Disclaimer

Disclaimer: eUnity is an FDA certified diagnostic quality viewer for Radiology and Cardiology images, but not intended for primary diagnosis. Zero-image studies, image reports, mark-ups and annotations are not available in eUnity.

Launch and login to eUnity™

Notice: User must have a valid Main Line Health user account to log into the System. Main Line Health medical images, for assistance please contact the MLH Service Desk at 484-596-HELP or via email HelpDesk@MLHS.ORG.

eUnity Desktop Icon

eUnity may be accessed on Main Line Heath workstations through the Windows desktop icon.

Authentication

At the eUnity login screen:

1. Type your Main Line Health Network User ID and Password.
2. The password is case-sensitive. If you cannot login, check whether Caps Lock is enabled on your keyboard.
3. Click Login.
4. The Search area will be presented, and you can begin using eUnity.
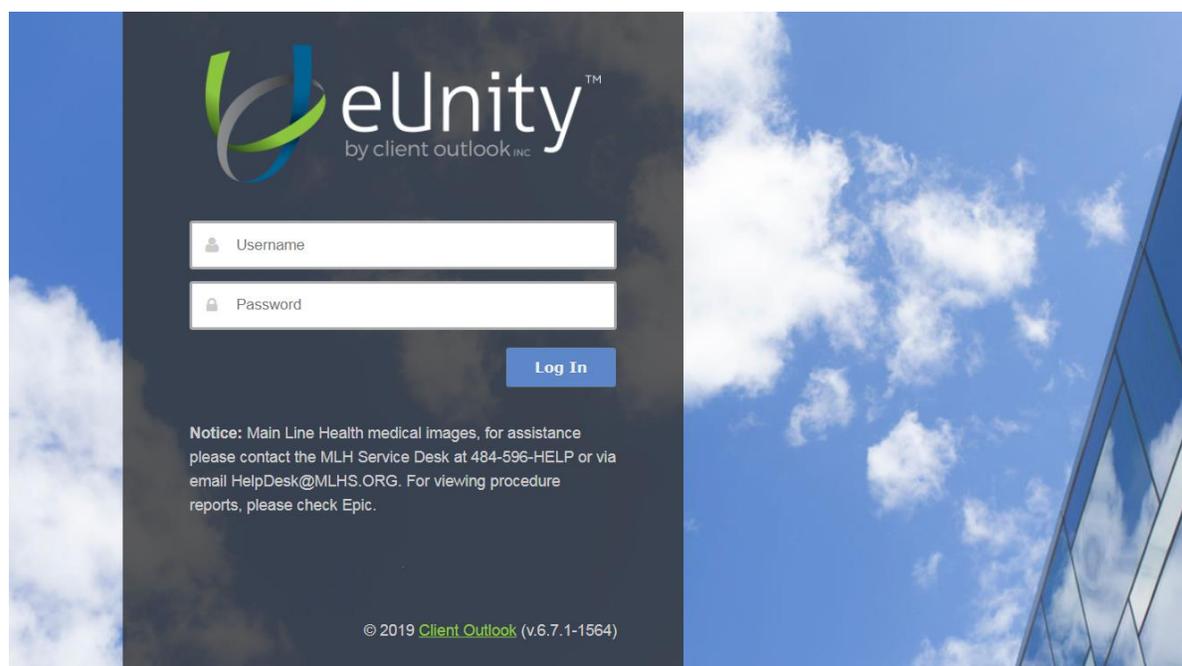
eUnity Citrix Link

For remote users eUnity may be accessed through the Main Line Heath Citrix Storefront at
https://access.mlhs.org. Please note, Multifactor Authentication is required for Citrix login *and*
eUnity login.

eUnity PACS Viewer

Authentication
At the eUnity login screen:
1. Type your Main Line Health Network User ID and Password.
2. The password is case-sensitive. If you cannot login, check whether Caps Lock is enabled on your keyboard.
3. Click Login.
4. The Search area will be presented, and you can begin using eUnity.

