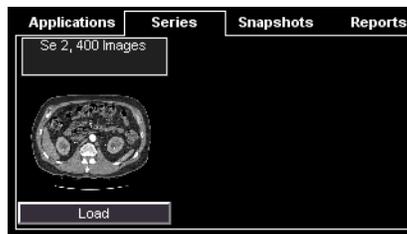
# Loading Studies into VitreaCore

 See the VitreaCore Education and Reference Guide for detailed VitreaCore workflows.

Use this procedure if the Study Directory contains the Data Manager.



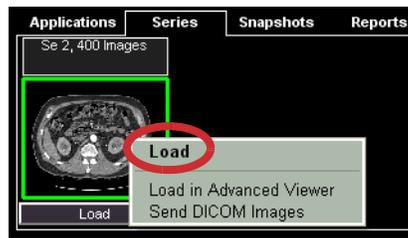
1. From the Study Directory, select a study.
2. Select the **Series** tab.



3. In the Series Tray, select a series to load.

**TIP:** To load multiple series, press CTRL and click all the series to load.

4. Click  or right-click and select Load.



**NOTE:** See the VitreaCore Course Modules for detailed VitreaCore workflows.



# Common Tasks

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## Contents

- Getting Started
- Study Directory Tasks
- Gallery Window Tasks
- Viewer Window Tasks
- 2D Imaging
- MPR Imaging
- 3D Imaging
- Image Batches and Movies
- Export
- Study Viewer

---

## Getting Started

### Log into Vitrea using Vitrea Enterprise Suite

1. On the client PC, launch Internet Explorer and enter the URL for the VES server. If you do not know the URL, contact your System Administrator.

**NOTE:** Ensure the following options are enabled in Internet Explorer: Download Signed ActiveX Controls, Run ActiveX Controls and Plug-ins, and Script ActiveX controls marked safe for scripting.

2. On the login screen, enter your Username and Password.

3. Click Sign In.

The Vitrea system opens to the Patient List tab.

## Starting and Closing VitreaWorkstation

Start Vitrea for the Windows Desktop after the workstation is turned on.

1. If the Welcome to Windows dialog box displays, press CTRL-ALT-DELETE.
2. Type `vitrea` in the **Username** field.
3. If your institution requires a password, type the password in the **Password** field.
4. Click **OK**.
5. From the desktop, double-click .



Contact your System Administrator for information regarding registering your software and for information regarding user-defined login configuration settings.

- User Accounts (system defaults)

Account	Password
Vitrea Administrator	vital\$
Vitrea User	(none)
Vitrea VIP	vip+

**NOTE:** If you change passwords, notify Customer Support.

Close Vitrea from any window except the Review window.

- Click  in the upper-right corner of Vitrea.



See your PC operating systems' user instructions for information regarding shutting down your workstation.

# Study Directory Tasks

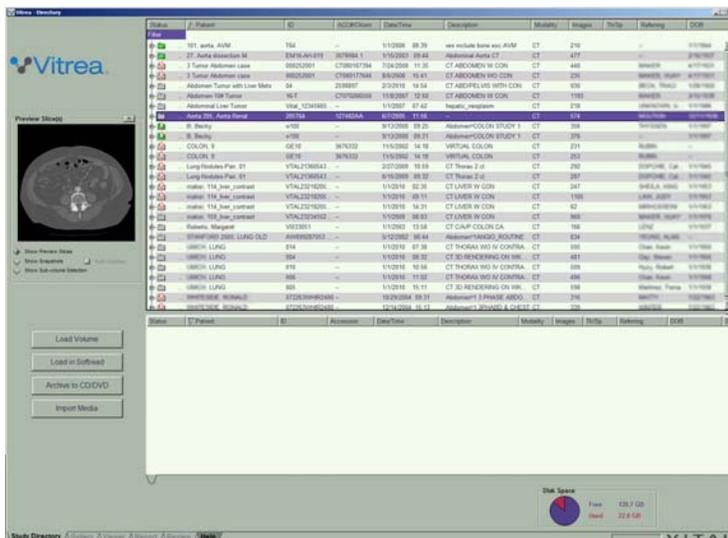
 For detailed information regarding loading a study, see the Select Study chapter.

When you start Vitrea, the Study Directory opens.

**If your Study Directory looks like this, go to the Using the Vitrea Enterprise Suite Patient List on page 56:**



**If your Study Directory looks like this, go to Using the VitreaWorkstation Patient List on page 67:**



# Using the Vitrea Enterprise Suite Patient List

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Use the Patient List to select images for review and manipulation. The Patient List displays studies and series in the Patients/Studies Area. Thumbnails of the images contained in the Studies display in the Series tab. If Vitrea is configured to automatically split series, the sub-series list sorts the images within the selected series into categories.

**EXAMPLE** If the selected series is a set of MRA images containing source, projection, and collapsed images, and auto-split is on, the sub-series list contains three sub-series. For information on configuring Vitrea to automatically split series, contact your System Administrator.

## Using Patient List Column Headers

The Patient List columns allow you to filter and sort the studies to better manage your caseload. Once you identify the desired studies, use the Series Thumbnail area to load images.

## Filtering the Study List

When you set selection criteria to filter the list of studies, the Patient List displays studies matching the selection criteria and studies that are already open.

**TIP:** To further filter the Study List, set the selection criteria for multiple columns.

### EXAMPLE

1. Click in the field under the Modality header and select **CT** from the dropdown list.

The Patient List displays only CT studies.

2. Click in the field under the Date of Last Study header and select **<2 days** from the dropdown list.

The Patient List displays only CT studies occurring in the last 2 days.

3. Click the **Patient Name** header.

The Patient List displays CT studies occurring in the last 2 days, sorted by patient name in ascending order.

- 4 Click the **Patient Name** header again.

The Patient List displays CT studies occurring in the last 2 days, sorted by patient name in descending order.

## Sorting Columns in Ascending or Descending Order

- Click the column header.

The list is sorted and an arrow displays to the right of the column header to indicate the direction of the sort. Click again to reverse the order.

## Searching for Specific Studies in the Study List

- Click in the field below any searchable column header, type a text string, and press **Enter**.

Enter a value for the following columns: Patient Name, Study Description, Patient ID, Accession Number, Study ID, and Institution.

### **OR**

Click in the field below any searchable column header and select an item from the dropdown list.

Select a value from a dropdown list for the following columns: Status, Date of Last Study, Modality, and Gender.

**NOTE:** The remaining column headers are not searchable.

## Adjusting the Column Width

- Place the cursor on the line between columns, and drag the line.

## Marking a Study as Read

The Mark as Read option and the Status column in the Patient List are only available if the Enable mark study as read box is checked during server configuration, and if you are logged on with radiologist privileges. For information about configuring the VES server, contact your System Administrator.

1. In the Patient List window, select the desired study.
2. Right-click, and select **Mark as Read**.

The study's status on the Patient List tab changes to *Published* .

## Using a Predefined Worklist Filter

- Select a filter from the Worklist Filters dropdown menu at the top of the screen.

The Patient List sorts according to the criteria in the filter. If the List is blank, or does not return the expected results, try another filter, or create your own.

## Defining a Worklist Filter

1. Use the Patient List column header, sort and filter the List as needed.
2. Select **Save as New...** from the Worklist Filters dropdown menu at the top of the screen.
3. Edit the criteria in the Query Filter box, if needed, and enter a Filter Name.

**NOTE:** The Query Filter box contains criteria that matches those in the column headers.

4. Click Save.  
The Filter is saved and is available the next time you select it from the list.
5. Select the filter you just created from the Worklist Filters dropdown menu.

## Conferencing

1. Click , then select Join Conference. The Join Conference dialog box displays.

**TIP:** The **Conf** button displays at the top of the Study Directory and at the bottom of the other windows.

**TIP:** To hide the **Conf** button, which may be necessary when reviewing cardiac phases, hover the cursor over it for three seconds.

2. Click the conference name in the list.

**OR**

In the Conference Name field, enter the conference name.

**NOTE:** The Conference Name and Password are context sensitive. Check for proper upper- and lower-case entry.

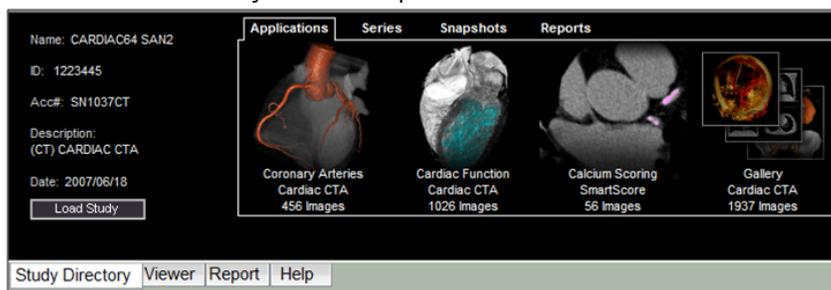
3. In the Password field, enter the conference password.
4. Click Join.

The participant's viewer displays the same image information as that of the conference owner's viewer. The owner controls the image display, mouse movement, and annotation information. All viewer attributes are updated in real time during the conference.

## Using the Data Manager

---

The Data Manager displays below the Patient List. The Data Manager provides access to the **Applications**, **Series**, **Snapshots**, and **Reports** available for the currently selected patient.



Use the Data Manager to:

- Load a study into an application

- Load one or more series into either 2D or 3D viewers
- Send a series or study to a DICOM device (see the DICOM section)
- Restore a snapshot
- Save a snapshot locally
- Load reports

## Accessing the Data Manager

- Select a study in the Patient List.

The Data Manager displays the data available for the patient, in the lower portion of the screen. This can include Vitrea Series, Snapshots, and Reports.

## Loading a Study into an Application

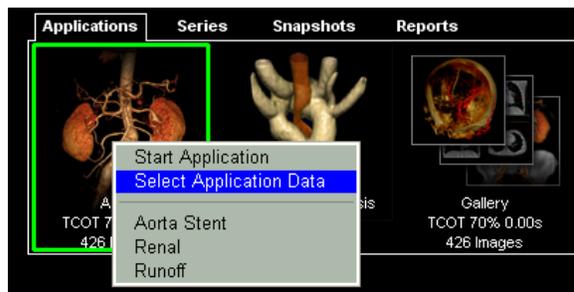
1. Select the **Applications** tab.
2. Double-click the appropriate application.

**NOTE:** This option loads all the data.

**OR**

Load a subset of the data:

- a. Right-click on the appropriate application view and select **Select Application Data**.



- b. Select a series to load and click **Start**.

**TIP:** If you do not see the application that applies to the workflow you are using, double-click the Gallery thumbnail and choose a protocol and preset.

## Loading One or More Series

1. To select an individual series, click one of the thumbnails.

**TIP:** To select multiple series, CTRL-click or SHIFT-click to load:

**TIP:** To select multiple contiguous series, click the first thumbnail of the group, press and hold SHIFT, then click the last thumbnail of the group. A check mark displays in the corner of each thumbnail.

**TIP:** To select multiple distinct series (non-contiguous), press and hold CTRL, then click each desired series. A check mark displays in the corner of each thumbnail you clicked while holding down CTRL.

2. Right-click one of the checked thumbnails and select Load Study or Load.

## Restoring a Snapshot

1. Select the **Snapshots** tab.
2. Double-click the desired snapshot icon.

**OR**

Click the Restore Snapshot bar of the icon. The snapshot displays in the Viewer tab.



**CAUTION:** Verify the accuracy of all contours and confirm all measurements when restoring snapshots from previous software versions created through the use of region editing.

## Saving Snapshots and Movies Locally to Your Computer

1. Select the **Snapshots** tab.
2. Right-click the snapshot or movie thumbnail and select **Save As**.
3. In the dialog box, indicate the file location, file name, and file type.



**CAUTION: Be careful when saving and working with these types of files. Patient information is not included on the snapshot or movie. It is possible to misrepresent or confuse these kind of snapshots or movies.**

## Loading Reports

1. Select the Reports tab from the Data Manager.
2. Right-click and select **Preview** to load the report.

## Using the Vitrea Enterprise Suite DICOM Transfer

The VES system consists of a server and one or multiple client PCs. The client automatically queries the server at regular intervals to check for new studies. At any time, export studies to, send queries to, and retrieve studies from other DICOM servers or devices on the network. Manually query and retrieve studies from within the VES server.

When you are finished working with a study on the client PC, export it to other devices or servers on the network. Use the Save as DICOM File option to save a newly worked-up study to the server. If you have DICOM forwarding set up for one or more devices on the network, the study you are saving to the server is automatically exported to the devices set up for forwarding.

VES contains the following two automatic query/retrieve features:

- Configure a scanner to send all studies to the VES server automatically.
- The client PC automatically queries the VES server at regular default intervals to refresh the Study Directory. As soon as the client PC receives them, studies display on the Study Directory screen.

### Querying a Device or Server Manually

1. Select the DICOM Query tab from the Study Directory.

The DICOM Query tab displays, where you query the local VES server or any remote servers to which you have access.

2. Select a server or device from the Server dropdown list at the top of the tab.
3. Specify sort criteria in the query list columns, if desired.
4. Click the Query button.

The query list is updated with studies from the selected server that match the specified sorting parameters.

**NOTE:** Although the query list displays matching studies, no studies are transferred to the local server until you select one or more desired studies and click the Query button.

### Retrieving the Queried Studies

1. Highlight one or more studies from the query list.
2. Click the Query button.

The selected studies are sent to the local server.

**NOTE:** The newly retrieved studies display in the Patient List the next time it is refreshed.

## Importing Datasets from Media

Import patient studies saved to a CD, DVD, USB, or a local disk.

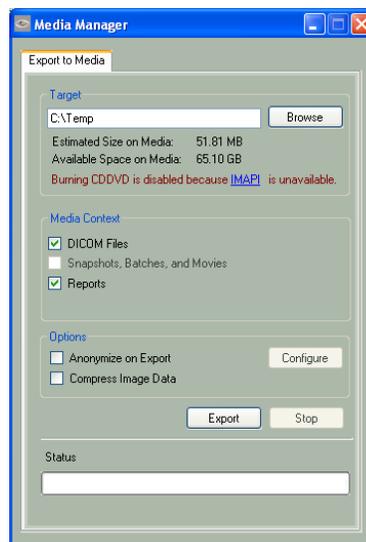
1. Click .

2. Use the Media Manager to browse for a file.
3. Configure searching options.
4. Click **Import**.



## Export Data to Media

Right-click the study and select **Save to Media** to launch export Media Manager.



1. Click **Browse**, then navigate to the destination folder or drive.
2. Select the media to save which include DICOM files, snapshots, batches, movies, or report.
3. Click **Export**.

4. To remove identifying patient health information from the dataset prior to export, select the **Anonymize on Export** check box.

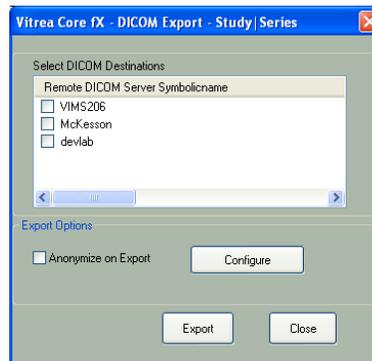
**NOTE:** This creates a special purpose, de-identified version of an already existing dataset. It neither replaces the original SOP instance nor acts as the primary representation of the clinical dataset in image archives. These de-identified images are useful, for example, in creating teaching or research files, where the identity of the patient should be protected, but still be accessible to authorized personnel.

5. To compress image data in order to save space on the media, select the **Compress Image Data** check box.

**NOTE:** This is useful for large datasets exported to CD/DVD media.

## Export Study to DICOM

Right-click the study and select **DICOM Export** to launch the DICOM export manager.

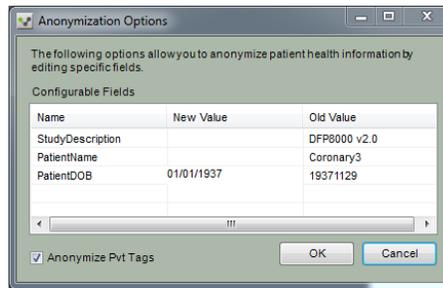


1. Select the DICOM device.
2. To remove identifying patient health information from the dataset prior to export, select the **Anonymize on Export** check box.

**NOTE:** When DICOM data with empty PatientID is imported into the VIMS Server, the StudyUID of the anonymized data will display as the PatientID within VitreaCore.

3. To set the Anonymization Options, click **Configure**.

The Anonymization Options dialog displays:



- a. Enter new values for the specific fields.
- b. To remove private tags from the study, select **Anonymize Pvt Tags**.

**NOTE:** For perfusion studies, it is recommended that you CLEAR the **Anonymize Pvt Tags** checkbox. Perfusion studies require the manufacturer's private tags to build volumes.

**NOTE:** If **Anonymize Pvt Tags** is selected, all private tags, including Vital private tags needed for snapshot restore, are removed from the study. Evidence does not display in the Report tab of the Data Manager, but it does display as a 2D series on the Series tab.

**NOTE:** If **Anonymize Pvt Tags** is cleared, all private tags are retained and any patient information in the private tags remain in the anonymized study. The study has new IDs, but any snapshots would still refer to original study. Evidence does not display in either the Report tab of the Data Manager or as a 2D series on the Series tab for the new patient name.

- c. Click **OK**.
4. Click **Export**.

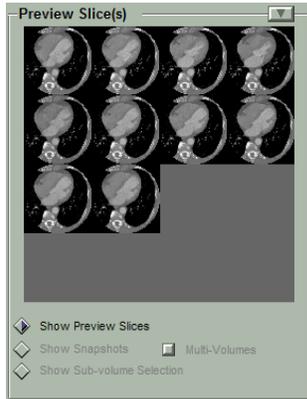
**From here, skip to Viewer Window Tasks on page 76**

# Using the VitreaWorkstation Patient List

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## Preview Pane

The Preview Pane displays images of the selected dataset.



1. Select **Show Preview Slices** to display the middle image of the selected dataset(s). With multiple series selected, an image from each series displays.

**TIP:** To adjust the window/level of the preview slice, click and drag in the image.

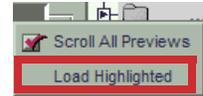
**TIP:** To scroll through the series slices in the Preview Pane, right-click and drag or roll the mouse wheel.

**TIP:** With multiple series selected in the patient list:

- a. Hold CTRL and click one or more preview images to select the desired series.

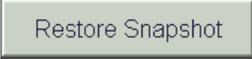


- b. Click the dropdown and select **Load Highlighted** to load only those series.



**NOTE:** Clicking **Load Volume** loads all series selected in the Patient List.

2. Select **Show Snapshots** to display saved snapshots.

**TIP:** Select a snapshot then click  to restore workflow.

**NOTE:** When you restore the workflow to the Viewer window, you lose all manually added pages, images, and annotations.



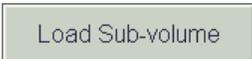
**CAUTION:** Verify the accuracy of all contours and confirm all measurements when restoring snapshots from previous software versions created through the use of region editing.

**TIP:** The **Multi-Volumes** check box indicates whether the snapshot was taken with multiple volumes loaded. Clear the check box to load only the selected volume.



**CAUTION:** Load all associated volumes when you restore a multi-volume snapshot. Attempting to restore the snapshot without loading all associated volumes may yield different Vitrea-generated measurements or calculations than the original calculations. If the workflow you are restoring does not include these measurements, this caution does not apply. It is not advisable to restore a multi-volume workflow if you cannot load all associated volumes.

3. Select **Show Sub-volume Selection** to load a portion of a large dataset.

**TIP:** Drag yellow lines in the preview pane to indicate the range of slices to load, then click .

## Sort and Search Study Information

Use the column headings above the Patient List to sort or search.

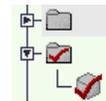
1. To sort, click the desired column header.
2. To search, click the desired column header, then type the first few letters of the search criteria.
3. To filter, click in the **Filter** row under the desired column header, then type the filtering criteria.

Status	/ Patient	ID
Filter		

**NOTE:** You can filter the following columns: Patient, ID, ACC#/CKern, Description, Modality.

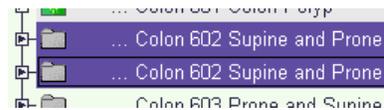
## Show-Hide Volumes

- Use the Show-Hide arrow to the left of the study line to show or hide volumes within a patient study.



## Select Multiple Studies or Volumes

- Press CTRL then click desired studies or volumes.



**TIP:** To select several studies or volumes in order, select the first, press SHIFT, then click the last.

**TIP:** To clear one or more volumes, hold CTRL and click the volume.

## Reconcile or Edit Patient Information

When a patient study arrives on the VitreaWorkstation, Vitrea checks the patient information against all other studies in the patient list. If it finds any patient studies with matching IDs and names that do not match, an alert displays when you try to load the study.

If your site is configured to require reconciliation, you may need to reconcile the studies before you load either of them in Vitrea.

If your site is not configured to require reconciliation, Vitrea warns you about possible duplicate patient studies, but allows you to load them.

Edit patient information for any study or volume.



**CAUTION:** Do not use the Edit Patient feature to anonymize DICOM data. This method does not anonymize DICOM data in a HIPAA compliant manner. To make the patient anonymous in the DICOM file, click Export, then click Anonymize in the DICOM Export dialog box.

**NOTE:** If you edit patient information for a study containing snapshots, the snapshots are deleted. Consequently, you will be unable to restore any previously saved workflows.

**NOTE:** If you edit patient information for a locked study, Vitrea deletes the old study and creates a new, unlocked study.

If there are multiple studies with the same ID but different names, Vitrea alerts you when you try to load the study. Use the Edit Patient feature to reconcile the studies. Edit any study at any time.

1. Right-click the study and select **Edit Patient (or Reconcile Patient)**.
2. Complete information in dialog box.
3. Click Submit.

## Lock/Unlock Studies

Lock important studies to protect from deletion.

1. Right-click the study and select Lock.
2. To unlock, right-click the locked study and select **Unlock**.

## Load Studies

- Select a study (or multiple studies/volumes) in patient list then click .

**TIP:** The **Load Volume** button changes depending on the selections you made in the Preview Pane.



## Archive to CD/DVD

- To archive the selected study to CD/DVD, click .

**TIP:** Save these types of files to CD or DVD:

- Patient DICOM files (.dcm files)
- Patient Volumes (.avol files)
- Patient report files (.htm files posted to the Intranet)
- Patient media files (such as .png, .avi, and preset files)

**NOTE:** If you record one or more volumes on a CD or DVD, and at a later time want to add more volumes, be sure you do not attempt to record the same volume twice on the CD or DVD. If you do this, the CD or DVD becomes unreadable.

## DICOM Export

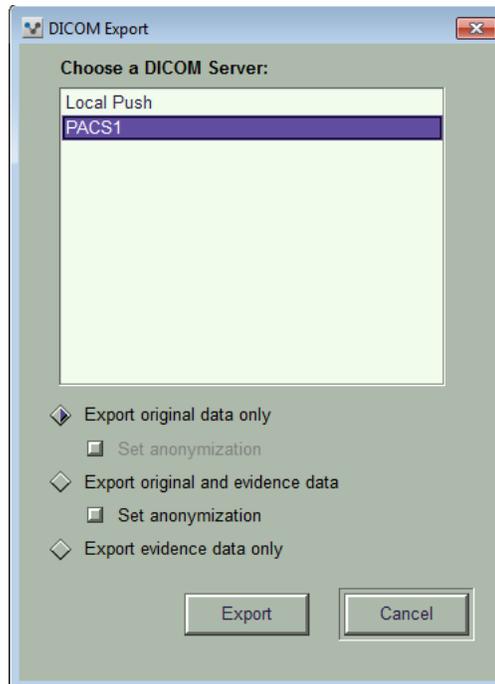
Export original DICOM data, evidence, or both to a DICOM server.

1. Right-click a patient study or volume file, and select **Export**.

**NOTES:**

- Study-level export includes original DICOM data, 3D volumes, and any 2D series. You can also include snapshots and batches.
- Volume-level export includes original DICOM data, 3D volumes, and any 2D series. You can also include snapshots if they are associated with the selected volume. Batches cannot be exported at the volume level.

- When exporting to another VitreaWorkstation, please note that the receiving system must have the original volume data present in order for snapshots to be received and restorable.



2. Select a server from the list.
3. Select **Export original data only**, **Export original and snapshot data**, or **Export snapshots only**.

**NOTE:** Evidence consists of snapshots and batches.

4. To anonymize the patient information, select **Set anonymization**.

**NOTES:**

- Anonymization can only be performed for study-level exports.
- If a study contains evidence, anonymization is only allowed for **Export original and evidence data**.
- Snapshots will not be restorable if they are anonymized.
- Anonymization will not remove demographic information burned into a snapshot or batch image.

5. Click **Export**.

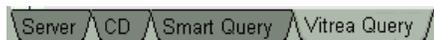
## DICOM/CD/Smart Query

Query any DICOM device or CD/DVD for patient studies. Queried patient data retrieved from DICOM devices contain only the original DICOM slice data. Query other workstations at your site if they are configured as DICOM query devices.

**NOTE:** Vitrea will retrieve at a series level if the DICOM device supports it.

### Query and Retrieve

1. In the Query area, select the tab of the server or CD to query.

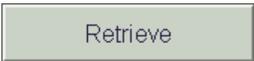


**NOTE:** Server names are unique for your site.

 Contact your System Administrator for the ID of the server where the data is stored and for other information regarding configuring your workstation's query feature.

2. To filter the query results, make selections using the dropdown lists.

A screenshot of a 'DICOM Query' form. It contains three filter fields: 'Studies occurring' with a dropdown menu set to 'Within last 3 days', 'Patient name' with a dropdown menu set to 'Patient name' and an adjacent text input field, and 'Modality' with a dropdown menu set to 'All'.

3. Click .
4. Select the studies in the Query List to retrieve.
5. Click .

**NOTE:** Server names are unique for your site. To get server names, click Server menu in DICOM Query area of the Study Directory. Contact your System Administrator for the ID of the server where the data is stored.

**EXAMPLE** To find studies where names start with I, type **i** in the **Patient Name** field. To find a patient ID, select **Patient ID** from the list and enter the exact patient ID or as much of it as you know, in the field.

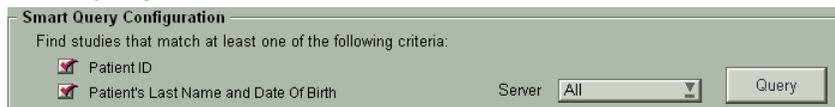
Use an asterisk to indicate a wild card for part of any data value or name, except **Accession Number**.

**NOTE:** If you are querying a DICOM device to verify it received the exported images, and you notice a discrepancy between the number of images listed for the study in the Study Directory and the number listed in the DICOM Query/CD list, check the number of snapshots exported with the study, if any. Vitrea exports snapshots as hidden files and does not include them in the number of images listed on the Study Directory. DICOM devices, however, count the snapshot images as part of the series or study, so the number of images displayed for the study in the DICOM Query/CD list includes them. If you did not export snapshots with the study, or the discrepancy between the number of images is significant, there may have been an export problem. Contact Vital Technical Support for assistance.

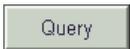
### Find Related Studies (Smart Query)

Use the Smart Query feature to find related patient studies from an archive.

1. Select the study in the Patient List.
2. In the Query area, select the **Smart Query** tab.
3. Set the query criteria.



The image shows a 'Smart Query Configuration' dialog box. It contains the text 'Find studies that match at least one of the following criteria:'. Below this, there are two checked checkboxes: 'Patient ID' and 'Patient's Last Name and Date Of Birth'. To the right of these checkboxes is a 'Server' dropdown menu with 'All' selected, and a 'Query' button.

4. Click  .
5. Select the studies in the Query List to retrieve.
6. Click  .

### Importing DICOM or DICOMDIR Data from Media

When scanners and workstations write data to media, it is usually in a format called DICOMDIR, a standardized media format that specifies the organization of data. When images are saved in DICOMDIR format, a summary file is generated, with some brief information about the data it

references, such as patient name, patient ID, and study description. You can view images saved in this format in Study Viewer or Softread by importing DICOMDIR data from CD into the Study Directory. Then load the images into Softread or the Study Viewer.

---

## Gallery Window Tasks

### Using Modified Presets Use modified presets



**CAUTION:** Wait until segmentation completes before saving a modified preset. The status message at the bottom of the window displays the progress of the segmentation.

To set your own visualization preferences, create a Modified Preset available in the Gallery.

1. Load a study.
2. Select one of the default presets.
3. Change any of these settings on the Viewer window:
  - Viewer window format
  - Imaging controls
  - Display options
  - View options
  - Image appearance
4. When finished, press CTRL-P.
5. Click **OK**.

**TIP:** This saves the settings as a customized preset. The standard presets are not affected.

**TIP:** The next time you select the same protocol, the modified preset is available. All modified preset names contain the word (modified).

---

## Viewer Window Tasks

### Accessing Tools with the Right-click Menu and Tool Panel



For easy access to common tools used for the selected protocol, right-click within a view.

### Panning

Move the image within the viewport by:

- Middle-click and drag.
- Right-click in the image, then click and drag .

### Zooming In and Out

Increase or decrease the magnification of the images by:

- Left + middle-click and drag up or down.

- Right-click in the image, then click and drag .
- Click and drag the Zoom icon in the lower right corner of the view.

The zoom factor (in %) is displayed in the lower right corner of the view.



### Zoom Presets:

- Right-click in the image and click  multiple times to toggle through a series of preset zoom factors.
- Click the Zoom icon in the lower right corner of the view multiple times to toggle through a series of preset zoom factors.



### Adjusting the Window/Level

Adjust the window/level settings of any 2D and MPR views.

