Anatomage® IABLE 10

Anatomage Table EDU 10.0 User's Manual



Anatomage, Inc. 3350 Thomas Rd Suite 150 Santa Clara, CA 95054 USA 408-885-1474

info@anatomage.com

Warranty Statement

There are no warranties, expressed or implied, with respect to the contents of this document, and all information provided herein is provided "as is." Anatomage reserves the right to periodically change the information that is contained in this document; however, Anatomage makes no commitment to provide any such changes in a timely manner or at all.

Limitation of Liability

In no event shall Anatomage or its affiliates be liable to any party for any direct, indirect, special, or consequential damages in connection with your use of this document, including, without limitation, loss of business revenue or earnings, lost data, damages caused by delays, lost profits, or a failure to realize expected savings, even if Anatomage was expressly advised of the possibility of such damages.

Trademarks

Anatomage and related marks, images, and symbols are the exclusive properties of, and trademarks of, Anatomage Inc. All other brands and marks are the properties of their respective owners.

Copyright

Documentation for Anatomage Table EDU 10.0 and the operating system are copyrighted with all rights reserved. Under the copyright laws, this documentation may not be reproduced, transmitted, transcribed, or translated into any human or computer language in whole or part without the prior written permission of the copyright holder. All contents created with the Anatomage Table or Table Application, including images and videos, are the property of Anatomage. No permission, either express or implied, is granted for the electronic transmission, storage, retrieval, or printing of contents created with the Anatomage Table or Table Application. No parties/individuals may otherwise copy, modify, publish, transmit, or distribute the contents of the Anatomage Table or Table Application without the express written permission by Anatomage. Please contact Anatomage for more information.

About Anatomage and Software

The Anatomage Table Application software (Table EDU 10.0) was released in 2023 as an update to the Table Application software from Anatomage, Inc. In this document, the Anatomage Table Application software refers to the latest version of the Anatomage Table Application software and is synonymous with the terms "Table application", "Table EDU 10.0", and "Anatomage Table application". To learn more about Anatomage, visit our website at www.Anatomage.com.

Note: Table 10.0 is intended for educational purposes only, and is not to be used for clinical or diagnostic purposes.

End of Life Statement

Table EDU 10.0 software is dependent on its hardware requirements. The life-cycle is limited only by the required hardware.

Language

The original language of this manual and the Table EDU 10.0 software is English.

Sound Credit

Sound effects were obtained from https://www.zapsplat.com.

Image Credit

The following image sets were provided by Dr. Jin Seo Park, Department of Anatomy, Dongguk University College of Medicine and Dr. Min Suk Chung, Department of Anatomy, Ajou University School of Medicine.

Victor: The original slice data is from the Visible Korean data set.

<u>Vicky</u>: The original slice data is from the Visible Korean data set.

Full Dog and Cat slice data: This work (2012R1A2A2A01012808) was supported by Mid-career Researcher Program through the National Research Foundation of Korea (NRF) grant funded by the Ministry of Education, Science and Technology (MEST).

Full Head slice data: This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (MEST) (2010-0023360).

The following image sets were provided by the Visible Human Project, Courtesy of the U.S National Library of Medicine.

Carl: The original slice data is from the Visible Human data set.

Carla: The original slice data is from the Visible Human data set.

The following image set was provided by Brad Smith from the University of Michigan (brdsmith@umich.edu, NIH award N01-HD-6-3257 P/G F003637).

Embryo slice data set (Cases 2013 – 2023) Imaging was performed at the Center for In-Vivo Microscopy, Duke University. The following image set was provided by David R. Hunt, PhD. (Physical / Forensic Anthropologist, D-ABFA) from the Smithsonian Institute.

Skull collection (Cases 3008 – 3054)

© 2011 The Board of Trustees of the Leland Stanford Junior University

Table of Contents

System Requirements	4
Touchscreen Requirements	4
Installation Instructions	5
Controls	5
Controlling the Volume Rendering	6
Touch Control	6
Keyboard and Mouse Control	7
Introduction to the Anatomage Table Application	8
Launching Table EDU 10.0 Application	8
User Interface and Layout	9
Navigation	31
Cadavers	33
Image Adjustment	34
Annotations	36
DCM/INV Files	37
Model Settings	38
Preset Dialog	39
Functional Anatomy	41
Case Library	45
Histology Library	48
Curriculum	49
Prosection	50
Anatomage Share	51
Opening DCM/INV Scans	52
PACS Integration	53
Table Application Troubleshooting	54

System Requirements

The Table software is a graphically intense application for use on a PC workstation running a Windows operating system. It has not been designed for use on Linux, OSX, Android or iOS platforms such as iPads or other tablets.

Summary		
	Minimum	Recommended
CPU	Intel Core i5 2500 series	Intel Core i7 13700 series
	(compatible multi-core processor)	(comparable multi-core processor)
RAM	32GB	32GB
GPU	NVIDIA RTX 1070	NVIDIA RTX 4070 Ti
(Graphics Card)		
Hard Disk	1TB	2TB
os	Windows10 64bit	Windows10 64bit

TOUCHSCREEN REQUIREMENTS

Summary		
Hardware	Minimum Requirement	
Screen Size (Diagonal)	19 inches	
Resolution	1280x720	
Touch Points	3 or more	

Installation Instructions

The Anatomage Table application is available from Anatomage. The software is distributed by downloading an installer and requires a license USB to operate. The installer contains both the application files and demonstration content (Navigation, Cadavers, Functional Anatomy, Case Library, Histology, Curriculum, and Prosection). Be sure you have the license USB and your Table meets the minimum system requirements.

- 1. Insert license USB into PC workstation and run Anatomage Table EDU 10.0 installer. Workstation should be connected to a network with internet connectivity.
- 2. Open Anatomage Table EDU 10.0 Upgrade installer, double click "autorun" and follow onscreen instructions to complete installation.
- 3. Launch Table application and enter the Authorization Code to activate software license.

CONTROLS

The following section discusses controls for the Table software. For touchscreen devices, please refer to your specific touchscreen hardware manufacture's calibration instructions and verification procedures before using with Table EDU 10.0.

Touch Commands	
Right click	Touch and hold.
Selecting icons	Tap icon to select. If compatible multi-icons are shown, use a second tap to select desired multi-icon. A double-tap on the same icon will open the icon.
On-screen keyboard	Tap the keyboard icon on the toolbar next to the windows icon. This will open the onscreen keyboard.

Keyboard-Only Commands	
Exiting Full-Screen and	Step 1: Press F11 on keyboard or FN + F11 on on-screen keyboard.
viewing application on single	Step 2: Press the Windows key and the left/right arrow to snap
display monitor	application window to left/right display monitor.



WARNING: Resizing the application window from full-screen to a single monitor will cause the user interface and scan to be rescaled based on the new application window size.

CONTROLLING THE VOLUME RENDERING

The following section discusses use of the touchscreen for controlling the volume rendering. Table application supports keyboard, mouse, and touch controls when navigating the application. Some functions are keyboard specific and do not have a designated icon in the user interface.

TOUCH CONTROL

Within the Rendering Window, the Table application accepts single- and multi-touch inputs.

Number of Touches	Movement	Result	Description
Volume Viewing:			
Single	Drag	Rotate	Rendering will rotate about the scanning region's geometric center point.
Two	Drag	Pan	Rendering will pan in the dragged direction.
	Pinch	Zoom in/out	Rendering will become larger or smaller.
	Rotate	Spin	Rendering will rotate about the axis perpendicular to Table surface and through the scanning region's geometric center point. (Settings → Spin Enabled)
Three	Drag up/down	Adjust Clipping Plane	Can adjust clipping plane by scrolling through volume rendering in parallel with initial cutting plane.
Slice Mode Viewing:			
Single	DISABLED	N/A	N/A
Two	Drag	Pan	Slice image will pan in the dragged direction.
	Pinch	Zoom in /out	Slice image will become larger or smaller.
Three	Drag up/down	Scroll through slices	Can scroll through cross-sectional slices of selected data.

