

 Vitrea Advanced

Pocket Guide

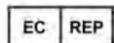
VITALU[®]

VitreAdvanced® Safety and Regulatory Considerations

For general VitreaAdvanced Safety and Regulatory Considerations, refer to the **About Vital® Medical Imaging Software** document located on the Help tab.

For more detailed information regarding tools and workflows, refer to the **VitreAdvanced Education and Reference Guides**.

TIP: For a brief description of a particular tool in Vitrea, hover the cursor over the button.



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VPMC-13232 A



Manufactured by: Vital Images, Inc., 5850 Opus Parkway, Suite 300, Minnetonka, MN, US 55343
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Load a Study

VitreaAdvanced® Through the Data Manager

1. Select study name, then click the **Series** tab.
 2. Choose the series to load.
- TIP:** Hold CTRL to select multiple series.
3. Load into Advanced Viewer.
 4. From the Gallery, choose a protocol and .

Standalone VitreaWorkstation®

1. Select the study, then click .
2. From the Gallery, choose a protocol and .

Tool Panel



- **Crshair:** (Crosshair) Move crosshairs and display data values and coordinates in 2D and MPR views.
- **WinLev:** (Window/Level) Adjust the window/level (brightness and contrast) settings.
- **Ruler:** Add a simple ruler to the view.
- **Label:** Add text onto the image.
- **Snap:** Save the image to export, add to a report, or restore workflow.
 - ALT + Snap:** Take multiple snapshots.
 - CTRL + Snap:** Take one snapshot of all views.
- **Reset:** Reset the views to the originally-loaded state (removes measurements and segmentation).
- **Trim:** Trim data from the image to isolate areas of interest.
- **Angle:** Add an angle to the view.
- **Arrow:** Draw an arrow on the image.
- **Ellipse/ROI:** Draw an elliptical or free-hand contour in a 2D or MPR view to display surface area.

Segmentation



- **Sculpt:** (Free/Ellipse) Draw a contour and add area within contour to a region.
- **Organ/Visible:** Choose Organ or Visible, click in the view and then assign a region.
- **Bone:** Click on bone in the view, then click AddTo: Bone.
- **Vessel:** Select vessel regions:
 - Pick:** Select vessels with one click.
 - Grow:** Select vessels by dynamically growing.
- **AutoBone:** Click to automatically remove bone.
- **AutoSkin:** (within dropdown arrow) Click to automatically segment skin.
- **Remove Fragments:** Remove fragments smaller than the specified size threshold and put them in the Recycle Bin region.

Segmentation (continued)



- **Dilate - Erode:** Expand or contract a picked region by one voxel per click.
- **More - Less:** Adjust the HU values to include for segmentation or to adjust the size threshold for fragments.
- **HU Slider:** Drag either triangle or endpoint to adjust the upper and lower HU values to fine tune the segmented image.
- **AddTo:** Commit the selected area to the region specified in the dropdown.

Vessel Probe and Lesion Analysis

Probe Vessels: Click  then click the vessel in the MPR or 3D view.

Extend Probed Vessels: Click  then click the vessel past the probed section to extend the probe.

Edit Vessel Centerline: Click  then examine and edit the vessel centerline.

Edit Vessel Contours: Click  then examine and edit the vessel contours.

Measure Centerlines: Click the drop down  and select a tool:

- **Length:** Drag in the vessel to measure the length of a portion of the centerline.
- **Angle:** Click to start, move to vertex and click, then move to end and click to measure centerline angle.
- **Ruler:** Click and drag in a cross-section to measure the diameter.

Stenosis Measuring: Click the drop down , select a tool, then click and drag along the suspected lesion.

- **Single:** Compare narrowest point to a single reference point.
- **Dual:** Compare narrowest point to two reference points.
- **Average:** Compare narrowest point to the average of two reference points.
- **Volume:** Perform a volume measurement.
- **L Zone:** Perform Landing Zone analysis (EVSP protocol).

MPR Modes



Orthogonal: Display the MPR views in exactly the sagittal, coronal, and axial planes.

Oblique: Change the orientation of the MPR views by rotating the crosshairs in one or two of the MPR views.

- Drag the crosshairs in one of the MPR views while watching the other views.
- Click and drag in a view to “walk” a vessel.

Curved: Direct the crosshair of the reference view to follow a curve.