1. Right-click in the view, then click .

**TIP:** Or, from the Analysis or Visual tab, click .

2. Click and drag in the view.
  - To make the window wider or narrower, drag left/right.
  - To adjust level, drag up/down.
  - To adjust both at once, drag diagonally.

**TIP:** To specify precise window and level settings, with cursor anywhere in the view, type a number followed by W or L.

**OR**

- With any tool activated, left + right-click and drag in the view.

**OR**

- Right-click in the view, then click and drag .

## Using Predefined Window/Level Settings

To select a preset window/level setting, click the window/level dropdown arrow in the lower right corner of the view and select a value.



1. Select the **Visual** tab.
2. Click the dropdown menu in the Window/Level area.
3. Select an option.

### Create custom window/level settings:

1. Click the dropdown menu in the Window/Level area.
2. Select **New**.

**TIP:** Select **Edit** to edit an existing window/level setting.

3. Complete the **Name**, **Window**, and **Level** fields.

**TIP:** To set the window/level setting as “key,” select the **Key** check box.

4. Click **Save**.

Key window/level settings display as bolded in the Window/Level menu.

### Scroll through key settings to quickly view an area of interest at different settings:

**TIP:** For example, to examine a suspected polyp in a colon study, scroll through the other window/level settings to see if there is air in the area of interest.

- Press INSERT to scroll through the key settings.

## Using the Crosshairs

Move crosshairs and display data values (HU for CT studies; intensity for MR studies) and coordinates in 2D, MPR views.

1. Right-click in the view, then click .

**TIP:** Or, from the Analysis or Visual tab, click .

2. Click and drag in the view to display HU or SI values.

**OR**

Click in the view to place crosshairs.

**TIP:** In 2D views, this displays single pixel data values, but no crosshairs.

**TIP:** Click in the 3D view to move the crosshairs in the MPR views.

## Drawing Rulers and Calipers

### Add simple rulers to 2D or MPR views:

**NOTE:** Perform linear measurements in 2D or MPR views only. It is possible to add rulers to 3D images. If you do, be sure to fully rotate the 3D view to be sure the ruler is placed where you want it.

1. Right-click in the view, then click .

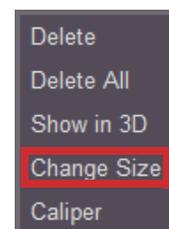
**TIP:** Or, from the Visual tab, click .

2. Click in the view where you want the ruler to start and drag to where you want the ruler to end and release.

**TIP:** You may scroll in the view between endpoints to make a ruler over more than one plane.

**TIP:** To move the number associated with the measurement, click and drag the number.

**TIP:** To change the font size of the number associated with the measurement, right-click the ruler, select **Change Size**, and select a new font size.



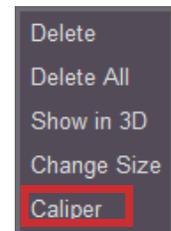
**TIP:** To add the 2D or MPR ruler to the 3D view, right-click the ruler or measurement figure and select **Show in 3D**.

### Add calipers to 2D or MPR views:

A caliper is a ruler or angle drawn on one image that continues to display as you scroll through the view.

**NOTE:** Calipers are not available in 3D views or curved planar reformatted views.

1. Draw a ruler in a 2D or MPR view.
2. Place the cursor on the ruler, right-click and select **Caliper**.
3. Scroll through the view.



### Move Between Rulers and Calipers:

1. Press the SPACEBAR to navigate between images with rulers or calipers.

**NOTE:** When you are navigating to a caliper, Vitrea will display the plane where the caliper was last edited.

### Edit Rulers:

1. Click and drag an endpoint to relocate the end of the ruler. 
2. Click and drag the center of the ruler to relocate the entire ruler. 

**NOTE:** Relocating the entire ruler is only available on single-plane rulers.

### Delete Rulers:

1. Right-click the ruler or measurement figure to select it. 

**TIP:** The ruler turns purple.

2. Select **Delete** or **Delete All**.

## Adding Labels and Annotations

Type text directly onto any image in the Viewer window.

1. Right-click in the view, then click  .

**TIP:** Or, from the Visual or Analysis tab, click  .

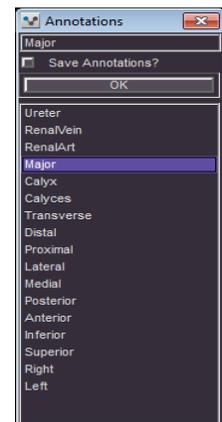
2. Click the image where you want to place the label.
3. Select a term from the list.

**OR**

Type the annotation in the text area.

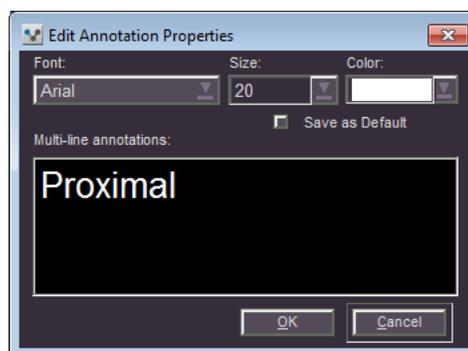
**TIP:** To remove a user-created listing from the annotation directory, right-click it and select **Delete**. Default listings cannot be deleted.

4. Click OK.



**TIP:** To add an arrow to the corner of the label, click the label, position the cursor to the corner where you want the label, and drag.

- To edit a label, double-click the label and make font, size, color, or text changes in the dialog box that displays.



- To reset the font size of a 3D label, right click it and select a new font size.
- To delete a label, right-click it to select, then press **Delete** or **Delete All**.
- To move a label, click and drag it.

- To add a 2D or MPR annotation to the 3D view, right-click it, then select **Show in 3D**.

**NOTE:** For MPR views, text created by annotations, measurements, or labels will fully display on the screen without running off the viewport. If the text is too large to fit within the MPR viewport with the font size selected, the font size will dynamically change to a lower setting which does fit.

**NOTE:** For 3D views, all or part of the text may move or be displayed off the viewport. During rotation or panning of the 3D view, part of the text may be obscured by the volume or overlay views.

**NOTE:** Undo/redo operations are not available for font changes. Re-edit the text to apply changes.

## Taking Snapshots

Capture images to save to PACS, add to a report, or restore workflow.

**TIP:** To hide or show crosshairs in the snapshot, right-click and check or clear **Hide Crosshairs in Snapshot**.

**NOTE:** The Hide Crosshairs in Snapshot setting is saved for all future Vitrea instances.

1. Right-click in the view, then click .

Or, from the Analysis or Visual tab, click .

2. Click in the view.
  - Hold ALT, then click in the view to take multiple snapshots.
  - Hold CTRL, then click in the view to take one snapshot of the whole viewer.

## Trimming the Image

Trim data from an image to isolate areas of interest in 2D and MPR views.

**TIP:** Trimming MPR views also trims the 3D view.

1. Click  to display a yellow trim box.

2. Place the cursor on a corner or side of the trim box and drag it to the new location.

**OR**

With  active, click and drag a colored border around the image.

**TIP:** To reposition the entire trim box, click inside it and drag it to the new location.

**TIP:** To undo the trim, click the Reset Trim Limits icon.



## Drawing Angles

Add angles to 2D or MPR views.

1. Right-click in the view, then click .

**TIP:** Or, from the Visual tab, click .

2. Click and release in the view where you want the ruler to start.
3. Move to the next location for the line segment, then click and release.
4. Repeat step 3 as many times as necessary.

**TIP:** The angle points may be added to different slices.

5. Double-click on the last point to end the line.

**TIP:** To add the 2D or MPR angle to the 3D view, right-click the angle or measurement figure and select **Show in 3D**.

**TIP:** To set the angle as a caliper so that it continues to display as you scroll through the view, place the cursor on the angle, right-click and select **Caliper**.

**NOTE:** The Caliper feature is not available on angles created on more than one slice.

### Delete Angles:

1. Right-click the ruler or measurement figure to select it.

**TIP:** The angle turns purple.

2. Select **Delete** or **Delete All**.

## Adding Arrows

### Add arrows to 2D, MPR, or 3D views:

1. Right-click in the view, then click  .

**TIP:** Or, from the Visual tab, click  . The Arrow tool must be active to use the spacebar to move through the arrows.

2. Click in the view where you want the point and drag to where you want the end.

**TIP:** All views where the arrow intersects display the arrow.

### Delete Arrows:

1. Right-click the arrow to select it.

**TIP:** The arrow turns purple.

2. Select **Delete** or **Delete All**.

**TIP:** To temporarily hide arrows, clear the **Measurements** check box.

### Jump between images that contain arrows:

- Press SPACEBAR to jump forward in sequence through images that contain arrows.
- Press SHIFT-SPACEBAR to jump backward in sequence through issues that contain arrows.

## Drawing Elliptical Contours

Add elliptical contours to 2D and MPR views. Surface area measurements display once you draw the contour lines.

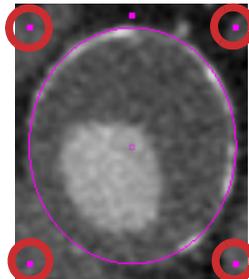
1. Right-click in the view, then click .

**OR**

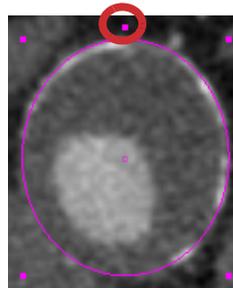
From the Analysis or Visual tab, select the ROI dropdown and click



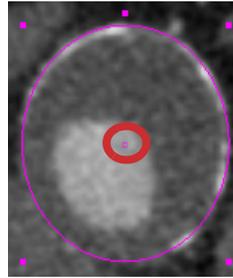
2. Click and drag in the view to draw.
3. To edit an elliptical contour, click one of the corner points and drag to the new location.



4. To rotate an elliptical contour, click the top-center point and drag.



5. To move a contour, click the center square and drag to the new location.



6. To delete the contour, click the contour to select it, then press DELETE.

## Drawing Freehand Contours

Add ROI contours to 2D and MPR views. Surface area measurements display once you draw the contour lines.

1. Right-click in the view, then click .

**OR**

From the Analysis or Visual tab, select the ROI dropdown and click



2. Click and drag in the view to draw.

**OR**

- a. Click around the perimeter of the area of interest placing anchor points.

- b. Double-click to place the final anchor point.

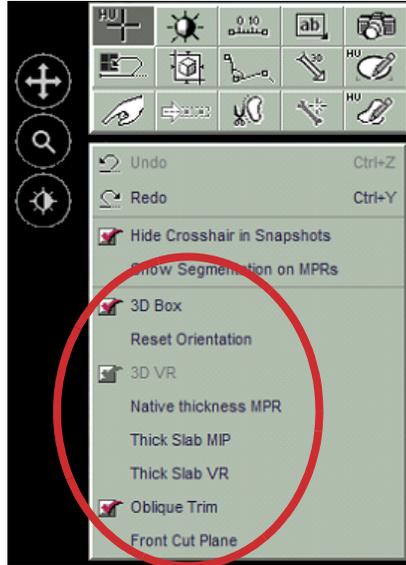
3. To edit a freehand contour, put the cursor on the contour, then drag the edge to the new location.

**OR**

Click to add more anchor points.

## 3D Viewer Functions

Use the 3D-specific options in the right-click menu.



Menu Option	Description
<b>3D Box</b>	Displays a yellow 3D box around the volume indicating the oblique trim plane position.
<b>Reset Orientation</b>	Returns you to the initial orientation.
<b>3D VR</b>	This option is grayed out in normal mode. If you are in one of the bottom 4 modes on the right-click menu, select 3D VR to return to normal mode and turn off the cut planes.
<b>Native Thickness MPR</b>	Displays an image with original scan thickness.
<b>Thick Slab MIP</b>	Displays a 10mm thick MIP image.
<b>Thick Slab VR</b>	Displays a 10mm thick volume rendered image.
<b>Oblique Trim</b>	To trim in an oblique plane.
<b>Front Cut Plane</b>	Displays a 1 cut plane. Use this option to view heart chambers.

If you select the Native Thickness MPR, Thick Slab MIP, Thick Slab VR, or Front Cut Plane option from the right-click menu, it allows you to view a different part of the volume by clicking and dragging. The center of rotation is in the middle of the volume view.

- Click and drag in the center of the volume view to pivot the view on the cut plane.
- Pan to move the volume and change the center of rotation.

- Right-click and drag up and down to move the cut plane closer or farther away from the eye.
- Right-click and drag right and left to adjust the slab size.
- Click and drag on an outer edge of the view to rotate the volume.

## Switching Active Volumes

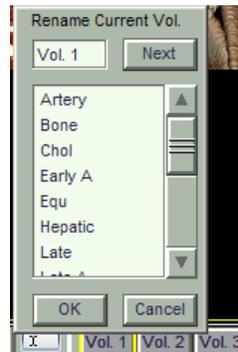
With multiple volumes loaded, switch the selected volume by using the Volume Navigation buttons at the bottom of the Viewer window.



**NOTE:** The Volume Navigation buttons display when there are two or three loaded volumes, and are available with all protocols except Liver CT, Brain Perfusion, Body Perfusion, Colon CT, Aorta Stent CT, and all Cardiac CT.

**TIP:** To change the label on the button for the currently selected button:

- Click  and select a name or type a new one.



- Click  to go on to the next volume, or click  to finish.

## Performing Segmentation

Segmentation is a way of isolating some parts and removing other parts of a volume. With Anatomy Segmentation, you assign definitions to various regions and apply visualization settings to each region.

### Automatically Segment Bone

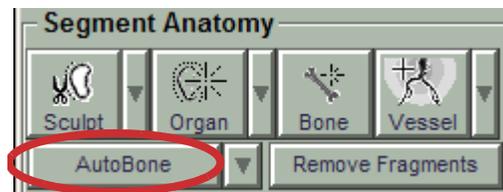
The automatic bone segmentation will perform best when the HU intensity of the vessel lumen is below 1550 HU. If there are artifacts, such as metal

artificial joints, present in the image, the automatic segmentation will perform best when the HU intensity of the artifacts is below 1976 HU.

**NOTE:** Automatic Bone Segmentation is available for the following protocols:

- Vascular: Aorta CT
- Vascular: Carotid CT
- Vascular: CoW CT
- Vascular: Runoff CT
- Vascular: Renal CT
- Generic CT
- Abdominal CT
- Larynx/Airway CT

1. In the Segment Anatomy area, click **AutoBone**.



**TIP:** If you have multiple volumes loaded, click the dropdown to choose:

- **This Volume** - applies bone segmentation to the currently selected volume only.
- **All Volumes** - applies bone segmentation to all loaded volumes.
- **Current - Apply all Volumes** (for coincident studies only) - applies bone segmentation to the current volume then segments the same voxel locations in the other volumes.

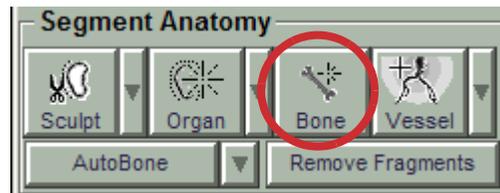


**NOTE:** If there was previously-performed bone segmentation, a dialog will display that allows you to replace the existing bone region or to merge the bone regions.

2. Review the segmentation and use the Manually Segment Bone technique to segment any additional bone regions.

## Manually Segment Bone

1. In the Segment Anatomy area, click **Bone**.
2. In the 3D view, click on a bony area.



**OR**

In the 2D view, click a portion of cortical (brightest white) bone.

Vitrea displays a blue overlay on areas that will be segmented. Use this as a guide to determine if you need to include more or less to the selected area.

**TIP:** Be sure the blue overlay is on bone areas only. If it displays on vessels, click **Less**, or adjust the HU slider, to select a smaller HU range.

3. To remove a portion of the selected (blue) area:
  - a. Place the cursor over the area until a purple overlay displays.
  - b. In the 3D view, roll the mouse wheel to increase or decrease the size of the purple overlay.

**OR**

In the MPR views, press the + or - keyboard keys.

  - c. Click the purple overlay.

That area will not be segmented with the rest of the Bone area.

4. From the in-viewer Multi-pick Bone box, click **Less** or **More** as needed.

**TIP:** The **Less** and **More** buttons decrease or increase the HU range by 20.

5. Adjust the HU slider bar to adjust the HU range as needed.



**TIP:** You can also click an HU number and enter a specific value.

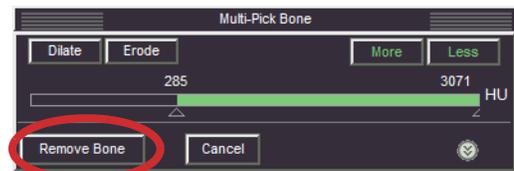
6. Click **Dilate** or **Erode** as needed.

**TIP:** The **Dilate** and **Erode** buttons decrease or increase the selected area by 1 pixel in the 2D views and 1 voxel in the 3D views per click.

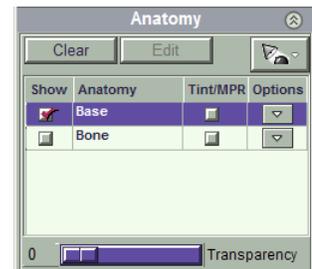
**TIP:** When you use the **Dilate** button, be sure the blue overlay does not “bleed” into an area you do not want selected.

7. Repeat from step 2 to segment all the bones in the view.

8. Click **Remove Bone**.



Vitreia adds a listing to the Anatomy Management area. The default show setting for **Bone** is unselected, so it does not display.



**NOTE:** With two or three coincident volumes loaded, an **All Phases** check box displays so you can select to have the segmentation apply to all phases loaded.

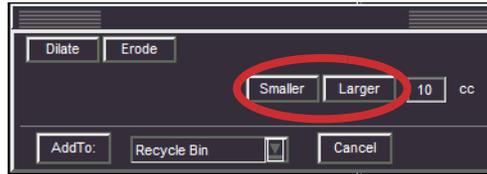
**NOTE:** Vitreia does not save a manually adjusted HU range. The next time you click on a bone region, the default HU range is used.

## Remove Fragments

1. To remove fragments, click **Remove Fragments**.
2. Review the blue overlay to be sure all the fragments are selected.

**TIP:** Review the blue overlay to be sure only fragments, and not vessels, are selected.

**TIP:** To adjust the size of the fragments selected, click the **Smaller** or **Larger** buttons.



3. Verify that the Add To dropdown indicates

**Recycle Bin**, then click **Add To**.



Vitreia adds a listing to the Anatomy Management area. The default show setting for **Recycle Bin** is unselected, so it does not display.

4. In the Anatomy Management area, select **Base** to change the window/level settings.

5. Right-click in the 3D view, then select .

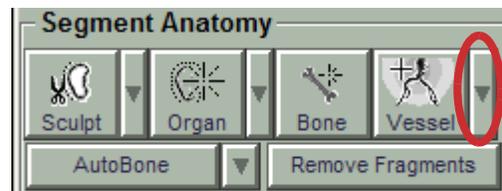
6. Click and drag in the view.

**TIP:** Drag up to remove tissue from the view. Drag down to bring in tissue to the view.

### Segment Vessels Using Single-click Picking

1. In the Segment Anatomy area, click the drop down arrow.

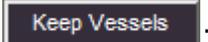
2. Click .



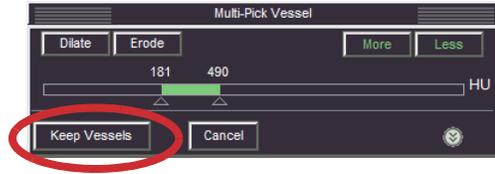
3. Click a vessel in the 3D view.

4. Adjust the selection area as necessary, using the blue overlay as a guide.

**TIP:** Click on more vessels to add them to the Vessels listing.

5. Click .

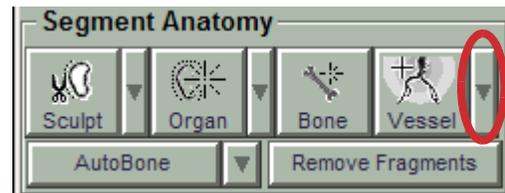
Vitrea adds a listing to the Anatomy Management area.



**NOTE:** With two or three coincident volumes loaded, an **All Phases** check box displays so you can select to have the segmentation apply to all phases loaded.

### Segment Vessels Using Dynamic Growing

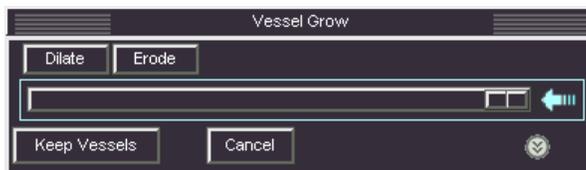
1. In the Segment Anatomy area, click the drop down arrow.



2. Click .

3. Click and hold on the vessel to grow the vessel branches.

4. Adjust the selection area with the Vessel Grow slider. Use the cyan area in the image as a guide.



**TIP:** Apply MIP rendering and some thickness to the MPR views to better visualize the selected area.

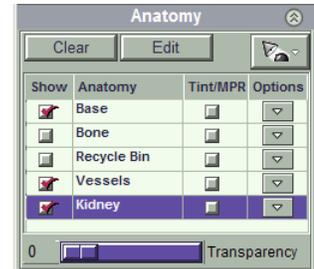


5. Click .

**NOTE:** The W/L settings of the view determine what is selected. Before beginning this workflow, adjust the W/L so the vessel is visually distinct from surrounding tissue. Doing so will reduce the chance of accidentally selecting other nearby tissue.

Vitreia adds a listing to the Anatomy Management area.

**NOTE:** With two or three coincident volumes loaded, an **All Phases** check box displays so you can select to have the segmentation apply to all phases loaded.

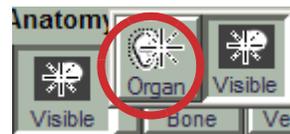
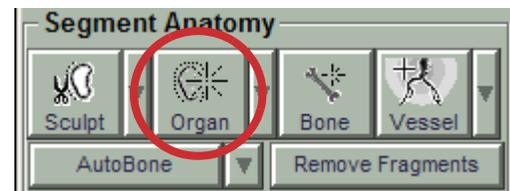


## Segment Organs

**TIP:** If necessary, adjust the **Base** window/level settings so the organ appears to be full and solid.

1. In the Segment Anatomy area, click **Organ**.

**TIP:** If necessary, click the dropdown to select the **Organ** button.

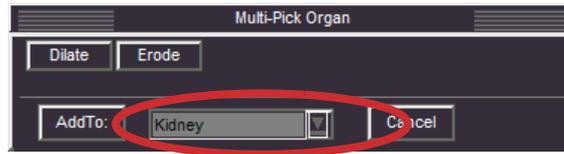


A green overlay displays around the cursor.

**NOTE:** It is possible to perform organ segmentation in the oblique MPR mode; however, the green overlay will not display.

2. To increase or decrease the HU density range of the voxels to be included in the selected region, press the + or - key.
3. Click the organ.
4. If only a portion of the organ is selected (blue), keep selecting the organ until the segmentation is complete.
5. Scroll through the view to verify the organ is correctly selected.

- In the dropdown box, select and highlight **Other** in the box and type the name of the organ.

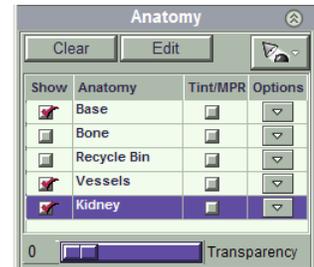


- Click **Add To**.

Vitrea adds a listing to the Anatomy Management area.

**NOTE:** For visibly distinct regions, use the Visible button and apply the workflow above.

**NOTE:** With two or three coincident volumes loaded, an **All Phases** check box displays so you can select to have the segmentation apply to all phases loaded.

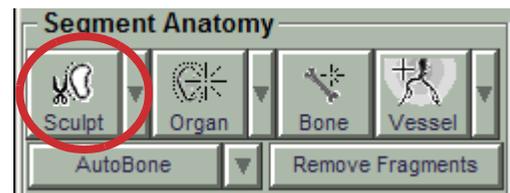


## Sculpting in 3D

**NOTE:** Vitrea does not allow using the Sculpt tool to edit any of the following existing regions: nodules, tumors, liver resection regions, or brain perfusion summary map regions. Use the Edit tool to edit these regions.

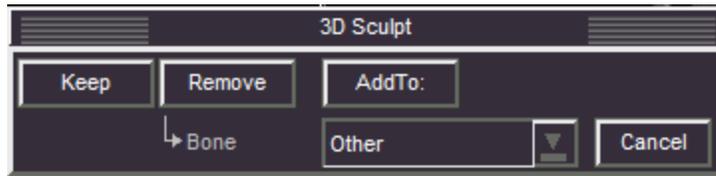
Sculpt in the 3D view to create a new region or add to the Base or Recycle Bin regions.

- In the Segment Anatomy area, click **Sculpt**.
- In the 3D view, draw a contour around the region to sculpt.



- In the 3D Sculpt dialog, choose an option:
  - Keep** - adds the data within the contour to the region listed below the button (a region that is showing)
  - Remove** - adds the data within the contour to the region listed below the button (a region that is hiding)

- **AddTo:** - adds the data within the contour to the region listed in the dropdown. Click the dropdown arrow to change the region.



**NOTE:** With two or three coincident volumes loaded, an **All Phases** check box displays so you can select to have the segmentation apply to all phases loaded.

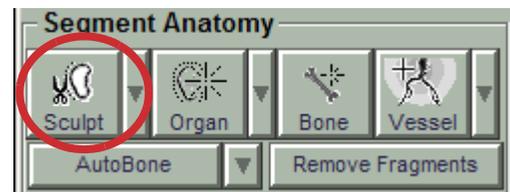
### Sculpting in an MPR

**NOTE:** Vitrea does not allow using the Sculpt tool to edit any of the following existing regions: nodules, tumors, liver resection regions, or brain perfusion summary map regions. Use the Edit tool to edit these regions.

Sculpt in the MPR view to create a new region or add to the Base or Recycle Bin regions.

1. In the Segment Anatomy area, click **Sculpt**.

**TIP:** To maximize the MPR view, click .



2. Draw a contour around the region of interest.
  - Click, hold, and drag to draw a true freehand contour.
  - Click, release, and drag to draw a contour that attempts to automatically define the edge of the region (based on HU units).

**TIP:** To aid drawing the automatic contour, click along the region to drop anchor points.

3. Scroll a few slices, then repeat step 2.

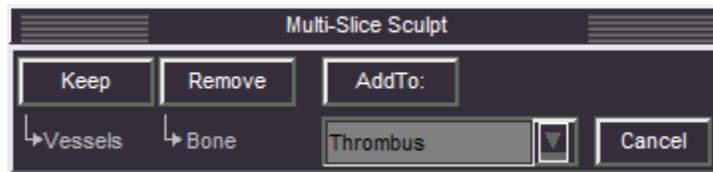
**NOTE:** Interpolated contours between automatic contours are truly interpolated and do not necessarily follow the edge of the region. Edit interpolated contours if necessary.

4. Continue to scroll and draw until you reach the last slice displaying the region.

**TIP:** Vitrea automatically displays a colored surface on the 3D view.

5. If you had the MPR maximized, minimize it to see the 3D view.
6. Rotate the 3D view to verify that the surface contains the whole area to sculpt.
7. Verify the correct region name is listed in the Region dropdown, then click **Add To**.

**TIP:** Click the dropdown to change the region.



**NOTE:** With two or three coincident volumes loaded, an **All Phases** check box displays so you can select to have the segmentation apply to all phases loaded.

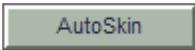
### Automatically Segment Skin

**NOTE:** Automatic Skin Segmentation is available for the following protocols:

- Vascular: Aorta CT
- Vascular: Carotid CT
- Vascular: CoW CT
- Vascular: Runoff CT
- Vascular: Renal CT
- Generic CT
- Abdominal CT
- Larynx/Airway CT
- Liver CT

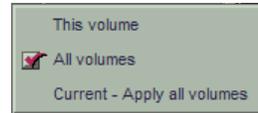
1. In the Segment Anatomy area, click the dropdown arrow, then select **AutoSkin**.



2. Click .

**TIP:** If you have multiple volumes loaded, click the dropdown to choose:

- **This Volume** - applies skin segmentation to the currently selected volume only.
- **All Volumes** - applies skin segmentation to all loaded volumes.
- **Current - Apply all Volumes** (for coincident studies only) - applies skin segmentation to the current volume then segments the same voxel locations in the other volumes.



**NOTE:** If there was previously-performed skin segmentation, a dialog will display that allows you to replace the existing skin region or cancel the request.

**NOTE:** The show or hide properties of the skin region is dependent upon the selected visibility option.

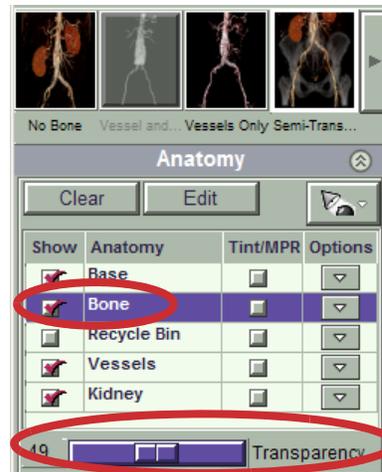
### Re-display the Bone and Make It Semi-Transparent

1. In the Anatomy Management list, select **Bone**.

2. Drag the **Transparency Slider** to the desired value.

**TIP:** The bone in the view changes transparency as you drag the slider.

**TIP:** Click a visibility preset button.



## Tint Regions in MPRs

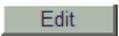
1. In the Anatomy Management list, select a listing.
2. Select the **Tint/MPR** check box for that region.