KEYBOARD AND MOUSE CONTROL

Number of Touches	Movement	Result	Description
Volume Viewing:			
Left Click	Drag	Rotate	Rendering will rotate about the scanning region's geometric center point.
Shift + Left Click	Drag	Pan	Rendering will pan in the dragged direction.
Ctrl + Left Click	Drag up/down	Zoom in/out	Rendering will become larger or smaller.
Space + Left Click	Drag up/down	Spin clockwise/ counterclockwise	Rendering will spin clockwise or counterclockwise about its geometric center point.
Scroll Wheel	Roll up/down	Adjust Clipping Plane	Can adjust clipping plane by scrolling through volume rendering in parallel with initial cutting plane.
Slice Mode Viewing:			
Shift + Left Click	Drag	Pan	Rendering will pan in the dragged direction.
Ctrl + Left Click	Drag	Zoom in/out	Rendering will become larger or smaller.
Scroll Wheel	Roll up/down	Scroll through slices	Can scroll through cross-sectional slices of selected data.

Introduction to the Anatomage Table Application

LAUNCHING TABLE EDU 10.0 APPLICATION

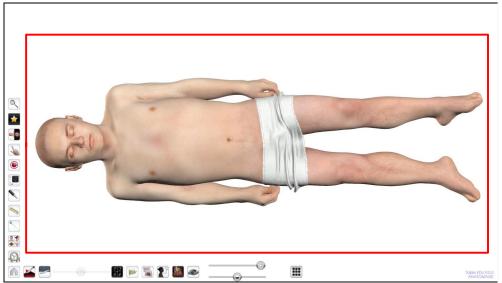


From the desktop, double-tap (double-click) the Table icon to launch the Anatomage Table application. Users will be shown the Application Toolbar below.



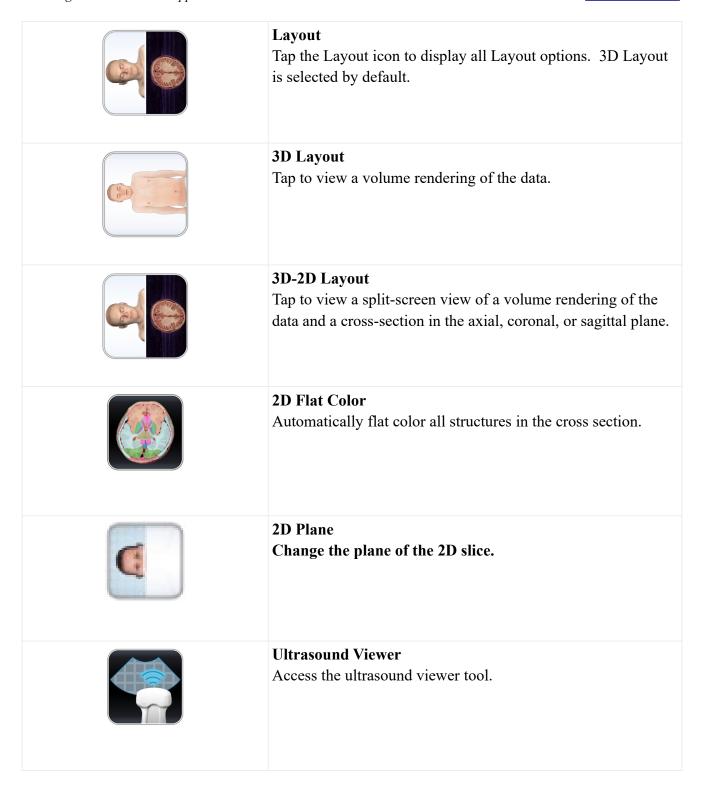
Navigation	Opens navigation tool to open Table content related to a specific subject.	
Cadavers	Opens user interface for selecting full body Gross Anatomy data and Regional Anatomy scans.	
Functional Anatomy	Opens user interface for selecting functional anatomy related content.	
Case Library	Opens user interface for selecting educational clinical case data sets including Ct, MRI and segmented dog and cat.	
Histology	Opens user interface for selecting histology slides.	
Curriculum	Opens user interface for selecting curriculum views. Curriculum views, provided by Anatomage, are single scans with pre-made annotations and view sequences for teaching purposes.	
Prosection	Opens user interface for selecting prosection data.	
Anatomage Share	Opens sign in window for Anatomage created materials and other user content.	
Open File	Opens multi-dicom (DCM) scan files or Invivo (INV) scan files. Opens user interface for establishing PACS connection and downloading files.	
Help	Opens a user interface for selecting "how to" documents for aspects of Table.	
Minimize	Minimizes the Table application. Available only when case is currently open.	
Exit Application	Closes the Table application.	
Cancel	Closes the Application toolbar. Available only when case is currently open.	

USER INTERFACE AND LAYOUT



Red box outlines Rendering Window. Image rendering, surface models, and annotations will appear in this region. Region accepts keyboard, mouse, single-touch, and multi-touch controls.

Icon	Description
	Application Toolbar Opens the Application toolbar. (Navigation, Cadavers, Functional Anatomy, Case Library, Histology, Curriculum, Prosection, Anatomage Share, Open File, Help, Minimize, Exit Application, and Cancel).
	Learning Assistant Tap to view more information about a structure.
	Custom Navigation Add the current cadaver, case, slide, or simulation to a custom Subject within the Navigation tool.









2D Layout

Tap to view one cross-section at a time. Users can view cross-sections in the axial, coronal, or sagittal plane.

The user can switch between a single 2D view and two different 2D layouts that contain three 2D slices each. The default slices for these split-screen layouts is Axial, Coronal, and Sagittal. The layouts can be customized to contain slices in Axial, Coronal, Sagittal, and Parallel planes.







Histology Layout

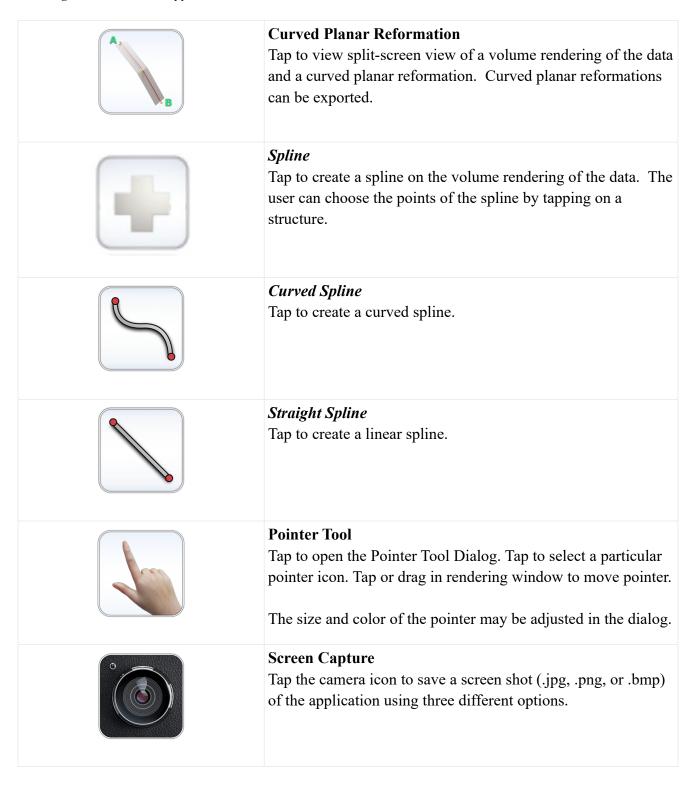
Tap to view a split-screen view of a volume rendering of the data and a histology slide. Any histology slides associated with a structure will be shown when the structure is selected from the volume rendering using a single tap.

