ATHENA
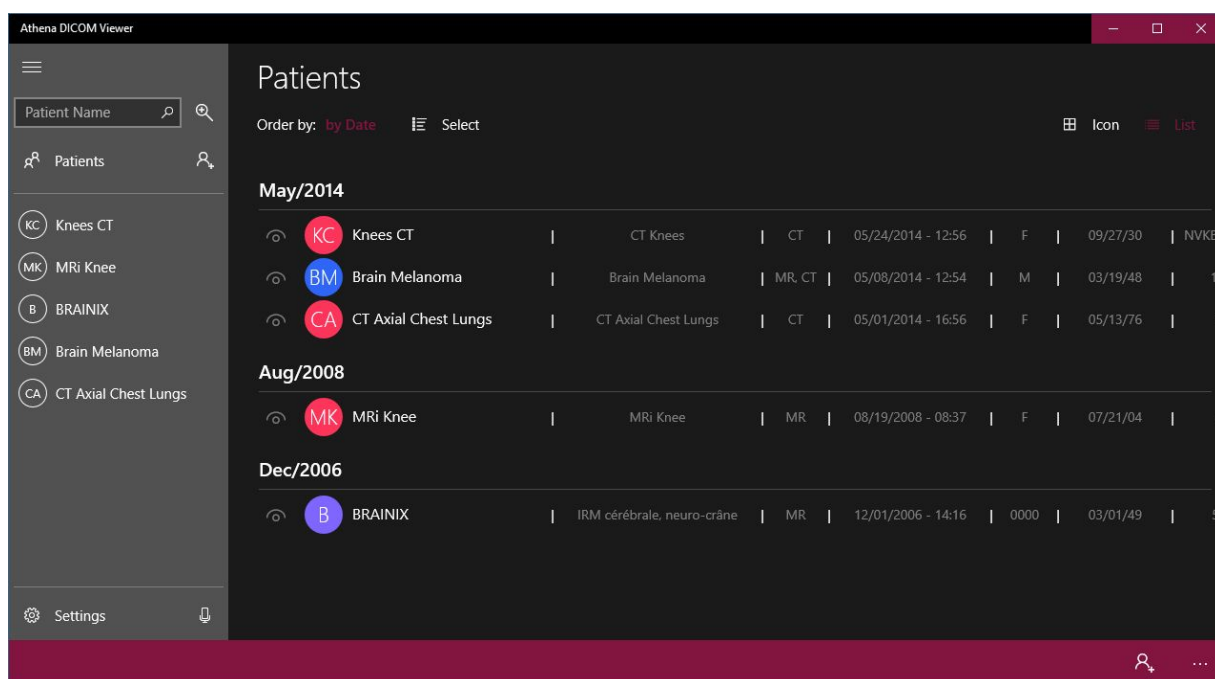DICOM VIEWER

Athena Quick Guide

1.   Importing Patient

You can **import local** DICOM images by clicking on the "**Add Patient**" button in the sidebar menu.

Just select a root folder and Athena will **automatically import all DICOM files inside**.
Supports **CD, DVD, USB drive, HDD/SSD and Cloud drives** (if available locally).
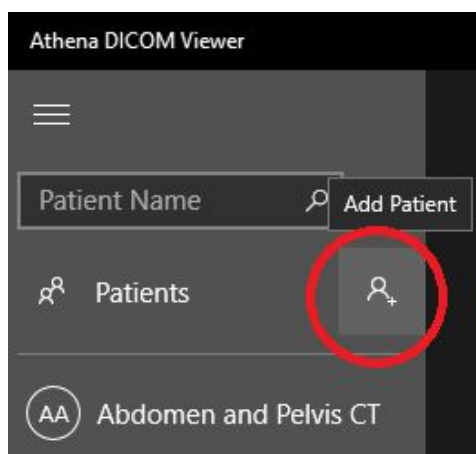
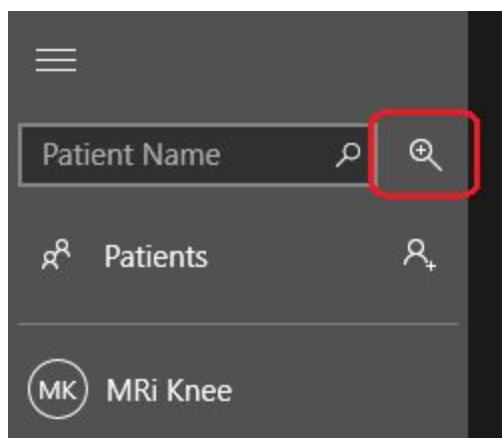Your patients will be shown at **Patients** screen:

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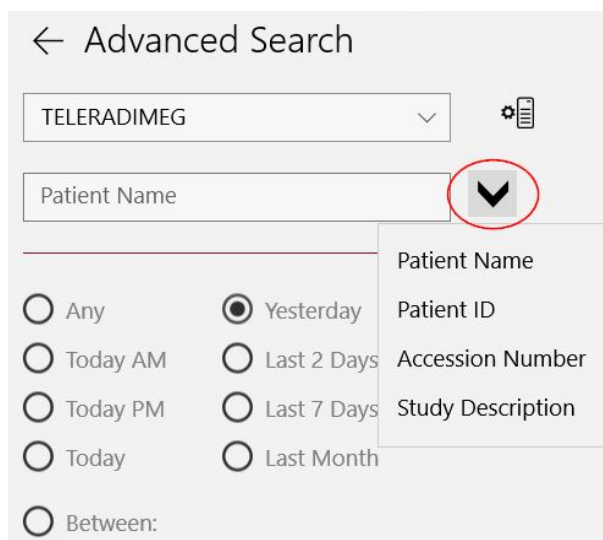
2. Importing Patient from PACS

To import some patient from PACS you first have to search for it using the "**Advanced Search**", that enables you to search with a combinations of many parameters like **patient name, date, id, access number, study, modalities**.
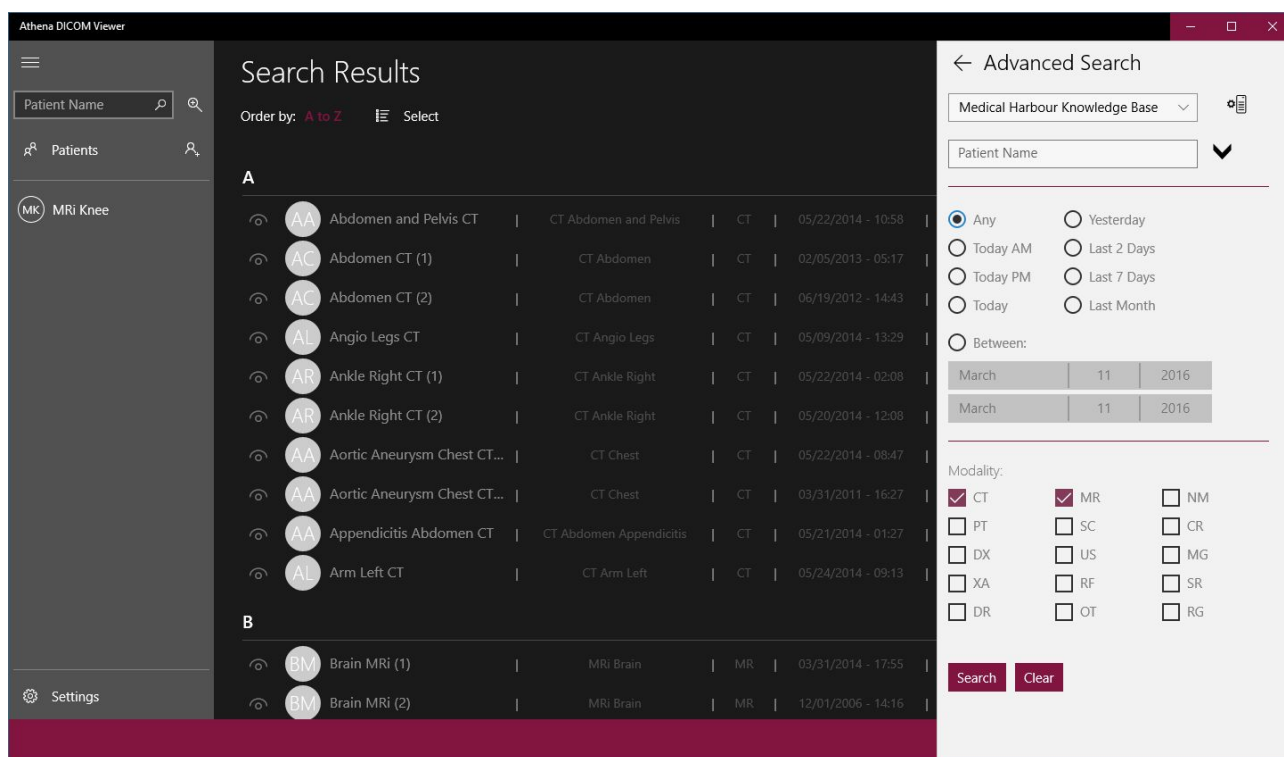
Athena provides some shortcuts of most used dates as **AM, PM, Today, Yesterday, Last 2 Days, Last 7 Days and Last Month** in order to search quickly.