**TIP:** The MPR views display a tinted overlay for the selected region(s).

**NOTE:** The tinted area may appear to be too big, too small, or to overlap in certain cases, for example, in oblique orientations or extremely zoomed views. This is a result of the sub-voxel rendering. The contours that define the tinted area are still correct, regardless of how the tinting appears to display.



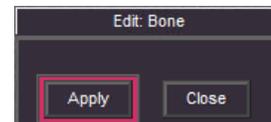
## Edit Regions

1. Select a region.
2. Click .  
Contours defining the region display in the MPR views.
3. Choose which MPR view to work in.

**TIP:** To maximize the MPR view, click .

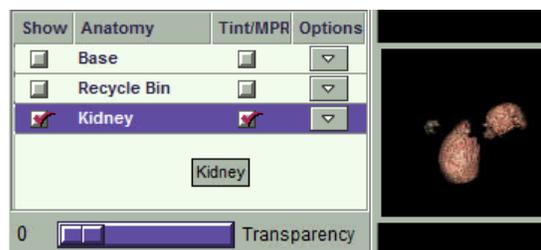
4. Click and drag the edge of the contour.
5. Scroll, and continue editing.

6. Click .



## Display a Thumbnail of a Region

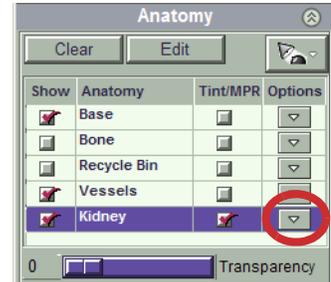
1. In the Anatomy Management list, hover over a listing.



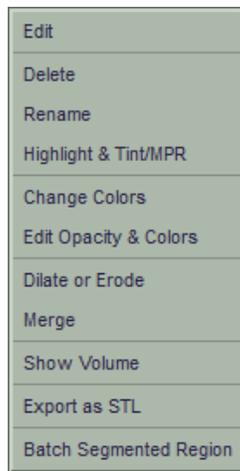
A small view of the region displays, even if the region is currently hidden.

## Manage the Regions

1. In the Anatomy Management list, click the **Options** dropdown for a listing or right-click a listing.



2. Select an option:



**Edit**—Edit the contours defining the region. Same as the **Edit** button. See [page 99](#).

**Delete**—Delete the region from the list and return it to the Base region.

**Rename**—Rename the region. See below.

**Highlight & Tint/MPR**—Tint the region in the MPR views. Same as the **Tint/MPR** check box. See [page 99](#).

**Change Colors**—Change the color of the region. See [page 101](#).

**Edit Opacity & Colors**—Create a custom color scheme. See [page 102](#).

**Dilate or Erode**—Dilate or Erode the region.

**Merge**—Merge two regions. See [page 101](#).

**Show Volume**—Display the volume measurement of the region in the 3D view. See [page 129](#).

**Export as STL**—Export the region as an .stl file.

**Batch Segmented Region** — Create a new DICOM series in which all voxels outside the segmented region are masked (“blackened out”).

**NOTE:** Not all options are available for the Base region.

3. To Rename a Region, right-click the region name and select Rename.

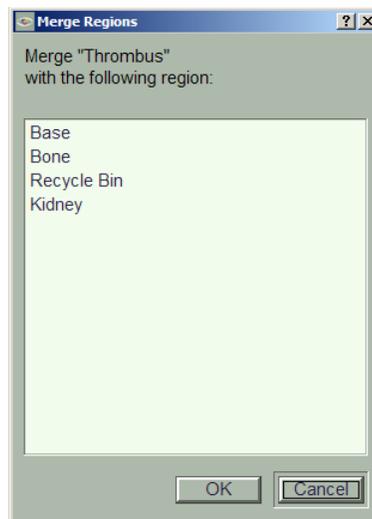
**NOTE:** Vitrea reserves certain names (depending on the protocol) for protected or non-editable regions. If you attempt to name a non-protected region to a protected region name, Vitrea will include a

numeral at the end of the name. For example, if you attempt to rename a region called “Other” to “Tumor,” Vitrea will change it to “Tumor-0.”

4. To Delete a Region from the List, right-click the region name and select Delete. The region is added back to the Base region.

### Merge Regions

1. Select a region and right-click.
2. Select **Merge**.
3. Select another region from the list.



### Change the Appearance of a Region

1. In the Anatomy Management list, select a listing.
2. Click the **Options** dropdown in the listing.
3. Select **Change Colors**.



4. Choose a preset.

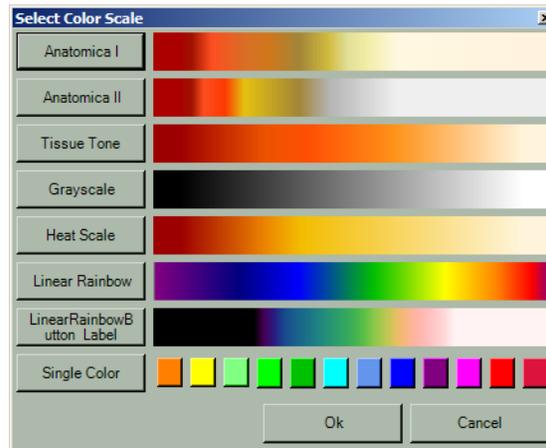


The selected region changes to match the preset you clicked.

**OR**

Click  .

5. Select a color scheme from the menu.



6. Click **OK**.

### **Create a Custom Color Scheme**

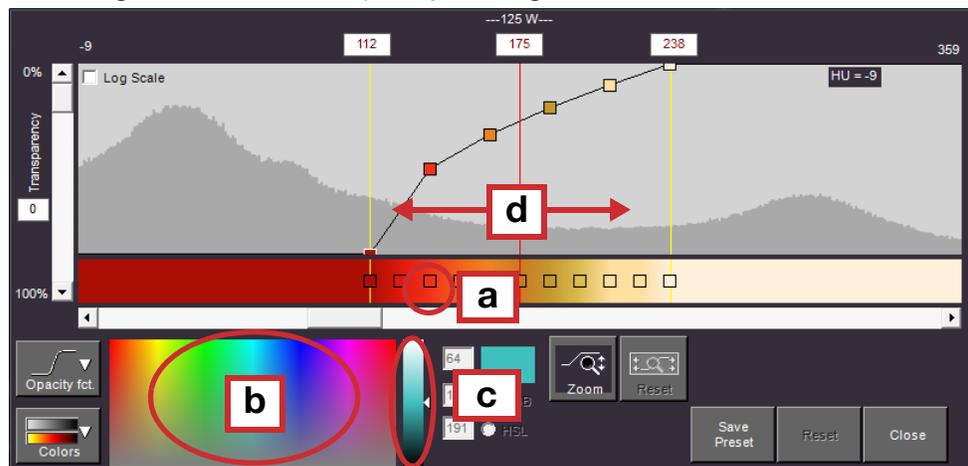
1. In the Anatomy Management list, select any listing.

2. Click the Options dropdown.

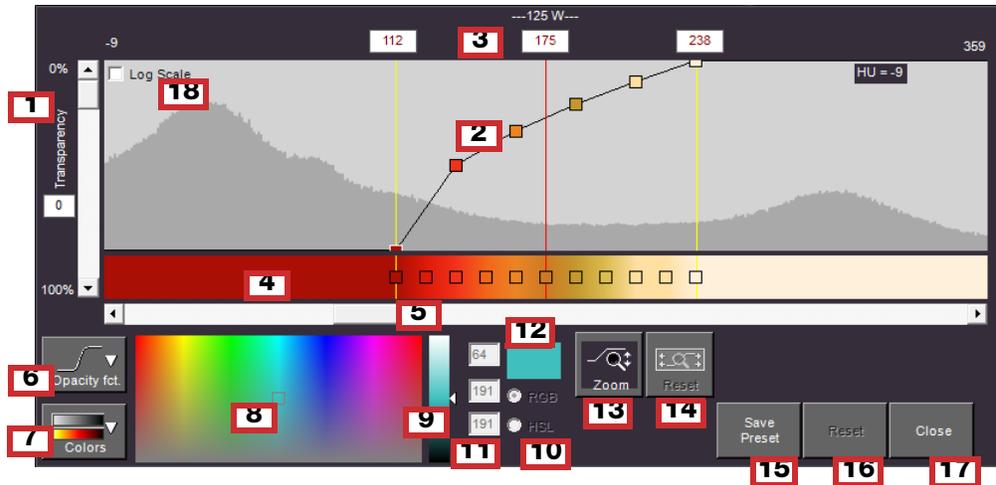


3. Select **Edit Opacity and Colors**.

4. Change the color and opacity settings as desired.



- Click a box in the color point bar.
- Choose a color in the color panel.
- Adjust the hue.
- Click and drag the W/L bars to adjust the HU.



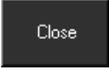
Callout	Description
1	<b>Transparency Setting</b> — Drag the slider (or type a value) to adjust the percent opacity.
2	<b>Curve Editor</b> area — Drag control points to adjust opacity curve. Double-click along curve line to add control points.
3	<b>Window/Level Range</b> — Drag the yellow lines to adjust the window width. Drag the red line to adjust the level. <b>OR</b> Enter values in the text boxes that correspond to the lines.
4	<b>Color Gradient</b> — Click a box in the color scale, then choose a color for that point.
5	<b>Curve</b> scroll — Drag to scroll along the length of curve.
6	<b>Opacity fct. (function)</b> button — Click to display preset opacity curve options.
7	<b>Colors</b> button — Click to display preset color gradient options.
8	<b>Color Picker</b> — Click a color to set the selected point of the curve.
9	<b>Shade Selector</b> — Drag the arrow along the bar to adjust the shade of the selected color.
10	<b>Color Model</b> options — Select <b>RGB</b> to use the Red Green Blue color model. Select <b>HSL</b> to use the Hue Saturation Lightness color model.
11	<b>Color Model Values</b> — Type specific values for the RGB or HSL color models. The range is 0 to 255.
12	<b>Sample Color Swatch</b> — Displays the sample color you selected.

Callout	Description
13	<b>Zoom</b> button — Click and drag upward to zoom in on the Curve Editor. Click and drag downward to zoom out.
14	<b>Reset Zoom</b> button — Click to reset the Curve Editor zoom level.
15	<b>Save Preset</b> button — Click to save the settings as a preset.
16	<b>Reset</b> button — Click to reset the settings to the default.
17	<b>Close</b> button — Click to close the VR Editor.
18	<b>Log Scale</b> — Select this box to apply logarithmic scaling.

5. Click  and choose an opacity curve.

6. Click  and select a color gradient.

**TIP:** To save your changes as a new preset, click  and type a name and click **Save**.

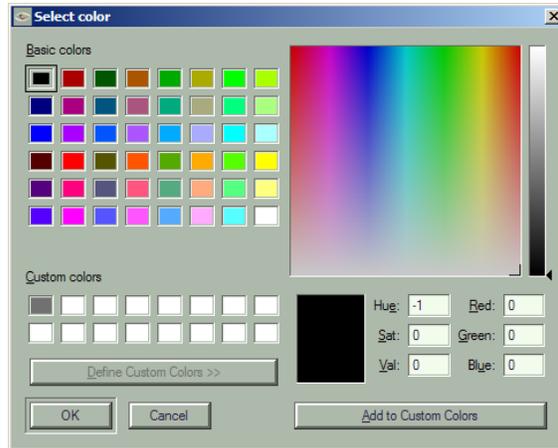
7. Click .

### Setting Lighting and Visualization Options

Lighting illuminates an image to allow you to see it more clearly. There are several ways to adjust lighting settings.

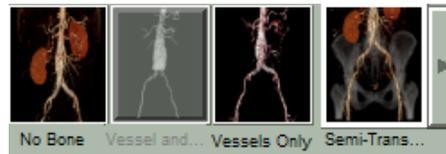


- To change the 3D image background color, click **Lighting** and select **Select 3D Background Color** to display a color palette.



## Change the Appearance of the Whole View

- Click a visibility preset option



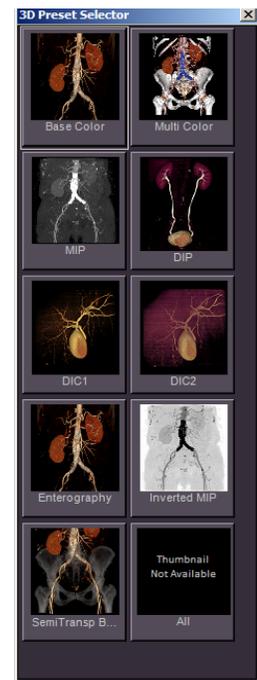
**TIP:** Click



to expand the preset

selector options.

**TIP:** The scene changes to match the preset you selected.



## Multi-Volume Fusion

Create a fused 3D image by combining two to four series.

1. Load 2, 3, or 4 series.

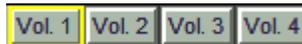
**NOTE:** The volumes must have the same frame of reference or be coincident (for comparative viewing).

2. Select a protocol and the **Dual Vol** preset.

**NOTE:** Multi-Volume Fusion is only available with the following protocols:

- Generic CT
  - Abdominal CT
  - Larynx/Airway CT
  - Lung CT: Airway Analysis and Pulmonary Analysis presets only
  - Musculoskeletal CT
  - All Vascular CT protocols, except TAVR and Stent Planning
  - All MR protocols, except Brain MR
  - All XA protocols
3. Perform segmentation and trimming to best display the desired regions in all volumes.

**TIP:** To switch the currently selected volume, click the volume buttons at the bottom of the viewer window.



4. Select the **Fusion** check box.

A fused 3D volume displays in the selected volume (with “Fusion” indicated



in the lower right corner) and region listings for all the volumes display in the Anatomy Management list.



**NOTE:** When the **Fusion** check box is selected, the 3D image may appear slightly less concentrated than the non-fused image.

5. Use any of the Anatomy Segmentation features (transparency, tint MPRs, preset options, etc.) with any of the regions.

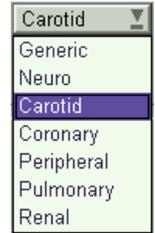
**NOTE:** Keep the following information in mind while working with fused volumes:

- The crosshair location will be determined by the first visible intersection point in the fused view.
- Regional window/level and visualization settings still apply in the fused view.
- Arrows and rulers placed in a single volume will display in the fused volume.
- Arrows drawn on the fused volume will be associated with the base series (the series that the others are fused into).

## Vessel Type Drop-down List

The vessel type is determined by the protocol you select.

**EXAMPLE** If you select the **Carotid CT** protocol, the Carotid vessel type is selected by default. If you select the Generic CT or MR protocol, the Generic vessel type is selected by default.



The Vessel Type dropdown list specifies the type of vessel you are probing according to the following maximum diameters:

Generic	18.0mm
Neuro	7.0mm
Carotid	14.0mm
Coronary	7.0mm
Peripheral	10.0mm
Pulmonary	9.0mm
Renal	8.0mm

## Performing Vessel Probe

When you probe a vessel, the Vitrea software traces the vessel lumen, highlighting it with a vessel indicator line. The vessel indicator displays in the 3D view. If you work in Curved MPR mode, the software plots a line through the center of the vessel lumen in one of the views. If you work in Oblique MPR mode, the software automatically displays the best view of the vessel in an oblique plane, along the length of the vessel.

**NOTE:** Because of the high HU value of contrast media in 100kV scans, the reliability of calcium detection within the vessel lumen is expected to be lower than that of regular kV scans.

**NOTE:** Vessel Probe is not recommended for probing the aorta.

1. Right-click in the view, then click .

**TIP:** Or, from the Analysis tab, click .

2. Click the vessel.

**TIP:** Vitrea adds a listing to the Vessel Management area.

**TIP:** If the probe tool did not select enough of the vessel, extend it:

- a. Right-click in the view, then click .
- b. To extend the vessel, click a point farther along the already selected vessel.
- c. To refine the vessel indicator line, drag the cursor along the vessel indicator line to a desired end point and click.

**NOTE:** As you drag the cursor, the vessel indicator line disappears. It will not be removed until you click.

**TIP:** To edit what the probe tool selected:

- a. Click .

The cursor changes to a pen.

- b. Assess the centerline to verify accuracy.
- c. Move the cursor (pen) to a specific point along the centerline and click to plot a point to modify the path of the vessel centerline.

**NOTE:** As you plot points, a new red line displays to show you how the centerline displays if you click . This line displays as a reference line in the 3D view.

- d. If necessary, move the cursor (pen) to a different point along the centerline and click to plot a point. Continue to plot all additional points. As you plot additional points, the line updates to go through all the user control points.

**NOTE:** Click and drag the line and it dynamically shows the resulting line as you drag. The point displays after you release the mouse button.

**NOTE:** Rotate, zoom, and scroll the curved view while the line is being created.

**NOTE:** Hover over a plotted point. The pencil changes to a hand. Click to move the plotted point.

**NOTE:** Click  if you want to clear the red centerline and start over.

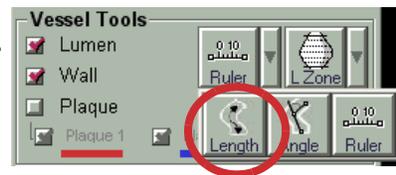
- e. Click  to apply the modified (red) centerline to be the final centerline.

## Measure Centerline Length

The Length tool measures length along the centerline between two points on the vessel centerline.

1. Click  to change the volume view to a 1-up image and display a vessel probe view.

2. Click  located under Vessel Tools.



3. Click and drag to draw a length measurement between two points on the vessel.
4. Click and drag either end to edit the length.

The value of the length displays at the proximal end of the length measurement. It represents the length along the centerline between the two specified points.

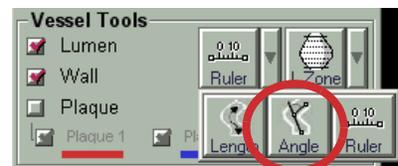
## Create Centerline Angles

The Angle tool creates an angle along the centerline.

1. Click  to change the volume view to a 1-up image and display a vessel probe view.

2. Click the dropdown for the first button located under Vessel Tools.

3. Select .



4. In the curved view, click and release to start the angle.

5. Move the cursor to the vertex location on the centerline and click and release.
6. Move the cursor to the end point of the angle and click and release to complete the angle.

## Define a Lesion

The Lesion tool defines a lesion in the vessel in either of the CPR views.

1. In the Vessel Tools area, click the dropdown for the second button.

The dropdown contains the following tools:



**Single** – When you draw a lesion using the Single method, Vitrea identifies a point as the reference point. Vitrea displays the area and minimum diameter at the narrowest point and at the reference point, and uses these measurements to calculate the area and diameter stenosis.

**TIP:** The reference point may need to be moved manually.



**Average** – When you draw a lesion using the Averaged method, Vitrea calculates the average of the area and minimum diameter for the start and end points. It compares these measurements to the area and minimum diameter at the narrowest point to create stenosis measurements.



**Dual** – When you draw a lesion using the Dual Reference method, Vitrea calculates the average of the area and minimum diameter for the reference points marked with green lines. It compares these measurements to the area and minimum diameter at the narrowest point to create stenosis measurements.

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**Volume** – When you draw a region using the Volume method, Vitrea displays the volume of the lumen and outer wall. It also identifies the maximum outer wall diameter. Use this option for thrombosed regions.



**Landing Zone** – Use the Landing Zones option to define specific regions for in-depth analysis.

2. Select a tool.
3. Click in the CPR view just above the start of the lesion and drag to just below the end.



**TIP:** Vitrea adds an entry in the Vessel Management area.

**TIP:** Vitrea identifies:

Feature	Identified by
Identified lesion	Cyan lines
Point of maximum narrowing (stenosis)	Red arrows
Lumen diameter at the stenosis point	Number in the curved view with red border, corresponding to the red arrows (displays in the two-up curved view)
Reference point(s) for single or dual-reference lesions	Green line(s) <ul style="list-style-type: none"><li>• Be sure to review the locations of each reference line and decide if it is accurate for the identified lesion. If necessary, drag the green line to move it to the nearest normal section of vessel.</li></ul>

Feature	Identified by
Lumen diameter at the reference point	Number(s) in the curved view with green border, corresponding to the green line(s) (displays in the two-up curved view)
Stenosis measurements	Table at the bottom of the CPR view

Stenosis:  
Area: 11%  
Diam: 12%  
Length: 88.7mm

## Define a Landing Zone

Use the Landing Zone option to define specific regions for in-depth analysis.

1. Click .
2. Click the dropdown for the second button in the Vessel Tools area.
3. Select .

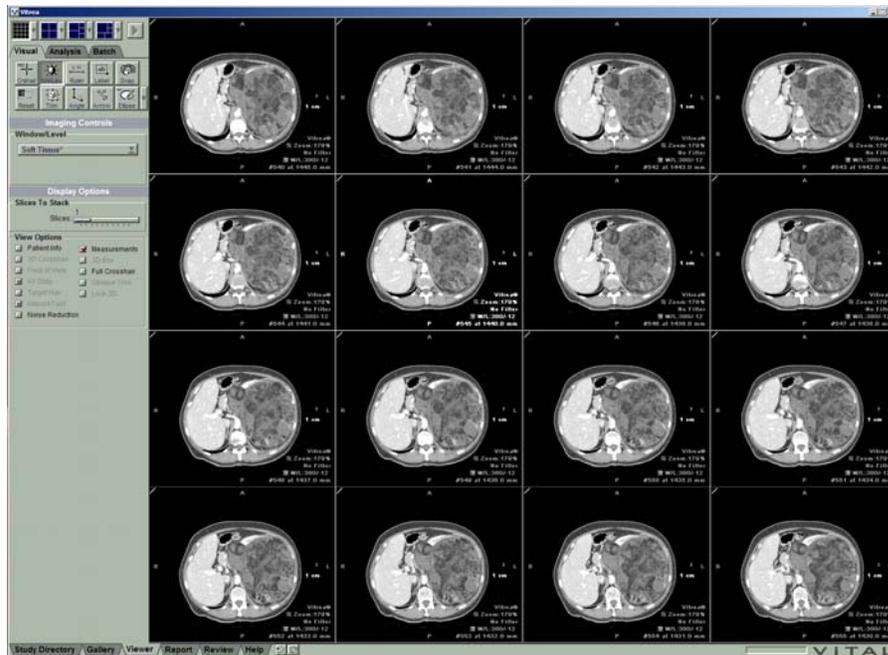


4. Click and drag in the curved view to define the proximal and distal ends of the zone.

**TIP:** After you define the landing zone, it displays in the Measurements box. Right-click to rename the landing zone.

5. View the diameters for the landing zone.

# 2D Imaging



Use the 2D formats to view slices as they were acquired by the scanner. Four labels display along the sides of the views indicating orientation of the image: S - Superior, I - Inferior, A - Anterior, P - Posterior, L - Left, R - Right.

**TIP:** Change the view orientation placing the cursor over the upper-left corner of the view  and dragging the corner to another corner of the view .

**TIP:** To resequence views, click and drag the upper-left corner of a view pane to another view pane.

## Scrolling Through Slices

Scroll through slices in a particular Montage slice view, as though you were seeing a movie made from a series of slices. Scroll manually or autoscroll through 2D slices.

Scroll by:

- Right-click and drag up or down
- Roll the mouse wheel up or down
- Press RIGHT or LEFT ARROW
- To autoscroll, press SHIFT, then right-click and drag
- To page through images, press PAGE UP or PAGE DOWN

## Displaying a 2D Montage

1. Select a Viewer window layout that shows four, nine, or sixteen slices. 
2. Roll the mouse wheel in any of the 2D slice views to scroll through the slices.
3. Use any of the Visual or Analysis tab buttons to complete workflow.

## Stacking Images

Create 2D images from the average data values of up to 10 slices. This is useful when viewing a volume scanned using a very small slice thickness.

- Click and drag the Slices to Stack slider to the number of slices you want to use in the stack. 

## Performing 2D Comparative Review

Review multiple volumes for the same patient ID using the 2D All Exams Viewer window format .

1. Load multiple volumes (2 - 25) from the Study Directory.
2. Select the desired protocol.
3. Select a preset that includes the All Exams  format.

**TIP:** Or, select the All Exams format from the Viewer window.

**TIP:** Adjust individual visual settings, such as window/level, and orientations.

4. To group the images, click the upper-left corner of each view to include in the group.

**TIP:** The corner and border of the view turns yellow to indicate that it is included in the group.

5. Right-click and drag in any grouped image to scroll through all grouped images.

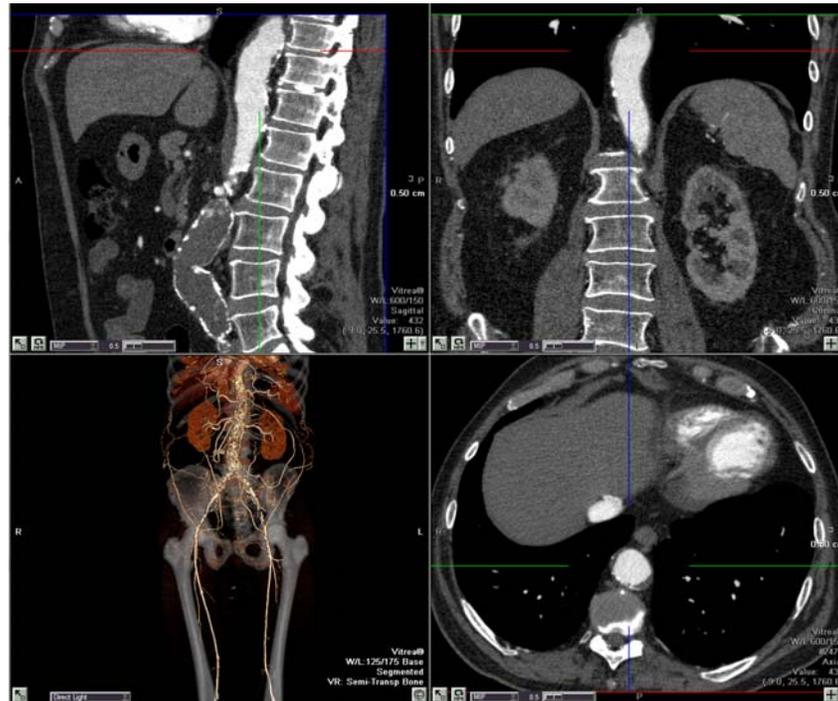
**TIP:** All images scroll side-by-side locked at the slices you selected when you grouped the images.

**TIP:** To remove a volume from the group, click the upper-left corner of each view containing an image you want to remove from the group.

**TIP:** To return to viewing a single volume, click any viewer window format button.

# MPR Imaging

With most 3D view format options, three MPR (Multi-Planar Reformatted) images also display in the Viewer window along with the 3D view.



In Orthogonal MPR mode the three MPR images lie in sagittal, coronal, and axial planes. The border color indicates the plane the image lies in while the colors of the crosshairs indicate the other two MPR views.

Orientation	Border	Crosshairs	Labels
Sagittal	Blue	Vertical: Green (coronal) Horizontal: Red (axial)	A-P S-I
Coronal	Green	Vertical: Blue (sagittal) Horizontal: Red (axial)	S-I R-L
Axial	Red	Vertical: Blue (sagittal) Horizontal: Green (coronal)	A-P R-L

## Scrolling Through MPRs

Scroll through the MPRs to view multiple images within the plane.

- Roll the mouse wheel in the view
- Right-click and drag in the view
- Press LEFT or RIGHT ARROW.

## Maximizing/Minimizing (1-up/Return)

Maximize a view to full-screen size, then minimize to its original size.

1. To maximize the view to 1-up, click  in the lower left corner.
2. To minimize the view to its original size, click  in the lower left corner.

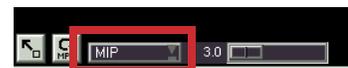
## Rotating MPRs

Rotate the placement of the three MPR views.

- Click  in the lower left corner of an MPR view.

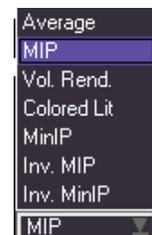
**TIP:** Use this to switch MPR views in 1-up MPR viewing.

## MPR Rendering



Select MPR rendering modes to change the appearance of the MPR views.

1. Click the MPR rendering dropdown.
2. Select a rendering option.



## Applying MPR Color and Lighting

The MPR Colored and Lit rendering option applies to the MPR images the same color, transparency, and lighting settings applied to the 3D image(s). This is most noticeable when you have slice thickness set higher than 1.

This setting is useful for the same applications as volume rendering, with the additional slice thickness setting for mini-slabs.

- **Average (10 mm thickness maximum)** — A shading setting that displays data using the average data values for all voxels in an image.

This setting is particularly useful for viewing coronal and sagittal views of noisy images, or for simulating a slice thickness other than what was scanned. Using slice thickness and averaging also allows you to scroll through the dataset quicker.

**NOTE:** The MPR Averaging thickness is limited to 10 mm. If you choose Oblique/Curved MPR mode, MPR Averaging is disabled and views change to volume rendering automatically.

- **MIP (100 mm max thickness)** — A shading setting that displays data using only the highest data values for each voxel of the image. MIP is a good setting to use when competing features composed of voxels with similar or higher values might be obscuring the feature of interest.

With the separate MPR MIP option you can view a volume rendering side-by-side with MPR MIP images.

This setting is particularly useful when performing these operations:

- Differentiating between contrast and calcium in vessels
- Viewing thick slab MPRs with many tiny, loose body bone fragments
- Viewing carotids, the Circle of Willis, renals, runoffs, or any vessel to show plaque
- Viewing a thick slab MPR, showing all liver vessels in one plane

- **Volume Render (100 mm max thickness) – uses all voxel values.**

The separate MPR Volume Render option gives you the capability of viewing a 3D MIP rendered volume side-by-side with MPR volume rendered images.