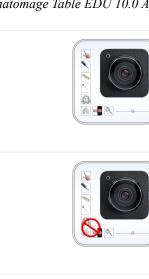
Choose a prosection or CT/MR case. Select the icon for the content then select the slides icon to open the menu to choose a case.



Flythrough

Tap to view split-screen view of a volume rendering of the data and a flythrough data set. The user can load in default flythrough data sets when available or create custom flythroughs if desired.

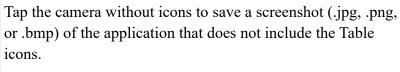




Screen Capture with Icons

Tap the camera with icons to save a screenshot (.jpg, .png, or .bmp) of the application that includes the Table icons.

Screen Capture without Icons





Cropped Screen Capture

Tap the scissor icon and drag across screen to select an area and save a screenshot (.jpg, .png, or .bmp) of the application within the selected area.

Pen Tool



Tap to open the Pen Tool Dialog. Using second tap, select a particular Pen Tool.

Draw by dragging in rendering window.

Predefined Draw Colors



Tap to select a predefined Pen Tool color. From top left going clockwise: Red, White, Yellow, Blue.

Default width of Draw Stroke for all colors is 2.



Custom Pen Tool

The Custom Pen Tool allows the user to customize the color and width of a pen.

Step 1: Tap to select a particular pen preset.

	Step 2: Tap the Custom Pen Tool Settings icon to adjust color and stroke width.
	The Pen Tool will save the latest setting used for each preset.
	Eraser: Tap to enable. Drag on display window to remove pen, text, or arrow marks.
	Text Tool: Tap to activate and then tap on display window to place text. Use on-screen or external keyboard to enter text.
	Arrow Tool: Tap to activate and then tap on display window to draw arrow tail. Tap again to draw arrow head.
	Undo: Tap icon to undo last drawing action. Redo: Tap icon to redo last drawing action.
	Minimize: Tap icon to minimize Draw Tool dialog.
Text	Clear: Tap icon to erase all drawings in the Rendering Window.



Measurement Tool

Tap the icon to show the associated measurement icons.

The font size and color of the measurement value may be adjusted in the Adjust Text window under the Image Control Settings icon (p. 28).

Measurements can be made in both volume and slice mode viewing.



WARNING: The default measurement unit will be millimeters (mm). Any measurement that is less than 1 mm will be displayed in micrometers (um).



Distance Measurement Tool

Step 1: Select distance measurement tool.

Step 2: Tap on two locations on the volume. Red dots will indicate the selected spots, and a line will appear between them with a distance measurement. To adjust a measurement spot, select and drag the landmark red dot.



Angle Measurement Tool

Step 1: Select angle measurement tool.

Step 2: Tap on three locations on the volume. Red dots will indicate the selected spots, and an angle will appear between them with an angle measurement. Distance measurements of the angle's sides will also appear. To adjust a measurement spot, select and drag the landmark red dot.



Area Measurement Tool

Step 1: Select area measurement tool.

Step 2: Tap on multiple locations on the volume. Red dots will indicate the selected spots, and a line will connect the dots to outline the area.

Step 3: Tap on the area measurement tool when finished and an area measurement will appear. To adjust a measurement spot, select and drag the landmark red dot.



Curved Measurement Tool

Step 1: Select curved measurement tool.

Step 2: Tap on multiple locations on the volume. Red dots will indicate the selected spots, and a line will connect the dots.

Step 3: Tap on the curved measurement tool when finished and a distance measurement will appear. To adjust a measurement spot, select and drag the landmark red dot.



Delete Measurement

Step 1: Select measurement. Specified measurement will turn red and become bold.

Step 2: Select icon to remove specified measurement.



Clear All Measurements

Select icon to clear all measurements from the volume.



WARNING: Identification of anatomical landmarks and structures are limited in part to image resolution and subject to user error. To ensure correct identification of landmarks and other fine measurements, it is recommended that users plug-in and use a USB computer mouse and keyboard for the most accurate possible placement of measurement landmarks (red dots). All measurement landmarks, including those placed using the touchscreen interface, can be adjusted by selecting and dragging the landmark. It is the responsibility of the user to place or adjust the measurement landmark locations as needed for analysis.



Pin Tool

Used for placing 3D pin models in volume viewing.

To place a pin, select the pin style of choice and then select a place on the volume. The pin may be moved by first tapping on the pin to display a red box and again to display a yellow sphere. Holding and dragging the red box moves the pin's XYZ location while holding and dragging the yellow sphere rotates the angle of the pin. The lumbar needle and syringe within the pin menu are used the same way.



This icon can be used to import in a custom model that can be placed like the pins, lumbar needle, and syringe. An action menu will appear which will allow you to manipulate the model. Double tapping on a model will open the models action menu also.



This icon will turn on/off the 3D widget which allows you to precisely move the model.



This icon allows you to map the model to a structure.



Selecting the 3D/2D view icon will open the 3D/3D layout where you can see the outline of the model in the 2D plane.



This icon will allow you to edit the dimensions (L x W x H) of the model.



Volume Orientation

Tap the icon to show orientation icons.



Coronal, Sagittal, Axial Views

Tap to select a particular orientation. From top left going clockwise: Coronal View, Sagittal View, Axial View.



If an orientation icon is tapped a second time, the view will be flipped.



WARNING: Image orientation is based on scanner/DCM definitions or redefined orientations from Invivo6 software.



90° Rotation

Tap once to rotate the image 90° clockwise.



1:1 Life Size Scaling

Tap icon to rescale image to life size.



WARNING: Exact scaling depends on scan size, scan resolution, and hardware specifications.



Dissection Tool (for segmented cadaver data)

The Dissection Tool allows the user to create custom cuts and remove structures, or parts of structures, within the sculpt area. After tapping the tool, the icon becomes highlighted signifying it is enabled and the Dissection Tool dialog appears.



Curved Dissection

Tap to activate the curved dissection tool, as indicated by a blue background.

Step 1: Hold and drag anywhere on the selected structure. A red line will appear outlining the sculpt area.

Step 2: Tap inside or outside the area to select dissection boundaries. The cut will be made only on the selected structure.



Linear Dissection

Tap to activate the linear dissection tool, as indicated by a blue background.

Step 1: Hold and drag anywhere on the selected structure. A red line will appear.

Step 2: Tap on either side of the line to select which side will be dissected. The linear cut will be made only on the selected

structure.



Point-To-Point Dissection Tool (for segmented cadaver and DICOM data)

Use the point-to-point dissection tool to select two points on the cadaver and a cut diameter, then dissect within that area.



Freehand Dissection Tool (for segmented cadaver and DICOM data)

The Freehand Dissection Tool allows the user to create custom cuts on the segmented cadaver or scan volume. After tapping the tool, the icon becomes highlighted signifying it is enabled. To make a custom sculpt:

Step 1: Hold and drag the custom sculpt anywhere on the volume. A green line will appear outlining the sculpt area.

Step 2: Tap inside or outside the area to remove the visible volume on either the inside or outside of the sculpt outline, respectively.

To enable another freehand sculpt, tap the Freehand Dissection Tool icon again. Once the icon is highlighted, repeat steps 1 and 2 to make another freehand sculpt.



Reset Dissection

Tap to remove any dissections performed on the structure, restoring the volume to its original state and removing all operations.



Undo: Will undo the last structure removal action.

Redo: Will redo the last structure removal action.

Note: The undo and redo icons do not work for the Freehand Dissection Tool.



Craniotomy Tool (For DICOM data)

Step 1: Select craniotomy tool.