To **Access it** just click on the icon of "**Magnifying glass**":

You must **select the desired PACS** from the combobox and the desired parameters of search:

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After the search is complete you just need to **click over the patient** in order to download it, it will **download the last study exam** of select patient:

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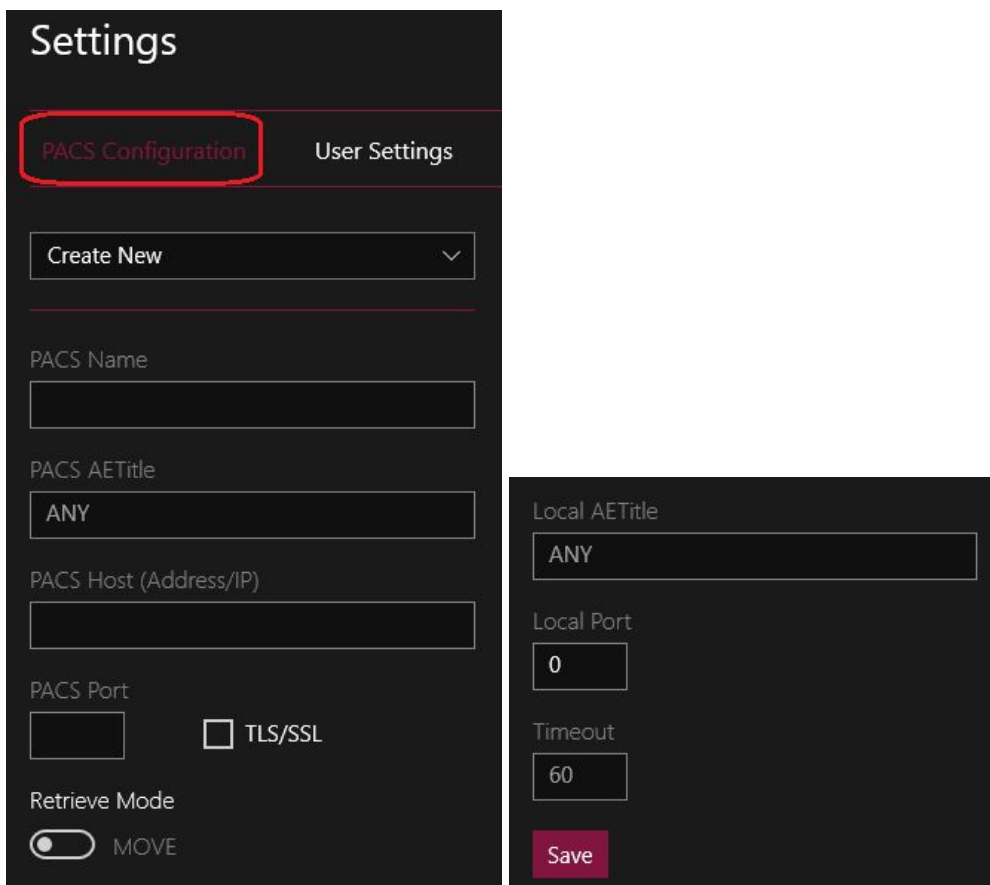
3. Configuring PACS

Athena supports Multiple PACS servers configurations. They can be added, edited and removed through the "**PACS Configuration**" item at the "**Settings**" screen.

To add a PACS, select "**Create New**" at the combobox and input the PACS settings.
Athena supports **C-MOVE, WADO and TLS/SSL** encryption.

After PACS configuration creation, you will be able to **search and import** exams from this PACS using the "**Advanced Search**".

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4. Opening Exams

4.1. Original Mode

It can be easily accessed with a **Click** or a **Tap** using touch **over the Series**.
You can access it too using the context-menu shown with a **right-button** over the Series and selecting "**Original**".

If you want to open all Series from a selected patient, you can also click on the "**Select all**" button at the **bottom-right** of the screen when there is none opened.