- Drag the endpoint of the line to the beginning point of the curve.
- Follow the curve by dragging the line along the center of the anatomy.
- Scroll the view and continue along the curve.
- Drag the endpoint of the line to the end of the curve.
- Drag the Measuring line and Transverse line along the centerline to measure.

Thick Slab MIP

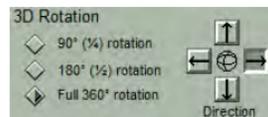
- Maximize the 3D view. 
- Right-click and select **Thick Slab MIP**.
- Mouse controls:
 - Right-click and drag up/down — scrolls through image.
 - Right-click and drag left/right — changes MIP thickness (look in the lower-right corner of image for thickness).
 - Middle-click and drag — pans image (move area of interest to crosshair).
 - Left-click and drag — rotates image around intersection of the crosshair.
- Use the orientation buttons at the bottom of the view to display the view in a particular orientation. 



Batches and Movies

Select the **Batch** tab

Control



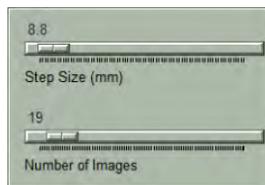
Description

Scripted 3D Batches

- **Degrees of Rotation:** Choose 90°, 180°, or 360° rotation.
- **Direction:** Choose the rotation direction.
- Click **Batch** or **Movie**.

Manual MPR Batches

- **Start:** Mark the starting image for the batch.
- **End:** Mark the final image for the batch.
TIP: Drag the cross reference lines in the other views to adjust the batch.
- Click **Batch** or **Movie**.

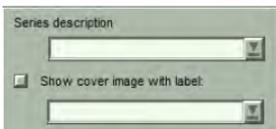


Output Control

- **Step Size:** Distance between images.
- **Number of Images:** Number of images in the batch.

Batches and Movies (continued)

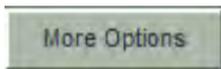
Control



Description

Annotate Batches

- **Series description:** Add a series description to the batch thumbnail in the Findings Tray.
- **Show cover image with label:** Add a cover image with a label to the batch.



More Options: Advanced settings for:

- **Size:** Set the Batch Output size.
- **Movie:** Set the Movie Quality and Playback.
- **Curved MPR:** Set Auto Batch Frame Count and Rotation Angle.



Finish Batches

- **Batch:** Create a batch of stacked images.
- **Movie:** Create a digital movie (.avi).

Findings Tray

Select **Report**. Snapshots, Batches, and Movies display in the Findings Tray.

1. From the Findings Tray, select the finding(s).

TIP: Hold CTRL to select multiple findings.

2. Right-click to display the menu:

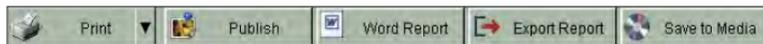


- **Add All:** Add all snapshots or batches to report page.
- **Select All:** Select all snapshots in the Findings Tray.
- **Delete:** Delete selected finding(s).
- **Export:** Export selected finding(s) to PACS.
- **Preview:** Preview a larger view of the selected finding.
- **Restore:** Restore the workflow to when the snapshot was taken.
- **Series Description:** Modify the series description.

Printable Report

Select **Report**.

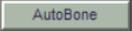
1. Select a template or worksheet.
2. Drag findings to the report page.
3. Fill in editable fields as necessary.
4. Distribute the report:



- **Print / DICOM Print:** Print the report on a standard or DICOM printer.
- **Intranet Post / Publish:** Post the report to your site's intranet.
- **Word Report:** Create a Microsoft Word report (you must have MS Word installed).
- **Export Report:** Save the report to a DICOM server.
- **Save to Media:** Save the report to external media (Standalone only).

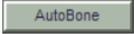
Aorta Workflow



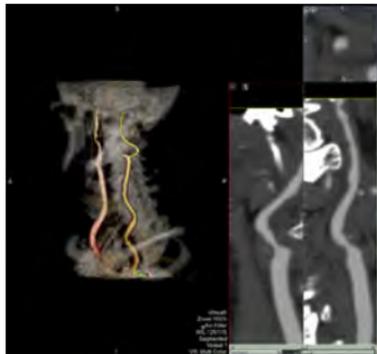
1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Segment bone  .
 - b. Rotate, measure, mark, and label as needed.
 - c. Take snapshots  .
4. Distribute findings.

Peripheral Workflow



1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Segment bone  .
 - b. Probe the peripheral arteries  .
 - c. Extend a probed vessel  .
 - d. Define a lesion  .
 - e. Measure the centerline lengths and angles  .
 - f. Take snapshots  .
4. Distribute findings.