Step 2: Hold and draw custom sculpt across any cranial portion of the CT or MRI Scan.

Step 3: Release touch and software will automatically close the custom sculpt and perform craniotomy.



WARNING: The Craniotomy Tool is meant to be used as a Demonstration Tool only. The amount of volume removed from a scan is dependent on the scalar range used to view DICOM data.



Clipping Plane Control

Tap icon to display Clipping Plane Control all Clipping Plane icons as well as the Flip and Reset icons.

Custom Clipping Plane is activated by default.



Case Information (For DICOM data, Histology, and Prosection)

View scan and case information.



Custom Clipping Plane

Step 1: Tap scalpel icon with the straight line to activate custom clipping plane. The custom clipping plane is activated by default (indicated by a blue highlight.)

Step 2: Using one touch, drag anywhere across the volume to generate the custom clipping plane, defined by a blue line. The line will update to show the current clipping definition.

Step 3: Release touch to finish defining plane.

Step 4: Select a side of the plane to remove by tapping the volume on that side.

Repeat the above steps to create up to six (6) Custom Clipping Planes. After the sixth plane, the seventh plane will replace the first defined Custom Clipping Plane. The eighth will replace the second and so forth.



Predefined Clipping Planes

Select a predefined clipping plane by tapping on the icon. The volume will automatically be clipped in the designated direction. From top left going clockwise: Sagittal Plane, Coronal Plane, Axial Plane, Parallel Plane.

Parallel defines the Table surface as the clipping plane.

Only one predefined clipping plane may be applied at a time.



Flip Clipping Plane

Tap icon to flip visibility between sides of the clipping plane. This affects all predefined clipping planes and the most recently defined custom clipping plane.



Reset Clipping Plane

Tap icon to remove all applied clipping planes (custom and predefined).



Clipping Plane Slider Bar

When a clipping plane, either a predefined or a custom plane, is active, the slider bar can be used to adjust the location of the plane. The slider bar can be used to adjust only the most recently defined clipping plane.



Presets

Tap to show presets numbered 1-10. Use a second tap on one of the numbered icons to select a particular preset, or open the Presets Menu by tapping on the cogwheel icon.

Users can create an unlimited number of presets using the



Preset Menu. Presets will automatically switch the image in rendering window based on saved definitions.

See Table 10.0 "How to Use Presets" for more information on how to create and save presets and use the Quick-View settings.



Anatomage Curriculum

A collection of premade images using the Anatomage cadavers. Search through systems and topics.



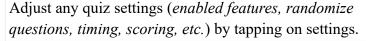
Quiz Mode

Select the quiz icon then select the icon to create a quiz or take a quiz.





Set up the desired structure view and add annotations to define quiz questions.













Select the quiz type (Pick Me, Flashcards, Highlight, Multiple Choice, Game, or Tournament).

See Table 10.0 "How to Use Quiz Mode" for more information on how to create and take a quiz.



Explore Tool

Used for identifying segmentation and structures.

Tap the icon to open up the Explore Tool Dialog. Next, select a particular icon with a second tap. The icon will become highlighted to indicate it is enabled.



Removal Tool

Tap anywhere on volume. Structure closest to touch location will be removed from view.



Split-Screen Removal Tool

Tap to view removed structures on the right half of the screen.

When the isolated structure appears on the right, you can turn on sync to have the two images rotate together. Turning off sync will allow the two images to rotate individually.



Highlight Tool

Tap anywhere on volume. Structure closest to touch location will be annotated and all other volume elements will be made transparent. Tap on the isolation icon again to remove all transparent structures. Tap a third time on the icon to add structures back in again. Tap on name to enable more detailed annotations.



Undo & Redo:

After using the Removal or Isolate Tool, tap Undo to undo the last action or Redo to redo the last action.

The font size and color of the explore text may be adjusted in the Adjust Text window under the Image Control Settings icon (p. 28).



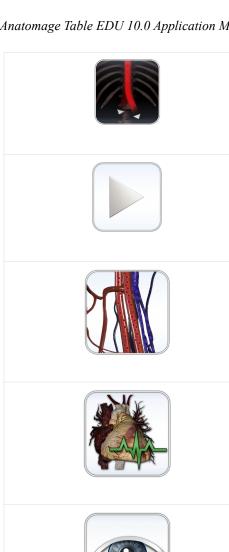
Cardiovascular Tool

Use these tools to visualize the cadaver's cardiovascular system.



Blood Flow Tool

Tap on a vein or artery. Blood flow will be simulated to or from the Heart. A second tap will apply a flat color to the vein or artery. A third tap will add annotations to all branches of the vein or artery.



Vascular Grow Tool

Tap on a vein or artery to see it grow.

Play Icon

Tap the icon multiple times to apply different views. You can play and pause this animation.

Particle Flow Tool

Tap once on the icon to turn on blood flow. A second tap will turn off the feature.

Heart Beat Tool

Tap once on the icon to turn on a beating heart. A second tap will turn off the feature.

Visibility Control

Structures

Tap icon to open Volume Visibility dialog to adjust rendering window images. User can add/remove structures in data sets or adjust volume rendering view presets for any DCM file data sets. See p. 34 for more information on using the Volume Visibility dialog.

Annotations

Tap "A" icon next to any entry to turn on all annotations under that entry.

Brightness/Contrast Slider Bars

When viewing segmented cadaver data:

Drag the upper slider bar right/left to add/remove large systems or structures from the volume rendering. Drag the lower slider

bar left/right to add/remove the cardiovascular, nervous, and lymphatic systems from the volume rendering.

When viewing DICOM data:

Drag the upper slider bar right/left to increase/decrease the *Brightness* (density) of the volume in the Rendering Window. Shift the lower slider bar right/left to increase/decrease the *Contrast* of the volume in the Rendering Window.



WARNING: Brightness and Contrast settings are dependent upon the volume rendering range defined in the Image Control Settings (p. 27).



Action Menu

Tap structure and then action menu or double tap a structure to view action menu for selected structure. The functions of each tool within the Action Menu are outlined below.



Structure On/Off

Tap to toggle a structure on or off. A white check mark indicates that the structure is toggled on. A dashed check mark indicates that the structure is toggled off.



Transparency

Tap to adjust surface and volume transparencies (50% surface opacity, 0% volume opacity) for selected structure. A blue background indicates that a transparency is applied.



Color Select

Tap downward arrow to choose a color from the drop-down menu. Tap the color button to highlight selected structure in chosen color.



Annotations

Tap to enable all annotations for selected structure. A blue background indicates that annotations are applied.



Origin and Insertion

Tap to display origin and insertion points for a selected bone. A blue background indicates that origin and insertion points are turned on. A grayed-out icon indicates no origin/insertion for a structure. Tap on any of the painted surfaces to turn on/off the annotations.



Bony Landmarks

Tap to display bony landmarks for a selected bone. A blue background indicates that the bony landmark points are turned on. A grayed-out icon indicates no bony landmarks for a structure. Tap on any of the painted surfaces to turn on/off the annotations.



Blood Flow Tool

Tap on a vein or artery. Blood flow will be simulated to or from the Heart. A second tap will apply a flat color to the vein or artery. A third tap will add annotations to all branches of the vein or artery.



Vascular Grow Tool

Tap on a vein or artery to see it grow.



Curved Dissection

Tap to activate the curved dissection tool, as indicated by a blue background.

Step 1: Hold and drag anywhere on the selected structure. A red line will appear outlining the sculpt area.

