

# AIM on ClearCanvas Workstation 4.5 User's Guide



## You can print and export wiki pages

You can send this page to a printer or convert it to a PDF, HTML, or Word document. Refer to [Printing and Exporting Wiki Pages](#).

This guide explains how to use Annotation and Image Markup (AIM) on ClearCanvas Workstation. [ClearCanvas](#) is an open-source imaging platform. This guide explains key procedures for creating and working with AIM annotation objects. The intended audience for this guide is a biomedical researcher familiar with the AIM information model.

## Contents of this Page

- [Workflow Overview](#)
- [Logging in to AIM on ClearCanvas Workstation](#)
- [Configuring the AIM Data Service 2.0 Plugin](#)
- [Using the AIM Data Service 2.0 Plugin](#)
- [Creating DICOM Segmentations \(new in 4.5\)](#)
- [Downloading Images from XNAT](#)
- [Specifying Preferences](#)
  - [Specifying AIM Preferences](#)
  - [Specifying Toolbar Preferences](#)
- [Using the AIM Toolbar](#)
  - [AIM Template Tool](#)
  - [AIM Object Locator Tool](#)
  - [AIM Annotation Details Tool](#)
- [Importing AIM Templates](#)
  - [Locating Missing Answer Choices](#)
  - [Enforcing Markup Requirements](#)
- [User Information](#)
- [Detailed Description of a Question](#)
- [Displaying Markups from Different Users](#)
- [Viewing AIM Data for Each Image Series](#)
- [Using the National Biomedical Imaging Archive \(NBIA\) Data Service](#)

## Workflow Overview

AIM on ClearCanvas Workstation allows you to work with AIM templates that you created in [AIM Template Builder](#). A typical workflow from template design to application use follows.

1. Design what information is needed to be collected from an imaging study or clinical trial.
2. Create a set of questions and possible answer choices to each question. You can design the questions so that the respondent skips a set of consecutive questions.
3. Use AIM Template Builder (ATB) to [create template\(s\)](#).
4. [Export the template or template group](#) from ATB.
5. [Import the template file](#) to AIM on ClearCanvas Workstation.
  - a. [Specify where to store AIM template XML documents](#).
  - b. Use the data you collect.

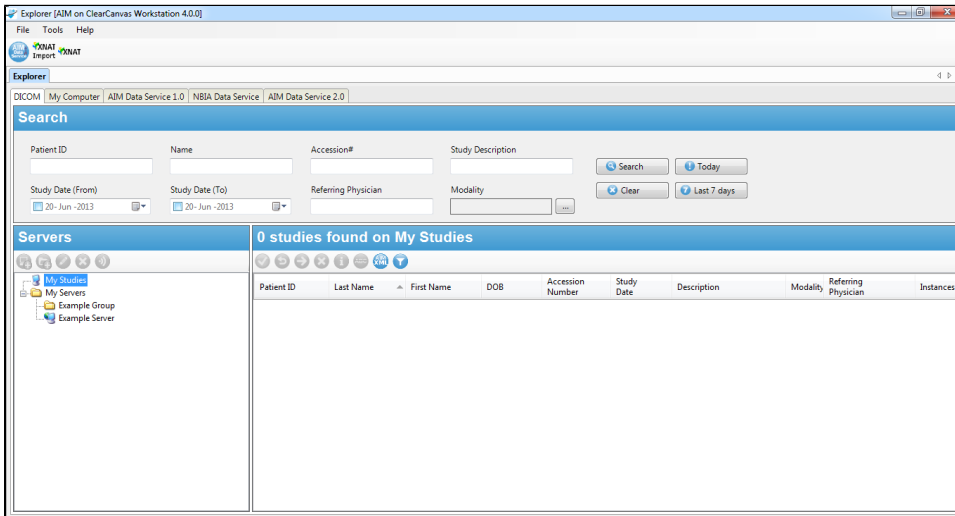
## Logging in to AIM on ClearCanvas Workstation

1. Double-click the AIM on ClearCanvas Workstation icon.  
The Login dialog box appears.

The screenshot shows a login dialog box with a light blue background. It contains four input fields: 'Name:' with the text 'Test User', 'Login Name:' with the text 'Tuser', 'Role In Trial:' with a dropdown menu showing '<Select Role>', and 'Number Within Role of Clinical Trial:' with a spinner box showing '1'. At the bottom right, there are two buttons: 'Login' and 'Cancel'.

2. Your administrator should already have created a login name for you. Enter your full name followed by that login name.