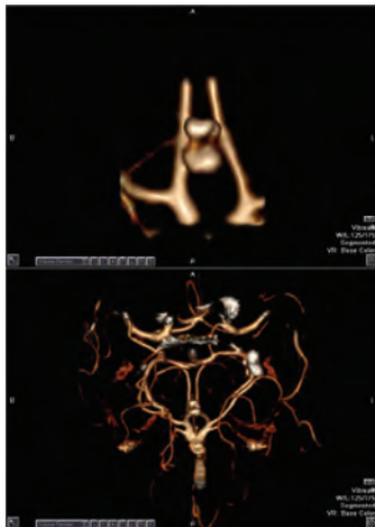
Carotid Workflow

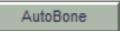


1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Probe the carotids  .
 - b. Extend a probed vessel  .
 - c. Apply a visibility preset setting.

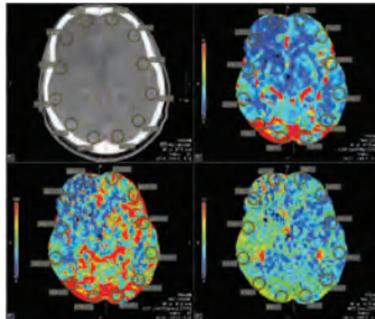
 - d. Define a lesion  .
 - e. Measure centerline lengths and angles  .
 - f. Create a 3D rotation batch.
 - g. Take snapshots  .
4. Distribute findings.

Circle of Willis Workflow



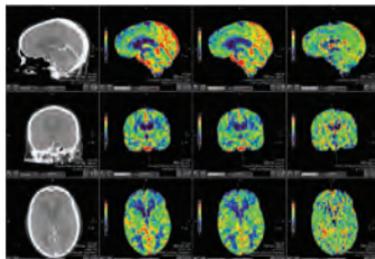
1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Segment bone  .
 - b. W/L to add or remove vessels  .
 - c. Segment additional vessels  .
 - d. Take snapshots  .
4. Distribute findings.

Brain Perfusion 2D Workflow



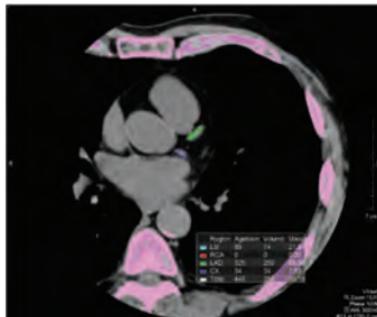
1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Select slice levels (multi-detector scanners only).
 - b. Scroll the series to look for motion. Correct for motion if necessary  .
 - c. Review the Time-Intensity graph.
 - d. Review artery and vein positions. Draw ROI and click Artery or Vein to correct if necessary.
 - e. Compute the results  .
 - f. Edit the midline.
 - g. Apply ROI templates  .
 - h. Take snapshots  .
4. Distribute findings.

Brain Perfusion 4D Workflow



1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Examine the MPR views.
 - b. Cine through the DSA views.
 - c. Trim the DSA view  .
 - d. Review the POI view  .
 - e. Review the Time-Intensity graph.
 - f. Review the artery and vein positions.
 - g. Display the perfusion maps  .
 - h. Edit the midline.
 - i. Apply ROI templates  .
 - j. Take snapshots  .
4. Distribute findings.

Calcium Scoring Using VScore Workflow



1. Select study.
2. Choose protocol and .
3. Perform analysis:
 - a. Identify plaque.
 - b. Edit contours.
4. Distribute findings.
 - a. Add labels and arrows  .
 - b. Take snapshots .

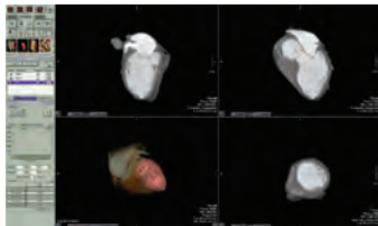


Cardiac CTA Workflow

1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Perform 3D overview.
 - b. Review the MPRs in various planes  .
 - c. Evaluate coronary arteries.
 - d. Probe vessels  .
 - e. Measure vessel length in Curved MPR mode  .
 - f. View 3D, Cath, and Curved Planar Reformatted views.
 - g. Explore the lumen in the CPR view.
 - h. Perform Vessel Walk (oblique reformation)  .
 - i. Apply inverted MIP preset. 
 - j. Perform lesion analysis  .
 - k. Measure plaque burden (SUREPlaque™)  .