Step 2: Tap inside or outside the area to select dissection

	boundaries. The cut will be made only on the selected structure.
	Linear Dissection Tap to activate the linear dissection tool, as indicated by a blue background.
	Step 1: Hold and drag anywhere on the selected structure. A red line will appear.
	Step 2: Tap on either side of the line to select which side will be dissected. The linear cut will be made only on the selected structure.
	Reset Dissection
	Tap to remove any dissections performed on the structure, restoring the volume to its original state and removing all operations.
	Application Properties
	Tap the icon to open the Image Control Settings dialog to
	adjust the multi-touch and rotation controls, volume rendering range (DICOM data only), camera projection, UI settings, and to enable Feature Lock.
	Tap the Layout button to make adjustments to the Layout Options and to enable Vertical Viewing Mode.
	Adjust Layout: Toggle the application icons between the four quadrants of the Anatomage Table. Icons are rotated to
	accommodate users in different areas of the Anatomage Table.
	Split Screen: Tapping the split screen icons will snap the software to the left monitor or to the right monitor.
\longrightarrow	Enable Vertical: Toggle between Vertical Viewing Mode and
	Horizontal Viewing Mode. In Vertical Viewing Mode, icons
	are rotated and condensed into categories. Table application has slightly limited functionality.



WARNING: If Table application detects that some DCM files are missing, corrupt, or otherwise determined inaccurate, an error message will appear about possible inaccurate reconstruction. The user may continue with volume reconstruction and should exercise caution when reviewing any data with possible inaccuracies. An inaccurate volume reconstruction created in Horizontal Viewing Mode will still contain inaccuracies when viewed in Vertical Viewing Mode.





Volume Rendering Preference (for DICOM Data Only):

Min/Max: Define the minimum and maximum limits of the scalar values for reconstructing volume from slice image data.

Anatomage recommends -500 to 1500 for CT data and 0 to 3000 for MRI data. Table 10.0 will automatically set this value upon loading a scan.



WARNING: The values set in this Volume Rendering Preference field will have a direct effect on how the image data is reconstructed and displayed within the rendering window. The rendering range should be adjusted appropriately depending upon the modality (CT, MR, etc.) and scanning parameters.





Quality: When icon is selected, quality rendering is on. When icon is not selected, performance rendering is turned on.

Apply: Enable any changes made to the rendering range or rendering performance adjustments.



Adjust Text: Tapping the Adjust Text icon brings up the Adjust UI Dialog. In the dialog, the user can customize the behavior of annotations, and size and color of annotations, measurements, and explorer text with the corresponding pull-down menus. They can also adjust the structure labeling.

Link 2D and 3D view: Determines whether or not 2D crosssectional image will snap to structure chosen using Explorer

	Tools (must be in 3D + 2D viewing mode).
	Dissection Tool Labels: Determines whether annotations will appear when removing structures via Dissection Tool.
	Lead lines linked to Clipping Plane: The annotations are by default linked to the clipping plane. If a clipping plane is applied, any annotations turned on will only have their lead lines appear if they are mapped to a location within a few mm of the clipping plane. To turn this option off, tap to uncheck the white box.
	Adjust Colors: The user can apply a flat color to veins (blue), arteries (red), nerves (yellow), and lymphs (green).
	The user can also change the background color of the Volume Rendering Window to black, white, or gray using the quick access buttons, or to other colors using the drop down menu.
	Ruler Turn on an on-screen ruler.
	Spin Enable the ability to spin volume in a circle using two fingers.
	Structure Pronunciation: The Table will read aloud a selected structure.
	Turn this function on or off by tapping the icon to enable or disable. Tap the R/L icon to read only the structure name without identifying which side of the body it is on
	Dual Res Cadavers (Cadavers only) When enabled, the Table will automatically update to a higher quality image when zoomed in.



User Modes

Users can place the Table into different "locked" modes, which disable select features. Choose from premade modes or customize. Lock the setting with a password if desired.

Master password – AnatoTest0



Language Menu: The user can toggle between languages. After the language has been changed, the user must adjust the system locale.



Annotation Controls (for DICOM data and Prosection**)**

Opens Annotation interface that allows for custom annotations to be made. These annotations can be added to a group and new annotations can be put in a specific group.

To place the annotation, tap a location on the scan. Location of annotations can be edited. Once the annotations are made, they can be turned on/off by checking the box or tapping the "A" at the bottom of the menu. A list of annotations can be exported and imported.



Annotation Regions/Histology Labels (for Prosection and Histology)

Tap icon to open Annotation Regions in Prosection and Histology Labels in segmented Histology. Turn on/off a region or label by checking the box and turn on/off annotations by tapping the "A".



Slider Bar (for Prosection)

Tap and drag the slider bar to adjust the view for prosections with different states.



View Sequencer

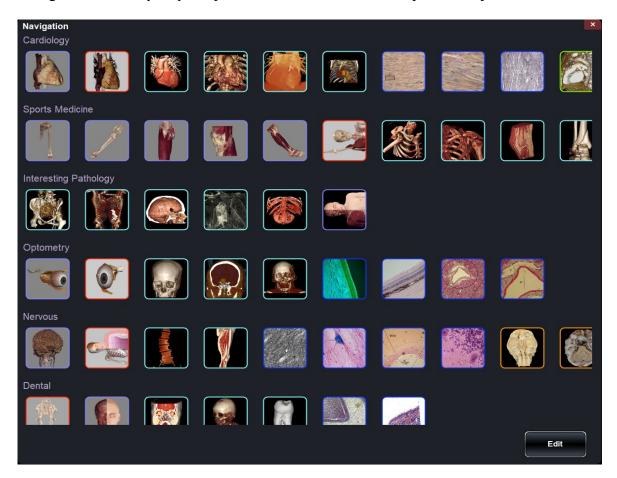
Tap icon to import and playback View Sequences (.vseq files) created from Invivo6 software. Use this icon to also play the 4D cases in the Case Library. This icon can also be used to view Curriculum slides in the Curriculum data sets.



WARNING: View Sequencer behavior is best when using the same particular image data set that was used when initially creating the View Sequence in Invivo6.

Navigation

Navigation is an easy way to open Table content related to a specific subject.



There are ten subjects with content:

- Cardiology
- Sports Medicine
- Interesting Pathology
- Optometry
- Nervous
- Dental
- Oncology
- Surgical Devices
- Developmental anatomy
- Respiratory

Each thumbnail image is outlined in a different color which represents where the Table scan is located

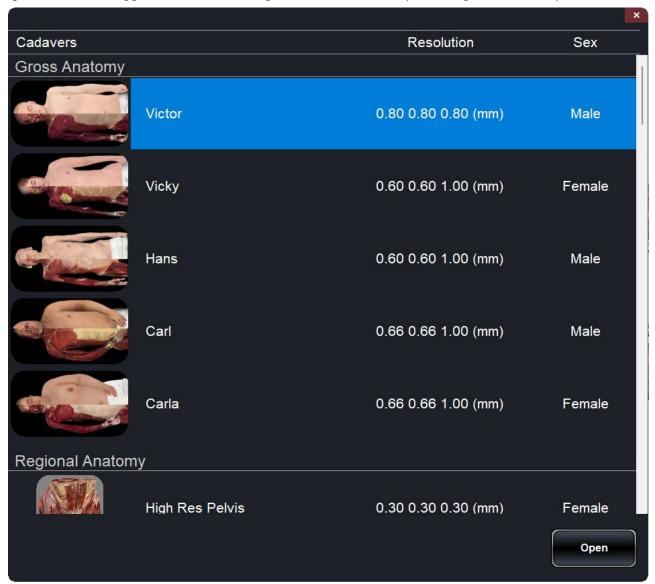
within the Table:

Color	Scan Location	Example
Purple	Cadavers	C
Red	Functional Anatomy	
Cyan	Case Library	
Blue	Histology	
Orange	Prosection	
Green	Curriculum	

CADAVERS

(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).