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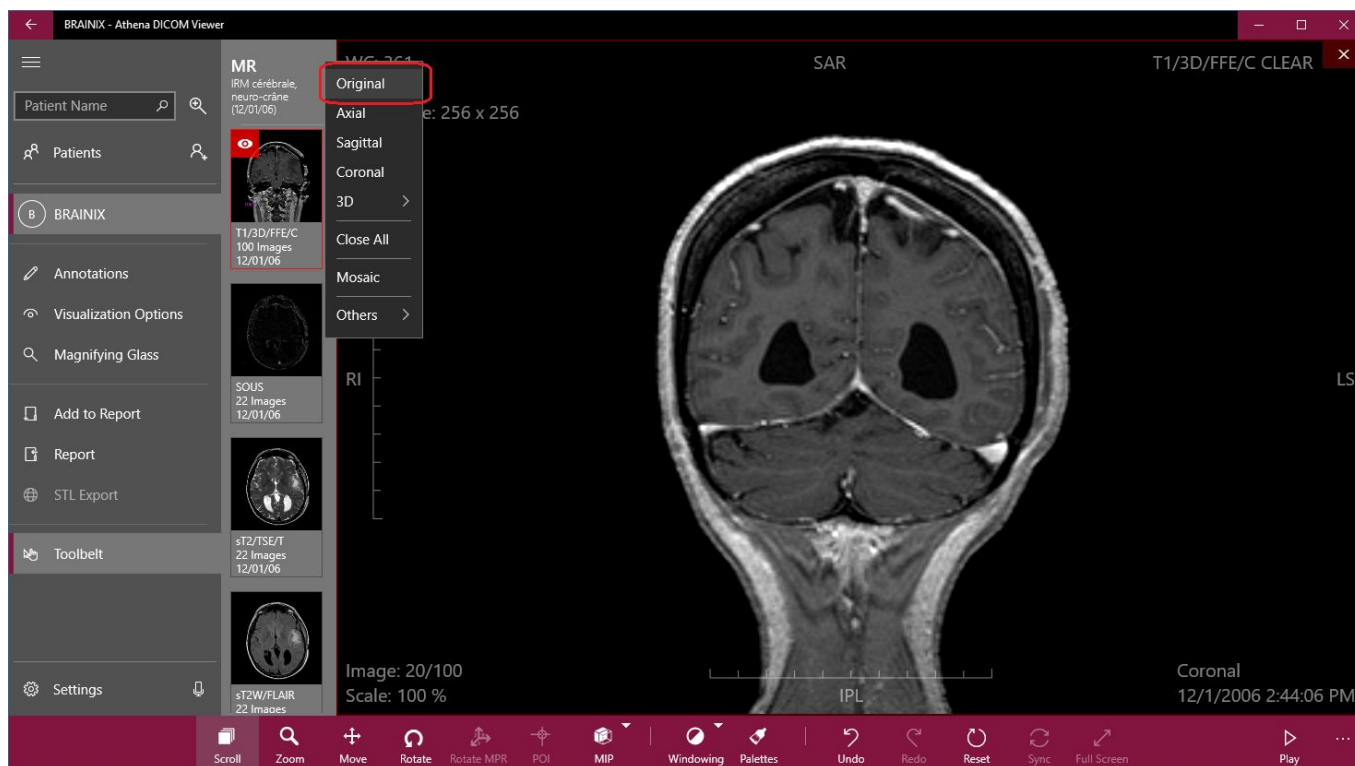
4.2. MPR Mode

You can view Axial, Sagittal, Coronal or custom non-orthogonal angles.
To access it, just **Click** with the **right button** on the Series and select the desired mode:
Axial, Sagittal or Coronal.

If you want to **Open all MPR** views **automatically**, press **CTRL + Click** over the Series.

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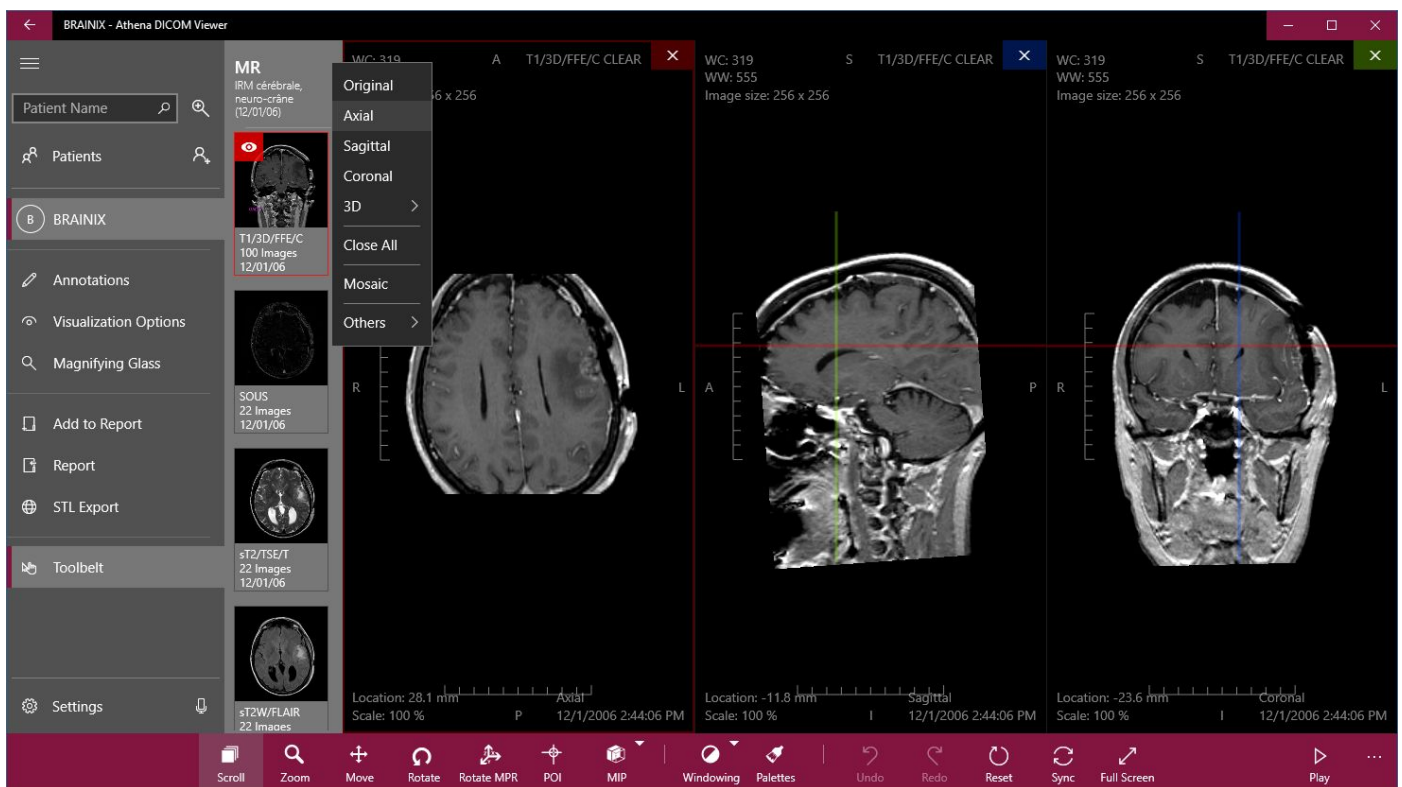
4.3.   3D Mode