 - l. Analyze cross-sectional measurements.
 - m. Take snapshots  .
 - n. Assign cardiac report findings.
4. Distribute findings.

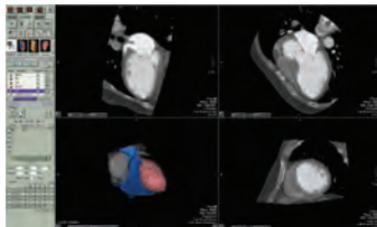
LV Cardiac Function Workflow



1. Select study.
2. Choose protocol and .
3. Perform analysis:
 - a. Verify the ED and ES phases .
 - b. Edit short-axis sector indicator.
 - c. Edit the mitral valve plane.
 - d. Edit the LV contours .
 - e. Enter patient information.
 - f. Take snapshots .
 - g. Examine the heart in motion .
4. Distribute findings.

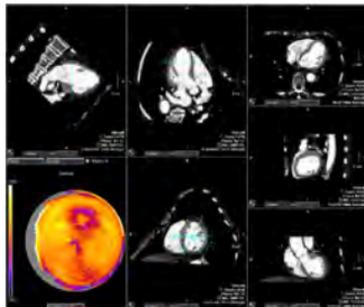
Multi-Chamber Cardiac Function Workflow

(not available in the
United States)

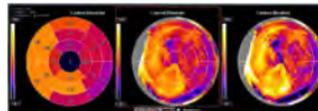


1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Verify the ED and ES phases in the LV, RV, and LA chambers  .
 - b. Edit the LV and RV contours  .
 - c. Edit the LA contours.
 - d. Enter patient information.
 - e. Take snapshots  .
 - f. Examine the heart in motion  .
4. Distribute findings.

Myocardial Analysis Workflow



1. Select study (one or two series).
2. Choose protocol and .
3. Perform analysis:
 - a. Inspect the orthogonal views.
 - b. Edit the LV axis, mitral valve plane, inner apex plane, and outer apex plane.
 - c. Edit the short axis sector indicator .
 - d. Edit the epicardial / endocardial contour lines in the short axis view .
 - e. Review the polar maps.

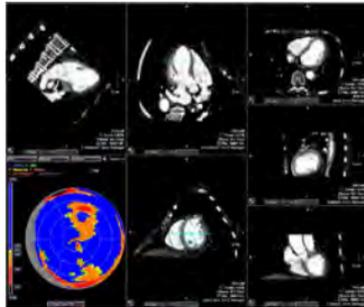


- f. Define hypo-attenuated areas .
- g. Review results.

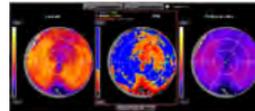
Results			
Myo. mass (g)	74 S1	77 S2	
Myo. volume (ml)	71 S1	74 S2	
Heart rate (bpm)	73 S1	52 S2	

- h. Take snapshots .
4. Distribute findings.

**Myocardial
Perfusion
Workflow** (not
available in the
United States)



1. Select study (Rest and Stress volumes).
2. Choose protocol and .
3. Perform analysis:
 - a. Inspect the orthogonal views.
 - b. Edit the LV axis, mitral valve plane, inner apex plane, and outer apex plane.
 - c. Edit the short axis sector indicator .
 - d. Edit the epicardial / endocardial contour lines in the short axis view .
 - e. Review the polar maps.

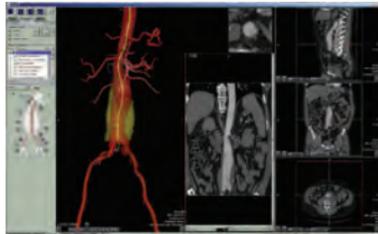


- f. Define hypo-attenuated areas .
- g. Review results.

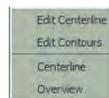
Results		
Myo. mass (g)	129 S	115 R
Myo. volume (ml)	123 S	110 R
Heart rate (bpm)	73 S	52 R

- h. Take snapshots .
4. Distribute findings.