**This setting is useful for showing vessel depth.**

- **Colored and Lit (100 mm max thickness) –** The color provides different attenuation factors on a thick slab view. The lit portions cast shadows to produce brilliant colors.

**NOTE:** If you are using the **Colored and Lit** MPR option, the same color, transparency, and lighting settings applied to the 3D image(s) also apply to the MPR images. This is most noticeable when you have slice thickness set higher than 1.

The colored and lit setting is useful for the same applications as volume rendering, with the additional slice thickness setting for mini-slabs.

- **MinIP** (100 mm max thickness) A shading setting that displays data using only the lowest data values for each voxel of the image. MinIP is a good setting to use when features composed of similar or higher voxel values might be obscuring a feature of interest composed of lower voxel values in a scanned image.

This setting is particularly useful when looking at air or fluid in mini-slabs. For example, lung airways or dilated pancreatic or bile ducts.

## Adjusting MPR Thickness

Create “mini-slabs” of MPR views containing multiple slices.



- Click and drag the thickness slider to the desired value.

**TIP:** If  is active, the MPR views display a dashed line on either side of the crosshairs to indicate the thickness of the slab.

**TIP:** For best results, verify the MPR rendering is set to MIP.

## Sculpting in MPRs

Sculpt in the MPR views to isolate or define anatomical structures.

1. In an MPR view, scroll to find the beginning point of the area to define.

**TIP:** Maximize (1-up) the MPR view to magnify the view.

2. Right-click and select .
3. Click and drag to draw a closed shape around the area to define.
  - Click, hold, and drag to draw a true freehand contour.
  - Click, release, and drag to draw a contour that attempts to automatically define the edge of the region (based on HU units).

**TIP:** To aid drawing the automatic contour, click along the region to drop anchor points.

4. Scroll a few slices, then repeat step 3.

**NOTE:** Interpolated contours between automatic contours are truly interpolated and do not necessarily follow the edge of the region. Edit interpolated contours if necessary.

5. Continue to scroll and draw until you reach the last slice displaying the region.

**TIP:** Vitrea automatically displays a colored surface on the 3D view.

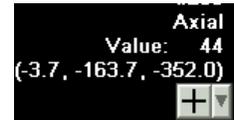
6. If you had the MPR maximized, minimize it to see the 3D view.
7. Rotate the 3D view to verify that the surface contains the whole area to sculpt.

- Verify the correct region name is listed in the Region dropdown, then click .

**TIP:** Click the dropdown to change the region.

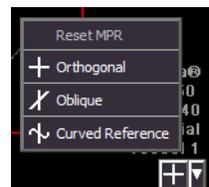
## Switching MPR Imaging Modes

There are three imaging modes for MPR views. The MPR views include a button in the lower right corner. The icon on the button indicates the current mode.



Mode	Description
 Orthogonal	The three MPR views display in exactly the sagittal, coronal, and axial planes.
 Oblique	One or more MPR views display in an oblique plane. Useful for features that lie in a plane other than one of the orthogonal planes.
 Curved	Curved MPR mode creates curved multi planar images.

Switch modes by clicking the button, or click the dropdown arrow next to the button and select the mode.



## Using Oblique MPR Mode

In Oblique MPR mode, change orientation of the MPR views by rotating the crosshairs in one or two of the MPR views.

- Right-click in the view, then click .
- In one of the MPR views, position the cursor over one of the crosshairs .

**TIP:** This view remains in Orthogonal mode, and the other two views display images at oblique angles.

- Drag the crosshair in the view while watching the other views.

**TIP:** As you drag, the crosshairs rotate around their intersection point, staying perpendicular to each other.

**TIP:** Rotate crosshairs in more than one view.

**TIP:** To move the crosshair intersection point, click the spot where you want the crosshair to intersect.

4. To “walk” a vessel,  click and drag in the view.

**TIP:** The center of the crosshairs act as a fulcrum point.

## Using Curved MPR Mode

In Curved MPR mode, use one of the MPR views to define a curve and display the reformatted (“flattened”) curve in another view.

1. Decide which plane is the reference view where you direct the crosshair to follow the curve.

**TIP:**

- For coronal images of the renal arteries, work in the axial plane.
- For sagittal reformats of a spine and aorta, work in the coronal plane.
- For coronal reformats of a spine or aorta, work in the sagittal plane.

2. In the lower-right corner of the reference view, click  twice until the icon shows .

**TIP:** The labels in the lower-right corner change to Reference, Curved, and Transverse.

3. In the lower-left corner of the reference view, click .
4. Roll the mouse wheel in the view until you see beginning point of the curve you want to define.

5. Click the endpoint of the green line and drag it to the beginning point of the curve.
6. Follow the curve by dragging the green line to various points along the center of the anatomy.

**TIP:** A green X displays where you place the green line.

**TIP:** Use the mouse wheel to scroll up and down in the view to follow the center of the anatomy.

7. Continue along the entire curve.
8. Click the endpoint of the green line and drag it to the end of the curve.
9. Click  in the lower left corner of the view.
10. In lower-left corner of the Curved view, click .
11. Review the yellow centerline to be sure it follows the center of the curved region.

**TIP:** If necessary, click and drag the centerline to reposition it.

12. Drag the smaller, lighter line (Measuring line) to a point along the centerline to measure.
13. Drag the longer, darker line (Transverse line) to the other point along the centerline to measure.

**TIP:** The measurement between the two lines and the measurement of the entire centerline display.

14. To rotate the curved view along the centerline,  click and drag in the view.



## Displaying 3D Crosshairs

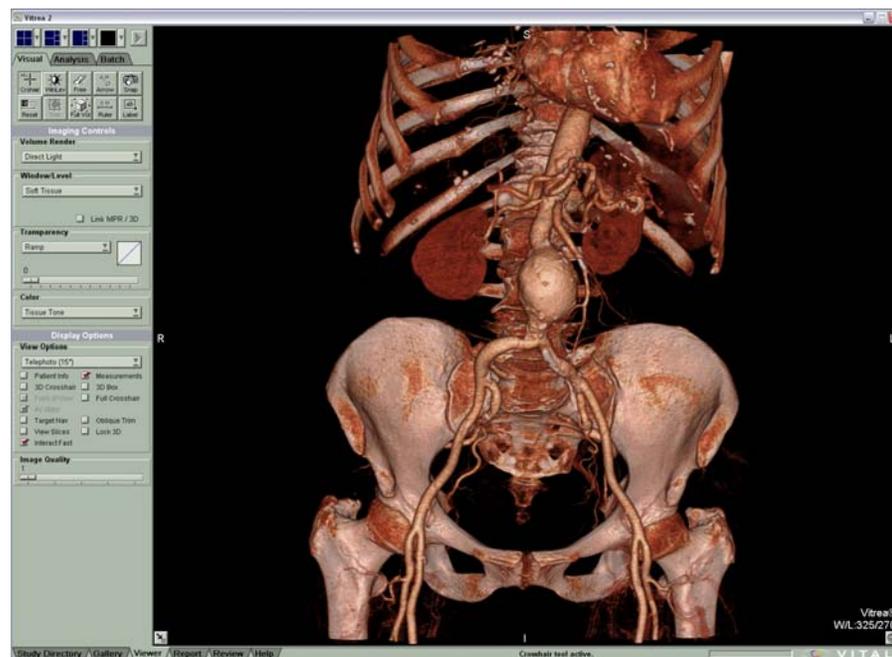
To change images displayed in the MPR views, move the 3D crosshairs in a 3D view to a new position. As a result, MPR views automatically update to display slices corresponding to the 3D crosshairs intersection.

1. Select the **3D Crosshair** check box.
2. Click in the 3D image at the new location.

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## 3D Imaging

The 3D volume views can be viewed from the outside or inside. Turn them and view them from any angle, trim them, add arrows, and much more.



## Switching 3D Imaging Modes

There are four imaging modes for 3D views. The 3D views include a button in the lower right corner. The icon on the button indicates the current mode.



Some modes are not available in some situations.

Mode	Description
 Fly Around	To view the volume from the outside.
 Fly Through	To view the inside of an air or contrast-filled lumen.
 Point of Interest (POI)	To view a small amount of the image immediately surrounding the crosshair position.
 Reverse View	To view the image opposite of the image in the primary 3D view.
 Oblique Trim	To trim in an oblique plane.

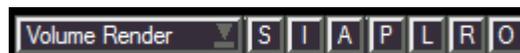
**TIP:** To activate the Oblique Trim mode, right-click in the 3D view and select **Oblique Trim**.

To switch 3D modes, click the mode button until the icon for the desired mode displays on the button.

**TIP:** If the icon you want does not display, the mode is not currently available. Resolve this by selecting a different Viewer window format.

## Performing Volume Render and Rotation

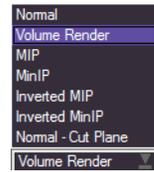
Click the rotation shortcut buttons at the bottom of the 3D view to rotate the image.



- **S**uperior
- **I**nferior
- **A**nterior
- **P**osterior
- **L**eft
- **R**ight
- **O**blique

Use the **Volume Render** dropdown to change the appearance of the 3D view.

1. Click the **Volume Render** dropdown.



2. Select a volume rendering option.

- **Normal** — Turns lighting off.
- **Volume Render** — View a 3D MIP rendered volume side-by-side with MPR volume rendered images. Useful to show vessel depth.
- **MIP** (Maximum Intensity Projection) — A shading setting that displays data using only the highest data values for each voxel of the image. A voxel is the smallest resolvable cubical area of an image on a screen. MIP is a good setting to use when competing features composed of voxels with similar or higher values might be obscuring the feature of interest.
- **MinIP** (Minimum Intensity Projection) — A shading setting that displays data using only the lowest data values for each voxel of the image. This is useful when features composed of similar or higher voxel values might be obscuring a feature of interest composed of lower voxel values in a scanned image.
- **Inverted MIP** — A MIP setting that displays inversely.
- **Inverted MinIP** — A MinIP setting that displays inversely.
- **Normal-Cut Plane** — Removes the rendering artifact. The normal-cut plane provides a clean surface.

## Rotating

### Rotate by Dragging

1. Click and drag in the 3D image to free-rotate in any direction.

A tool-tip displays how far (in degrees) you have rotated in a single direction. Each time you click the image to drag, the tool-tip starts at 0.

2. Click and drag at the edge of the 3D view to spin the image on the same plane.

## Rotate with the Arrow Keys

1. Press any of the ARROW keys to rotate the image 5 degrees in that direction.

A tool-tip displays the cumulative amount you have rotated. If 10 seconds elapses after you press an ARROW key, the tool-tip restarts at 0.

## Rotate by Entering Exact Positions

Type rotation values to rotate the volume to exact positions:

- **Azimuth (a)** [valid values -180 to 180] - degree of rotation right or left around the center of volume
  - **Elevation (e)** [valid values -90 to 90] - degree of rotation forward or backward from the center of volume
  - **Twist (t)** [valid values -180 to 180] - degree of tilt left or right around the center of the volume
- To adjust the rotation to a specific value, type the value followed by the appropriate letter.

## Performing Volume Measurements in the 3D View

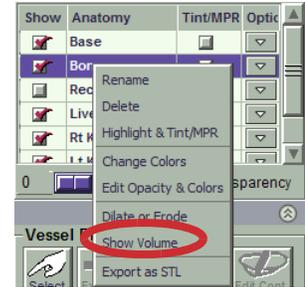
To measure the volume of a 3D region, first segment the region and display a surface.

1. Click  .
2. In an MPR view, locate and click on the anatomy.
3. Rotate the 3D view to verify the surface is accurately defined.
4. If necessary, use the tools in the in-viewer Multi-Pick box to adjust the selection area.
5. In the in-viewer Multi-Pick box, click the Anatomy dropdown to select a name for the region.
6. Click  .

7. In the Anatomy Management area, right-click the region and select **Show Volume**.

**TIP:** The volume measurements display in the 3D view.

Region	Volume (ml)	Mean HU
Liver	1722.37	54.4 ± 25.7



**NOTE:** Mean HU and the standard deviation display for CT studies. Signal intensity mean value and the standard deviation display for MR studies.

### 3D Sculpting

Use 3D sculpting to remove the scanner table or other artifacts from the 3D view.

1. Right-click and select .
2. Draw a contour around the area to sculpt.
3. Click the Add To dropdown and select **Recycle Bin**.
4. Click **Done**.

**TIP:** Use 3D sculpting to add objects to other regions as well.

### Performing Oblique Trim

Trimming along orthogonal planes does not always reveal the image you want. Select the **Oblique Trim** check box to trim the volume along an oblique plane.

1. Check the **Oblique Trim** check box.

**TIP:** All data 'closer to you' than the trim plane is removed.

**TIP:** The **3D Box** check box is checked automatically, and a yellow 3D box displays around the volume indicating the oblique trim plane position.

2. With the crosshair tool active, click and drag to rotate the view about the point indicated by the yellow cross.
3. Middle-click and drag the yellow cross to move the axis of rotation.
4. Middle-click and drag the volume to rotate the plane around.
5. Right-click and drag to move trim plane forward or backward.

**TIP:** Trim in fly-through views. To display the portion that was trimmed in fly-through views, switch to a 5-up Viewer window format and set the upper 3D view to Reverse View mode.

**TIP:** To redisplay the full volume after using oblique trim, clear the **Oblique Trim** check box.

## Denoising

Use Denoising to filter images with regard to noise reduction.

**NOTE:** Be sure to view images with Denoising applied in conjunction with the original images by switching between the primary image and the denoised image.

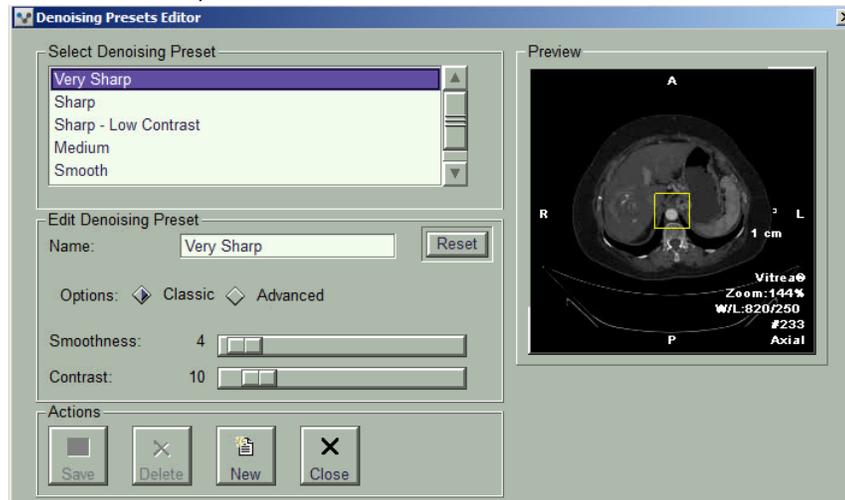
- After you have applied a Denoising filter, press D to switch between an image with Denoising applied and the image with no filter.
1. Click the Denoising drop down arrow to display the menu.



2. Choose a preset filter value.



3. To create a new preset, select **Presets**.



- a. Select a preset to use as a starting point for the new preset.
  - b. In the Denoising Preset Editor, adjust the Smoothness or Contrast settings.
  - c. Click **New**.
  - d. Rename the preset if desired.
  - e. To edit the denoising strength, select **Advanced** and choose a value from the dropdown arrows.
  - f. Click **Ok**.
4. To edit a custom (user-created) preset:

**NOTE:** To edit a predefined preset, create a new preset using the predefined preset as a starting point.

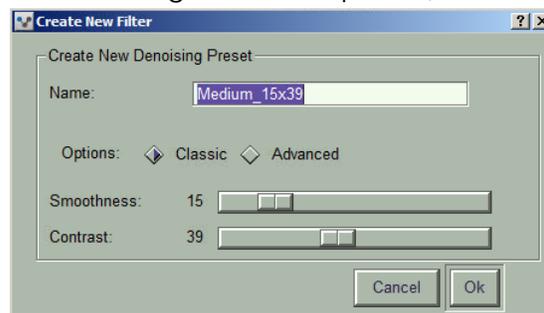
- a. Select the preset.
  - b. In the Denoising Preset Editor, adjust the Smoothness or Contrast settings.
  - c. Click **Save**.
5. To change the filter settings interactively in the MPR view, select **Interactive**.



- a. Drag the cursor in the view using the S/C (Smoothness/Contrast) value as a guide.

**TIP:** The area inside the yellow box will interactively change as you move the cursor.

- b. Release the mouse button to set the denoising value.
  - c. Select another tool, such as **Crshair**, to exit interactive denoising.
6. To save interactive settings as a new preset, select **Save As**.

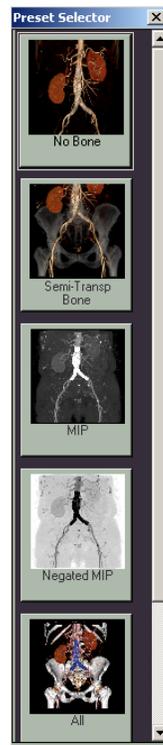


- a. In the Create New Filter Editor, adjust the Smoothness or Contrast settings.
  - b. To edit the denoising strength, select **Advanced** and choose a value from the dropdown arrows.
  - c. Click **Ok**.
7. To create a batch of images in the selected orthogonal plane that is exported as a new series, select **Save New Series**.

## Changing Visibility Settings

Visibility options control how 3D images display in region segmentation. Apply visibility options to all regions or to a single region.

Apply a visibility scheme to all regions:

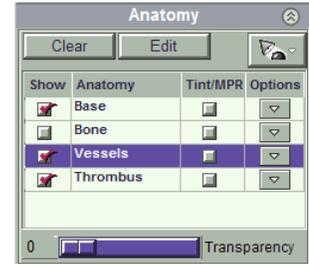


- Click one of the preset visibility options, or click the dropdown arrow to display a panel of additional choices.



Change the color of a single region:

1. Select the region in the Anatomy Management list.



2. Click the **Options** dropdown.

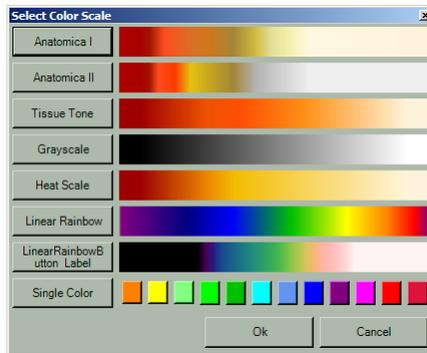


3. Select **Change Colors**.

4. Double-click a preset.

**OR**

Click  to select from a menu of color gradients or solid colors.



### **Apply window/level settings to a single region:**

1. Select the region in the Anatomy Management list.
2. Right-click in the view, then click .
3. Click and drag in the view to adjust the window/level settings for the region.

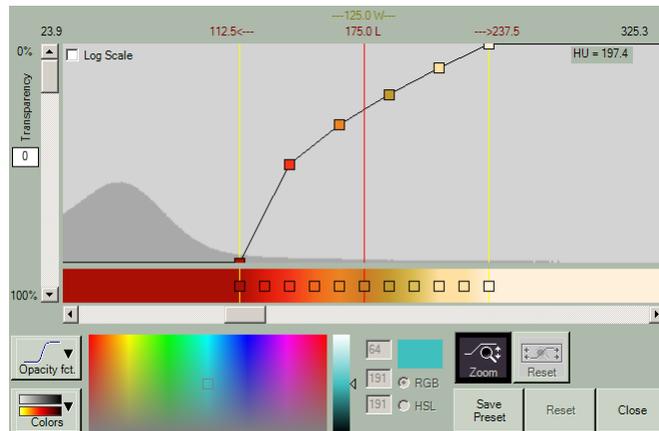
### **Create a custom region preset:**

1. Select the region in the Anatomy Management list.

2. Click the **Options** dropdown.



### 3. Select **Edit Opacity & Colors**.



### 4. Adjust the colors for the HU values as desired:

- Click  to select a predefined gradient.
- Click a box along the color bar (notice the HU value for that point displayed in the upper-right corner), then choose a color from the palette to apply to that HU value.
- Double-click along the curve to add a new box along the color bar.
- Right-click on a square in the color bar and select **Apply Color to All** to apply that color to the entire range of HU values.

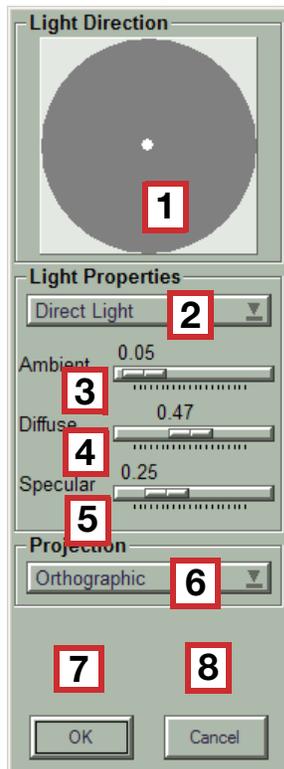
### 5. Click to save your settings as a preset.

## Using Lighting Options

Lighting illuminates an image to allow you to see it more clearly.

1. Click  to display the lighting menu.
2. To change the background color:
  - a. Select **3D Background Color**.
  - b. Choose a color from the color palette.

3. To change the lighting options, select **Lighting Options**.



Callout	Description
1	<b>Light Direction</b> control — Drag the white dot to adjust the direction of the light source.
2	<b>Light Properties</b> dropdown menu — Select a light properties option.
3	<b>Ambient</b> slider — Adjust the ambient light.
4	<b>Diffuse</b> slider — Adjust the diffuse light.
5	<b>Specular</b> slider — Adjust the specular light.
6	<b>Projection</b> dropdown menu -- Select a field-of-view option.
7	<b>OK</b> button — Accept the changes.
8	<b>Cancel</b> button — Cancel the changes.

## Changing the Field of View

Change field of view using the Projection dropdown menu on the Options menu.

The Orthographic mode displays the view as if the object lines are perpendicular to the projection plane.

In the other modes, the object lines have perspective applied, making distant parts of the object appear smaller.

- **Orthographic** — view with no perspective applied
- **Telephoto** — eliminate peripheral image data from view
- **Moderate** — view with a field of view greater than Telephoto
- **Wide Angle, Very Wide Angle, Ultra Wide Angle** — view with wide fields of view

**NOTE:** Specific options available are associated with the protocol selected on the Gallery window. The initial setting is determined by the view you chose. The width of the field of view (in degrees) is listed in the menu for each view option.

**NOTE:** If you select **Orthographic** in the Projection list, and you change a 3D view to Fly Through mode, the Projection list automatically changes to a perspective option.

- If you change the field of view when you are in Fly Through mode, this causes a significant change in the appearance of the volume. Decreasing the field of view makes the volume appear much larger. Similarly, increasing the field of view makes the volume appear much smaller. If you later switch to Fly Around mode, the volume image remains the same size as it was in Fly Through mode.

## Flying Through Volumes

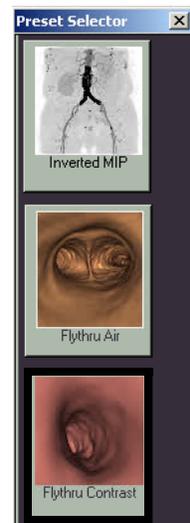
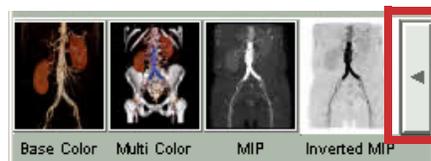
Use the fly through feature to navigate through passageways in the anatomy. On the Gallery window, select a preset that has Fly Through in the name.

1. Be sure the Viewer window format includes a 3D view.
2. Zoom in and rotate the 3D view as necessary to position the area to fly through to the center of the view.
3. Click the mode button in the lower-right corner of the 3D view  until it changes to **Fly Through** mode



**OR**

from the Preset Selector dropdown on the Analysis tab, select **Flythrough Contrast** from the Preset Selector dialog box.



4. Press right-ALT and click on the area in the 3D view to fly into.

**TIP:** Click in the MPR view on the area where to start flying.

5. Begin flying using one of these methods:

- Right-click and drag
- Roll the mouse wheel
- Press right-ALT and click in the view further along the passageway
- Use a keyboard shortcut

Press...	To...
>	Fly forward
<	Fly backward
SHIFT >	Fly forward with continuous assisted navigation
SHIFT <	Fly backward with continuous assisted navigation
ARROW	Change the direction by a small amount
SHIFT + ARROW	Change the direction by a larger amount
?	Flip the view direction 180 degrees
left-ALT + click	Move the eyepoint. Also works during batch creation.
right-ALT + click	Move the view direction. Also works during batch creation.

**TIP:** To fly continuously, press SHIFT, then right-click and drag.

6. Turn by clicking and dragging in the direction to turn.

**While flying through the lumen, examine a feature of interest in the MPR views.**

1. On the Visual tab, verify the **Target Nav** check box is cleared.
2. Press and hold left-ALT, then click the point of interest in the 3D view.

**TIP:** The crosshairs in the MPR views change to the spot you clicked. The eye point in the 3D view does not change. This causes the eye point to be temporarily out-of-sync with the MPR crosshairs.

3. To re-sync the MPR and 3D views, fly to a new position.

**Fly in dynamically changing oblique MPR planes.**

1. Click MPR mode dropdown and select **Oblique**.
2. Fly into the volume.

Use these navigational aids:

Method	Steps
MPR crosshairs	<ul style="list-style-type: none"><li>With  active, click in an MPR view.</li></ul>
Field of View Cone	<ol style="list-style-type: none"><li>Click .</li><li>In the <b>Projection</b> dropdown, select a view option other than Orthographic.  <b>TIP:</b> The wider the angle, the larger the cone.</li><li>Select the <b>Field of View</b> check box under the Display Options on the Visual tab.  <b>TIP:</b> To change the eye point of the cone, click , then click in the MPR view.  <b>TIP:</b> To change the direction of the cone, click , then press left-ALT and click in the MPR view.</li></ol>

Method	Steps
3D Crosshairs	<ol style="list-style-type: none"> <li>1. Select a 5-up Viewer window format</li> <li>2. Change the upper 3D view to Fly Around mode. </li> <li>3. On the Visual tab, in the View Options area, select the <b>3D Crosshair</b> check box.</li> <li>4. Fly through the lower 3D view.</li> </ol> <p><b>TIP:</b> The 3D crosshairs in the upper 3D view change as you navigate in the lower 3D view.</p>
Reverse View	<ol style="list-style-type: none"> <li>1. Select a 5-up Viewer window format.</li> <li>2. Change the upper 3D view to Reverse View mode. </li> <li>3. Fly forward in the lower 3D view.</li> </ol> <p><b>TIP:</b> The upper 3D view displays from the same point as the lower view, but looking backward.</p>

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## Image Batches and Movies

Make batches of 2D, MPR, and 3D images. Batches can be printed or saved to a DICOM server. Like snapshots, they are stored on the Report window. Make image batches into digital movies.

### Accessing the Batch Settings

You can access the batch settings from the right-click menu, or from the More Options button on the Batch tab. The Batch Settings dialog box contains the Size, Movie, and Curved MPR tabs.

## Batch Settings - Right-click menu

The batch settings are available from the right-click menu to provide you with the ability to change the batch settings without having to go to the Batch tab.

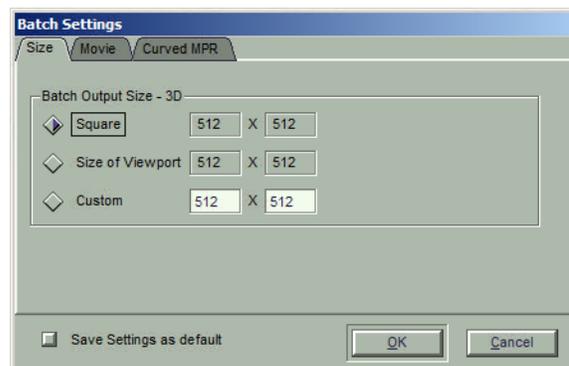
- Right-click and select **Batch Settings** to access the Batch Settings dialog box.



## Batch Settings - More Options button

1. From the Batch tab, select the **More Options** button to access the Batch Settings dialog box.
  - The **Size** tab contains the existing batch output size settings.

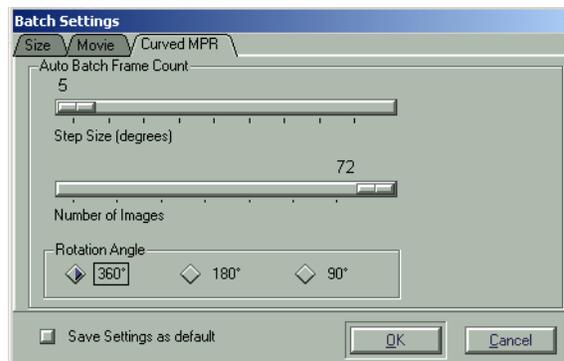
**TIP:** There are separate options for slice and 3D batches. The Batch Output Size will display either “3D” or “Slice”.



- The **Movie** tab allows you to view and edit the existing movie settings.



- The **Curved MPR** tab allows you to change the step size (degrees), number of images generated, and the rotation angle for an auto curved MPR batch that is accessible from the right-click menu.



2. The **Save Settings as default** option saves any modified settings for a future Vitrea session. Otherwise, the new settings will only be available for the current session.
3. Select **OK** to save the settings.

**TIP:** Select **Cancel** to go back to the modified settings.

## Annotate Batches

Add a series description that displays in the Findings Tray and when the batch is exported.

1. In the **Series description** field, enter a value.

**OR**

Select a value from the dropdown.



Add a cover page with a label to the front of the batch or movie.