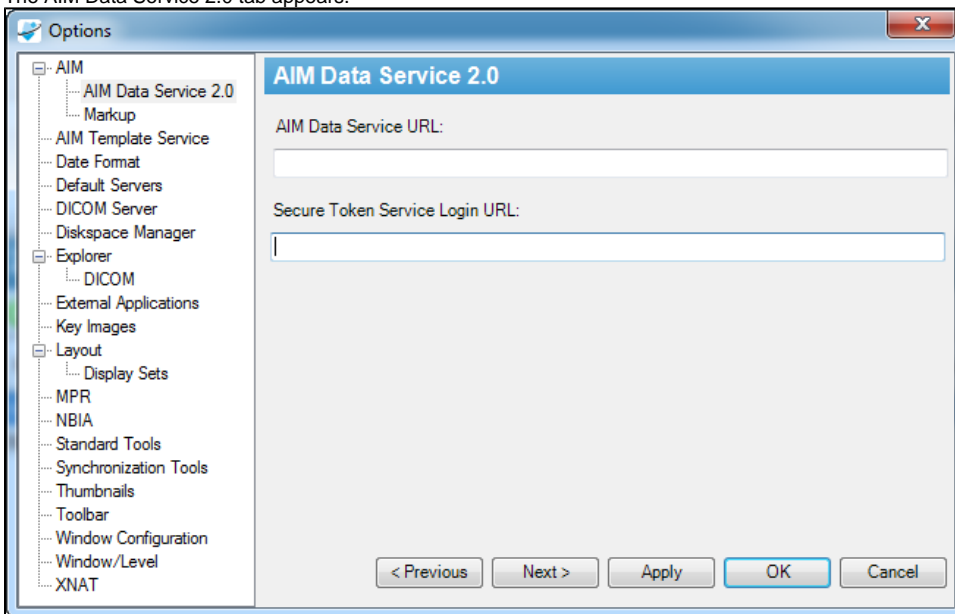
3. Select the role you are playing in the clinical trial. Options are *Performing*, *Referring*, *Requesting*, *Recording*, *Verifying*, *Assisting*, *Circulating*, and *Standby*.
  4. Select your number within your role in the clinical trial.
  5. Click **Login**.
- The Explorer window appears, showing the DICOM tab.



## Configuring the AIM Data Service 2.0 Plugin

You can configure AIM on ClearCanvas Workstation to connect to the AIM Data Service. The AIM Data Service is any set of data services that can accommodate the AIM data model. There is no public AIM Data Service but you can download it from <http://imaging.cci.emory.edu/wiki/pages/viewpage.action?pageId=1572968> and then install and maintain it yourself.

1. Select **Tools > Preferences > AIM > AIM Data Service 2.0**.  
The AIM Data Service 2.0 tab appears.

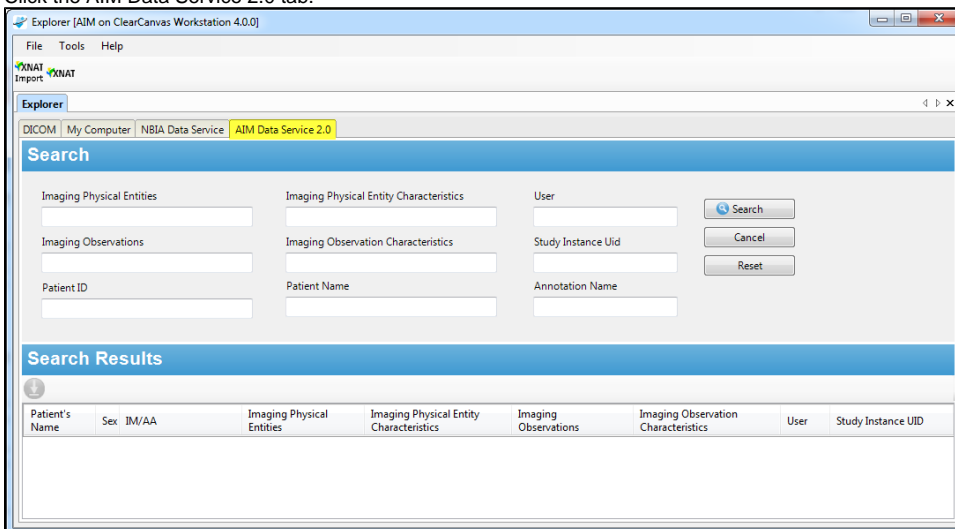


2. Enter the URL of an active AIM Data Service. If you do not enter a URL, AIM on ClearCanvas Workstation will not send any AIM XML documents to the AIM Data Service 2.0, and will store those documents locally.
3. Enter the Secure Token Service Login URL.
4. Click **OK**.