Endovascular Stent Planning Workflow

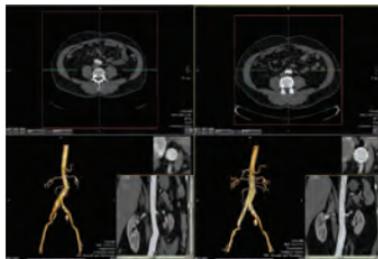


1. Select study.
2. Choose protocol and .
3. Perform analysis:
 - a. Assess the aneurysm in the MPR and 3D views.
 - b. Review and edit the vessel centerline.
 - c. Review and edit vessel contours.



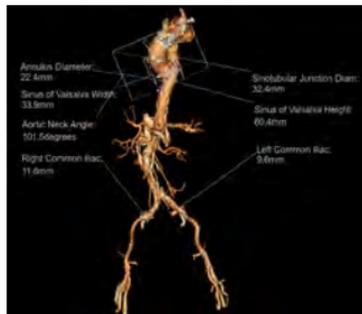
- d. Review and verify measurements.
 - e. Take snapshots .
4. Distribute findings.

Endovascular Stent Surveillance Workflow



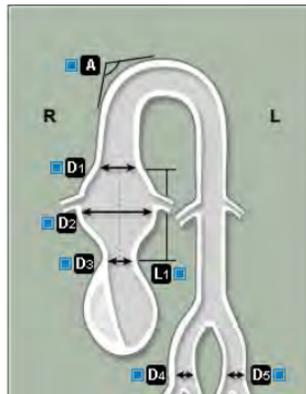
1. Select studies (prior and current).
2. Choose protocol and .
3. Perform analysis:
 - a. Lock exams together .
 - b. Assess the comparative exams.
 - c. Review the comparative measurements.
 - d. Create measurements .
 - e. Take snapshots .
4. Distribute findings.

Transcatheter Aortic Valve Replacement (TAVR) Planning Workflow



1. Select study.
 2. Choose protocol and [Pick](#).
 3. Perform analysis:
 - a. Review automatic segmentation.
 - Assess the vascular anatomy.
 - Review the vessel centerline.
[Centerline](#)
 - Review the contours.
[Edit Contours](#)
 - b. Analyze the aortic root.
 - Display the C-Arm angles.
LAO0 CRA0
 - Define a valve plane.
 - Define device measurements.
- (Continued on next page.)

Transcatheter Aortic Valve Replacement (TAVR) Planning Workflow (continued)



3. Continue analysis:

c. Plan approach.

- Display the iliac access.
- Display the subclavian access.
- Perform trans-apical planning.

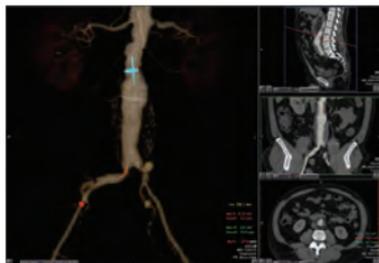


d. Review and verify measurements.

e. Take snapshots.

4. Distribute findings.

Automatic Vessel Measurements Workflow



1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Trim data set  .
 - b. Plot proximal point in the aorta  .
 - c. Plot distal point in the aorta.
 - d. Create centerline  .
 - e. Measure centerline for
stent planning.
 - f. Take snapshots  .
4. Distribute findings.

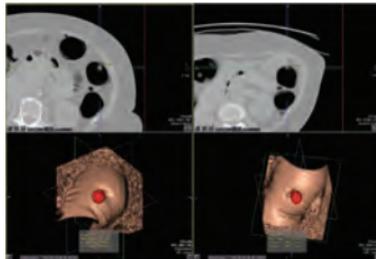
EP Planning Workflow



1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Perform an overall review.

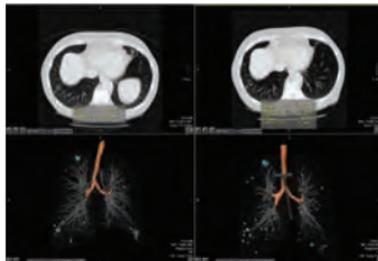
 - b. Perform quantitative measurements of the left atrium and pulmonary vein anatomy  .
 - c. Show esophagus  .
 - d. Take snapshots  .
4. Distribute findings.