2. Select the **Show cover image with label:** check box.

3. Add a value to the field.

**OR**

Select a value from the dropdown.

**NOTE:** Take care to label series descriptions and cover pages with correct and appropriate information.

## Creating Scripted MPR Batches

Create a scrolling batch of MPR images based on the selected settings.

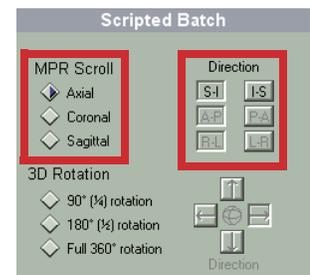
1. Set up the MPR view in the Viewer window the way you want the images to display in the batch.

**TIP:** Scripted MPR batches are available in orthogonal mode only.

2. Select the Batch tab.

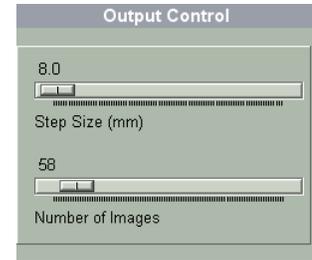
3. In the Scripted Batch area, under MPR Scroll, select one of the MPR planes.

**TIP:** The other two planes display cross-reference lines showing the slices of the batch.



4. Under Direction, select a scroll direction.

5. If desired, adjust the Step Size or Number of Images sliders. The cross-reference lines on the other two planes adjust accordingly.



**TIP:** In orthogonal or oblique MPRs, the other two planes display cross-reference lines showing the slices of the batch.

6. To reposition the start and end points of the batch, click and drag the starting or ending cross-reference lines in one of the other views.

**EXAMPLE** You are creating a batch of the coronal view. Click and drag the starting or ending cross-reference lines in either the axial or sagittal view to edit the batch. The batch will be created in the coronal view.

7. To anonymize the batch or movie, clear the  Show Patient Info check box.

8. Click  to create a batch that is saved to the Report window.

**OR**

- Click  to create a digital movie that is saved to the Report window.

9. To adjust quality, playback, and swing settings for movies, click .

**TIP:** After you click one of the output buttons, a preview of the batch displays in a separate window.

## Creating Manual 2D and MPR Batches

To make batches of 2D images, portions of MPR images, or oblique or curved MPRs, create a manual batch.

1. Set up the 2D or MPR view in the Viewer window the way the images should display in the batch.
2. Select the Batch tab.

**TIP:** The  button is automatically activated.

3. In the view to batch, scroll to the starting point.

4. Click in the view.

**TIP:** A green check mark displays in the view.

**TIP:** The  button is automatically activated.

5. Scroll to the ending point.

6. Click in the view.

**TIP:** In orthogonal or oblique MPRs, the one or both of the other views display cross-reference lines showing the slices of the batch.

7. To reposition the start and end points of the batch, click and drag the starting or ending cross-reference lines in one of the other views.

**EXAMPLE** You are creating a batch of the coronal view. Click and drag the starting or ending cross-reference lines in either the axial or sagittal view to edit the batch. The batch will be created in the coronal view.

8. If desired, adjust the Step Size or Number of Images sliders.

9. To anonymize the batch or movie, clear the  check box.

10. If you make a mistake, click  to start over.

**NOTE:** If you clear the batch, everything, including series descriptions and cover page labels, is cleared.

11. Click  **OR** .

## Creating Scripted 3D Batches

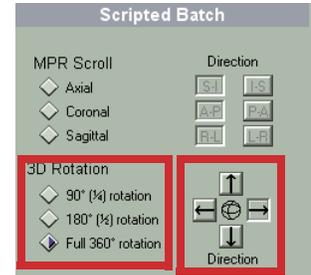
Create a rotating batch of 3D images based on the selected settings.

1. Set up the 3D view in the Viewer window the way the images should display in the batch.

**TIP:** Scripted 3D batches are available in fly-around and POI mode only.

2. Select the Batch tab.
3. In the Scripted Batch area, under 3D Rotation, select the degree of rotation.
4. Under Direction, select a rotation direction.
5. To anonymize the batch or movie, clear the

Show Patient Info check box.



6. Click  OR .

## Creating Manual 3D Batches

For 3D rotations in varying directions, or for fly-throughs, create a manual batch. Select starting, intermediate, and ending images, and Vitrea adds images in between to create smooth transitions.

1. Set up the 3D view in the Viewer window the way the images should display in the batch.

2. Select the Batch tab.

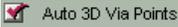
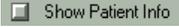
**TIP:** The  button is automatically activated.

3. In the 3D view, rotate or scroll to the starting point.

4. Click in the view.

**TIP:** A green check mark displays in the view.

**TIP:** The  and  buttons are automatically activated.

5. For rotation batches, rotate view in desired direction.  
**OR**  
For fly-through batches, begin flying.
6. Click in the view to capture an intermediate image.
7. For fly-through batches, check the Auto 3D Via Points check box  to automatically capture intermediate images.
8. Repeat steps 5 and 6 until you have captured all intermediate images.
9. Click  .
10. Click in the view.
11. To anonymize the batch or movie, clear the  check box.
12. If you make a mistake, click  to start over.

**NOTE:** If you clear the batch, everything, including series descriptions and cover page labels, is cleared.

13. Click  **OR**  .

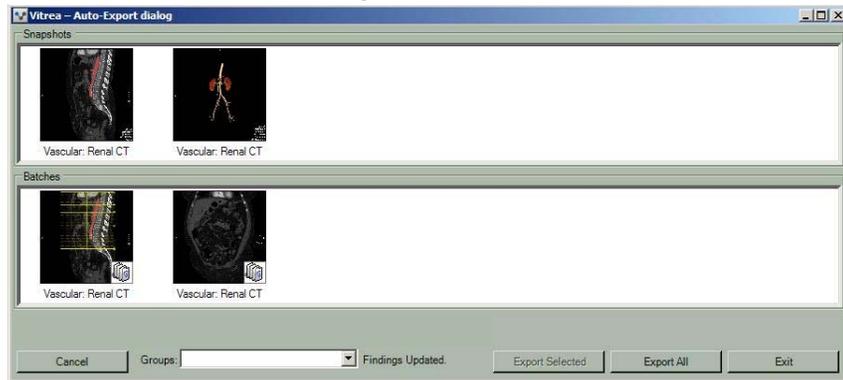
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# Export

## Auto Export Snapshots and Batches

Use auto export to save your DICOM findings back to PACS. Available for VitreaAdvanced only.

1. After you create your findings (snapshots or batches) and close the study, the Auto Export Dialog displays.



**NOTE:** The findings export in the same format in which it was created.

2. From the Group dropdown menu, select the location where you want to export the findings.

**NOTE:** For multi-site customer deployments where data is being pushed to a central VIMS location, the dropdown menu populates with a list of pre-configured group receive locations. The selected Group is matched based on the institution name stored in the original data. If no match is found, the populated list displays the last selected Group. The default group 'All' represents all possible receive locations.

3. Select one of the following options:

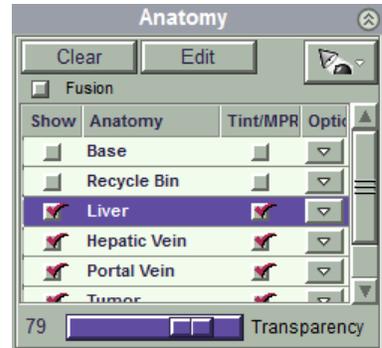
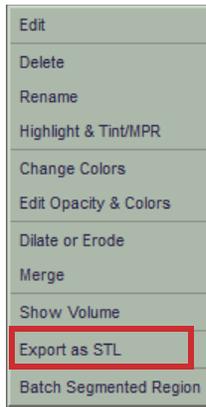
Option	Description
Export Selected	Export the selected snapshots and batches.
Export All	Export all snapshots and batches.
Exit	Does not export the findings, but the findings remain on VIMS.
Cancel	Close the Auto Export Dialog without exporting snapshots or batches.

## Export a Single Region as STL

Export a single segmented region as an .stl file.

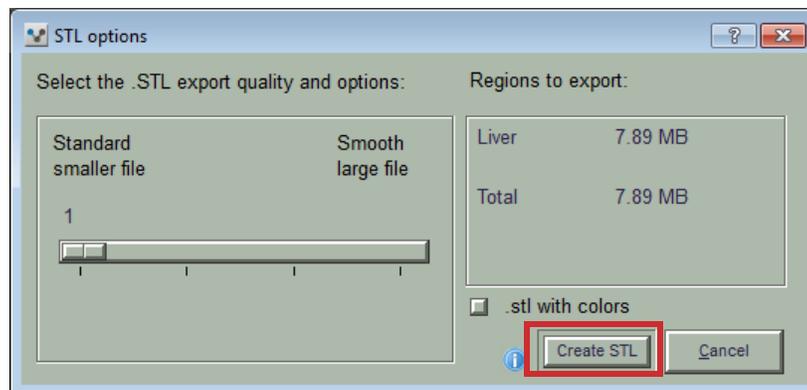
**NOTE:** Only available with VitreaWorkstation, Vitrea Powerstation, and VitreaExtend Host System.

1. From the Anatomy area, select a segmented region.
2. Right-click on the region name and select **Export as STL**.



Vitreia displays the volume measurements for the selected region.

3. Verify the segmented area in the MPR and 3D views.
4. From the dialog box, select the desired STL options.



5. Click **Create STL**.
6. Identify the file location in the next dialog box and click **OK**.

The status area at the bottom of the window shows the progress of the STL creation.

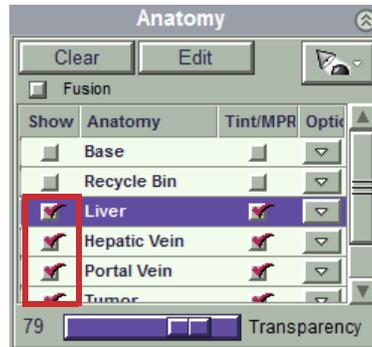
**NOTE:** The software renders the data as a volume rendering with a flat transfer function. It does not render the STL as a surface. The final STL model generated may look different than what is visualized in

Vitrea. The export quality will also influence how much detail will be included in the final STL model. Verify the STL model in an external STL viewer.

## Export Multiple Regions as STL

Export multiple segmented regions as separate .stl files.

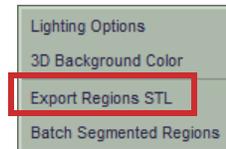
1. In the Anatomy area, select **Show** for each segmented region to be exported.



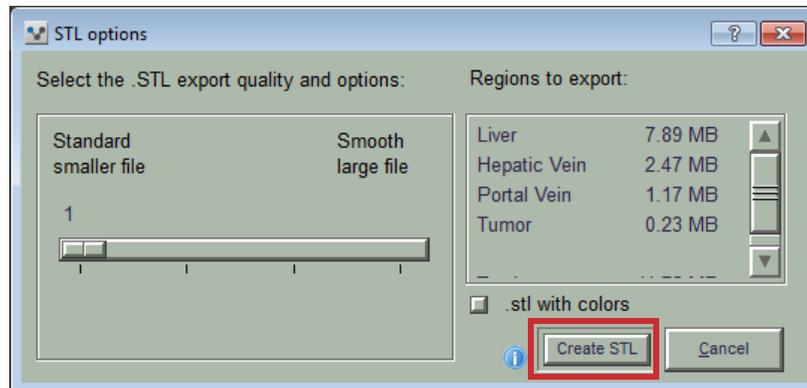
2. Click .

3. Select **Export Regions STL**.

Vitrea displays the volume measurements for the selected regions.



4. Verify the segmented area in the MPR and 3D views.
5. From the dialog box, select the desired STL options.



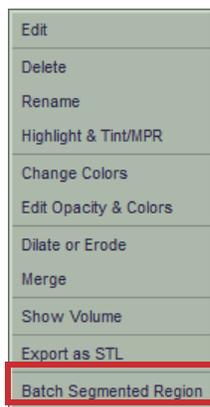
6. Click **Create STL**.
7. Identify the file location in the next dialog box and click **OK**.  
The status area at the bottom of the window shows the progress of the STL creation.

**NOTE:** The software renders the data as a volume rendering with a flat transfer function. It does not render the STL as a surface. The final STL model generated may look different than what is visualized in Vitrea. The export quality will also influence how much detail will be included in the final STL model. Verify the STL model in an external STL viewer.

### Batch a Single Region for DICOM Export

Create a new series of only a single segmented region. Voxels outside the segmented region are “blacked out.”

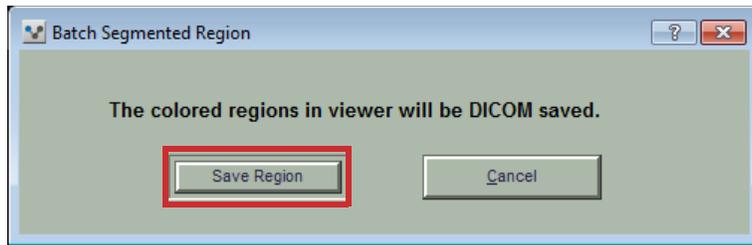
1. From the Anatomy area, select a segmented region.
2. Right-click on the region name and select **Batch Segmented Region**.



Vitrea displays the volume measurements for the selected region.

3. Verify the segmented area in the MPR and 3D views.

4. In the dialog box, click **Save Region**.



5. Click **OK** in the next dialog box.

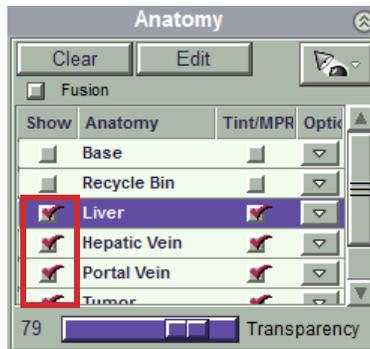
Vitreia creates a new series which will display in the Study Directory. From there, you can export the series to a DICOM location.

6. Verify the resulting series is built as you expect.

## Batch Multiple Regions for DICOM Export

Create a new series of only segmented regions. Voxels outside the segmented regions are “blacked out.”

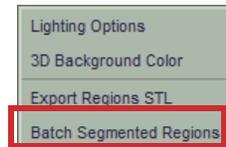
1. In the Anatomy area, select **Show** for each segmented region to be saved.



2. Click .

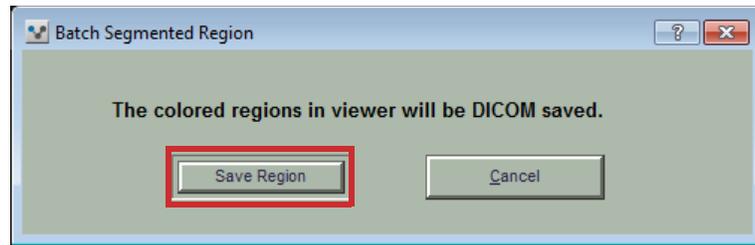
3. Select **Batch Segmented Regions**.

Vitreia displays the volume measurements for the selected regions.



4. Verify the segmented area in the MPR and 3D views.

5. In the dialog box, click **Save Region**.



6. Click **OK** in the next dialog box.

Vitrea creates a new series which will display in the Study Directory. From there, you can export the series to a DICOM location.

7. Verify the resulting series is built as you expect.

---

## Study Viewer

The Study Viewer feature lets you preview scanned images from CT, MR, PET, US, CR, DR, and Secondary Capture.

**NOTE:** RT studies are not supported in Study Viewer.

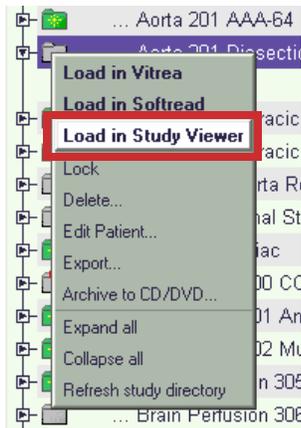
Use this feature to:

- View original scanned images before loading and viewing them as volume files in Vitrea
- Stack all images from a study to quickly review multiple series in an Exam
- Quickly review DICOM images

### Launch Study Viewer from Study Directory

1. From the Study Directory, right-click a study.

2. Select Load in Study Viewer.



**TIP:** Snapshots; secondary capture images; and non-CT, MR, or PET series may be loaded directly into Study Viewer by double-clicking the entry in the Study Directory.

## Launch Study Viewer from Desktop

1. Double-click the Study Viewer Icon.
2. From the browser, select the study.

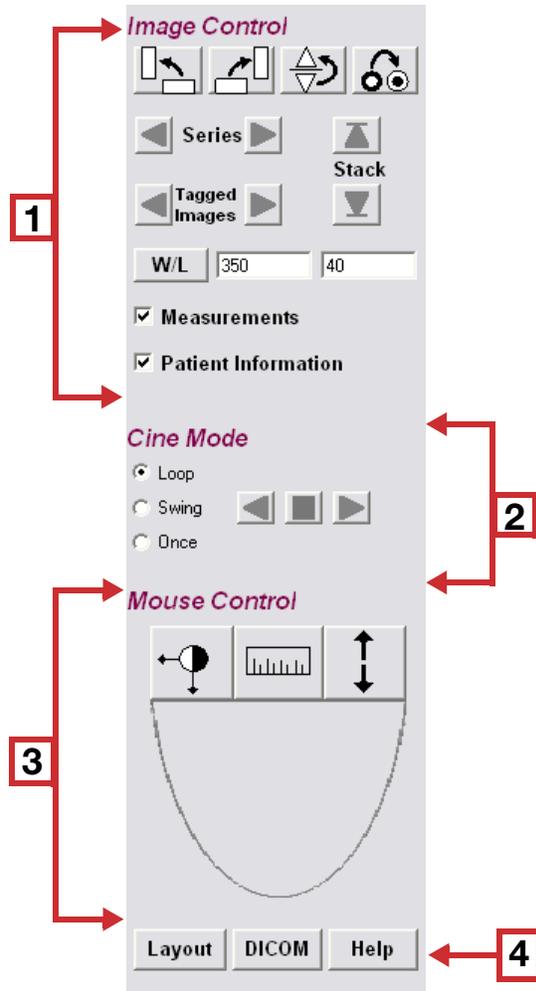


**TIP:** A typical path would be Desktop|VESData|Patients.

# Study Viewer Controls

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Use the Study Viewer controls to adjust the scanned image.

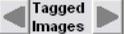


#	Description
1	Image Control tools
2	Cine Mode controls
3	Mouse Control tools
4	Display options and Help

## Study Viewer Image Control Tools

---

- To rotate the image left, click .
- To rotate the image right, click .
- To flip the image vertically, click .

- To invert the grayscale of the image, click .
  - To cine to the next or previous series in the stack, click one of .
  - To go to the next or previous tagged image (image with a measurement drawn), click one of .
  - To reposition the top or bottom of the image stack, click one of .
  - To change the window/level value, click  and select a preset from the list.
- OR**
- Type new values in the text boxes.
- To display or hide measurements, check or clear the Measurements check box.  **Measurements**
  - To display or hide patient information, check or clear the Patient Information check box.  **Patient Information**

## Study Viewer Cine Mode Controls

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- To auto-scroll forward through the series, click .
- To auto-scroll backward through the series, click .
- To stop scrolling, click .
- To control the outcome of auto-scrolling, select an option:
  - Loop - scroll from beginning to end and then start at the beginning again.
  - Swing - scroll from beginning to end and then from end to beginning.
  - Once - scroll from beginning to end once.



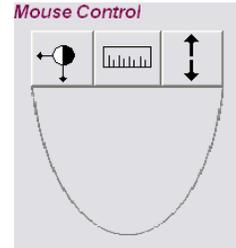
# Study Viewer Mouse Controls

---

Each of the three mouse buttons is assigned a control that activates when you press that button in the view.

The default control assignment is:

- Left - Window/Level
- Middle - Measure
- Right - Manual Cine



## Changing the Mouse Button Assignments

1. Click the left, middle, or right Mouse Control button in the Study Viewer control panel.
2. Click the desired control.

TABLE 1. Study Viewer Mouse Controls

Control	Description
	Manual Cine
	Window/Level
	Measure
	Pan
	Zoom

## Mouse Wheel

Roll the mouse wheel to manually cine through the images.

# Study Viewer Display Options and Help

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## Custom Display Layout Window

Change the header information that displays on the layout window.

1. Click **Layout** .
2. Select a header tag and drag it to one of the four panels representing the corners of the view.
3. Click OK.

## DICOM

- To display the DICOM tags for the current image, click **DICOM** .

## Study Viewer Help

- To display Study Viewer on-line help, click **Help** .

# Study Viewer Keyboard Shortcuts

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Press:	To:
ALT-TAB	Toggle between Study Viewer and Vitrea
HOME	Go to the bottom of the stack
END	Go to the top of the stack
UP ARROW	Go to the next slice in the stack
DOWN ARROW	Go to the previous slice in the stack
PAGE UP	Go to the beginning of the next series in the stack
PAGE DOWN	Go to the beginning of the previous series in the stack
ESC	Cancel auto-cine
F1	Display the on-line help



# Distribute Findings

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## Contents

- Distribute Findings Overview
- The Report Window
- The Review Window (VitreaWorkstation only)

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## Distribute Findings Overview

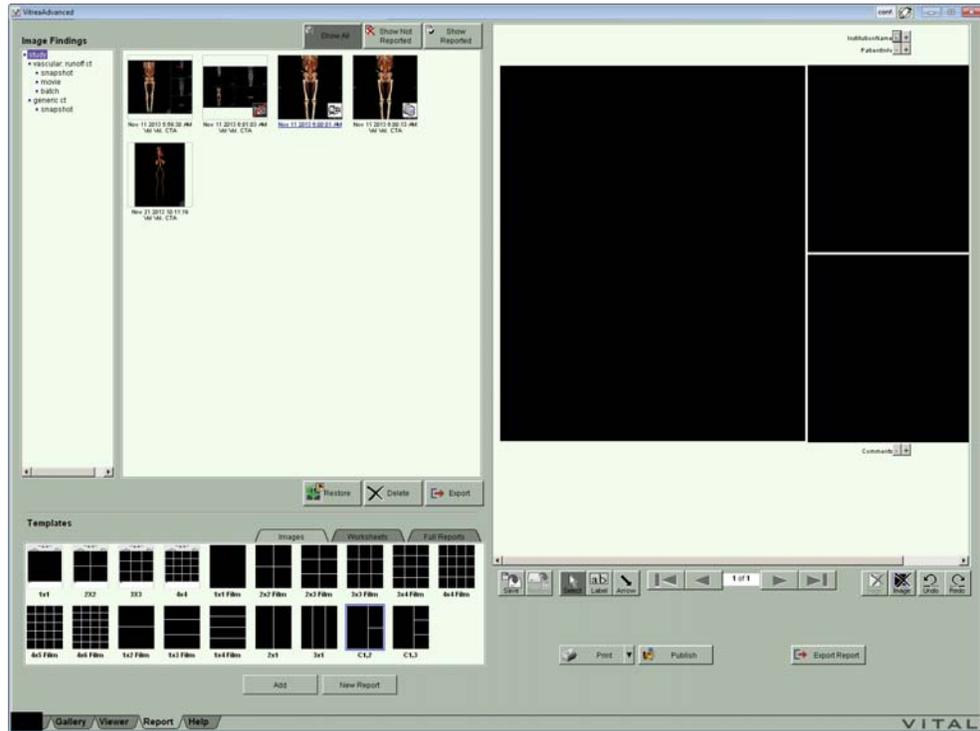
VitreaAdvanced saves snapshots, batches, and movies you create to the Report window. On the Report window:

- Create, save, print, publish/post, or copy reports containing up to 24 patient images per page.
- Use protocol-specific templates with editable text fields.
- Add image batches and digital movies.
- Add arrows, annotations, and comments to the report.
- Use snapshots to restore a previous workflow to the Viewer window.
- Save the snapshots or batches to any networked DICOM device or PACS.

Access the features below from the Report window:

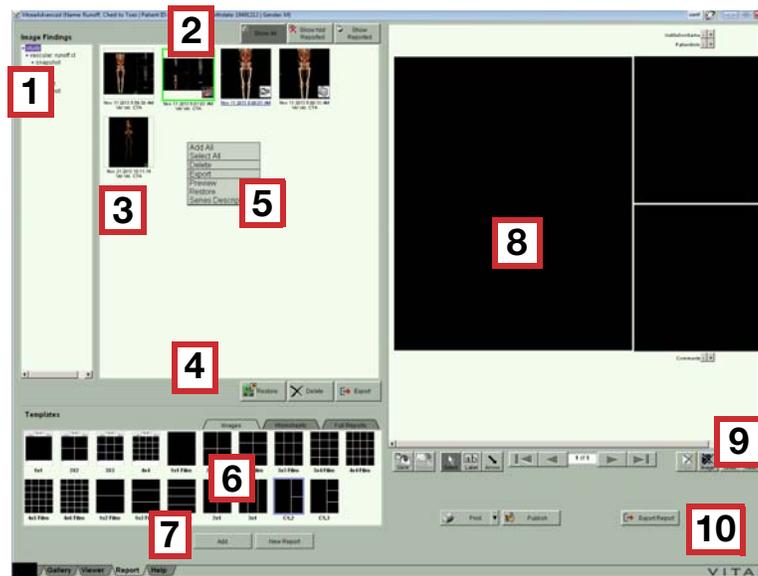
- A Findings list, which allows you to filter the entire list of snapshots to review and select based upon workflow.
- A set of protocol-specific report templates including text pages with selectable and editable text fields.

- Tools for selecting snapshots, working with snapshots, adding pages to the report, and working with reports.



# The Report Window

Vitreia saves snapshots, batches, and movies you create to the Report window. From here, create and distribute reports.



Callout Number	Description
1	Findings list
2	Filtering buttons
3	Findings tray
4	Findings management buttons
5	Findings management right-click menu
6	Template layouts
7	Templates buttons
8	Report
9	Report tools and navigation buttons
10	Report distribution buttons

## Findings List

Click a line in the Findings list to filter snapshots, batches, and movies that display in the Tray.



## Filtering Buttons

Use the snapshot filtering buttons to display snapshot currently in or not currently in the report.

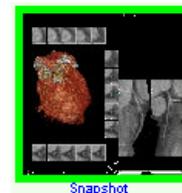


Click:	To:
	Display all snapshot, batch, and movie thumbnails for the patient study.
	Display only snapshots, batches, or movies not currently included in the report.
	Display only snapshots, batches, or movies currently included in the report.

## Findings Tray

Displays thumbnail images of snapshots, batches, and movies.

1. To select a finding, click the thumbnail image.



**TIP:** To select more than one finding, press CTRL and click the thumbnail images.

**NOTE:** Findings with  in the lower-right corner are not restorable.

2. Double-click the snapshot to preview a larger image of a finding.
3. To preview a movie, double-click the movie thumbnail, or click the Movie link.

- To review a batch of images, double-click the batch thumbnail then right-click and drag on the image.

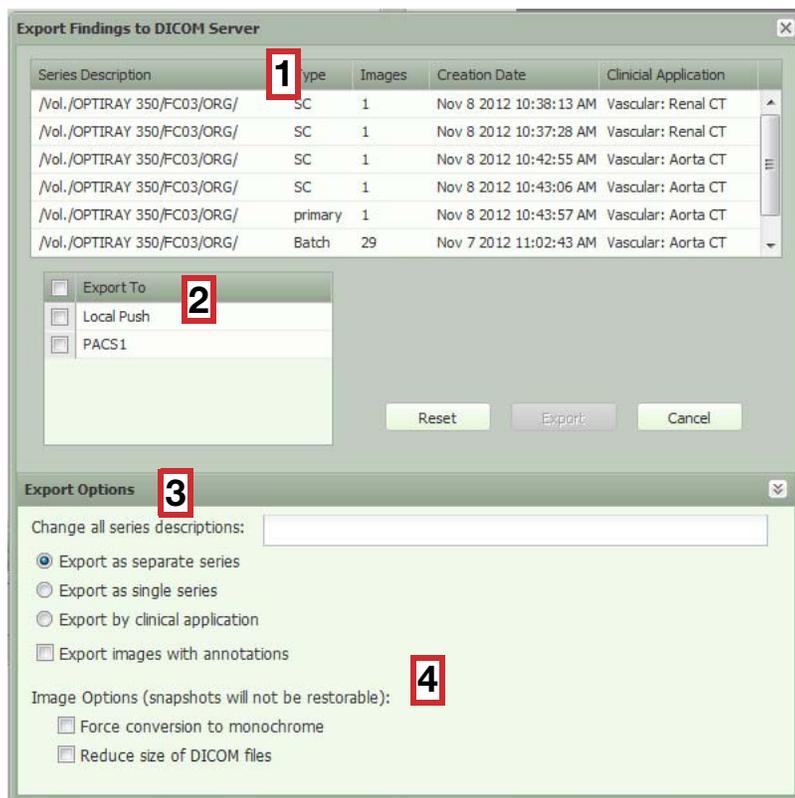
## Findings Management Buttons

Use the Findings Management buttons to distribute findings.



Click:	To:
	Restore a workflow back to the Viewer window. The snapshot workflow will be restored.
<b>NOTE:</b> Findings with  in the lower-right corner are not restorable.	
	Delete the selected snapshot, batch, or movie.
	Export the selected snapshot or batch to destination.

FIGURE 1. **Export Findings**

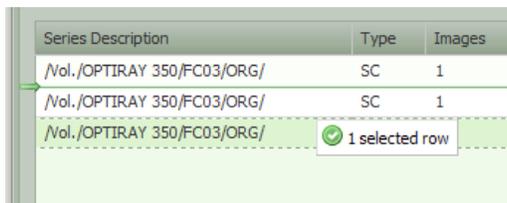


**Callout Description**

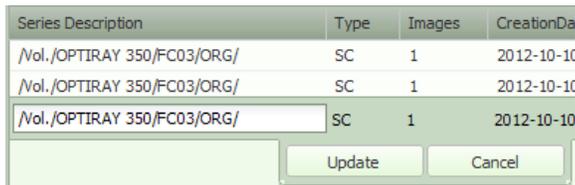
**1** Series List: a list of the selected findings and the associated series information. Findings are listed in order of how they were selected.