Tap Cadavers on Application toolbar to open the Gross Anatomy and Regional Anatomy menus.



- Dialog lists all available Gross Anatomy and Regional Anatomy scans with resolution, size, and gender.
- Tap entry name, then tap **Open** or double tap entry name.
- Tap Close to close dialog.

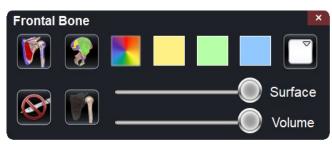
IMAGE ADJUSTMENT

Segmented Cadaver Data

Selecting the Volume Visibility Control Icon will open the following dialog.



- Structures are organized into systems and categories.
- Tap Checkbox icon at the bottom of the system list to turn all structures On/Off.
- Tap Checkbox icon next to each entry to turn systems, categories, or individual structures On/Off.
- Tap a system or category to show associated subsystems. Selected entry name will be highlighted blue.
- Tap grayed color wheel icon next to entry names to adjust **Opacity**, **No Clip**, and **Color** settings for volumes and to toggle **Origin/Insertion** and **Bony Landmarks** for bones. If adjusted, gray color wheel icon becomes colored.





Origin and Insertion: Toggles On/Off Origin and Insertion for selected bone structure.



Bony Landmarks: Toggles on/off bony landmarks for selected bone structure.



No Clip: If enabled, structures cannot be sliced through.



Transparent: Auto adjust surface and volume transparencies (50% surface opacity, 0% volume opacity)

Opacity: Adjust slider bars to adjust surface and volume transparencies.



Randomized Color

Apply randomized colors to a structure, category, or system.



Flat Color: Choose a color from quick access or the drop-down color menu. Tap button to highlight structure in chosen color.

- L and R buttons in lower left-hand corner allow the user to toggle On/Off the left and right structures for select systems and categories.
- The counter-clockwise, curved arrow color wheel button restores the cadaver to its default view by removing any Opacity, No Clip, Color settings, Origin/Insertion and Bony Landmarks.
- The A button in the lower right corner expands the Volume Visibility dialog to include Annotations. When the dialog is expanded: the circled A button toggles On/Off Annotation Visibility, the downward and upward arrow buttons allows the user to import and export custom annotations, and the counterclockwise, curved arrow allows the user to restore to default annotations. See p. 36 for additional details on Annotations.
- Search bar in lower right corner allows user to search for a particular structure. Tap X to clear all search terms.

ANNOTATIONS

Annotations can be activated in the Volume Visibility Dialog. Annotations are linked with clipping planes. Chosen annotations will be displayed, but lead lines will only appear when associated volume is close to the clipping plane. If no clipping plane is defined, lead lines will always appear.

- Tap the "A" button at the bottom right of the Volume Visibility Dialog to expand the dialog to include Annotations. This includes structure annotation, Origins/Insertions, Bony Landmarks.
 - Tap the arrow icon next to Annotations, Bony Landmarks, or Origins/Insertions to expand that annotation list.
 - Tap the circled "A" button at the lower right of the dialog to show/hide all enabled annotations.
 - Check the box next to each entry to enable that specific annotation.
 - In the Annotation list, tap "New Annotation" to create your own annotation. Type out the desired annotation text and tap anywhere on the volume to select annotation coordinate.
- Tap on the settings tab and tap "Adjust Text" to adjust where annotation texts will appear (*Top, Bottom, Right, Left*) and how annotation text will appear (Size, Color).
- Annotations saved with Invivo will appear with *Comment* and *Marker* as System and Category, respectively.
- User can adjust coordinates of annotations by tapping the Ellipsis Button to the right of the annotation and then "Edit Location". A dialog will appear prompting "Edit Location" and the user can tap anywhere on the structure to change its location. When the Annotation (.csv) file is exported, the new location(s) will be updated.



WARNING: Saving the new coordinates for an annotation will overwrite the associated information on the currently loaded .csv annotation spreadsheet. A back up annotation spreadsheet is available on the Table desktop.

Load Default
Annotations
Load Annotation File

Load in default annotations (.csv file) from the Presets, Annotations folder on the Table desktop.

Load in custom annotations (.csv file with character set "UTF-8", separated by tab, and set to "quoted field as text") created using Invivo6 software (or other software).

Customizing
Annotations (for DICOM Data)



Annotations can be added to any DICOM scan. There are no default annotations for these scans, but custom annotations can be made by tapping on "New Annotations". Placing these is this same as with Gross Anatomy. *WARNING: Open same data set that was used to create annotation file in order to preserve correct coordinate system.*

DCM/INV FILES

(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).

Selecting the Volume Visibility Control Icon will open the following dialog.



Volume Renderings

(Gray Scale, X-Ray, Transparent Soft Tissue, Transparent Hard Tissue, Transparent Soft + Hard, etc.) Collection of different volume rendering presets (filters.) Each can be adjusted using the *Brightness* and *Contrast* slider bars on the main Table user interface. Users can create their own custom volume rendering presets using the Invivo6 software. This setting can be exported as a volume configure file (.vcf). **Custom** loads in a .vcf file.



WARNING: Ultra High-Quality Rendering (UHQ) requires an NVIDIA graphics card to function. If Table application detects that some DCM files are missing, corrupt, or otherwise determined inaccurate, an error message will appear about possible inaccurate reconstruction. The user may continue with volume reconstruction and should exercise caution when reviewing any data with possible inaccuracies.



CT Settings (Only available in slice mode for DCM image sets)

Tap to show all available radiology presets. Using a second tap, select a particular radiology preset. The brightness and contrast can be adjusted using the slider bars to the right.

Available CT presets: Brain, Abdomen, Mediastinum, Bone, Lung, Liver



WARNING: CT presets are dependent upon original scanner/DCM HU definitions. User is responsible for adjusting rendering range and settings to ensure all structures are visible in the scan.



WARNING: MRI scans will automatically have their volume rendering range adjusted for optimal viewing. The user can specify a specific rendering range by manually entering the minimum and maximum values in the settings menu.

Model Settings



Open an INV file with models created from a DICOM file in Invivo or MedicalDesignStudio. Open Visual Property Dialog for currently selected digital surface model.

Visibility

- Turn On/Off model visibility
- Adjust the *Opacity* of a particular model

Rendering

- Adjust *Mode*: Surface, Wireframe, or Points
- Adjust shading: Smooth or Flat
- Turn On/Off Back Face Culling
- Enable **No Clipping** (clipping planes do not affect model)

Material

 Adjust surface model appearance by changing color and light settings

Texture

- Turn On/Off texture applied to model
- Turn On/Off shading applied to model

Tapping **OK** will close the *Visual Property* window and save the changed settings.

PRESET DIALOG







Presets

Save your current view on the Table as a preset, or access preexisting presets.



Select All



Save Preset

Selects all Presets, as indicated by a blue number to the left of the dialog.

Create an unlimited number of presets: saves volume orientation, clipping planes, freehand dissection cuts, model visibility, volume visibility, annotations, and pins.

Delete the currently selected preset(s).



Remove Preset



Reorder Presets

When tapping on this icon, each preset will have this icon preset. Drag this icon for a select preset to adjust the numbered order of the presets.

Import a preset file (.vpf).





Export all selected presets as a visibility preset file (.vpf).



Choose to add a select preset(s) to a custom folder. You can lock a folder by giving it a pin number.



This will show a list of all folders made.



Quick Add

Tap this icon to automatically add the current view as the next preset.



Quick-View Presets

Tap this icon to access the quick-view preset menu.



Select the Pre-Made Presets to view pre-made views of the cadaver based on common anatomy topics.



Select this icon to load whatever presets you have in your Preset Menu into slider-form.



Advance the Slider Bar or click the Previous and Next icons to move through the presets.