Athena can reconstruct some Series in 3D and display the 3D reconstruction in 4 modes. To access it, just **click** with **right button** over the Series, select "**3D**" and choose the desired 3D mode: **Volume (default), MIP (Maximum intensity Projection), X-Ray and Isosurfaces**.

If you press **Alt + Click** over the Series it will open "**Volume**" mode automatically.

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4.4.   Mosaic Mode

Mosaic mode allows you to have a visualization of **multiple slices** of a selected Series in a custom layout. To select it, **click** with the **right-button** on the Series and select "**Mosaic**".

Just choose the desired image slices and the matrix you want to view at screen (rows x columns). You can select each image you want by checking the boxes or typing the range or index of the images.

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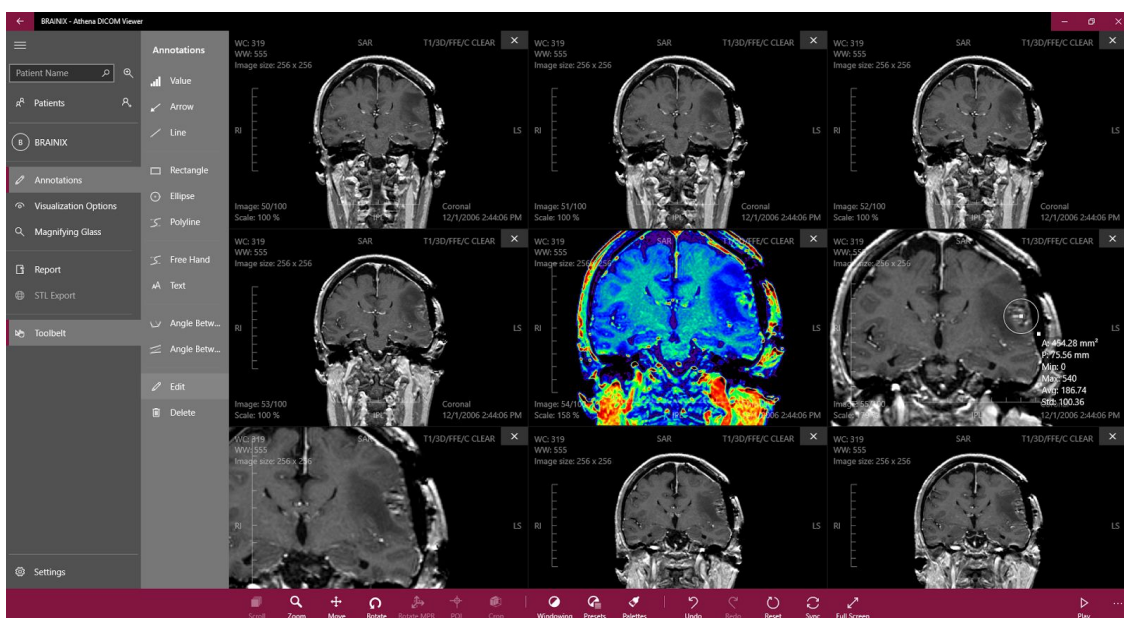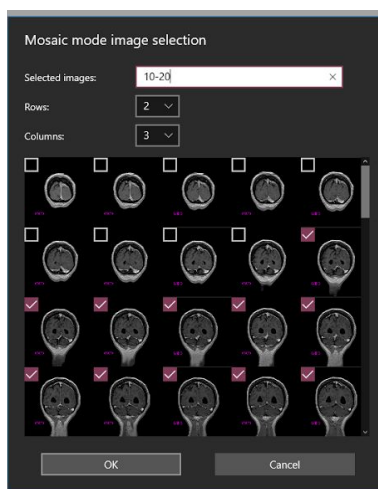
5. Viewer Tools

5.1. Basic Tools

Basic tools includes **scroll, zoom, move, rotate and windowing** and can be accessed through the bottom bar at the viewer. You can use the left, middle or right buttons of the mouse to apply scroll (or selected tool), windowing and zoom respectively, always in a simple and useful manner.