**TIP:** Click a header to sort the list by that field.

To change the order of the series to be exported, select a series description and drag it up or down.



To rename the series description, double-click a series name and enter a new description. Click **Update** when finished.



Callout	Description
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2	The Export to: box displays a multi-selection list of export destination servers. Select the check box for the appropriate destination(s). Select the check box in the header to select all destinations listed.
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3	Export Options:
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**TIP:** To display the full panel of Export Options,

click  on the right side of the Export Options title bar.

**Change all series descriptions** — modify the series descriptions for all series in the series list. This may be left blank.

**Export as a separate series** — export selected snapshots and batches in the Series List as separate item(s). This does not modify the series grouping. This is the default option.

**Export as a single series** — export all selected snapshots and batches as a single group with the same series ID.

**Export by clinical application** — export each selected snapshot image or batch grouped by protocol used to create the snapshot/batch. Each group is a single series with the same series ID.

For example: all findings created with the Vascular: Renal CT protocol are grouped in a single series and all findings created with the Vascular: Aorta CT protocol are grouped in another series.

**Export Images with annotations** — exports images with annotations (rulers, angles, arrows, labels, etc.) included. This is applied to all evidence and makes the snapshots secondary capture. The snapshots are restorable.

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Callout	Description
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4	Image Options:
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**NOTE:** Snapshots exported with either of these options selected are not restorable.

**Force conversion to monochrome** — converts snapshots and batches to grayscale monochrome.

**Reduce size of DICOM files** — removes private tags and reduces the size of the files.

## Restoring Saved Images and Workflows

From the Report window, restore a snapshot for the currently loaded volume to the Viewer window. Or, from the Study Directory, restore a Snapshot for an unloaded volume directly from the Preview pane. Use this feature to return to a saved image for further investigation.



**CAUTION: Verify the accuracy of all contours and confirm all measurements when restoring snapshots from previous software versions created through the use of region editing.**

When you restore a saved image to the Viewer window, the “workflow” is also restored. The workflow includes images of the patient volume and the state of the Viewer window at the time the image was saved, including:

- Selected protocol and preset
- Visual settings at the time you took the snapshot
- Viewer window format
- 3D or MPR mode(s)
- Any labels, rulers, and arrows
- Any segmentation or calcium scoring results

**NOTE:** Findings with  in the lower-right corner are not restorable.

**NOTE:** Batches and movies are not restorable.

**NOTE:** In order to restore a snapshot saved using a licensed option, a license for that option must be available.

**NOTE:** Restore workflows from snapshots saved for the currently loaded volume only. If you try to restore a snapshot from a volume that is not currently loaded, you will be prompted to load the volume first.

## Findings Management Right-Click Menu

Use the right-click menu to perform various tasks.

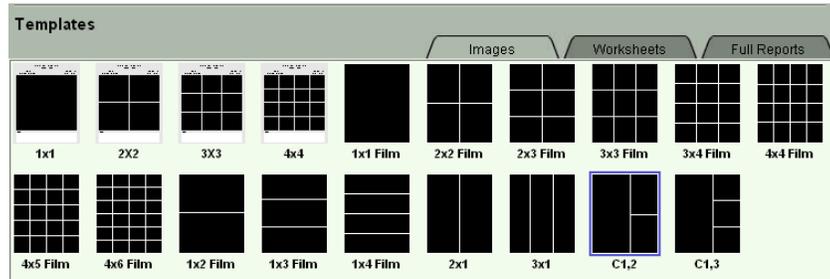


Select:	To:
Add All	Add All automatically places all snapshots at the end of your report, or press CTRL and click to select snapshots and drag to the report template.
Select All	Select all of the snapshots in the Findings tray.
Delete	Delete the selected snapshot, batch, or movie.
Export	Export snapshots to destination.
Preview	View the selected snapshot, batch, or movie.
Restore	Restore a workflow to the Viewer window state to when the snapshot was taken.
Series Description	Modify the series description. <div> </div>
Save As	<div> </div> <b>VitreWorkstation only</b> - Save the file in a specific format.

## Template Layouts

Select a tab to display the different template types: Images, Worksheets, Full Reports. Use the Templates area to select general and protocol-specific report templates.

Select the **Images** tab to select a layout for the images.



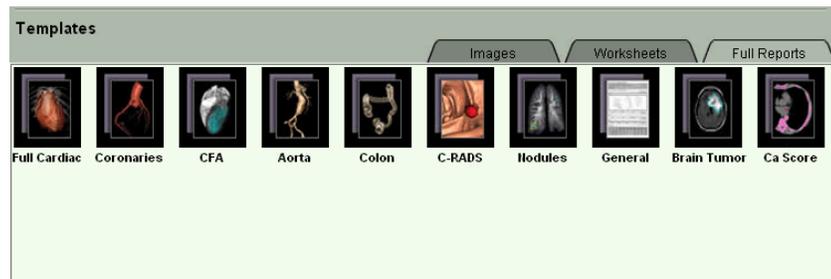
Select the **Worksheets** tab to select a worksheet template. The worksheets are a one-page report.

**TIP:** Select the worksheet template that is appropriate for the study you are working on. For example, select the CA Score worksheet for Calcium Scoring VScore.



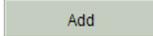
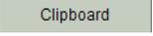
Select the **Full Reports** tab to select a specific report template.

**NOTE:** The Full Cardiac template contains a comprehensive report of CA Score, CFA, and Coronary Artery.



## Templates Buttons

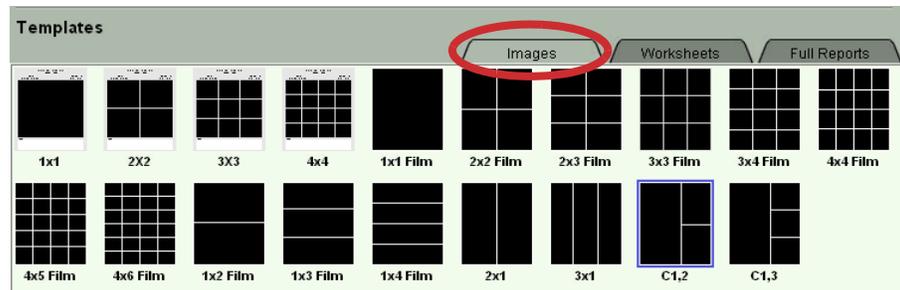
Use the Template buttons to change or add pages to the report.

Click:	To:
	Add a new page of the selected template to the end of the report.
	Replace the current report with the selected template/layout.
	Copy the contents of the Report template to the Windows clipboard. Paste the contents into a Word document or another text program (email, 3rd party reporting application).
<b>NOTE:</b> Microsoft Word must be installed in order to paste the contents into a Word document.	
Right-click and select 	Create a new report, insert a new page of the selected template before or after the report page displayed, or append a page.

## Create the Report

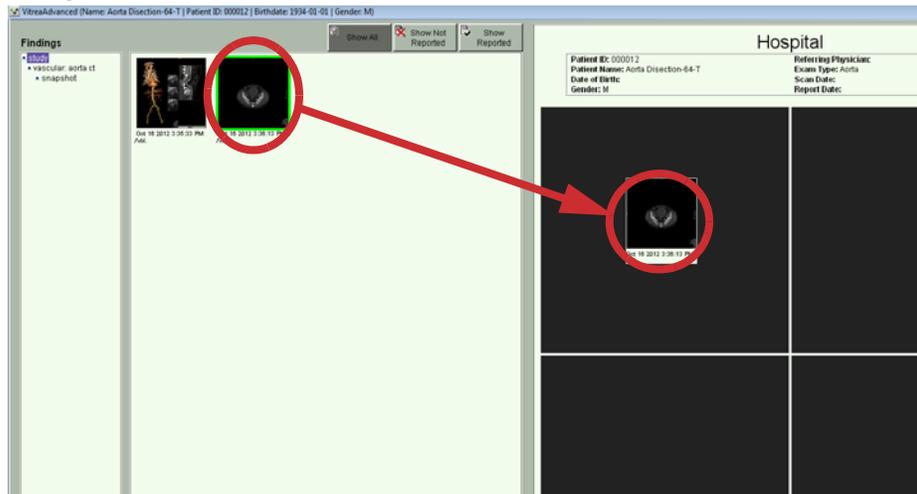
Create the report on the Report window.

1. In the Templates section, select the Images tab.



2. Select a template and click **Add**.

- To add snapshots, batches, or movies, drag the thumbnail to an image area of the report.



**TIP:** To replace an image in one of the frames, drag and drop a different thumbnail on top of it.

**NOTE:** When you place an image in a frame, be sure that the margins do not cut off important information such as anatomy or measurements.

- To add text areas to the report, click the ab label  and type new text and press Enter.
- To edit text areas on the report, click any text with a rectangle, then type new text.

## Report Tools



Use the Report Tools buttons to save, restore, or mark-up a report.



**Click:**

**To:**



Save a draft of the report.



Restore a saved draft report.

Click:	To:
	Select a report pane.
	Add a label to a report pane.  <b>TIP:</b> To edit a label, click it, then click the text box. Press Enter.  <b>TIP:</b> To delete a label, click it, then press DEL.
	Add an arrow to a report pane.  <b>TIP:</b> To delete an arrow, click it.  <b>TIP:</b> When you hover over the arrow, it turns yellow.
	Delete the current report page.
	Delete the selected image from the report page.
	Undo the last action.
	Redo the last undone action.

### Save and Restore a Draft Report

1. Click  to save the current findings as a draft report.
2. Click  to restore a report for viewing or to add new findings.
3. To add new findings to a saved report, restore the report in the Report tab. Use the Viewer tab to create new findings.

**TIP:** Restore a report before adding new findings. If restoring a workflow from a snapshot, both the workflow snapshot and the report need to be restored.

## Report Navigation



Use the Report Navigation buttons to navigate between pages of a report.

Click:	To:
	Jump to first or last report page.
	Jump to previous or next report page.

## Including Snapshots from Multiple Volumes on One Report

After you place snapshots from one volume for a patient on a report, return to the Study Directory, load a new volume for the SAME patient ID, take snapshots, and place them on the same report. This allows you to include images from different volumes in the same report for comparison purposes.



**CAUTION:** Make sure you can identify the volumes that the images came from. If you include images from more than one volume for the same patient, the report headings, if any, will identify the volume you loaded most recently.

- Use a report format that includes a Comments field, enter comments to indicate which images came from which volume, then print the report on a PostScript printer.

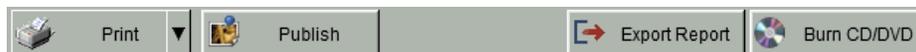
**OR**

Type annotations or arrowtations directly onto images in the report, then print the report on a DICOM printer.

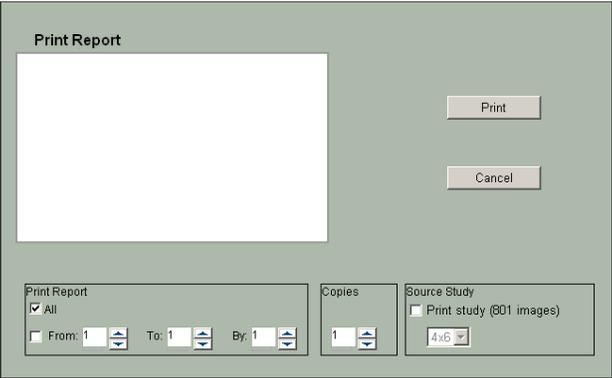
**NOTE:** The Findings Tray accumulates snapshots as you work within a study, so when you are ready to create a report, all snapshots saved for volumes or series within the study are available in the Findings Tray if you want to associate them with the report. If you load a different study (patient) or restart Vitrea, the Findings Tray clears, then starts accumulating snapshots for the next loaded study. This prevents you

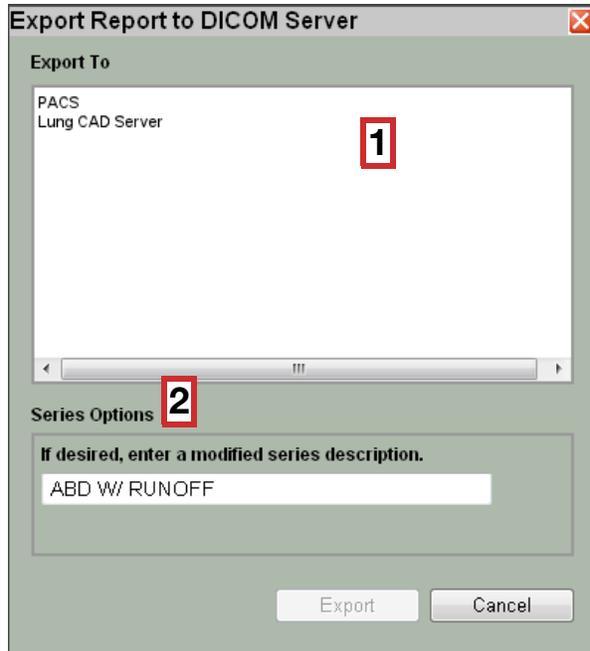
from accidentally placing images from different patients into the same report.

## Report Distribution



Use the VitreaAdvanced Report Distribution buttons to distribute the report.

Click	To
 Print	Print a paper report for distribution.  <b>TIP:</b> Use the <b>Preferences</b> button on the Print dialog box to set the orientation to landscape if desired (for example, templates C1,2 and C1,3 may print better in landscape orientation).
 DCM Print	Print the report to a DICOM printer.  
 Publish	Post the report to your institution's intranet.
 Export Report	Save the report to a DICOM server.
 Burn CD/DVD	Save the report to a CD or DVD (VitreaWorkstation only).

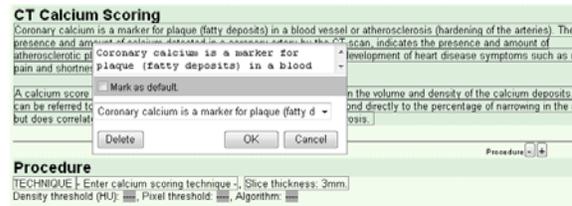


Callout Number	Description
1	The Export to: box displays a multi-selection list of desired export destination servers.
2	Series Options: <b>Series Description</b> - Enter text in this field to apply it as the series description for all selected snapshot/batches upon export. The default series description is the study description.

## Customized Templates

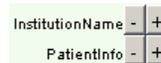
Customize the text areas on the report templates.

1. Click a heading or text area enclosed by a box.
2. Enter the new text.
3. Click outside the box.



**TIP:** To delete text, select the text from the dropdown, and click **Delete**.

Certain templates allow you to show or hide the Institution Name and the Patient Info in the header.



- Click + to include the Institution Name or Patient Info.
- Click - to hide the Institution Name or Patient Info.

## Customized Report Page

The default report page can be customized with your facility name, address, and logo. See your System Administrator for more information.

# The Review Window (VitreaWorkstation only)

Use the Review window to view reports posted to your facility's intranet. Reports you post on the VitreaWorkstation can also be viewed from other VitreaWorkstations.

1. Select the **Review** tab.
2. Enter information such as patient name or report date to see specific reports,

**OR**

Leave all the fields blank to see all posted reports.

Patient Name	Patient ID	Exam Type	Modality	Scan Date	Scan Time	Report Date
MR 1102 MR_TC/MR_VOL1302	1102	---	MR	20021011	094819.000	2009-10-27 09:59:21.347

3. Click **Search**.
4. Click **Review** next to the patient name for the report to view.

**TIP:** If the report includes a digital movie, the movie plays when you view the report.

5. If the report contains more than one page, click  **Next** or  **Previous** to view other pages.

Print reports posted to the Review window.

1. From the Reports List, display the report to print.
2. Click **Print** at the bottom of the Review window.

Delete posted reports when you no longer need them.

- Click **Delete** next to the report you want to delete.

# Ortho (Joint Disarticulation)

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## Contents

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Ortho Overview

Ortho Lesson

- I** Select Study
- II** Choose Protocol and Preset
- III** Perform Analysis
  - Window Level
  - Isolate the Joint
  - Disarticulate the Joint by Sculpting in the MPR
  - Examine Each Region
  - Take Snapshots
- IV** Distribute Findings

Additional Procedures

- Switching Active Volumes
- Bone Tool Segmentation
- View Metal Implants
- Segment Metal Implants

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# Ortho Overview

Vitrea gives you many options for viewing many different types of orthopedic anatomy from metal hardware within the spine to artificial joints.

Vitrea also allows you to disarticulate joints by a simple sculpting method.

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## Ortho Lesson

### I. Select Study

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Load an orthopedic study.

 See the instructions for your Vitrea type (VitreaAdvanced Through the Data Manager or VitreaWorkstation) in the **Select Study** chapter of the **VitreaAdvanced-VitreaWorkstation General Education and Reference Guide**.

### II. Choose Protocol and Preset

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Use one of these procedures:

#### Data Manager

- Double-click the **Musculoskeletal** application thumbnail.



## Gallery Window

1. On the Gallery window, select the **Musculoskeletal CT** protocol.

The Gallery choices update automatically.

2. Click  next to the **3D Analysis** preset.

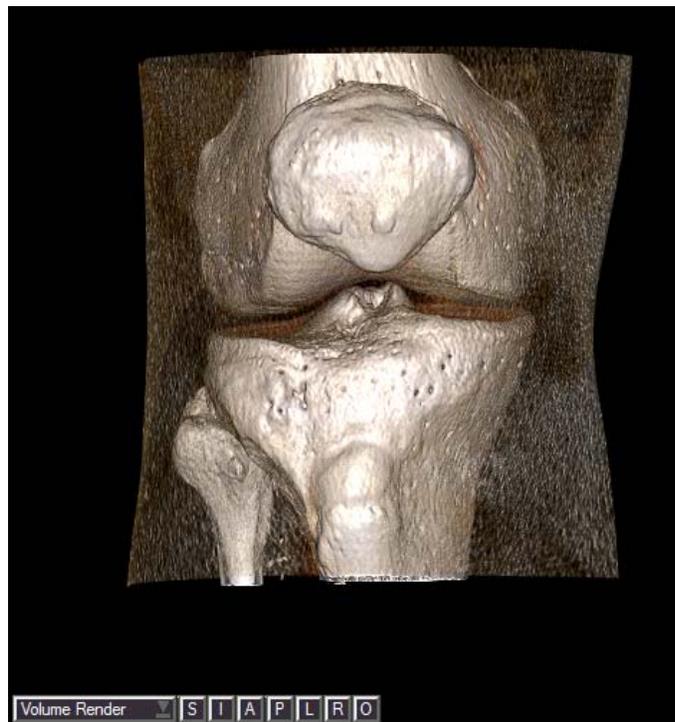
## III. Perform Analysis

---

### Window Level

Window level in the 3D image to add in soft tissue like muscle or tendons.

1. Left + right-click and drag to window level the 3D image.



2. Drag towards you to window level the muscle back in.

**TIP:** Hold briefly until the window level icon displays.

## Isolate the Joint

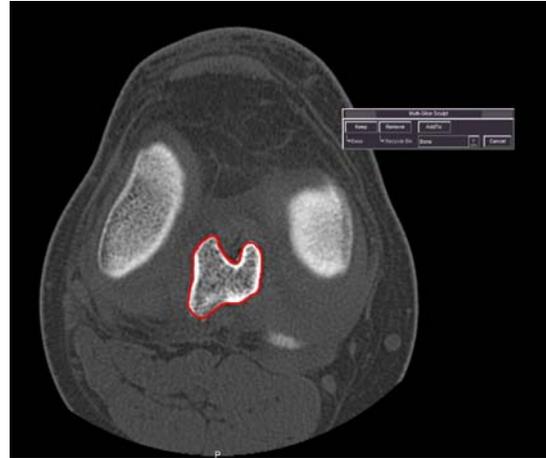
3. Click  to magnify the image.
4. Press T to activate the **Trim** tool.
5. Click and drag the yellow lines in the MPRs to trim around the joint.

## Disarticulate the Joint by Sculpting in the MPR

6. Right-click and select .

7. On the axial MPR images, draw contour lines around anatomy of interest. For example, head of femur, distal portion of femur, or proximal portion of tibia.

Start at one end and draw contour lines all the way down the anatomy to the other end. Skip a few slices between your contour lines.



**TIP:** Draw a contour whenever the anatomy changes size, shape, or location.

- Click, hold, and drag to draw a true freehand contour.
- Click, release, and drag to draw a contour that attempts to automatically define the edge of the region (based on HU units).

**TIP:** To aid drawing the automatic contour, click along the region to drop anchor points.

8. Scroll a few slices, then repeat step 7.

**NOTE:** Interpolated contours between automatic contours are truly interpolated and do not necessarily follow the edge of the region. Edit interpolated contours if necessary.

9. Continue to scroll and draw until you reach the last slice displaying the region.

Vitrea automatically displays a colored surface on the 3D view.

10. If you had the MPR maximized, minimize it to see the 3D view.

11. Rotate the 3D view to verify that the surface contains the whole area to sculpt.

12. Select the dropdown and select **Bone**, or type a name.



## Examine Each Region

13. Right-click one of the objects in the Anatomy list and select **Highlight & Tint/MPR**.

14. Rotate the object in the 3D view.

## Take Snapshots

15. Right-click and select  (or press **S**) to activate the camera.

16. Move the cursor to the image and click.

Snapshots, measurements, rulers, W/L, or segmentation option can be restored from the Report page or the Study Directory.

## IV. Distribute Findings

---

The snapshots you save in the Viewer window are saved to the Report window.

1. Click  at the bottom of the window.

2. Export your findings or create a report.

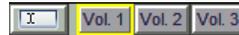
 See the **Distribute Findings** chapter of the **VitreaAdvanced-VitreaWorkstation General Education and Reference Guide** for instructions on exporting findings, restoring workflow, and creating reports.

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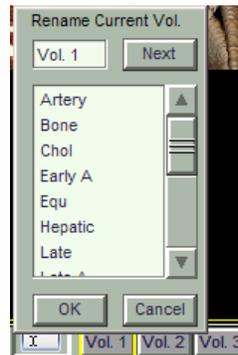
# Additional Procedures

## Switching Active Volumes

With multiple volumes loaded, switch the selected volume by using the Volume Navigation buttons at the bottom of the Viewer window.



- To change the label on the button for the currently selected button, click  and select a name or type a new one.

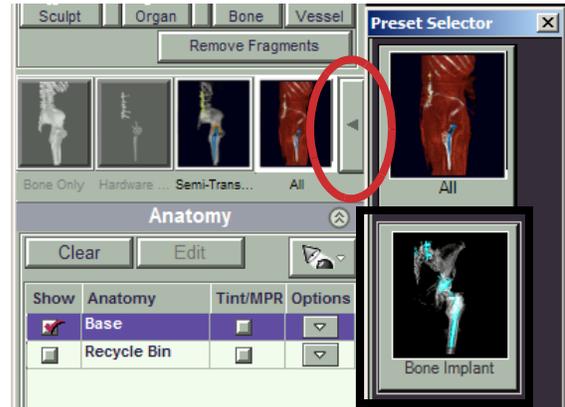


## Bone Tool Segmentation

1. In the Segment Anatomy area, click **Bone**.
2. In the MPR view, click on cortical bone (white bone).
3. Click **Keep Bone**.
4. In Anatomy Segmentation area, right-click the Bone region and select **Rename**.
5. Type the name in the New Name box.
6. Click **OK**.

## View Metal Implants

1. In the Visual Preset section, click the arrow.
2. In the Preset Selector, click **Bone Implant**.



## Segment Metal Implants

1. Select **Base** in the Anatomy Manager.
2. Window/level in the 3D view until the soft tissue and bone are removed and only the device displays.

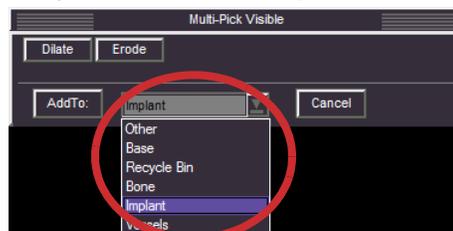


**TIP:** Move the mouse straight up.

3. Click  .
4. Click the device in the 3D image.



5. Review the blue area in the MPRs to be sure the device is fully segmented.
6. Click on more areas or click **Dilate** **Erode** as needed.
7. In the Multi-Pick dropdown, select **Implant**.



8. Click **Add To** .

9. Click **Semi Transparent Bone**



in the Region Visibility area.

10. Take snapshots.



# Softread

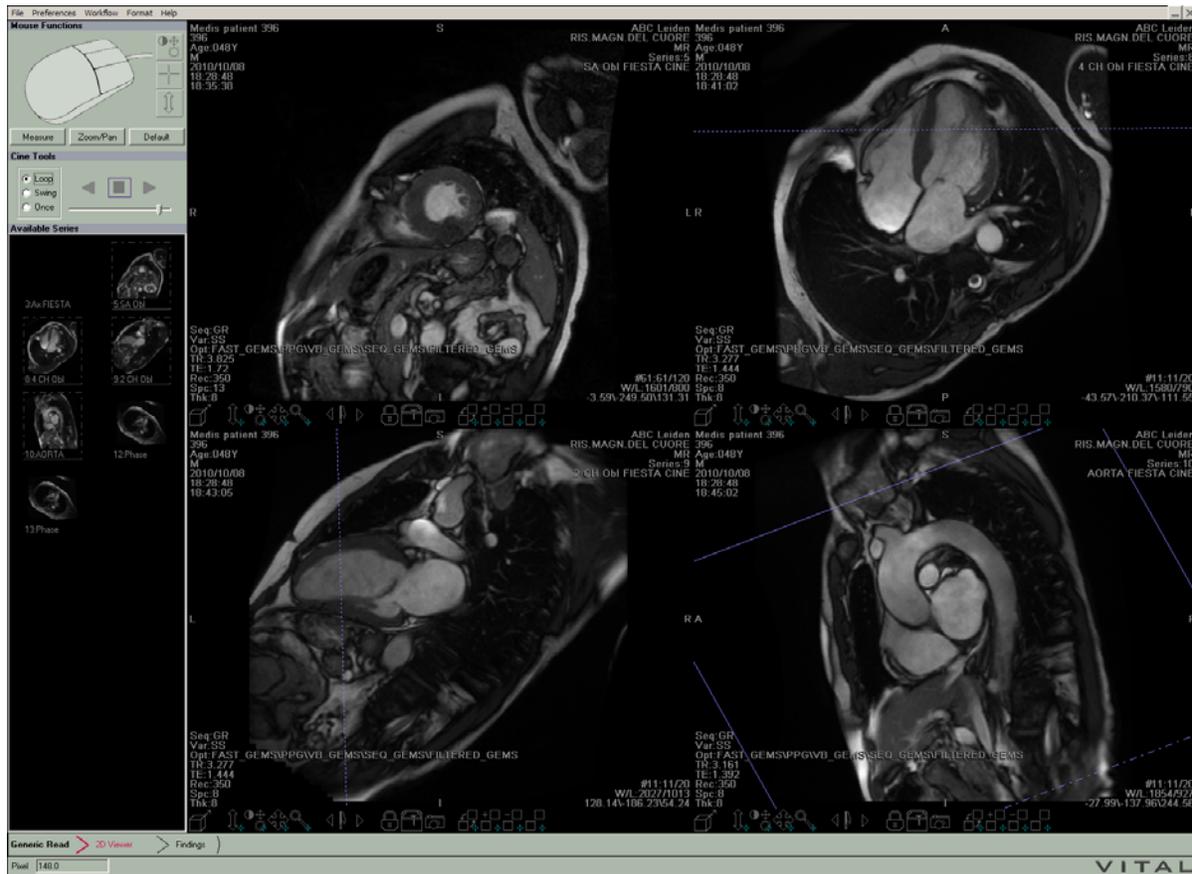
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## Contents

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- Softread Overview
- Loading Studies into Softread
- Buttons, Tools, and Controls
- Keyboard Shortcuts
- Working in Softread
- Assigning Mouse Functions
- Basic Workflow
- Scenarios
- Setting Preferences
- Viewing Findings (Key Images)
- Closing Softread

# Softread Overview



**CAUTION:** To use Softread, your monitor should have a luminance of at least 50 foot-Lamberts. The monitors provided with the Vitrea Windows NT or XP workstations meet this requirement. Vital Images does not assume any responsibility for customer-supplied hardware or monitor calibration.

The Softread software is designed for viewing original 2D images in a variety of modalities, including CT, MR, CR/DR/DX, SC, US, NM, PET, XA, and RF.

**NOTE:** RT studies are not supported in Softread.

Using Softread, you can perform the following tasks:

- View a series in 2D
- Compare multiple series for multiple patients, side-by-side
- Cine, window/level, pan, zoom

- Rotate right or left 90 degrees, invert grayscale
- Make linear and polygonal rulers, measure angles, and outline ROIs
- Switch to Vitrea to examine a 3D volume (if one exists for the series)
- View grayscale images as color images
- View grayscale images with pseudo-color maps
- Mark key images for use in dictation, or take snapshots for saving to the Vitrea Report page

---

## Loading Studies into Softread

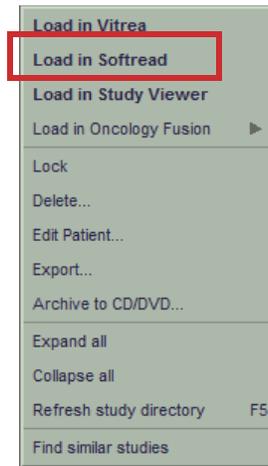
1. From the Patient List, select a patient name.
2. Load in one of the following ways:

Through the Data Manager, double-click the Softread application thumbnail.