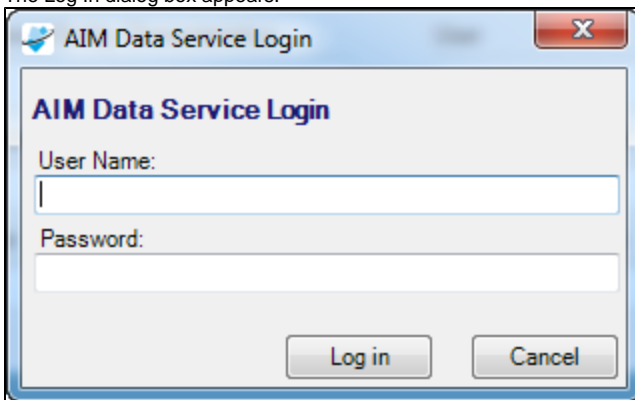
## Using the AIM Data Service 2.0 Plugin

1. Click the Explorer tab.

2. Click the AIM Data Service 2.0 tab.



3. Enter search criteria in the search fields to narrow your search, or leave them blank to retrieve a list of all annotations.
4. Click **Search**.  
The Log In dialog box appears.

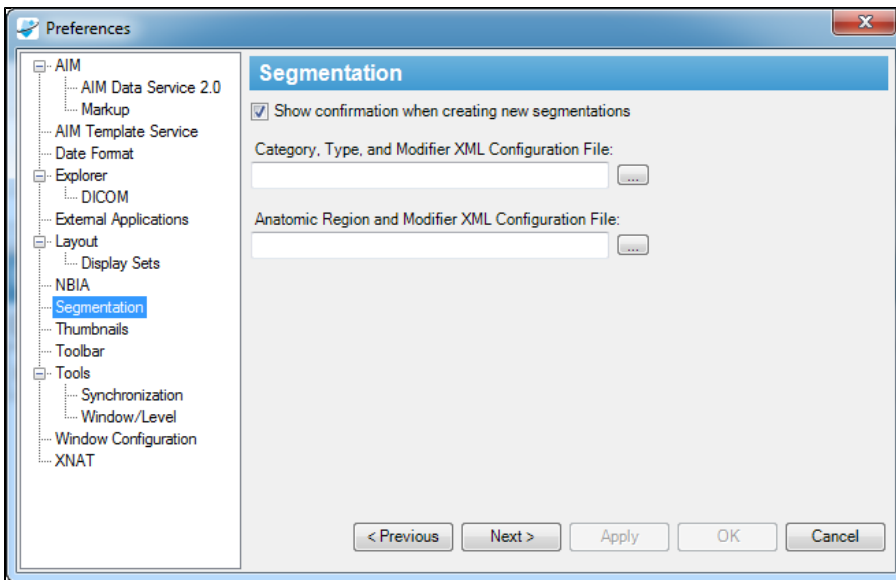


5. Enter your user name and password for the AIM Data Service.
6. Click **Log in**. The search results appear in the results pane at the bottom of the tab.
7. Select an annotation from the list of results.
8. To download and import the annotation into the workstation, do one of the following:
  - Click the **Retrieve Selected Annotation** button, or
  - Right-click a selected annotation and select **Retrieve Selected Annotation** from the context menu.

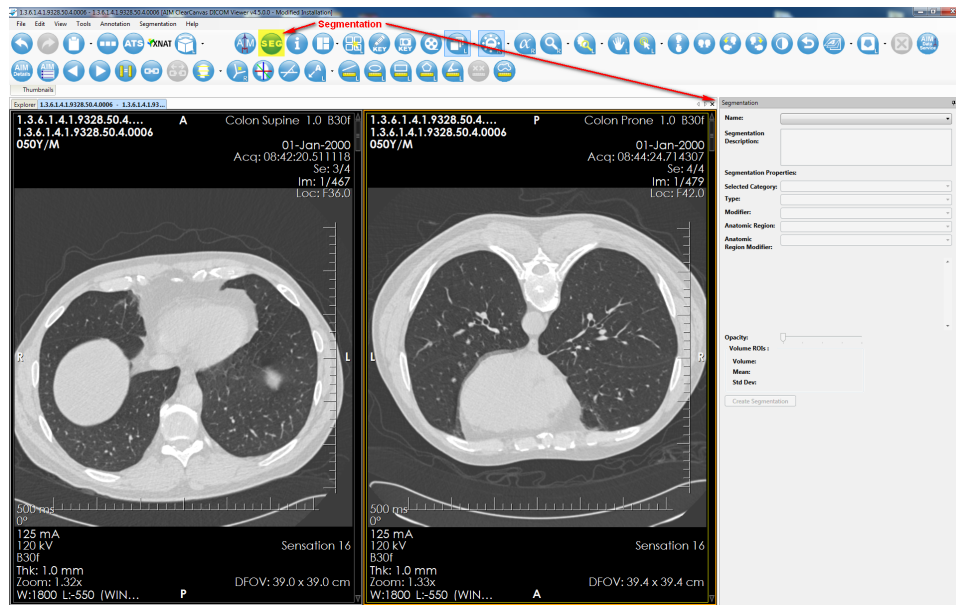
## Creating DICOM Segmentations (new in 4.5)