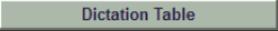
Colonography Workflow



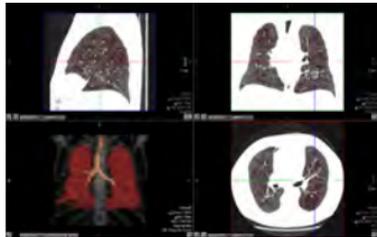
1. Select studies (prone and supine).
2. Choose protocol and  (2D Directed or 3D Directed).
3. Perform analysis:
 - a. Register to the primary viewing volume.
 - b. Scroll through the MPR views OR fly through the 3D.
 - c. Inspect a suspected polyp.
 - d. Probe the polyp .
 - e. Mark areas of interest .
 - f. Take snapshots .
 - g. Continue investigating colon.
4. Distribute findings.

Lung Analysis Workflow

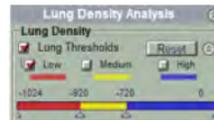


1. Select studies.
2. Choose protocol and .
3. Perform analysis:
 - a. Lock exams together .
 - b. Probe the nodules .
 - c. Match nodules .
 - d. Take snapshots .
 - e. Display the Dictation Table.

4. Distribute findings.

Lung Density Analysis Workflow (not available in the United States)



1. Select study.
2. Choose protocol and **Pick**.
3. Perform analysis:
 - a. Evaluate segmentation results.
 - b. Edit segmented regions **Edit**.
 - c. Set the lung density thresholds.



- d. View table results.
 - e. Take snapshots **Snap**.
4. Distribute findings.

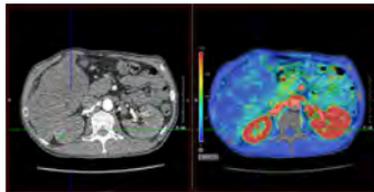
	R Lung	L Lung	Lungs
Low (ml)	2591	2513	4874
Medium (ml)	1155	1119	2274
High (ml)	178	177	355
Lung (ml)	3157	3132	6289
LD Index (%)	63.4%	64.3%	63.8%
PD15 (glt)	45	48	46

Density Graph Less Results

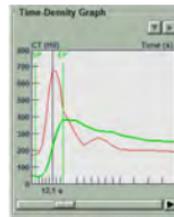
Upper/Lower Lung Lines
Low Density Ratio:

Up. Lung LD	61.1%	58.3%	59.7%
Lo. Lung LD	66.8%	69.9%	67.9%
Up,Loe Ratio	0.93	0.83	0.88

Body Perfusion Single-input Workflow

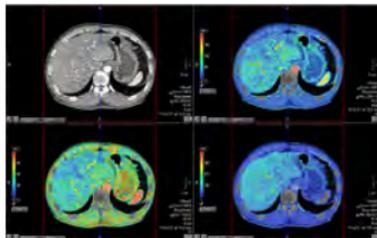


1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Examine the view.
 - b. Identify arterial input  .
 - c. Identify organ tissue  .
 - d. Compute the results  .
 - e. Inspect the Perfusion Map.
 - f. Review the Time-Density Graph.

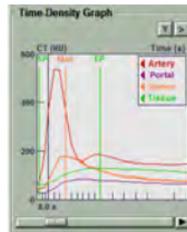


- g. Take snapshots  or create a batch.
4. Distribute findings.

Body Perfusion Dual-input Liver Workflow

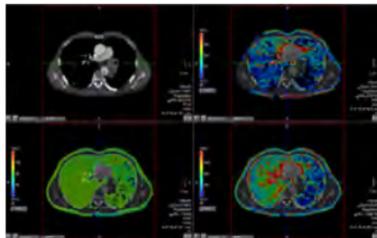


1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Examine the view.
 - b. Identify arterial input  .
 - c. Identify portal vein  .
 - d. Identify the liver tissue  .
 - e. Identify the spleen  .
 - f. Compute the results  .
 - g. Inspect the Perfusion Map.
 - h. Review the Time-Density Graph.

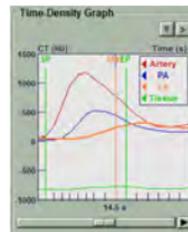


- i. Take snapshots  or create a batch.
4. Distribute findings.

Body Perfusion Dual-input Lung Workflow

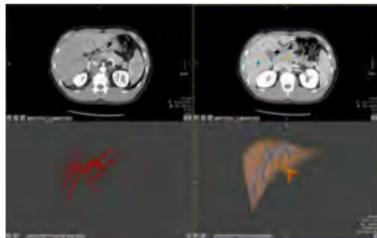


1. Select study.
2. Choose protocol and .
3. Perform analysis:
 - a. Examine the view.
 - b. Identify the pulmonary artery .
 - c. Identify the aorta .
 - d. Identify the lung tissue .
 - e. Identify the left atrium .
 - f. Compute the results .
 - g. Inspect the perfusion maps.
 - h. Review the Time-Density Graph.