5.2. Advanced Tools

5.2.1. Sync

Sync is a feature to apply zoom, scroll, move, rotate, windowing and palettes to all open views. It can be very useful if you want to replicate the procedure to all views. It can be easily activated or deactivated selecting "**Sync**" or using the shortcut "**S**".

5.2.2. POI (Point of Interest)

POI offers synchronization between views. It is a quick tool to reach an area or point. It automatically syncs the other views to your selected POI and with a few clicks you will have all views sync to your POI.
In order to use it, you must have more than one view open (Original or MPR), select "**POI**" and **click and drag** to reach some point.

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5.2.3. Crop (3D Crop)

During 3D manipulation (Volume, MIP, XRay, Isosurface) you may want to see inside the volume. To do so, you must use the Crop tool. This tool allows you to cut from top, bottom, left or right of any 3D view, so that you can analyze in 3D from outside and inside at same time.

To use it, just select the "**Crop**" button and **click and drag** the control handles in the desired direction.

5.2.4. Rotate MPR (Non-Orthogonal MPR)

Non-orthogonal MPR is a tool that enables you to navigate in 2D over 3D, so that you can change a Series angulation to any arbitrary angle or position. To use it, just select the "**Rotate MPR**" button and **click and drag** on the view you which to change in the direction you wish to rotate.

You can use the reference lines to locate yourself.

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5.2.5.   MIP (Maximum Intensity Projection)

With MIP, is possible to find all the hyperdense structures in a volume, from a range of your choice. This method tends to display bone and contrast material–filled structures preferentially and hides lower-attenuation structures. The primary clinical application of MIP is to improve the detection of pulmonary nodules and assess their profusion. MIP also helps characterize the distribution of small nodules. In addition, MIP is excellent for assessing the size and location of vessels, including the pulmonary arteries and veins.

In order to use MIP you just need to select "**MIP**" and **click and drag** to select the desired range that you can **check at MIP Thickness** value and using the **reference lines**.
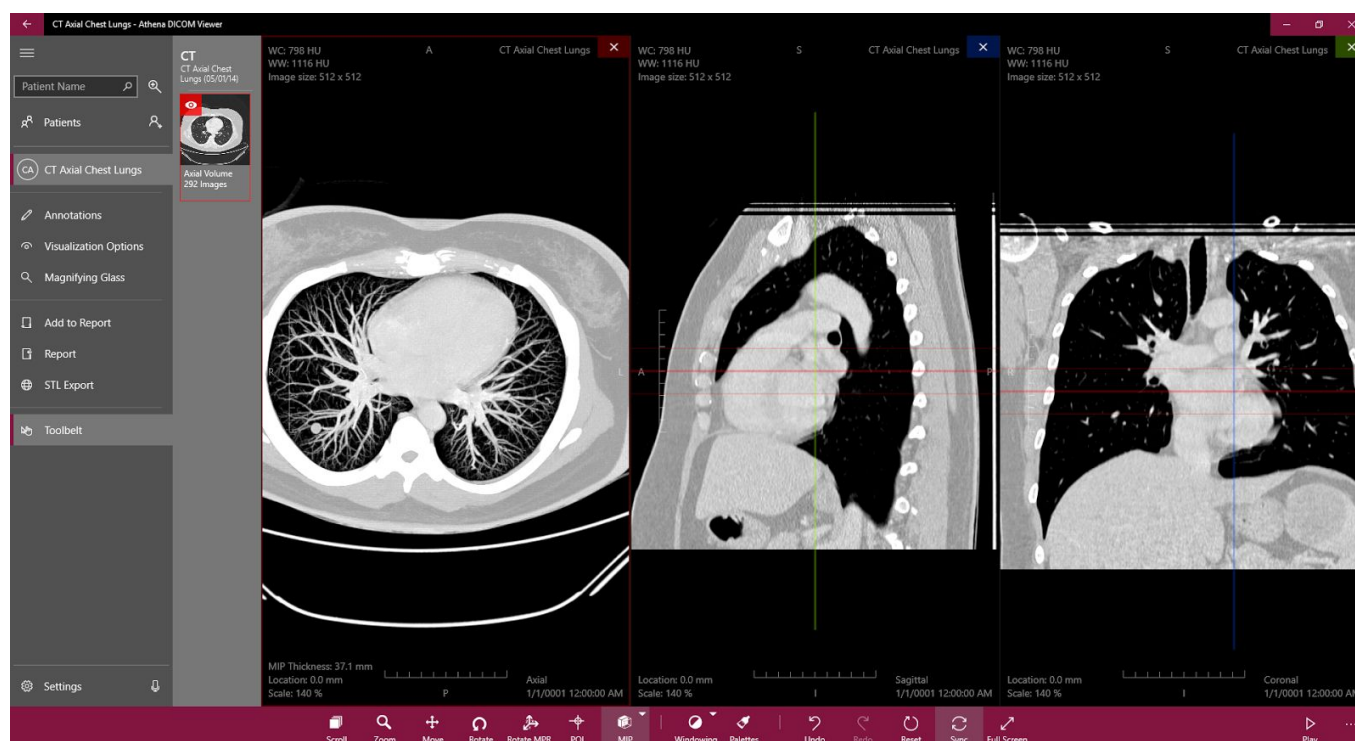
5.2.6.   MinIP (Minimum Intensity Projection)