Two files, `AnatomicRegionAndModifier.xml` and `SegmentationCategoryTypeModifier.xml` are used to describe DICOM segmentations that you can create based on the DICOM standard. You may choose to create and import your own descriptions for anatomic regions and segmentation categories. In this case, you must follow XML schemas designed for an anatomic region (<https://cbiit-download.nci.nih.gov/aim/releases/Segmentation/AnatomicRegionAndModifier.xsd>) and the segmentation category (<https://cbiit-download.nci.nih.gov/aim/releases/Segmentation/SegmentationCategoryTypeModifier.xsd>).

1. Select **Tools > Preferences > Segmentation**.  
The Segmentation tab appears.



The DICOM segmentation tool also appears in the toolbar:



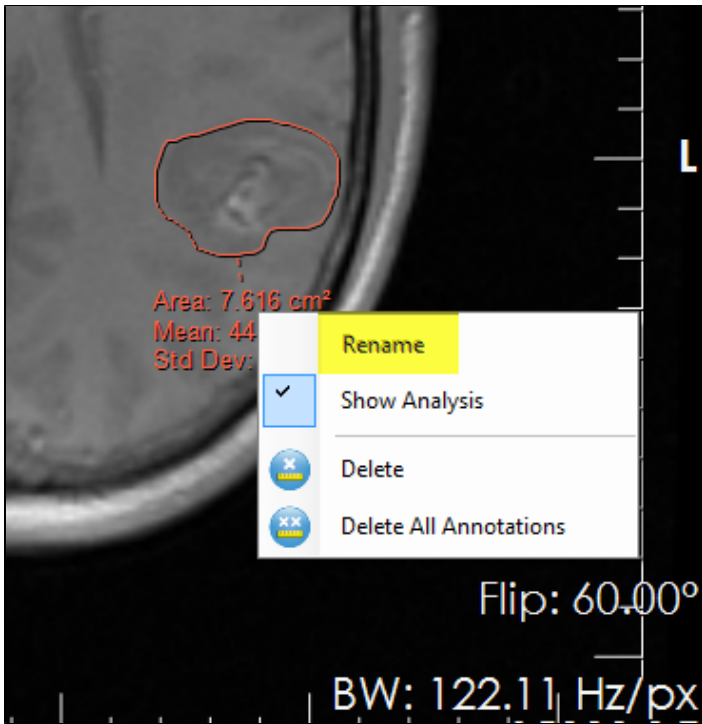
2. Use the freehand tool to manually draw a segmentation object:

When you create a DICOM segmentation object, you draw many drawings on multiple images of the same thing. Assign the same name to each drawing to create a DICOM segmentation volume.



When you create a segmentation on an image, the information about the image and frame number appears in the image list. This information describes a set of images that form a DICOM segmentation volume.

Image: 6	Frame: 1
Image: 7	Frame: 1
Image: 8	Frame: 1
Image: 9	Frame: 1



3. Select values in the Segmentation Properties section.

The screenshot shows a 'Segmentation' dialog box with a blue title bar. It contains a 'Name' dropdown set to 'T1\*', a 'Segmentation Description' text area, and a yellow-highlighted 'Segmentation Properties' section. This section includes dropdowns for 'Selected Category' (Tissue), 'Type' (Tissue), 'Anatomic Region' (Brain), and 'Anatomic Region Modifier'. Below these are fields for 'Image' (6, 7, 8, 9) and 'Frame' (all 1). At the bottom, there is an 'Opacity' slider, a 'Volume ROIs' section with 'Volume', 'Mean', and 'Std Dev' fields, and a yellow 'Create Segmentation' button.

4. Click **Create Segmentation**.
5. When prompted, confirm that you want to create a DICOM segmentation. Note that once you create a segmentation, you cannot modify or delete it.