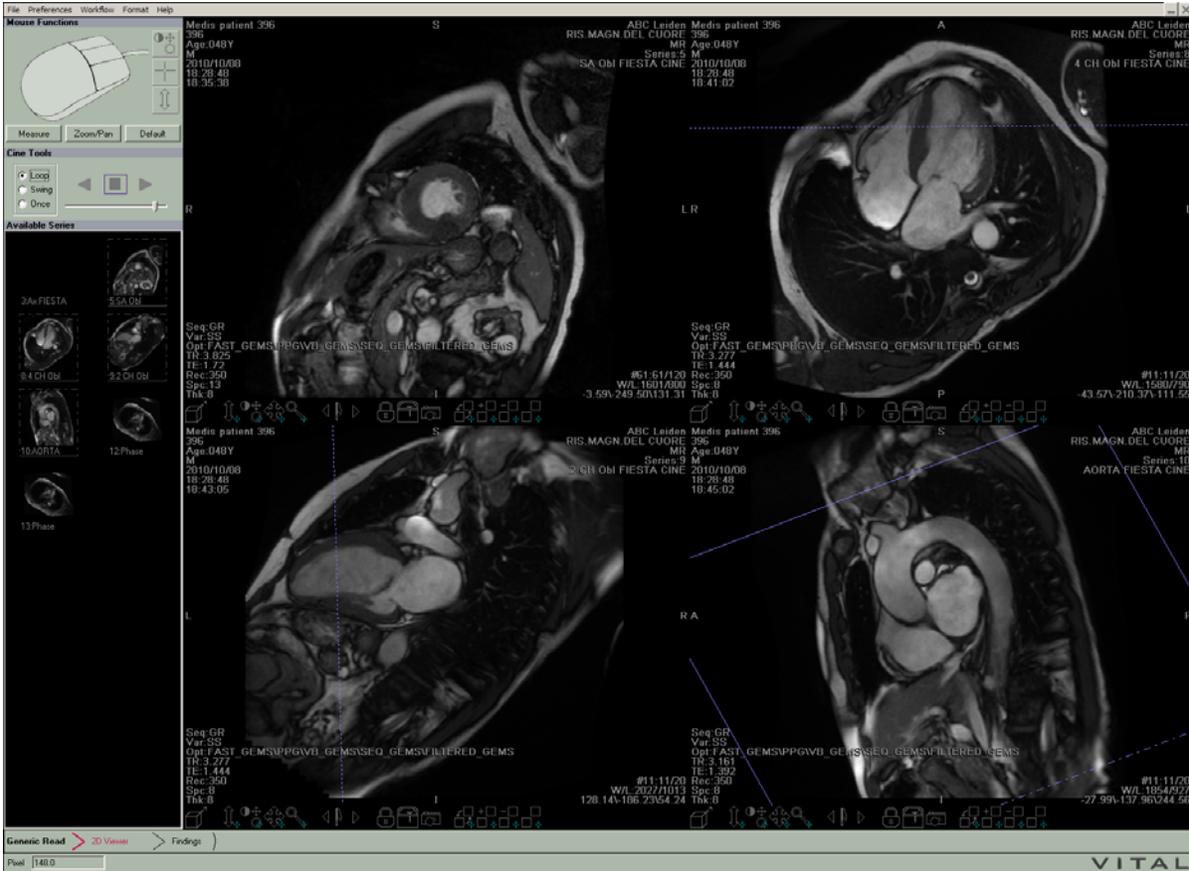


**OR**

Through the VitreaWorkstation, right-click on the patient name and select **Load in Softread**.



# Buttons, Tools, and Controls



Toolbar at the bottom of the viewer:



Toolbar at the bottom of the viewer in 6- (or more) up format:



↑  
One-way scroll  
arrow

↑  
Two-way scroll  
arrow

**NOTE:** Some of these tools are buttons and others are controls. As explained in the **Use** column in the following table, controls behave differently than buttons. The controls have a little blue cross symbol in

the lower right corner. The buttons do not. You can float the cursor over any of the buttons and controls in the toolbar at the bottom of the viewer for tips on how to use them.

Buttons and controls in the toolbar at the bottom of the viewer:

Button/ Control	Name	Use
	View Volume button	Click to load the study's corresponding volume in Vitrea.  <b>NOTE:</b> If no volume exists, Vitrea will display an error message.
	Cine control	Click and drag on the control to cine quickly through the images.
	Window/Level control	Without moving the cursor off the control, click and drag on the control to adjust the window/level settings in the viewer.
	Pan control	Without moving the cursor off the control, click and drag on the control to move the image around in the viewer.
	Zoom control	Without moving the cursor off the control, click and drag on the control to magnify or minify the image in the viewer.
	Key Image flag (button)	Click the flag to mark an image as interesting. Key images are saved to the Findings window.
	Previous/Next (key image) arrows	Click the <b>Previous</b> or <b>Next</b> arrows to jump between key images.
	Add image to locked set button	Click the button to lock the image with other images on the screen.  You can cine through images in locked sets simultaneously.
	Tools menu button	Click the button to display the Tools menu, which contains the following options: Rotate right, Rotate left, Flip, Invert, Pseudo-color, Slice Stacking, Montage, Image filter, Reset, Copy to clipboard.

Button/ Control	Name	Use
	Snapshot button	Click the button to take a snapshot of the image in the viewer.  The snapshot will be saved to the Windows clipboard for pasting into other applications.
	Swap contents control	Click the control and drag it into one of the other viewers to switch the images displayed in the two viewers.
	Add images control	<b>NOTE:</b> To use this control, both source series must contain the same number of images.  Click the control and drag it into one of the other viewers to create a new dataset, which is the result of adding the images in the current viewer to the corresponding images in the other viewer, slice by slice.
	Subtract images control	<b>NOTE:</b> To use this control, both source series must contain the same number of images.  Click the control and drag it onto one of the other viewers to create a new dataset, which is the result of subtracting the images in the current viewer from the corresponding images in the other viewer, slice by slice.
	Concatenate series control	Click the control and drag it onto one of the other viewers to create a new dataset, which is the result of linking the series in the current viewer to the series in the other viewer.

Button/ Control	Name	Use
	One-way scroll arrow	Click the arrow to scroll the toolbar to the left.  This button appears on the toolbar when the viewers are too small to display the entire width of the toolbar. This happens in 6- (or more) up format.
	Two-way scroll arrow	Click the right arrow to scroll the toolbar to the right.  Click the left arrow to scroll the toolbar to the left.  This button appears on the toolbar when the viewers are too small to display the entire width of the toolbar. This happens in 6- (or more) up format.

---

## Keyboard Shortcuts

To display a dialog box containing all Softread keyboard shortcuts, click the **Help** menu, and select **Keyboard help**.

Key	Function
=	Next series
-	16 up
/	Previous series
0	12 up
1	1 up
2	2 up
4	4 up
6	6 up
9	9 up
Ctrl-c	Copy to clipboard
d	Set mouse to Default mode
i	Estimated window/level
m	Set mouse to Measure mode
p	Previous format
q	Exit
u	Full range window/level
y	Image Default window/level
z	Set mouse to Zoom/Pan mode
End	Stack bottom
F1	Help
Home	Stack top
Left arrow	Cine up
Page Down	Page screen forward
Page Up	Page screen backward
Right arrow	Cine down
Tab	Maximize and Back

---

## Working in Softread

If a study contains multiple series, you can use Softread to initially examine the entire study. For detailed investigation of a specific area of interest, you can then load the corresponding volume into 3D. Unlike 3D, Softread is series based, so you can cross-reference, lock, and cine through multiple series side-by-side.

Once you load volumes in Softread, you can work with the images using several available hanging protocols.

Within the Softread application, you can compare studies, link images, cine, pan, zoom, adjust window/level, scroll, rotate, invert, draw rulers, outline regions of interest (ROIs), and take snapshots of your work to paste into other applications

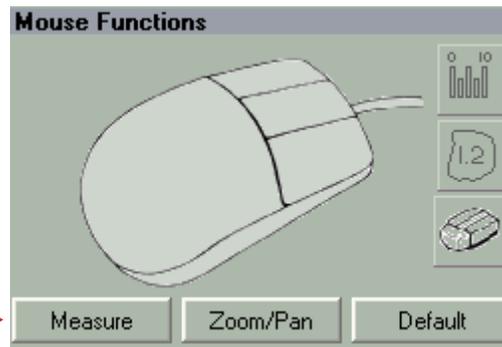
---

## Assigning Mouse Functions

In Softread, you can assign separate functions to each of the three mouse buttons (left, middle, and right). When you click the mouse button, the function you assign is activated. You can then drag the mouse in the viewer to perform the assigned action. You assign mouse button functions in one of two ways: using mouse function groups, or the mouse functions palette.

Currently assigned mouse function buttons:  
Left (top) Middle  
(middle), and Right  
(bottom).

Click to assign default Measure actions to the three mouse buttons. This combination is shown here.



Click to assign default Zoom/Pan actions to the three mouse buttons.

Ruler

ROI

Eraser

Click to assign default actions to the three mouse buttons.

---

## Mouse Function Groups

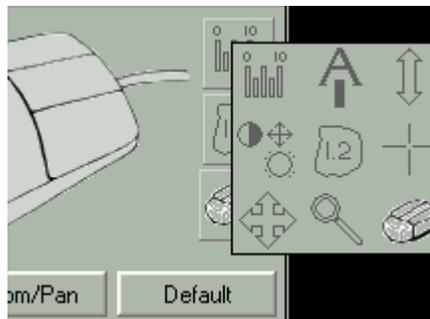
Softread provides three pre-assigned mouse function groups. The groups provide a shortcut for assigning all three mouse button functions at once. You select a mouse function group by clicking on the corresponding

button below the mouse picture in the Mouse Functions area. The following pre-assigned groups of mouse functions are provided:

Function	Measure	Zoom/Pan	Default
Left	Ruler 	Zoom 	Window/Level 
Middle	ROI 	Pan 	Crosshair 
Right	Eraser 	Cine 	Cine 

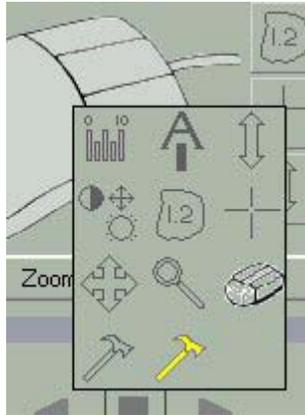
## Mouse Functions Palette

You can access additional mouse functions, and assign one mouse button function at a time using the mouse functions palette.



In the Mouse Functions area, you display the mouse button function palette by clicking anywhere on the mouse picture, or on any of the three currently-assigned mouse function buttons, to the right of the mouse picture.

The right mouse button has two additional options: the outlined hammer and yellow hammer, as shown below.



Button	Name	Use
	Ruler	Draw single or multiple straight or polygonal rulers, create angles, or draw geometric ROI outlines on an image.
	Arrowtation	Pinpoint and label anatomical features. Enter text in the dialog box, adjust font and color, then click and drag to draw an arrow from any corner of the text box. You can only draw one arrow for each text box.
	Cine	Scroll through the images in the viewer (and any same-plane locked images).
	Window/ Level	Adjust window and level settings for the image in the viewer.
	ROI	Draw freehand borders around ROIs.  Softread displays the area in sq. cm.
	Crosshair	Navigate to a point of interest in the images in the opposite plane. If you use the crosshair tool in the axial plane, the images in the sagittal plane will automatically update to display the slice you are clicking on and vice versa.
	Pan	Move the image around in the viewer.
	Zoom	Magnify/minify the image in the viewer.

Button	Name	Use
	Eraser	Erase ROI borders, annotations, arrowtations, or rulers you have drawn.
	Hammer	(Available for the right mouse button only.) Display the Viewer tools right mouse button menu.
	Yellow Hammer	(Available for the right mouse button only.) Display the mouse button function palette. Use the palette to change the function assigned to the left mouse button only.

## Using the Ruler Tool

---

Before you can create rulers and measurements in Softread, you must first assign the Ruler tool to a mouse button.

### To assign the Ruler tool to a mouse button:

**NOTE:** For the purposes of the following procedures, you will assign the Ruler function to the left mouse button. However, you could assign it to the middle or right mouse button, instead.

1. In the Mouse Functions area, select **Measure**.

OR

Click the mouse picture, then left-click the **Ruler** button.

OR

Click the top mouse function button, then click the **Ruler** button.

## Rulers, Angles, and Geometric ROIs

---

In Softread, you use rulers to draw single or multiple straight or polygonal rulers, to create angles, or to draw geometric ROI outlines.

**NOTE:** You draw rulers in Softread differently than in 3D. Softread rulers were designed to follow standard Microsoft Windows conventions.

If the image is calibrated, Softread displays the following measurements:

- lengths of all rulers in millimeters
- angles (degrees) between two adjoining rulers
- average tissue density (pixel units)
- range of tissue densities (pixel units)
- area (square centimeters (cm))
- total length of the perimeter (millimeters (mm)) of geometric ROI outlines

**NOTE:** If the image is not calibrated, Softread displays all length and area measurements in pixels only.

Marking an image with any kind of ruler automatically flags that image as a key image and places it on the Findings tab. Deleting the ruler from the image does not remove the image from the Findings tab. If you try to remove the key image flag from an image with rulers, you will be prompted to delete all other rulers from the image.

### **To draw a ruler:**

1. Click and drag in the viewer.
2. To end the ruler, release the mouse button.

Softread assigns an incremental ruler number (1) and displays the length measurement in millimeters (mm) in the lower left corner of the viewer.

The image is flagged as a key image and saved to the Findings tab.

### **To add another ruler:**

1. Click and drag in the viewer.
2. To end the ruler, release the mouse button.

Softread assigns an incremental ruler number (2) and displays the length measurements for both rulers (1 and 2) in millimeters (mm) in the lower left corner of the viewer.

The image on the Findings tab is updated with the new ruler and measurements.

### **To shorten a ruler:**

1. Click one of the ends of the ruler, and drag toward the other end.
2. When you reach the desired length, release the mouse button.  
The ruler shortens.

### **To create an angle measurement:**

1. Press and hold the CTRL key on the keyboard, then click and drag from the end point of the first ruler.
2. To end the ruler, release the mouse button.

Softread displays the angle created by the intersection of the two points, and the measurements for each line in millimeters (mm) in the lower left corner of the viewer.

It labels the lines Xa and Xb, where X is the incremental number assigned to the first ruler.

The image is flagged as a key image and saved to the Findings tab.

### **To create a multiple-segment line measurement:**

1. Press and hold the CTRL key on the keyboard, then click and drag in the viewer.
2. To end the line segment, release the mouse button, while continuing to press the CTRL key.
3. Click the end of the line segment where you want to attach the next line segment, and drag.
4. To end the line segment, release the mouse button, while continuing to press the CTRL key.

5. Repeat steps 2-4 for all additional line segments.
6. When you are finished creating line segments, release the CTRL key. Softread displays the length of the entire line in millimeters (mm) in the lower left corner of the viewer.

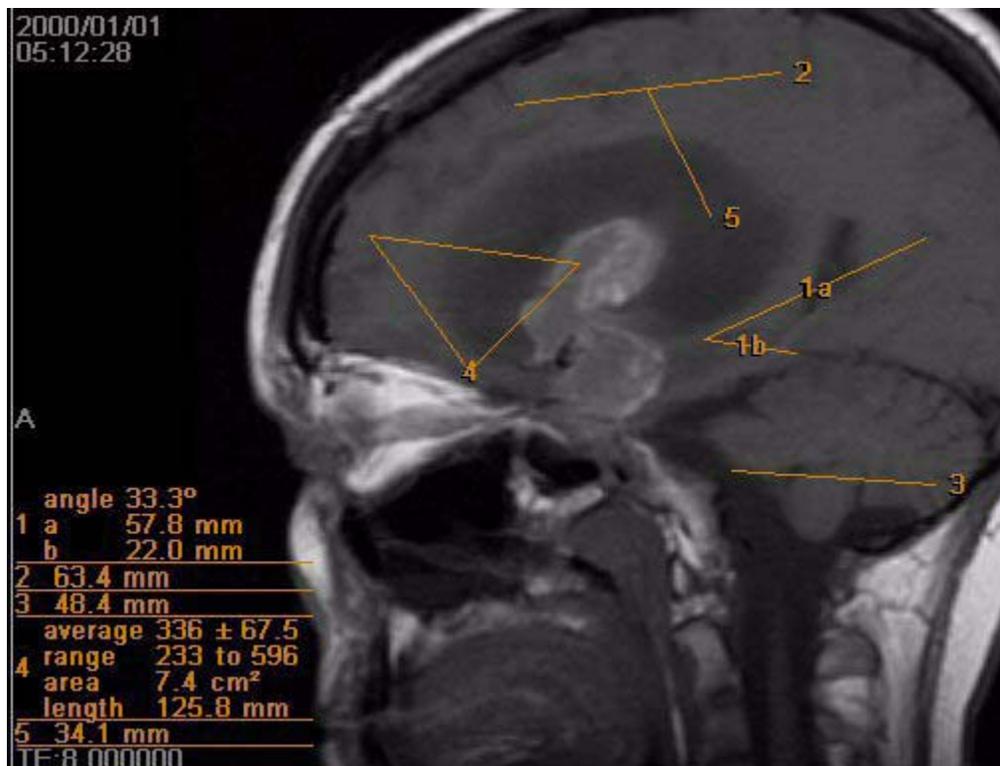
The image is flagged as a key image and saved to the Findings tab.

**To create a ruler connected along the length of another ruler:**

1. Press and hold the SHIFT and CTRL keys on the keyboard, then click a point along the length of one ruler, then drag to create the second ruler.

2. To end the second ruler, release the mouse button. Softread gives the ruler a new number, and displays its length measurement in millimeters (mm) in the lower left corner of the viewer.

The image on the Findings tab is updated with the new ruler and measurements.



### To connect rulers to form a geometric ROI outline:

1. Press and hold the CTRL key on the keyboard, then click and drag from the end point of the first ruler to the end point of the second ruler.
2. To end the ruler, release the mouse button.

This creates the third ruler, and the final border of a triangular ROI outline.

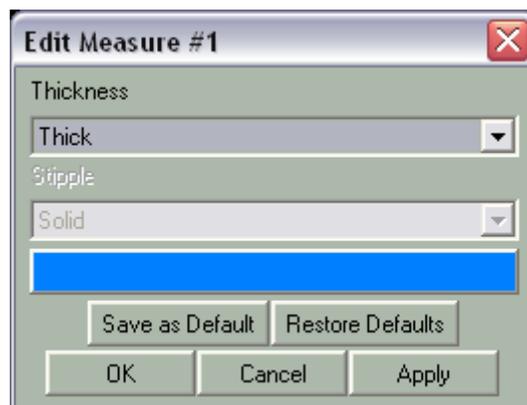
Softread assigns an incremental number to the entire outline, and displays the average tissue density inside the outline (pixel units), range of tissue densities inside the outline (pixel units), area of the ROI (in square centimeters (cm)), and total length of the perimeter in millimeters (mm) in the lower left corner of the viewer.

The image on the Findings tab is updated with the new ROI outline and measurements.

### To edit ruler properties:

1. Right-click the ruler, then select **Properties**.

The Edit Measure #X dialog box displays.



2. To adjust line thickness, click the dropdown arrow at the end of the Thickness field, and choose from **Thick**, **Medium**, or **Thin**.
3. To change the color, click the orange (or other colored) field. The Set Color dialog box displays.
4. Pick a color, or define one of your own.

5. 6 Click **OK**.  
The Set Color dialog box closes.
6. To save your ruler properties as the default for all other rulers you draw, click the **Save as Default** button.
7. To restore the previously saved ruler properties (in this case, orange, thin lines), click the **Restore Defaults** button.
8. To see your changes without exiting the dialog box, click the **Apply** button.
9. To close the dialog box, click the **OK** button.
10. To disregard your changes, click the **Cancel** button.  
The dialog box closes.

**To delete a ruler:**

- Right-click the ruler you want to delete, then select **Delete**.  
**OR**  
If you have assigned the **Eraser** function to one of the mouse buttons, click that button and drag over the ruler.

---

## Basic Workflow

Use these steps to complete a basic workflow in Softread:

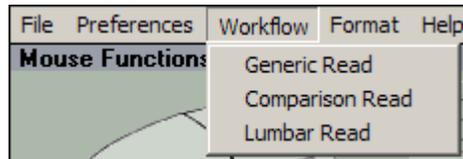
1. Select one or multiple studies to review.
2. Launch Softread and a default workflow (reading protocol) is automatically chosen based on the studies selected.

The following three workflows are available:

- **Generic Read** - initiated when you load one study for one patient, or when you load studies for different patients

- **Comparative Read** - initiated when you load more than one study for one patient
- **Lumbar Read** - initiated when you load a spine study

Workflow menu:



Workflow indicators:



3. Use the Softread tools to review images, mark findings, take measurements, mark key images for use on the Findings tab, and take snapshots to place on the clipboard and paste in another application.

---

## Scenarios

This section will give you some examples of how to apply the features of Softread when reading various types of cases.

**NOTE:** The tools and techniques discussed within these scenarios can be applied to other types of studies as well.

- Basic MR studies, such as orthopedic and head MR
- Advanced MR cases, such as cardiac perfusion (4D) and dual echo
- Lumbar MR studies
- CT cases, such as localizers or multi-phase studies
- Other modality studies, such as nuclear medicine or ultrasound.

# Basic MR

---

## To view a Basic MR case:

1. On the Study Directory in Vitrea, click the MR study you want to load in Softread.
2. Click the **2D** application thumbnail.

The Softread application launches, displaying the images in the 4 up Series hanging protocol.

The 4 up Series hanging protocol sorts the study by series number and each individual series by image number. When hanging the series, Softread ignores the localizers. Each viewer displays either the first or middle image in the series, depending on the **Preferences, Start Middle Image** setting. All available series in the study display as thumbnails in the thumbnail viewer in the lower left corner of the window.

## Thumbnail Borders

Borders and underlines around the thumbnails indicate viewing status, as shown below. The presence of a border, along with the type of border, indicates how many images within the series have been previously viewed. The presence of an underline indicates that the series is currently displayed in at least one of the viewers. The brightness of the underline indicates if it is displayed in the active viewer.

No border: You have not viewed any of the images in the series, nor is the series displayed in any of the viewers.

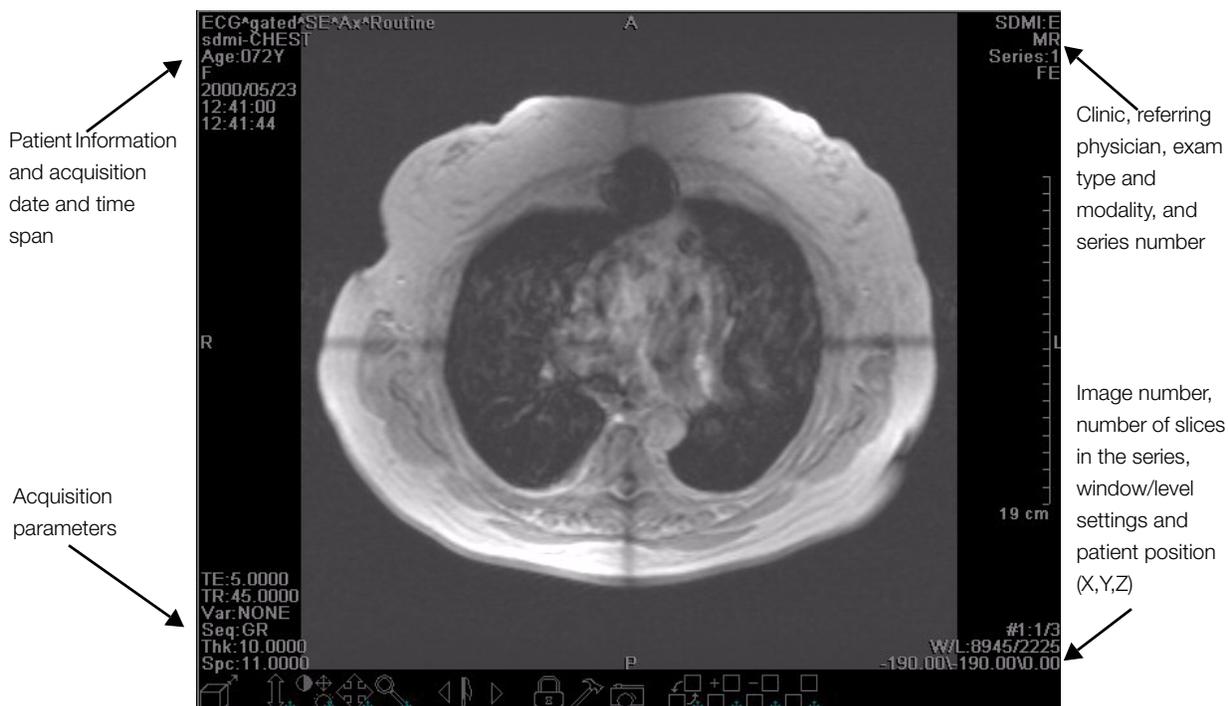
Dash dot border with solid underline: You have viewed some of the images in the series, and the series is currently displayed in one of the viewers (not the active viewer).



Dot border with bright, solid underline: You have viewed all of the images in the series, and the series is currently displayed in the active viewer.

Dash dot border with no underline: You have viewed some of the images in the series, but the series is not currently displayed in any viewer.

### Patient and Exam Information:



Patient information and acquisition date and time span

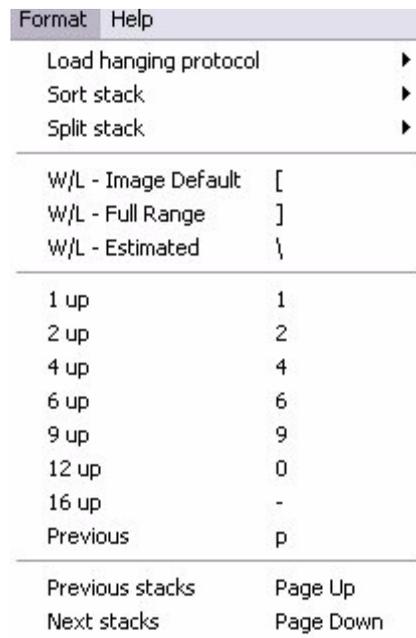
Acquisition parameters

Clinic, referring physician, exam type and modality, and series number

Image number, number of slices in the series, window/level settings and patient position (X,Y,Z)

3. Click and drag different series into the viewers from the thumbnail viewer on the right, or press PAGE UP or PAGE DOWN keys.
4. For a list of keyboard shortcuts, in the menu bar, select **Help**, then select **Keyboard help**.

5. Ensure the mouse buttons are set to the Default function group: Window/Level (left), Crosshairs (middle), Cine (right), or that the left mouse button is assigned the **Window/Level** function.
  
6. Adjust the window and level settings:
  - In any of the viewers, click and drag.
  - OR**
  - Select from the pre-defined Window/Level settings by doing the following:
    - a. In the menu bar, select **Format**. The Format menu displays.
    - b. Select from the following window/level settings:
      - W/L - Image Default
      - W/L - Full Range
      - W/L - Estimated



7. Scroll (cine) using any of the following methods:
  - Roll the mouse wheel.
  - Use the assigned mouse button.
  - Use the **Cine** control in the toolbar at the bottom of the viewer.
  - Use the **Cine Tools** to auto-cine.

## Head MR:



8. To take snapshots, click the **Snapshot** button in the toolbar at the bottom of the viewer.
9. To mark key images, click the **Key Image Flag** button in the toolbar at the bottom of the viewer.
10. Cine in multiple viewers simultaneously:
  - a. Click the **Lock** button in the toolbar at the bottom of the viewer.  
The Lock button is outlined by a solid square line.
  - b. Repeat step a for every viewer you want to lock.
  - c. Use the **Cine** mouse function button or the **Cine** control in the toolbar at the bottom of one of the viewers to cine through images.  
The locked viewers cine simultaneously.
    - To unlock a viewer, click the **Lock** button again.

The solid square outline around the Lock button disappears.

**11.** Rotate or invert an image:

- a. Click the **Tools menu** button in the toolbar at the bottom of the viewer.
- b. In the tools menu, select one of the following options:
  - To rotate the image in the viewer left, click **Rotate left**.
  - To rotate the image in the viewer right, click **Rotate right**.
  - To flip the image in the viewer upside down, select **Invert**.

**12.** Swap images between viewers:

- In the toolbar at the bottom of one of the viewers, click the **Swap Contents** control and drag the control into the viewer with which you want to switch images.

The two viewers swap series.

**13.** Use cross-reference lines to locate an ROI in the opposite plane:

- As you scroll through images in one viewer, watch the blue dotted line move in the other(s).

**NOTE:** If the two viewers contain images in (relatively) the same plane, the cross-reference lines do not display.

**OR**

- a. Ensure one of the mouse buttons is assigned the Crosshair function.
- b. With that mouse button, click the POI.

In the opposite plane viewers, a blue plus (+) sign appears at the POI.

In viewers displaying images in the same plane, a short blue line intersects with the blue cross-reference line at the POI. The size of the plus (+) sign is relative to the thickness of the image at the POI.

**14.** Switch to Vitrea to examine a volume:

- In the toolbar at the bottom of the viewer, click the **Volume** button.