MinIP is very similar do MIP but instead of showing voxels with the highest attenuation, it shows the ones of the lowest attenuation. With MinIP only the most hypodense structures of the volume are represented, so, it is the optimal tool for

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the detection, localization, and quantification of ground-glass and linear attenuation patterns on chest scans.

The MinIP is particularly useful for analyzing the bile tree and pancreatic duct, which are hypodense compared to surrounding tissue, especially in the pancreatic and portal phase of contrast agent administration.

5.2.7. Magnifying Glass

To increase diagnostic quality, you can use the magnifying glass to view a region with more detail. This specific magnifying glass is better because you don't have to enable it in each view. You can drag from all views without locking in each view. You can also customize many aspects of this tool, such as size, shape and zoom. In order to activate the magnifying glass, just select the "**Enabled**" **button**, to change the Zoom of the magnifying glass, you can click on the "**Zoom**" button and choose between "100%", "200%", "400%" or "800%". You can also change the **zoom with the mouse wheel**.

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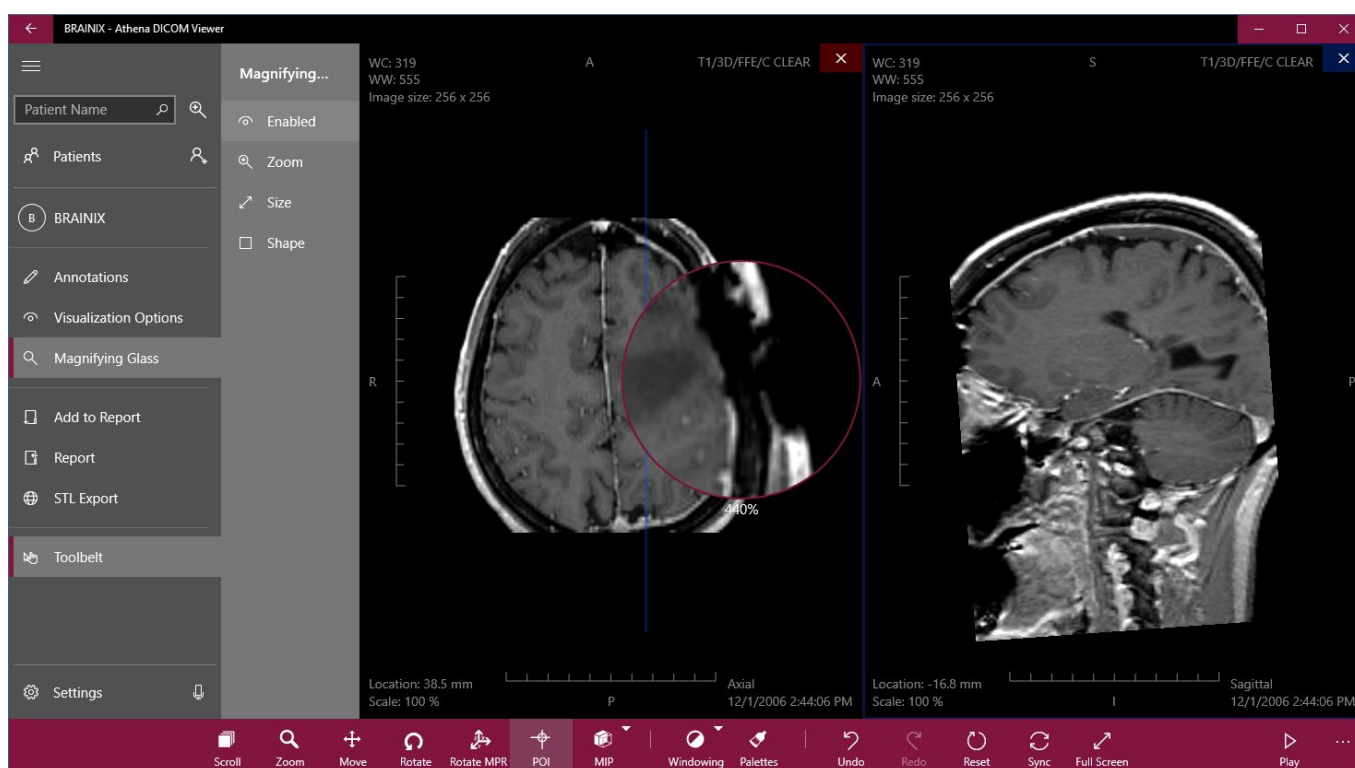
5.3. Annotations

Athena has a set of very useful Annotations, some of which contains measurements in millimeters, Hounsfield value, area, perimeter, min, max, average, standard deviation and even angles between consecutive or separated lines. You can add, edit, remove any annotation even in 3D mode.