The screenshot shows a confirmation dialog box titled 'AIM ClearCanvas DICOM Viewer - Confirm Segmentation Creation'. It contains the text: 'Do you wish to convert the selected ROIs to segmentation images? This action cannot be undone.' At the bottom, there are 'Yes' and 'No' buttons.

You can, however, adjust the opacity level using the opacity slider bar.

The screenshot shows a close-up of the 'Opacity' slider bar. It has a horizontal track with a slider handle in the middle. Below the slider, the text 'Volume ROIs' is partially visible.

6. When you create more than one DICOM segmentation, each DICOM segmentation with the same name is grouped together. A name is automatically added to the Name box. You must provide values in the Segmentation Properties section for each DICOM segmentation before you can create a DICOM segmentation.


AIM on ClearCanvas Workstation automatically displays DICOM segmentations on images in studies with DICOM segmentation objects.

## Downloading Images from XNAT

You can connect directly to the XNAT database from AIM on ClearCanvas Workstation and find imaging studies to download, then import those studies and work with them.

### Automatic import

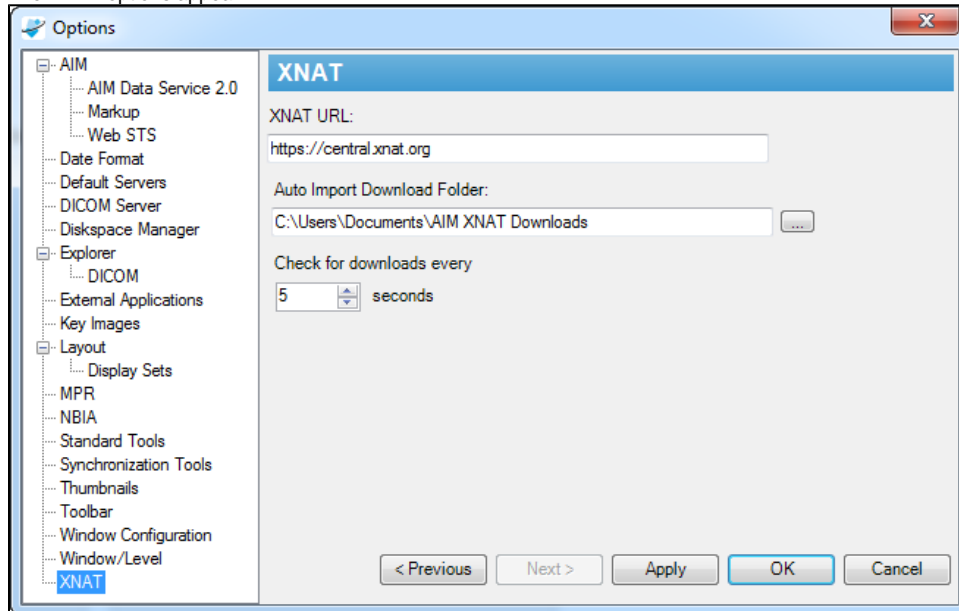
AIM on ClearCanvas workstation checks for imaging data you have downloaded in XNAT Central at the interval you select in the XNAT options

and automatically imports it into the workstation. You can also manually check for downloads by clicking  at any time.


For more information about using XNAT, consult the [XNAT technical documentation](#).

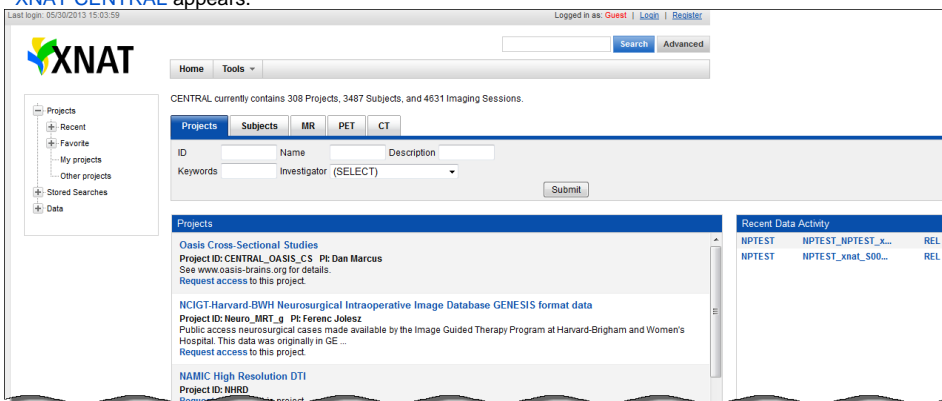
1. In AIM on ClearCanvas Workstation, specify the folder where you want to place images you download.
  - a. Select **Tools > Preferences > Tools**.
  - b. Click **XNAT**.