eUnity MLHS Intranet Link

eUnity may be accessed via Main Line Health's intranet website under **Clinical Applications** →
Enterprise PACS → **eUnity PACS Viewer**. Enter your Main Line Health Network User ID and Password
at the eUnity login screen, click Log In. If the login is successful, the Search screen is displayed.

eUnity MLHS Physician Link & Direct Access

eUnity Physician Link
Physicians may access eUnity via https://www.mainlinehealth.org, navigating to **For Physicians** and
clicking on the eUnity Link. Enter your Main Line Health Network User ID and Password at the eUnity
login screen, click Log In. If the login is successful, the Search screen is displayed.

eUnity Direct Access
Physician Direct Access is available at https://eunity.mlhs.org. Enter your Main Line Health Network
User ID and Password at the eUnity login screen, click Log In. If the login is successful, the Search
screen is displayed.

Search Screen

Search for the study using any of the criteria listed or a combination of criteria listed on the Search
panel. Left-click to load a study.

- An asterisk can be used as a wildcard character to broaden the search results. The
  asterisk can be used at the start or middle of the string. The Patient Name and Patient
  ID automatically add the asterisk at the end

- Up to four studies can be loaded for the same patient, check the box next to the patient name and then double clicking on any of the selected rows

• **Data Source** – the dropdown allows users to search configured remote data sources.

   - *Production PACS* – Default selected data source
   - *Downtime PACS* – PACS downtime data source

Image Screen

① Tools
② Toggle fullscreen mode on and off
③ Launch Help – contains the default keyboard shortcuts
④ Series Tray

Tools

Once a study is selected, the images will display on the screen. There are several tabs along the top left corner of the screen, the tabs are listed below along with the tools in each tab. Image adjustments and markups are not saved by eUnity.

Home tab

Icon	Tool	Description
	Study List	• Lists studies available for the patient (if configured)
	Report/Comment	• Report (if available and if configured) • Study comments
	Navigate	• Default tool • In Navigate mode, left-click and drag to scroll thorough images
	Zoom/ Pan	• In Zoom/Pan mode, use the mouse wheel or other scrolling tool to zoom into content • Left-click and drag to pan
	Window Level	• In Window Level mode, left-click and drag to adjust Window Level
	Reset Window Level	• Click the tool to reset Window Level
	Window Level Presets	• Click the dropdown for modality-specific Window Level Presets
	Image Sharpening Presets	• Click the dropdown for modality-specific Image Sharpening Presets
	Invert Brightness	• Click the tool to invert the images in the active series
	Toggle Demographics	• This tool is on by default to display patient demographics and study data • Toggle off to remove demographics and study data
	Triangulation	• In Triangulation mode, hold down the left mouse button. The crosshair will indicate the corresponding point on other series within the study
	Toggle Reference Lines	• Reference Lines mode can be used with triangulation or alone to provide a reference line
	Series Reposition	• In Series Reposition mode, drag the series into different ports
	Navigation / Zoom and Pan Linking	• Select the tool to link multiple series together. Scroll, pan and zoom the series in unison • Hold the Alt key to scroll linked series independently • Series need to be within 5mm of each other to be linked

Icon	Tool	Description
	Magnifying Glass	• Click to magnify an area of an image.
	Arrow	• Select the tool, left-click to start and left-click to end the arrow or hold the left-click and drag
	Linear Measurement	• Select the tool, left-click to start the measurement and left-click to end the measurement or hold the left-click and drag
	Eraser	• Select the Eraser tool and click on a markup to delete it • Alternatively, select the measurement and hit the Delete key
	Revert to Original	• Click the tool to reset the active series to its original state
	Share This Session	• Collaboration tool used for screen sharing • Once Collaboration mode is activated, the connection indicator will turn green. Other users can see the cursor and changes made to the study if they 1) login to eUnity 2) view the same study and 3) activate "Share This Session" • Click to exit collaboration. When the indicator turns red, you are no longer in collaboration mode.
	Screen Layout	• Allows the user to change the layout from single to double monitor (if enabled) and to select how each monitor is split • Each monitor can be split by images, series or studies • Use this tool to activate Study Compare mode