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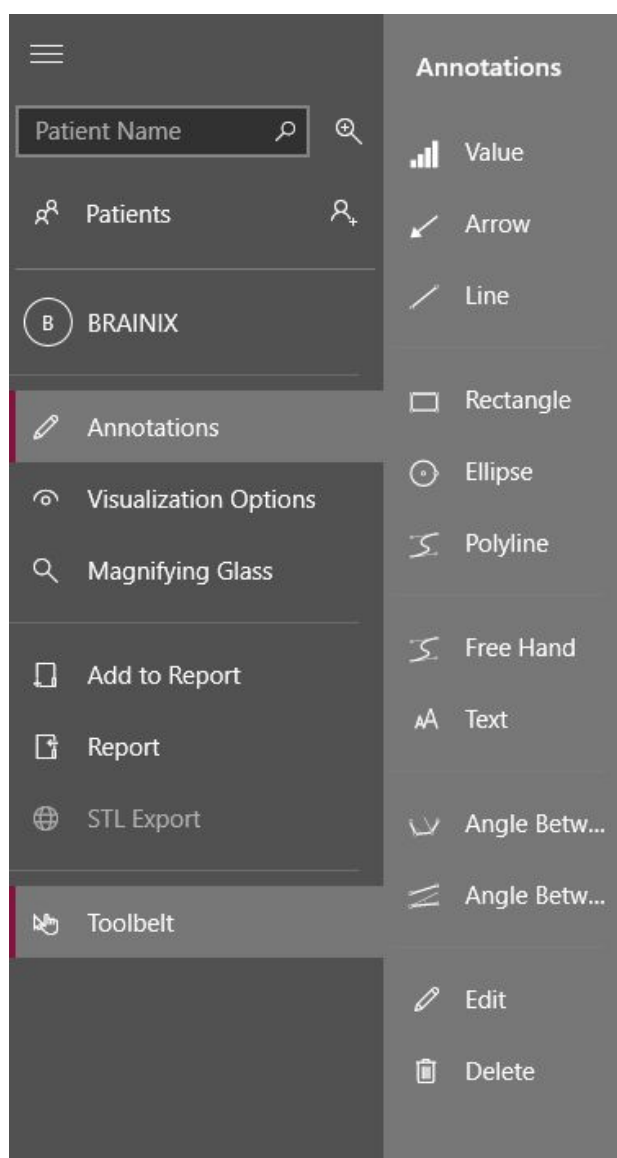
5.4. Shortcuts

To increase productivity, Athena provides you with a list of key shortcuts to quickly access the most used tools:

Up/Right: **Scroll Up**
Down/Left: **Scroll Down**
Key 1:   **Select Scroll**
Key 2:   **Select Zoom**
Key 3:   **Select Move**
Key 4:   **Select Windowing**
Key S: **Sync**
CTRL + Z: **Undo**
CTRL + Y: **Redo**

CTRL + Tab: Next View
Backspace/Esc: Exit

Add (+):   **Add to Report**
CTRL + R: **Report**

Key V: Select Annotation Value
Key A: **Select Annotation Arrow**
Key L: **Select Annotation Line**
Key R: **Select Annotation Rectangle**
Key E: **Select Annotation Ellipse**
Key P: Select Annotation Path
Key F: Select Annotation Consecutive
Key G: Select Annotation Angle Separate
Key T: Select Annotation Text
Key D: Delete Annotation
Key H: Hide Annotations

F2 to F12:   **Color Palettes**

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6. Report

During an evaluation, you can add many annotations, use the magnifying glass at any point, zoom, scroll images and you may wish to record some key images and some annotations. Athena allows you to add to a Report everything you do at the screen, so that you can add some key images, a view with annotations, multiples views, 3D, views using magnifying glass, and so on. Athena is flexible to add anything you want to a Report. The report has 2 main modes: Full Report and Only Images. Full report is composed of an editable header, all added images and two editable fields for general observations and a conclusion.

To **add images** to report you simply need to click on the "**Add to Report**" button at left panel. You can add as many images as you want to your report.
To **open report**, just click at "**Report**" button.

Image 01: 1 views (O) - T1/3D/FFE/C with color palette: Default

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