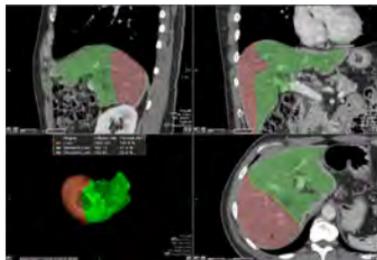
- i. Take snapshots  or create a batch.
4. Distribute findings.

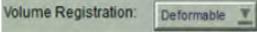
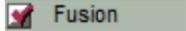
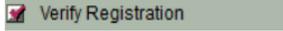
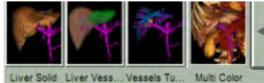
Liver Analysis Resection Planning Workflow



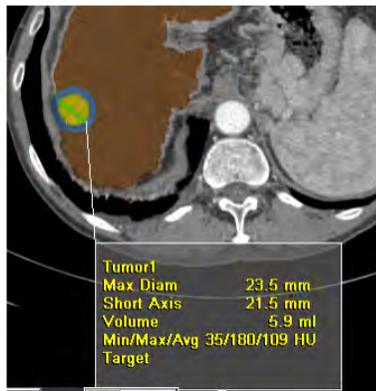
1. Select study.
2. Choose protocol and  .
3. Perform analysis:
 - a. Select the portal phase   .
 - b. Segment the liver  .
 - c. Segment the portal and hepatic veins  .
 - d. Segment the hepatic artery  .
 - e. Edit the vessels  .(Continued on next page)

Liver Analysis Resection Planning Workflow (continued)



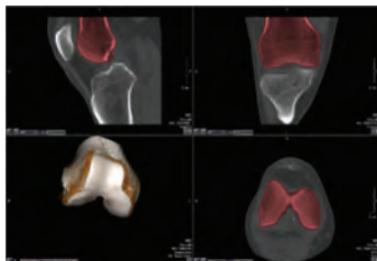
- f. Probe tumors .
 - g. Perform resection planning .
 - h. Swap sides if necessary .
 - i. Register the volumes.

 - j. Create multi-phase volume fusion.

 - k. Verify registration.

 - l. Apply visualization presets.

 - m. Take snapshots .
4. Distribute findings.

Liver Analysis Tumor Response Workflow



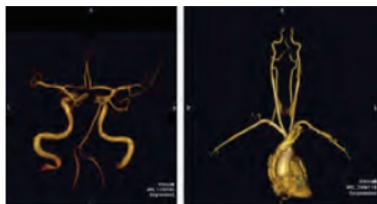
1. Select study.
2. Choose protocol and .
3. Perform analysis:
 - a. Lock exams together .
 - b. Assess the comparative exams.
 - c. Locate lesions   or .
 - d. View tumor findings results.
 - e. Take snapshots .
4. Distribute findings.

Ortho Workflow



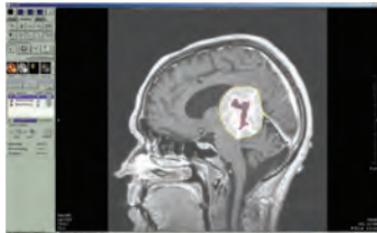
1. Select studies.
2. Choose protocol and .
3. Perform analysis:
 - a. Window/level the view .
 - b. Isolate the joint .
 - c. Disarticulate the joint .
 - d. Examine each region.
 - e. Take snapshots .
4. Distribute findings.

General MRA Workflow



1. Select studies.
2. Choose protocol and  .
3. Perform analysis:
 - a. Segment anatomy  .
 - b. Include additional arterial structures  .
 - c. Probe vessels  .
 - d. Take snapshots  .
4. Distribute findings.

MR Tumor Volume Workflow



1. Select studies.
2. Choose protocol and .
3. Perform analysis:
 - a. Draw contour lines .
 - b. Display tumor volume measurements .
 - c. Edit tumor contour lines.
 - d. Take snapshots .
4. Distribute findings.

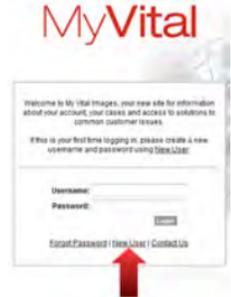
1. Go to www.vitalimages.com.
2. Click **Vital U**.