The XNAT options appear.



- c. In the Auto Import Download Folder box, enter the path where you want to store downloaded images. **Make a note of this folder path for later, when you will specify this same folder path within XNAT.**
  - d. Click **OK**.

2. In the AIM on ClearCanvas toolbar, click  **XNAT CENTRAL** appears.



3. Register for XNAT Central, if needed, and then log in using your XNAT Central name and password.

4. Click a project name where the images are that you want to download.  
The study's details and subject summary appears. Since you have logged in, you can see the Actions menu options.

The screenshot shows the XNAT web interface. On the left is a sidebar with a 'Projects' tree containing 'Recent', 'Favorite', 'My projects', 'Other projects', 'Stored Searches', and 'Data'. The main content area has a 'Details' tab selected, showing the following information:

- ID:** 507821892
- Description:** This data set consists of spoiled gradient-recalled echo magnetic resonance imaging data from five healthy volunteers (four males and one female) scanned twice at four sites having 1.5T systems from different vendors (Siemens, GE, Marconi Medical Systems). Some subjects were also scanned a single time at another site. One subject was only scanned twice at three sites (subject 73213384) and once at another site. For each subject, four Fast Low-Angle Shot (FLASH) scans with flip angles of 3, 5, 20, and 30 degrees were obtained in a single scan session, from which tissue proton density and T1 maps can be derived. These data were acquired to investigate various metrics of within-site and across-site reproducibility. This study was sponsored by the Brain Morphometry testbed (MBIRN) of the Biomedical Informatics Research Network (BIRN). The images have been de-identified so that no facial features can be reconstructed from these data.
- PI:** Heiser, Karl
- Investigators:** Wallace, Stuart

Below the details is a 'Subjects' section with a 'SELECT' dropdown and a table of subjects:

Subject	M/F	Hand	YOB	MR Sessions
<a href="#">507821892</a>	M	R	1964	9
<a href="#">507821892</a>	M	R	1968	9
<a href="#">73213384</a>	M	R	1964	7
<a href="#">73213384</a>	F	R	1959	8
<a href="#">507821892</a>	M	R	1968	9

On the right, an 'Actions' menu is visible with options: 'Add to Favorites', 'Download XML', and 'Download Images'.

5. Decide if you want to download a single experiment's images or all of the study's images. Downloading a single experiment's images generally takes less storage space and time than downloading all of a study's images.
  6. Download the images.
    - a. To download a single experiment's images, do the following.
      - i. Click a subject's link.
- The experiments appear.

The screenshot shows the XNAT web interface for 'PROJECT: mBIRN Calibration' with subject ID '507821892'. The 'Subject Details' tab is selected, showing the following information:

- Accession #**: CENTRAL\_S00026
- Date Added**: 2009-04-22 12:19:45.0 (DICOM)
- Birth year**: 1964
- Gender**: Male
- Handedness**: Right
- Education**: 21
- Group**: HNV

On the right, an 'Actions' menu is visible with options: 'View XML', 'Add Experiment', 'Download XML', and 'Email'.

Below the details is an 'Experiments' section with a table of experiments:

Date	Experiment	Project	Label
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00001</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00002</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00003</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00004</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00005</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00006</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00007</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00008</a>
2009-01-01	<a href="#">MR Session</a>	mBIRN Calibration	<a href="#">507821892_00009</a>



- ii. Click an experiment's link.  
The scans appear.

PROJECT: [mBIRN Calibration](#) > SUBJECT: [99657608\\_UCI](#)

**MR Session: 99657608\_UCI**

Details	Projects	Actions
<b>Accession #</b> CENTRAL_E00065 <b>Date Added</b> 05/01/2009 14:55:02 (DICOM) <b>Date:</b> 01/01/2009 <b>Time:</b> 00:00:00 <b>Operator:</b> anon <b>Scanner:</b> Eclipse1.5 Marconi Medical Systems, Inc. Eclipse 1.5T	<b>Subject:</b> <a href="#">99657608</a> <b>Gender:</b> Male <b>Handedness:</b> Right <b>Age:</b> 40.00	<b>View</b> ▶ <b>Upload</b> ▶ <b>Download</b> ▶ <b>Email</b> <b>Manage Files</b>