Tap Play to initiate a playback of all of the presets. Tap Loop to have the playback repeat automatically.



Select the Movie Capture icon to export a video of the presets.

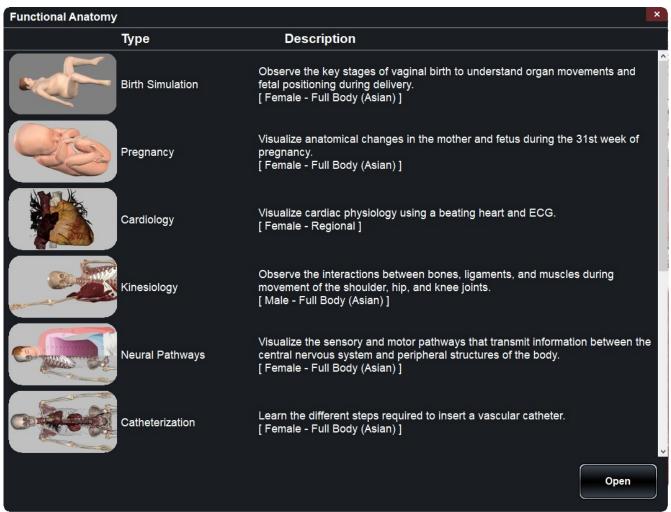


WARNING: Preset behavior is best when using the same particular image data set and volume rendering range that was used when initially creating the presets. Current presets in the menu will be overridden by newly imported presets.

FUNCTIONAL ANATOMY

(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).

Tap Functional Anatomy on Application Toolbar to open the Functional Anatomy Dialog.



- Dialogue lists all available Functional Anatomy scans with type and description.
 - **Birth Simulation:** Shows a birth simulation of a pregnant cadaver.
 - **Pregnancy**: Shows a pregnant cadaver with fetus.
 - Cardiology: Shows a beating heart with ECG.
 - **Kinesiology:** Shows various joint movements.
 - Neural Pathways: Shows what nerves innervate specific dermatomes, muscles, and organs.
 - Catheterization: Steps through the placement of a few heart cauterization procedures.

- **Dental:** Shows dental arch and pano slice view.
- Ocular Applications: Shows vision and ocular movements.
- Cardiology (Full Body): Shows a beating heart with ECG in full body cadaver.
- Pathways: Outlines a particular physiology pathway. (Available in both male and female).
- Tap entry name, then tap **Open** or double tap entry name.



Birth Simulation Stages (in Birth Simulation only) Select any node on the birth stage map to jump to that point in the birth simulation. You can select the main stage icons, or any node in between.





Volume Visibility (*in Pregnancy only*)

Tap on the pink icon to open Volume Visibility dialog for the pregnant cadaver. Tap on the blue icon to open Volume Visibility dialog for the fetus.



Joint Movements (in Kinesiology only)
Tap this icon to open joint movements dialog. Tap on a joint icon or tap directly on a joint and use arrows to view movements.











Shoulder

From top left going clockwise: Abduction/Adduction, Flexion/Extension, Internal Rotation/External Rotation, Protraction/Retraction, Elevation/Depression







Femur on Pelvis

From left to right: Abduction/Adduction, Internal Rotation/External Rotation, Flexion/Extension







Pelvis on Femur

From left to right: Abduction/Adduction, Internal Rotation/External Rotation, Flexion/Extension





Knee

From left to right: Flexion/Extension, Internal Rotation/External Rotation



ECG (in Cardiology or Catheterization only)
Tap this icon in either of the above scans to open the ECG interface to adjust the controls and view the beating heart.





ECG (in Pregnancy only)

Tap the pink icon to open ECG interface for the pregnant cadaver. Tap the blue icon to open the ECG interface for the fetus.



Nerve Flow Visualization (in Neural Pathways only)

Tap this icon to open the nerve flow vizualization tool. Tap on a dermatome, muscle, or organ to reveal the nerve pathway. Tap on the highlighted region in the legend to see more details.



Catheter (in Catheterization only)

Tap to choose a procedure and path. Go step by step through the procedure.



Vision (in Ocular Applications only)

Tap this icon to open vision dialog. Use slider bars to adjust vision. View adjustments with eye chart.



Ocular movements (in Ocular Applications only)

Tap this icon to open ocular movements. Use slider bars to adjust motions.



Pathways (in Pathways only)

Tap on this icon to open the pathways interface. Tap on any of the arrows or a certain pathway to play through this pathway. Create a new pathway and customize by tapping on the structures in the pathway and adding them to a list.

CASE LIBRARY

(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).

The Case Library is a collection of scans showing various clinical case examples. Through the use of contrast media and other imaging techniques, real patient anatomical features are highlighted. Each scan comes with scan information, if available.

Select Case Library from Application toolbar to open the Case Library dialog.



- Scans are sorted by the following icons: Head and Neck, Thorax, Abdomen and Pelvis, Upper Limb, Lower Limb, Full Body, Animal, Archaeology, Embryo, and 4D.
- Tap on a divisional icon to view all associated scans.
- Select scan name to display additional clinical information (*Info, History, Findings, Impression, Other*) along with scan resolution and size.



- Tap the MRI or CT icons to see scans organized by tag.
- To search the Case Library, type text into the bottom left search bar.



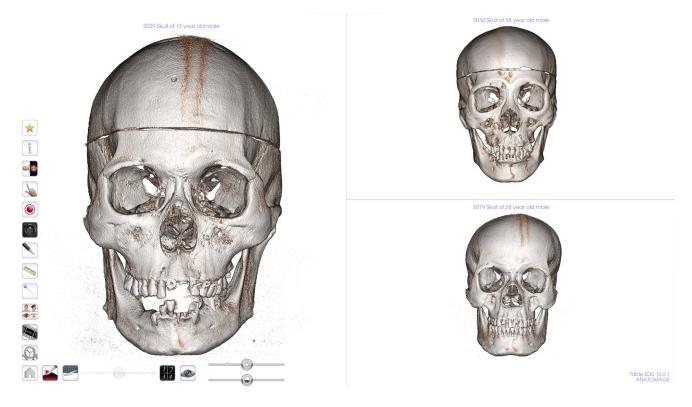
- There are also two folder icons for Recently Viewed and Case Folders.
- Case Folders include Recently Added and Favorites.
- To create your own folder, tap the button and enter in the desired Folder name.

- To remove your own folder, tap the button
- To add a case to a folder, tap the button and choose the desired folder.
- To remove a case to a folder, tap the button.
- To export a custom folder (.txt file), open the custom folder and tap the button. A dialog will appear allowing the user to choose the name and location of the .txt file.
- To import a custom folder (.txt file), tap the button under the folder's category and locate the .txt file for the desired custom folder.



Comparison

Displays three related scans linked in movement, clipping plane, brightness/contrast, and volume rendering mode for comparison. Note: Comparison Cases are not compatible with Vertical Viewing Mode.



4D scans

Scans showing movement



To Play 4D scan:

Step 1: Tap the View Sequencer icon



Step 2: Tap to start/pause movement. Tap to loop playback.

Step 3: Tap to move forward one frame. Tap to move backward one frame.

Step 4: Tap to cut to the last frame. Tap to return to the first frame in the sequence.

Step 5: Tap the red X in the upper right to close dialog.

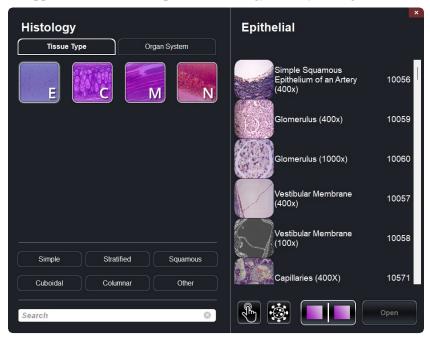
User can rotate or clip volume while video loop is playing. Video playback will pause when user is rotating volume. Pause playback when not viewing scan to conserve computer memory.