Advanced Visualization
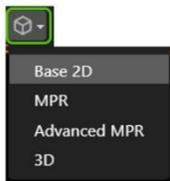
• Allows users to create MPR, Advanced MPRs and 3D reformats
• All reformatted and volume rendered views (MPR & 3D) are treated as Lossy
• MPR, Advanced MPRs and 3D reformats are not saved by eUnity

To use Advanced Visualization:

• Select a series from the Series Tray, then select one of the advanced visualization options
• Select screen format from the top left corner of the screen

• Select the configuration tool to adjust the render type (MIP, MinIP etc.) and render parameters (quality and slice thickness)

MPR – create axial, sagittal and coronal reconstructions.

Advanced MPR
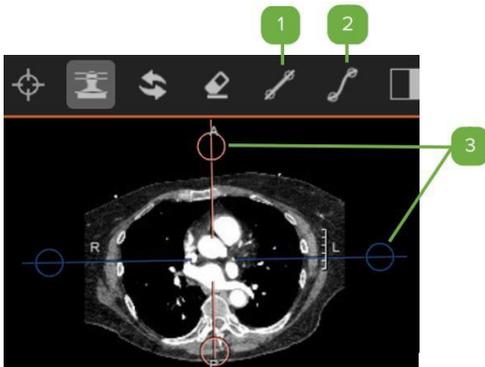
1   Select the "Create Oblique" and draw a line to create a reformat along that axis

2   Create Curved MPR tool – use the tool for vessel tracking. Select the tool and left-click along the vessel (scrolling as necessary) to create a curved MPR. Click on the curved MPR to obtain orthogonal views at the selected point

3   To create oblique views, click and drag the circles on series

3D

- Create 3D reformats. Left-click and drag to rotate the 3D
- Add or remove anatomy from the 3D using the 3 tools below:

1   Clip box tool – select the tool then adjust the box on any plane to remove anatomy

2   Cut pane tool – rotate the 3D to the desired view, select the tool and drag the mouse down to remove anatomy or drag the mouse up to add anatomy

3   Scalpel tool – select the tool, left-click and drag to select a region and click the region you want to keep

Markup tab

Icon	Tool	Description
	Markup and annotation tools	 • To use most tools, left-click to start the tool and left-click to end it • Alternatively, hold the left-click and drag • To edit, click the annotation to select it and drag the handles
	Point Tool	• Select the tool and hold the left-click to display modality-specific information. For example, the tool will display the HU value on a CT or the Time, Velocity and Pressure Gradient for a doppler

Icon	Tool	Description
	Cobb Angle Measurement	• Draw 2 lines to obtain the angle between them
	Circle ROI	• Draw a circle on an area of interest and display the Area, Perimeter, Radius, Average and Standard Deviation of the circle (modality-specific) • The Average Houndsield (HU) is displayed for CT studies
	Freeform ROI / Doppler Envelope	• Outline an area of interest using the left-click. Once the desired region is outlined, double-click to exit the tool to display the following: i. Velocity (peak and mean) ii. Pressure Gradient (peak and mean) iii. Velocity Time Integral
	Spine Labelling	• In Spine Labelling mode, select the vertebra and click on the vertebral body to label the level. Click up or down the spine to continue labeling • To automically label C8, T13 or L6, skip those vertebrae and label the next level, then click the unlabelled vertebrae to apply labelling of C8, T13 or L6