3. Log in to MyVital:

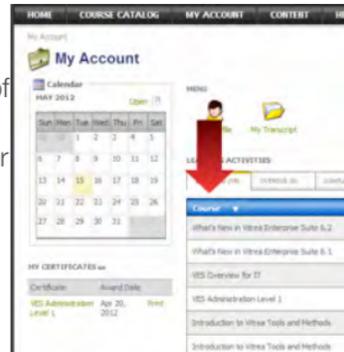
- If you have logged into MyVital before:
 - Enter your Username and Password.
 - Click **Login**
- If this is your first time logging in in:
 - Click **New User**.
 - On the Register page, enter your email address. Use the same email as the one on your Vital contact record.
 - Click **Submit**.
 - A temporary password will be sent to the email address you entered.
 - Log in again using your temporary password.
 - Follow the instructions to create a new password.

Accessing Vital U



Accessing Vital U (continued)

- When you successfully log into Vital U, your MY ACCOUNT page displays a list of all the courses in which you are enrolled.
 - You may need to wait 30 - 60 seconds for all your enrollments to display.
- Press F5 to refresh your screen.
- Click **Course** to sort the courses by title.
- Click **GO** to launch a course.



Contact Us

- For general, non-technical support questions, contact us through our website: www.vitalimages.com
- Call the Vital U education coordinator at 952.487.9559 or email vitalu@vitalimages.com to register for in-house, on-site, or road show courses or for any other education-related questions.
- Follow the instructions for Accessing Vital U to take eLearning courses, watch workflow videos, and access user guides.
- 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
- For printed versions of the Release Notes, Education and Reference Guides, or Installation Guides, contact Customer Support.

Mouse Functions

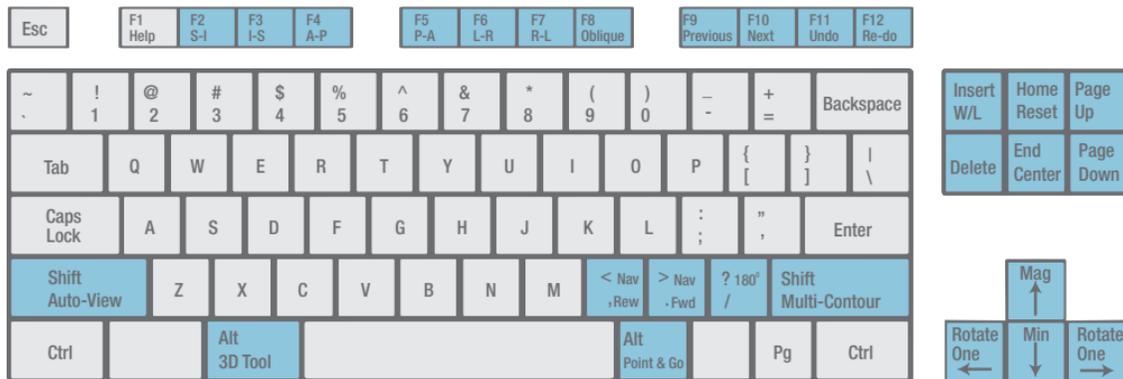
2D and MPR Functions

Mouse Button	Press to:
 Click	Activate Tool
 Middle-Click and Drag	Pan
 Left + Middle-Click and Drag	Zoom
 Right-Click and Drag	Scroll
 Left + Right-Click and Drag	Window/Level

3D Functions

Mouse Button	Press to:
 Click	Activate Tool Click then Wait a Moment
 Click and Drag	Rotate
 Middle-Click and Drag	Pan
 Left + Middle-Click and Drag	Zoom
 Left + Right-Click and Drag	Window/Level

Keyboard Functions



Key	Function:	Key	Function:	Key	Function:	Key	Function:
E	Ellipse	S	Snap	F2	Rotate S-I	F8	Rotate Obl.
F	ROI (Free)	T	Trim	F3	Rotate I-S	F9	Previous
H	Crosshair	W	W/L	F4	Rotate A-P	F10	Next
L	Label	CTRL-I	Hide Pt Info	F5	Rotate P-A	F11	Undo
R	Ruler	CTRL-Y	Re-do	F6	Rotate L-R	F12	Re-do
A	Arrow	CTRL-Z	Undo	F7	Rotate R-L		