HISTOLOGY LIBRARY

(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).

The Histology Library is a collection of slides showing various physiological and pathological examples with the use of various microscopic and staining techniques. Each slide comes with information, if available.

Select Histology from Application toolbar to open the Histology Library dialog.



- Slides are sorted by tissue type (ET, CT, MT, NT) or by organ system (*Cardiovascular, Connective Tissue, Reproductive, etc.*).
- Tap on a divisional icon to view all associated slides.
- Tap the Interactive Icon to view a selection of annotated slides for each tissue type or system.
- Tap the Pathology Icon to view a selection of pathologic slides for each tissue type or system.

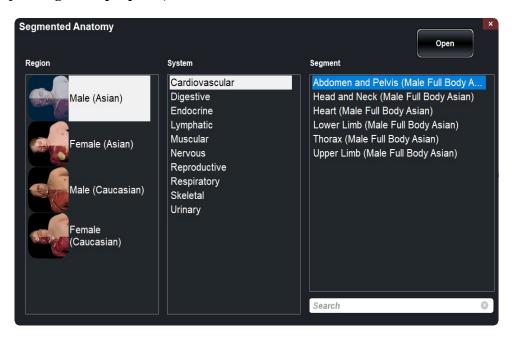


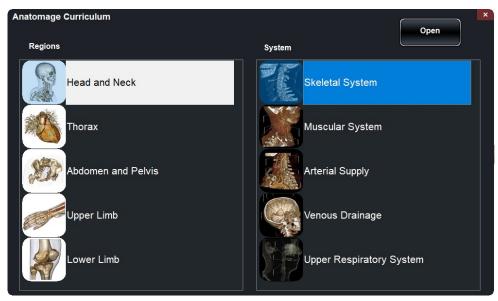
- Tap on this icon then double tap on up to 4 slides to compare them side by side.
- Select scan name to display additional information, including a larger preview image, and microscopic technique/stain when available.
- To search the Histology Library, type text into the bottom left search bar.

CURRICULUM

The Curriculum consists of a set of single scans with pre-made annotations and view sequences, provided by Anatomage. Scans are sorted by region (*Thorax, Upper Limb*, etc) and system (*Skeletal, Muscular,* etc). The curriculum is intended for teaching purposes.

(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).





PROSECTION

Prosections consists of regional prosected 3D real cadaver images. These images consist of the external data so they can be rotated to view at different angles. No cuts can be made through these images. Some prosection images have pathology (*diseased liver, partial knee replacement, etc.*) and some are "healthy" prosections (*brain, lower limb, etc.*)

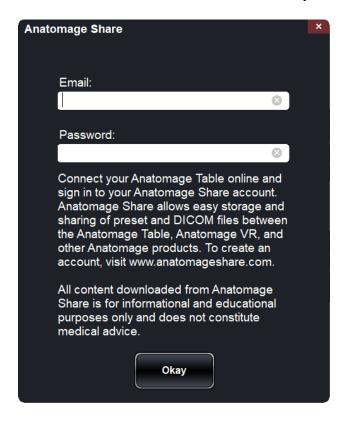
(This section contains images featuring educational content and should not be used as clinical reference or for diagnostic purposes).



ANATOMAGE SHARE

Anatomage Share is a website platform where users can access Anatomage Created materials (like example activities, tutorial videos, How-to Documents, and more), upload and store their Anatomage content, and share material with other Anatomage users around the world.

Sign in on the Anatomage Share window from the main menu to access your account.



See "How to Use Anatomage Share" for more information on how to create an account, navigate the website, and upload or download content.

OPENING DCM/INV SCANS

Step 1: Select **Open File** from the Application toolbar.

Step 2: Tap on browse and use the Windows Explorer interface to navigate to directory of INV file or DCM file series.

INV file Select file and press **Open**.

DCM series Select a single DCM file and press **Open**. Software will scan through

folder and check each DCM file's metadata prior to loading all DCM files

in the same series.

Step 3: Table application will automatically construct image volume based on INV or DCM file. For INV files, any additional content created and saved with the patient data using Invivo6 software (surface models, models, etc.) will be loaded as well.



WARNING: Table application and Invivo6 software will load in DCM files contained within the same folder and of the same imaging series when reconstructing the volume. It is the responsibility of the user to confirm that all slice information is available and in the same folder when loading onto Table 6.0 or saving from Invivo6.



WARNING: If Table application detects that some DCM files are missing, corrupt, or otherwise determined inaccurate, an error message will appear about possible inaccurate reconstruction. The user may continue with volume reconstruction and should exercise caution when reviewing any data with possible inaccuracies.



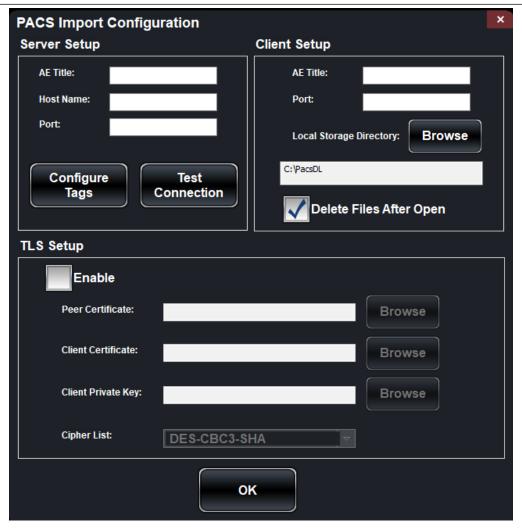
WARNING: When loading additional content created (surface models, comments, etc.), content is created by another user and is not part of the original patient image data.

PACS INTEGRATION

The Anatomage Table can import scans directly from PACS server. Tap on "Open File", tap on "Import PACS" and then tap on "Configure". Under Server Setup, type in the PACS server AE Title, Host Name and Port. Under Client Setup, type in the AE Title and Port.

Tap Test Connection to confirm that the connection is successful.

Please contact Anatomage with any questions regarding this process.





WARNING: Anatomage is not responsible for verifying the accuracy of patient information from a PACS system. Anatomage also assumes no responsibility in relation to privacy requirements for viewing and sharing patient scan information.

TABLE APPLICATION TROUBLESHOOTING

This section discusses common software troubleshooting issues.

For all troubleshooting, be sure to follow the safety guidelines outlined in the **Safety Instructions and Warnings** section of the hardware manual.

Issue With	Problem	Action
Installation	Error Message: Server is not responding	Check Internet connection. If Internet is connected, try again later.
	Error Message: Please run as administrator to activate software	Run the application as administrator.
	Error Message: Invalid Authorization code	Check license code and try again.
File Operations	Error Message: Error: Cannot read this file	Check if this file is supported by Table 10.0.
	Error Message: Failed to read DICOM file!	Check if this file is supported by Table 10.0.
Image Rendering	Error Message: Can't detect hardware acceleration for OpenGL support!	Check if graphics card meets system requirements. Check if latest driver is installed for graphics card.
	Image is distorted	Switch to another view and switch back.
	Grayscale image shows up for all rendering presets	Check if graphics card meets system requirements. Check if latest driver is installed for graphics card.
	Warning message: 3D reconstruction may not work!	Check if the DICOM files are exported correctly.
	Slow performance	For Cadavers and Functional Anatomy, keep a maximum of 2-3 applications open at any given time. These require the most data and keeping too many open can cause slow performance or lag. If this is observed, close one of the applications.
		Restart system and see if problem persists.
Computer	Blue screen	Note the error code given and learn more at support.microsoft.com

Contact Anatomage at (408) 885-1474 for additional support.