Flip + Rotate tab
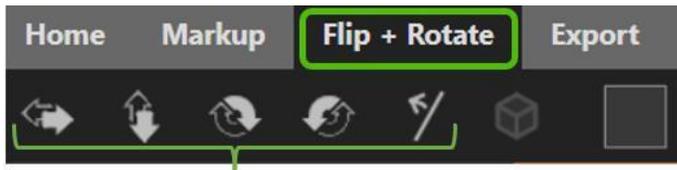
- Tools to rotate an image or series

Export tab
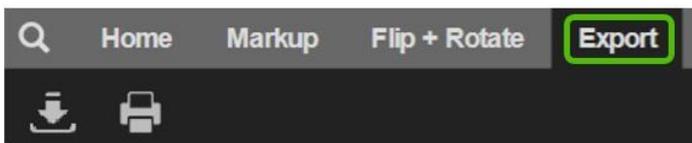
- Export images as JPEG or PNG
- Print images

Series Tray

The Series Tray displays the available series or images
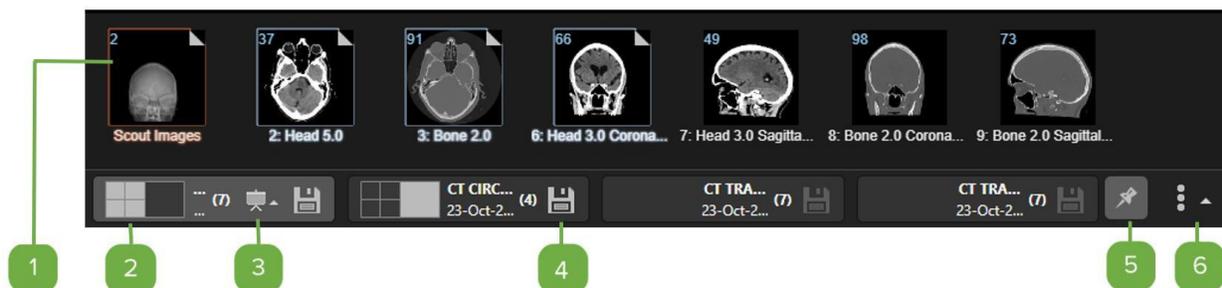
- **Thumbnail view** – the series that is currently active will be outlined in orange, the series that are in view but not active are outlined in blue. The folded corner indicates that at least one image was viewed in the series
  - **Loading study from Study List**
    - Double-click on a series or image on the Series Tray to load it on the active viewport (the viewport outlined in orange in the viewing area)
    - Alternatively, drag the series or image to the desired viewport
- **Study position indicator** – shows the position of the study in the screen. If the study is not displayed on the screen, then it will not have a position indicator
- **Presentation State** – allows users to toggle between different presentation states
- **Save Presentation State** (if enabled) – allows the user to save markups
- **Toggle Series Tray docking** – pins the available series so that they are always displayed
- **Control Bar Location Selection** – The Series Tray can be located at the bottom, top, right, or left side of the screen. Use the tool to move the Series Tray to the desired location

Web Client Requirements

Web Client for Enterprise and Cloud - Minimum Requirements

When used as an Enterprise or Cloud Viewer, the following are <u>recommended</u> PC requirements:

	Microsoft® Windows®	Mac OS X
Processor	Modern x64 Consumer CPU Intel i5 or equivalent[1] 4+ Cores @ 1.5Ghz+	
Memory	8192MB of RAM	
Graphics Memory	Dedicated Graphics Card (Nvidia or ATI) DirectX 12 Compatible 2GB+ of dedicated graphics memory	
Network	30Mbit or higher	
Network (Cell)	4G/LTE+, 5G	

Table 1 - Client Hardware Specifications

	HTML5 Viewer
Operating System	Windows 7, Windows 10 Mac OS X 10.12+
Recommended Browsers	Safari 12+, Chrome 70+ Latest iOS Safari, Android Chrome

Table 2 - Web Client OS and Browser Requirements

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[1] mobile, or low voltage class CPUs require on-site validation to be performed by Customer prior to use