**Notes:**

**Scans**

Scan	Type	Series Desc	Usability	Files	Note
<input checked="" type="checkbox"/> 5	flash30	anon	usable	<a href="#">Show Counts</a>	
<input checked="" type="checkbox"/> 6	flash5	anon	usable	<a href="#">Show Counts</a>	
<input checked="" type="checkbox"/> 7	flash20	anon	usable	<a href="#">Show Counts</a>	
<input checked="" type="checkbox"/> 8	flash3	anon	usable	<a href="#">Show Counts</a>	
<a href="#">Total Counts</a>					

[History](#)

- iii. Select **Download > Download Images**.

https://central.xnat.org/ - CENTRAL - Windows Internet Explorer

**Session: 99657608\_UCI**

Download Type:

☒ Select All

**SCANS**

☒ ☒ 5 (flash30)

☒ ☒ 6 (flash5)

☒ ☒ 7 (flash20)

☒ ☒ 8 (flash3)

**RECONSTRUCTIONS**

**ASSESSMENTS**


**ADDITIONAL RESOURCES**

**MISC FILES**

powered by

100%

- iv. Select the download file type and which scans you want to download. The more scans you select, the longer the download will take and the more time it will take to download them.
- v. Click **Download**.
- b. To download all of a study's images, do the following.



- Projects
  - Recent
  - Favourite
  - My projects
  - Other projects
- Stored Searches
- Data

[PROJECT: Calib](#)

### Imaging Data Download

1 Confirm Sessions for download

☒ Toggle All (42)

- ☒ 50782592\_BWH MR
- ☒ 50782592\_DUKE MR
- ☒ 50782592\_DUKE2 MR
- ☒ 50782592\_MGH MR
- ☒ 50782592\_MGH2 MR
- ☒ 50782592\_UCI MR
- ☒ 50782592\_UCI2 MR
- ☒ 50782592\_UCSD MR
- ☒ 50782592\_UCSD2 MR
- ☒ 58259524\_BWH MR
- ☒ 58259524\_DUKE MR
- ☒ 58259524\_DUKE2 MR
- ☒ 58259524\_MGH MR
- ☒ 58259524\_MGH2 MR
- ☒ 58259524\_UCI MR
- ☒ 58259524\_UCI2 MR
- ☒ 58259524\_UCSD MR
- ☒ 58259524\_UCSD2 MR
- ☒ 73213384\_DUKE MR
- ☒ 73213384\_DUKE2 MR
- ☒ 73213384\_MGH MR
- ☒ 73213384\_UCI MR
- ☒ 73213384\_UCI2 MR
- ☒ 73213384\_UCSD MR
- ☒ 73213384\_UCSD2 MR

2 Select image data to download

Scan Formats

☒ SNAPSHOTS

☒ DICOM

☒ Toggle All

Scan Types

☒ flash20 (41)

☒ flash3 (40)

☒ flash30 (42)

☒ flash5 (41)

3 Select download format

☒ Option 1: Direct download

You will be prompted to enter a local directory to copy the data to. Then, all of the requested imaging data will be directly downloaded via a java applet into that directory.

☐ Option 2: Catalog XML (.xcat)

Download an xml representation of the files. This xml can then be used by specific applications to download the data at the user's command.

☐ Include project in file paths

☐ Include subject in file paths

☒ Simplify downloaded archive structure

4 Submit Data Request

Upon page submission, the pertinent files will be reviewed and organized for download. Depending on the number of files, this may take several minutes to process.

- ## Specifying Preferences

## Specifying AIM Preferences

- 
- The screenshot shows the 'Options' dialog box with the 'AIM' category selected. The settings are as follows:
- ☐ Send New Annotations to caGrid
  - ☒ Store New Annotations Locally
    - ☒ Store in My Documents
    - ☐ Store in:
  - ☒ Require User Information
  - ☒ Require Graphic Markup in Annotation
  - ☐ Reset Template After Annotation Creation
  - ☒ Use Crosshairs Instead of Arrows for Text Callouts
- The 'Templates Folder' is set to .
- At the bottom, the navigation buttons are: '< Previous', 'Next >', 'Apply', 'OK', and 'Cancel'.