**NOTE:** If the series containing the image does not contain any volumes, you will receive an error message.

# Advanced MR

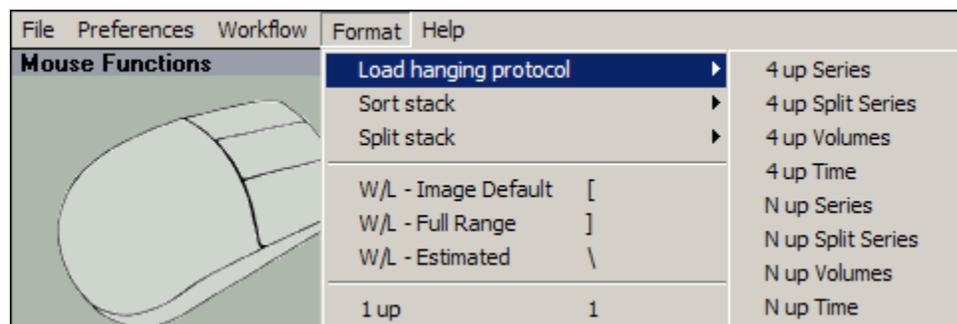
---

By default, all MR and CT studies display in the 4 up Series hanging protocol. For 4D cardiac studies, it is often preferable to view the series organized by time rather than position. To do this, you can switch the Softread window to one of the hanging protocols named with the word Time. These hanging protocols create an image set for each position at various time increments within the series.

## To view a 4D cardiac case:

1. On the Study Directory in Vitrea, select a cardiac perfusion study.
2. Click the **2D** application thumbnail.  
The Softread application launches.
3. To change the hanging protocol so you can see as many image sets as will fit on the screen separated by time:
  - a. On the menu bar, select **Format**.  
The Format menu displays.
  - b. Select **Load Hanging Protocol**.  
The list of hanging protocols displays.

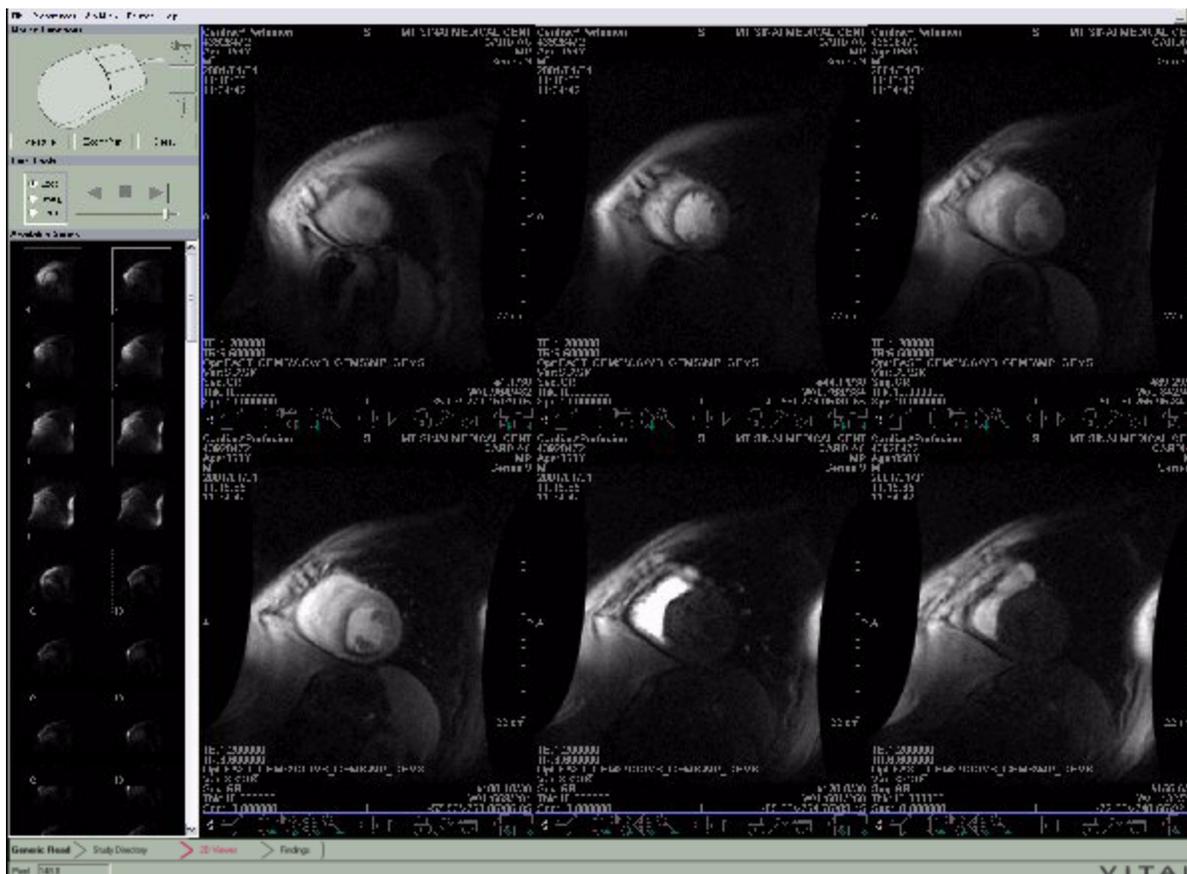
Format menu - Load hanging protocol:



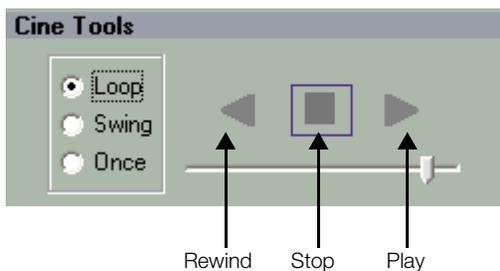
- c. Select the **N up Time** protocol.

The Softread window rearranges to display as many viewers as will fit. Each viewer displays a stack of images for a given time increment.

## Cardiac perfusion:



- To cine through the images, in the Cine Tools area, click the **Play** button.



- To cine through the images in the next time series, use the mouse button to scroll in the next viewer.

**NOTE:** You do not have to click the **Stop** button, then click the **Play** (right arrow) button to do this.

## To view a Dual Echo study:

1. On the Study Directory in Vitrea, select a dual echo study.
2. Click the **2D** application thumbnail.

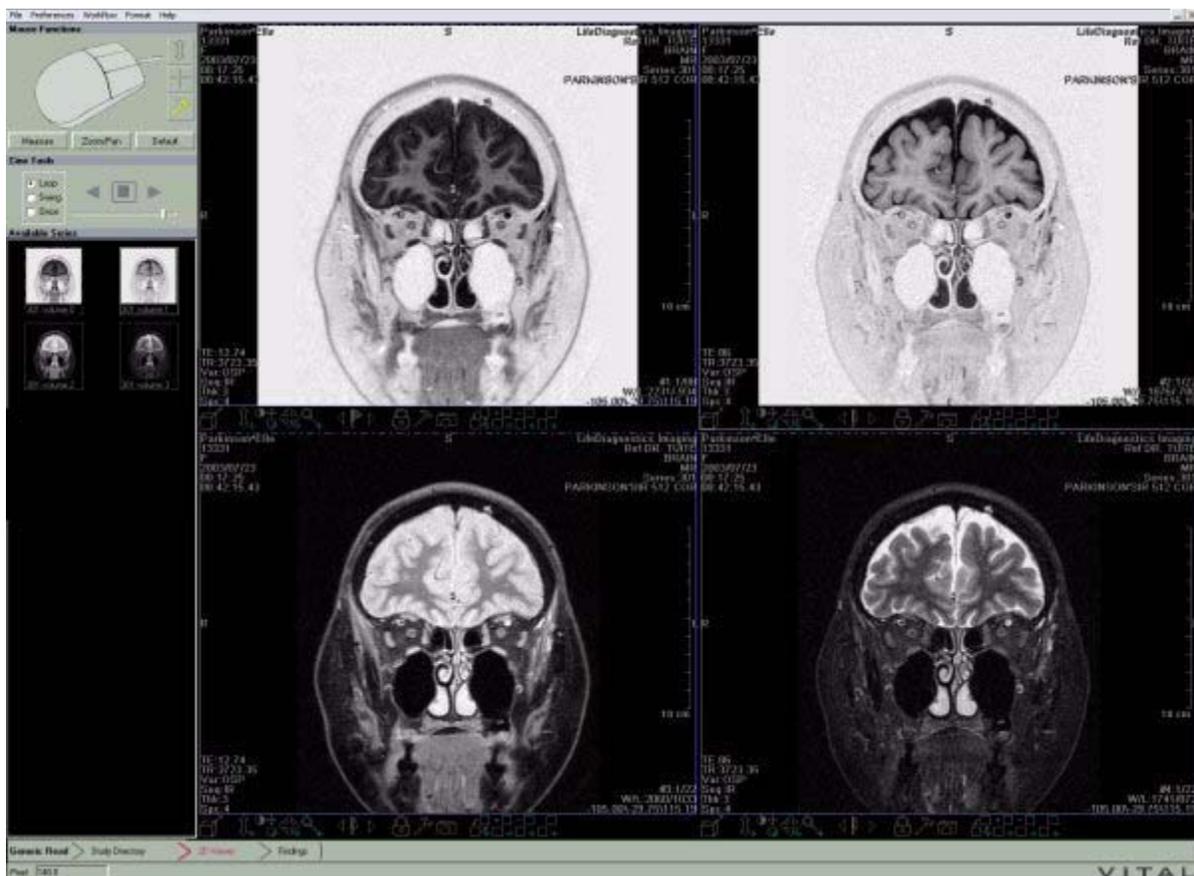
The Softread application launches, displaying the images in 4 up Series hanging protocol.

3. Select **Format, Load Hanging Protocol, 4 up Split Series, or 4 up Volumes.**

In the Available Series area, thumbnails display for all of the sequences in the dual echo series.

4. To display the T1 and T2 images in side-by-side viewers, click and drag the thumbnails into the viewers.

Dual Echo MR:



5. Adjust the Window/Level.

6. Lock the same plane viewers together by clicking on the Lock button in each viewer.
7. Cine (scroll) through the locked images.
8. Mark an ROI
  - a. Assign one of the mouse buttons the ROI function.
  - b. In the viewer where you want to mark the ROI, click and drag with that mouse button around the border of the ROI.

Softread automatically connects the two ends of the line you draw, and displays the average (pixel units), range (pixel units), area (sq. cm) and length (perimeter) of the ROI outline (mm).

## Lumbar MR

---

Softread contains a hanging protocol specifically designed for lumbar MR studies. The hanging protocol displays two sagittal image sets in the upper viewers and two axial image sets in the lower viewers.

**NOTE:** The advantage to viewing lumbar cases in Softread is that Vitrea breaks the series into volumes (one for each angle or orientation), whereas Softread displays the entire series, so you can see it in its entirety.

### To view a lumbar MR case:

1. On the Study Directory in Vitrea, select a lumbar MR study.
2. Click the **2D** application thumbnail.  
The Softread application launches.

**NOTE:** If the study description does not contain the word lumbar, the images display in the 4 up Series hanging protocol. To reformat the viewer into the lumbar hanging protocol, select **Workflow, Lumbar Read**.

## Lumbar MR:



3. Click a sagittal image, then press the PAGE UP or PAGE DOWN keys on the keyboard to display the next or previous sagittal image set.
4. Click an axial image, then press the PAGE UP or PAGE DOWN keys on the keyboard to display the next or previous axial image set.
5. Scroll in a sagittal viewer and watch the cross reference lines move in the axial views.
6. Ensure the crosshair function is assigned to your middle mouse button.
7. Click and hold the middle mouse button on a point of interest in one of the views.

In the perpendicular views, a small blue plus (+) sign displays at the POI.

In the matching plane view(s), a small minus sign crosses the cross-reference line at the POI.

## CT

---

Many times with CT studies, you will want to examine the same image for various tissue types.

### To view a CT case:

1. On the Study Directory in Vitrea, select a CT study.
2. Click the **2D** application thumbnail.

The Softread application launches the 4 up Series hanging protocol.

CT study:



3. Drag the thumbnail for the series you want to examine into all four of the viewers.
4. Adjust the Window/Level settings to **Liver, Lung, Soft, and Bone**.
5. Lock all four viewers together by clicking on the **Lock** button in each viewer.
6. Cine.
7. Add the images in one viewer to the images in another viewer:
  - In the toolbar at the bottom of one of the viewers, click the **Add Images** control and drag the control into the viewer displaying the series into which you want to add the images.

The images from the first viewer are added into the images in the second viewer. A thumbnail is added, labeled series number X + Y.
8. Subtract the images in one viewer from the images in another viewer:
  - In the toolbar at the bottom of one of the viewers, click the **Subtract Images** control and drag the control into the viewer displaying the series from which you want to subtract the images.

The images from the first viewer are subtracted from the images in the second viewer. A thumbnail is added, labeled series number X - Y.
9. Connect the series in one viewer to the series in another viewer:
  - In the toolbar at the bottom of one of the viewers, click the **Concatenate Series** control and drag the control into the viewer displaying the series to which you want to connect the series in the first viewer.

The series from the first viewer is linked to the end of the series in the second viewer. A thumbnail is added, labeled series number X ++Y.
10. Double-click any of the viewers to examine the image in a 1 up format.
11. Double-click again to go back to the previous viewer format.

# Nuclear Medicine

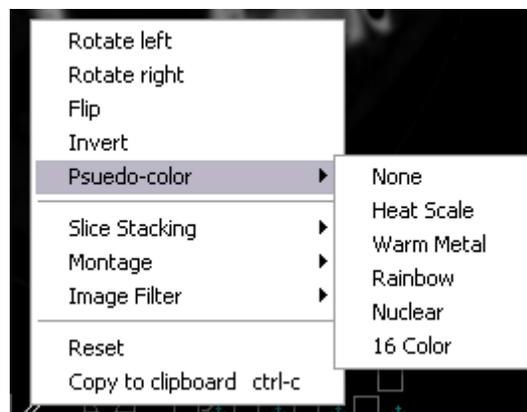
---

You can apply color scales to nuclear medicine images in Softread.

- Heat scale
- Warm metal
- Rainbow
- Nuclear
- 16 color

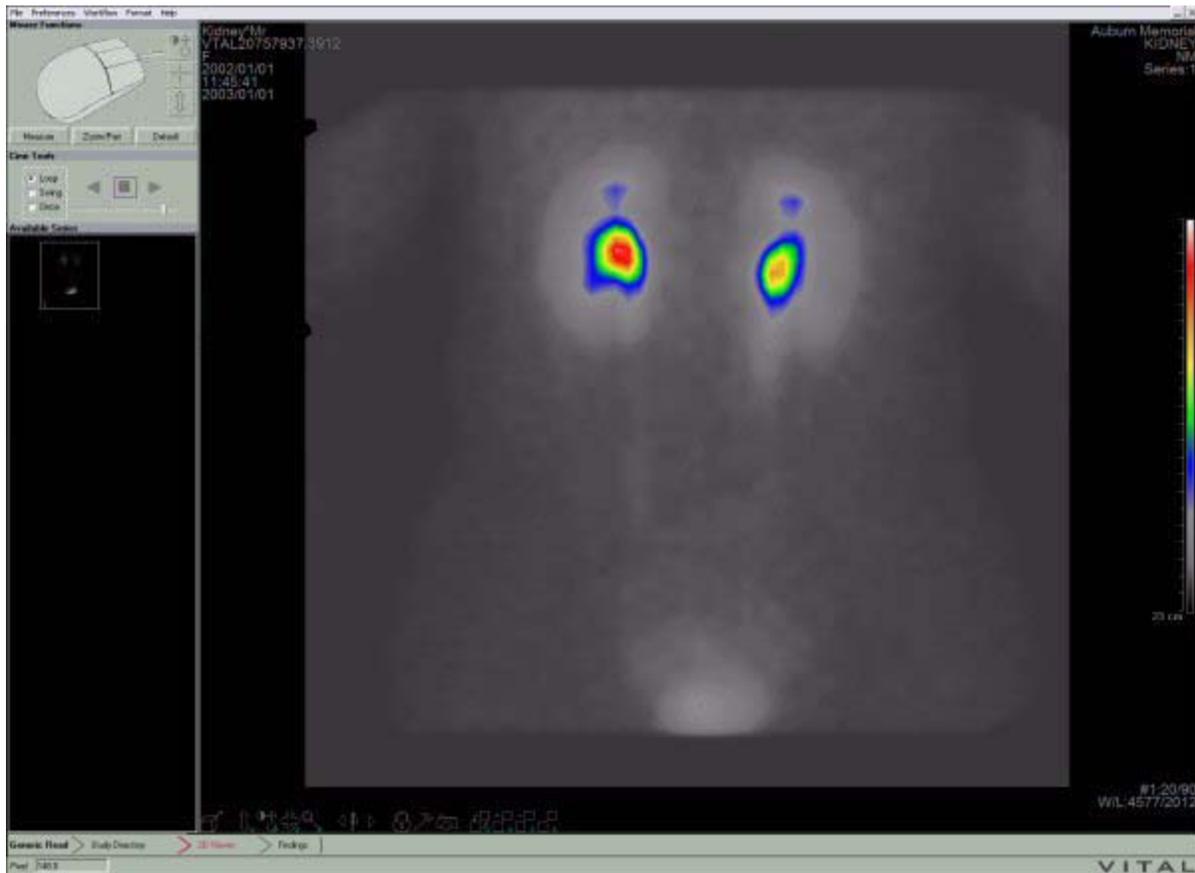
## To apply a color scale to a nuclear medicine study:

1. On the Study Directory in Vitrea, select a nuclear medicine study.
2. Click the **2D** application thumbnail.  
The Softread application launches.
3. In the toolbar at the bottom of the viewer, click the **Tools** button.  
The tools menu displays.
4. Select **Pseudo-color**.  
The list of pseudo-color scales displays.



5. Select the color scale you want to use.  
Softread applies the colors to image(s) in the viewer.

Kidneys shown in pseudo-color (Nuclear):



## Comparative Review

---

For two or more studies for the same patient, you can do a comparative review in Softread. The Comparative workflow parameters take effect when you load two or more studies for the same patient.

The PAGE UP or PAGE DOWN keys behave a bit differently for comparative review. They replace the contents in the active viewer(s) - upper or lower, with images from the corresponding study.

In addition, the thumbnail viewer splits in half. Instead of showing thumbnails for all Available Series, the upper half contains thumbnails for the primary study. The bottom half contains thumbnails for the secondary study or studies.

## To load multiple studies for comparative review:

1. On the Study Directory in Vitrea, select the studies you want to compare.

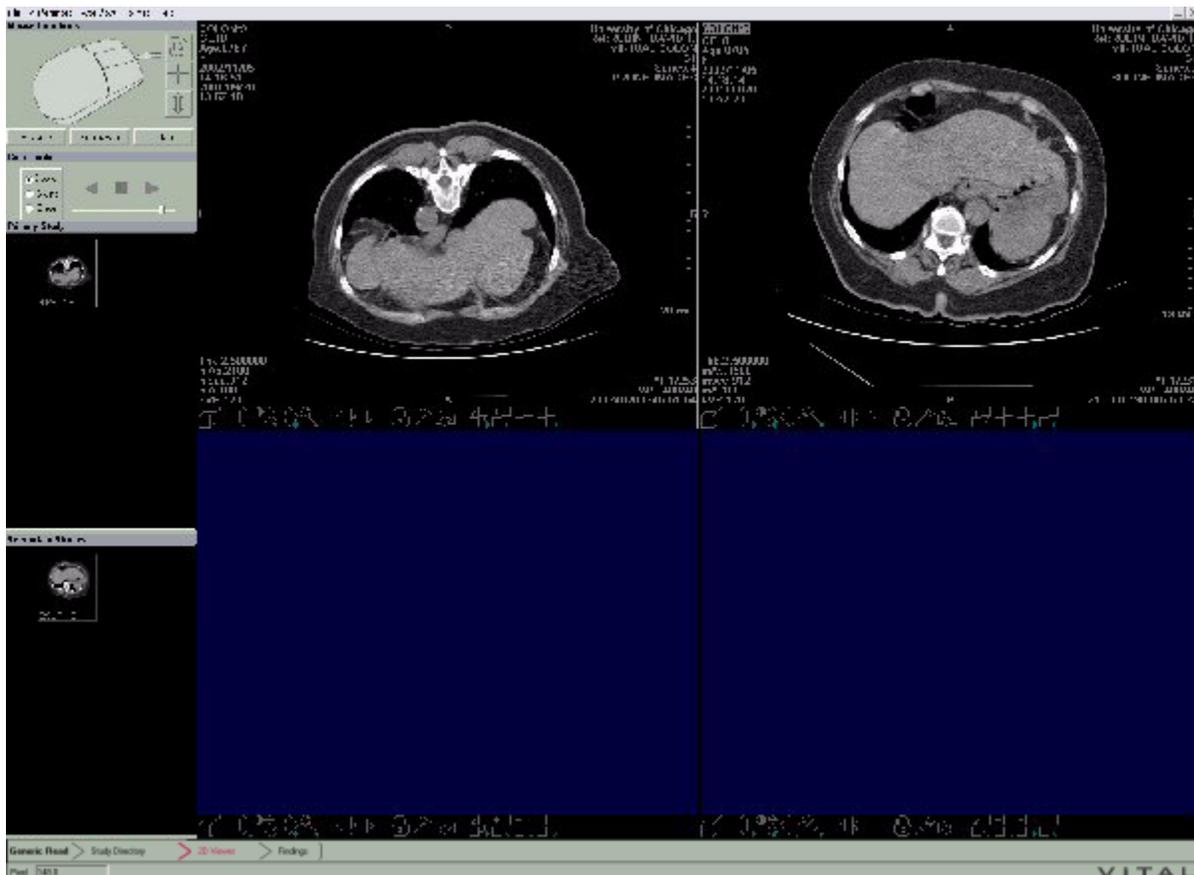
2. Click the **2D** application thumbnail.

The Softread application launches.

The Softread window displays the 4 up Series hanging protocol in Comparison workflow mode. This hanging protocol displays four viewers, two image sets for the first study in the left viewers, and two image sets for the second study in the right viewers.

They are labeled **Primary** and **Secondary** studies. The primary study has the most recent acquisition time. The patient name for the secondary study is displayed as 'reverse video' (highlighted).

Comparative Review:

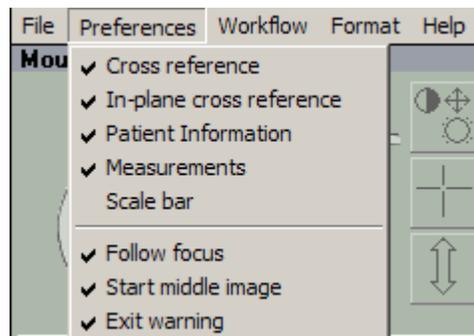


---

# Setting Preferences

Using the Preferences menu, you can select the items that display on the Softread window and specify the window behaviors.

**NOTE:** Individual preferences are saved by user, according to your Windows login ID.



## To control the information displayed in the viewers:

- Select or deselect **Cross-reference** to display or hide the blue cross-reference lines in the viewers perpendicular to the plane in which you are scrolling.
- Select or deselect **In-plane cross-reference** to display or hide the cross-reference box in the viewers of the same plane as the one in which you are scrolling.
- Select or deselect **Patient Information** to display or hide all patient information.
- Select or deselect **Measurements** to display or hide measurements for any rulers you draw or ROIs you mark.
- Select or deselect **Scale bar** to display or hide the perspective scale bar that displays alongside the image.

## To control additional Softread window behaviors:

- Deselect **Follow focus** if you do not want the thumbnail viewer to reflect the current (active) viewer.

- By default, the viewer displays the first image in the image set. Select **Start middle image** if you want the viewers to first display the middle image in every new or just-opened image set.
- Deselect **Exit warning** if you do not want to see the warning dialog box when you close Softread.

The warning dialog box displays, There are X number of unvisited images remaining in the study. Do you still want to exit?

---

## Viewing Findings (Key Images)

When you mark an image as a key image, Softread saves it to the Findings tab for use during report dictation.

### To display the Findings tab:

1. At the bottom of the Softread window, click the **Findings** workflow indicator.

The Findings window displays, including the total number of pages of key images.



2. To manipulate the images, use the mouse functions you assigned on the Softread window, or the buttons and controls in the toolbar at the bottom of one of the viewers.
3. To page through all of the pages of key images, click the **Prev** and **Next** arrow buttons.
4. To change the viewing format to see more or fewer images on the page, click the dropdown arrow in the **Page Format** field and select a different format.

---

# Closing Softread

- Click the X (Close) button in the upper right corner of the Softread window.

**OR**

Click **File** on the menu bar, then select **Exit**.

**OR**

Click **Study Directory** on the bottom of the Softread window.



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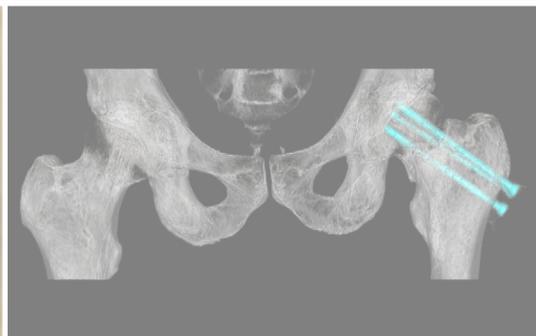
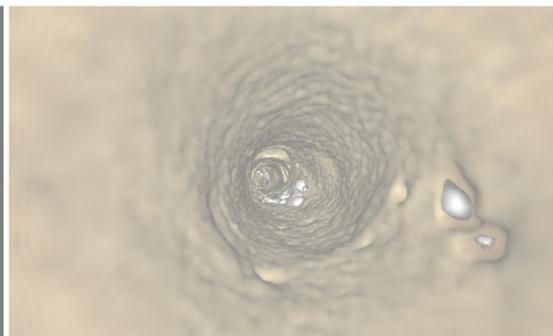
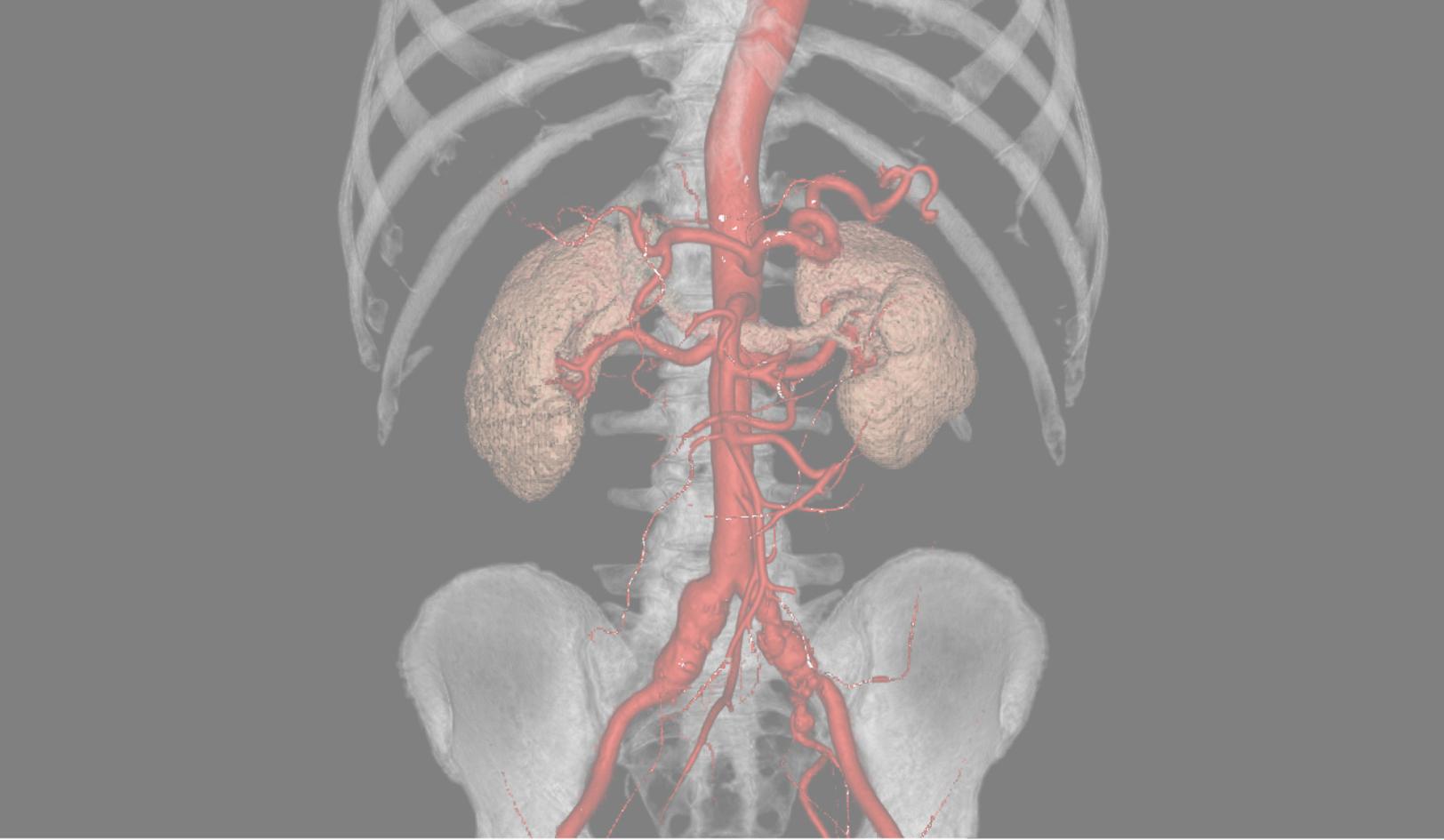
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