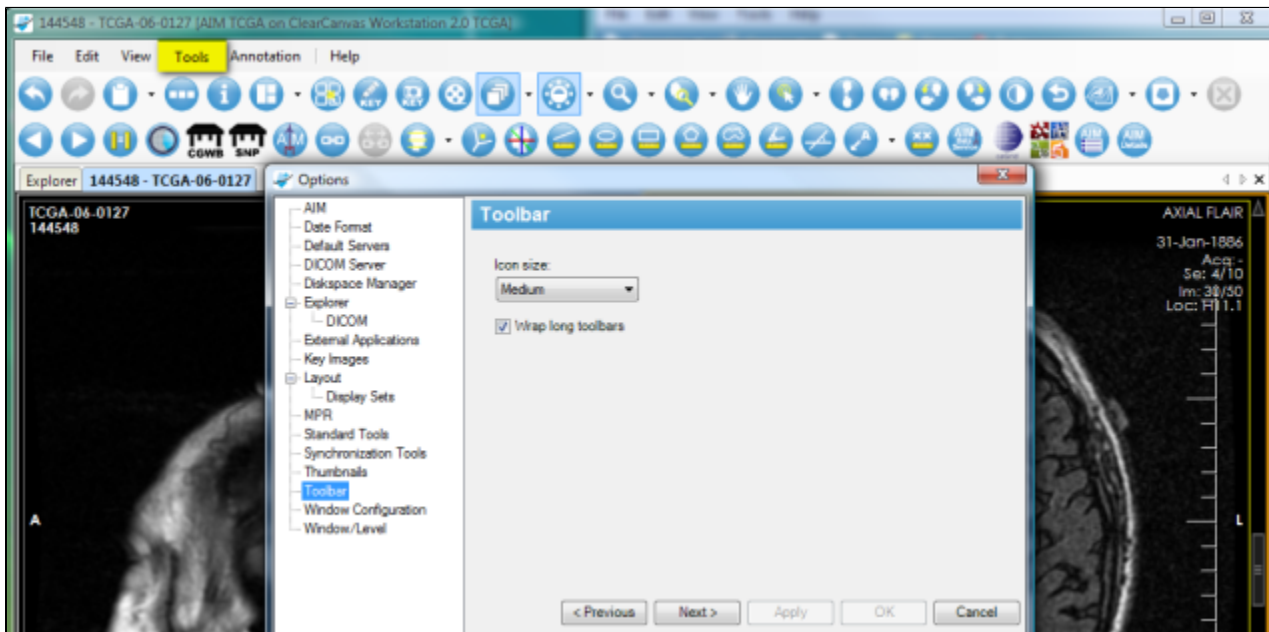
2. Specify any of the following AIM preferences.

Option	Description
Send New Annotations to caGrid	If selected, the workstation will send new annotations to the assigned caGrid location. Also see <a href="#">Specifying AIM Data Service Preferences</a> .  By default, the <b>Send New Annotations to caGrid</b> option is disabled. You must enable this option in order to have new AIM XML documents sent to the AIM Data Service. If you have neither set the AIM Data Service destination nor enabled the <b>Send New Annotations to caGrid</b> option, you cannot send your existing AIM XML documents to the AIM Data Service.
Store New Annotations Locally	If selected, the workstation will store a copy of new annotations in the AIM XML format on the local computer. A user can assign where the AIM annotation documents can be stored on the local computer.
Required User Information	If selected, user credentials need to be entered before creating an AIM annotation document.
Require Graphic Markup in Annotation	If selected, a user must create at least one graphical drawing on an image before creating an AIM annotation document.
Reset Template After Annotation Creation	
Use Crosshairs Instead of Arrows for Text Callouts	Change the image used when you create text callouts.
Templates Folder	If entered, the directory will be used to search for AIM template XML documents.

3. Click **Apply**.

## Specifying Toolbar Preferences





You can change the size of icons and choose to show all icons on one screen. To do so, select **Tools > Preferences > Toolbar**. The recommended icon size is medium and it is also recommended that you select the **Wrap long toolbars** option.



## Using the AIM Toolbar

The following table describes four AIM tools that are available on the AIM on ClearCanvas Workstation.

Tool	Name	Description
	AIM	

	Template	Displays a template based form with a set of questions and choice(s) of answers for each question. A user can import a new AIM template to that location. Create new annotation objects by completely filling out this form and clicking the <b>Create Annotation</b> button.
	AIM Object Locator	Depicts available AIM objects in the currently displayed study without searching through every image in the study or series.
	AIM Annotation Details	Provides the ability to view specific areas of a selected graphic markup for an existing annotation.
	Closed Polygon Markup	Allows creation of a free hand graphical markup. This tool can be used in addition to existing ClearCanvas tools in creating graphical markup.

## AIM Template Tool

To activate the AIM template tool in Figure 1, click the AIM template tool button (#1). If you put the pin down (#2), you can detach the AIM Template tab by putting the mouse pointer at the header (#3) and dragging it out, as illustrated in Figure 2.

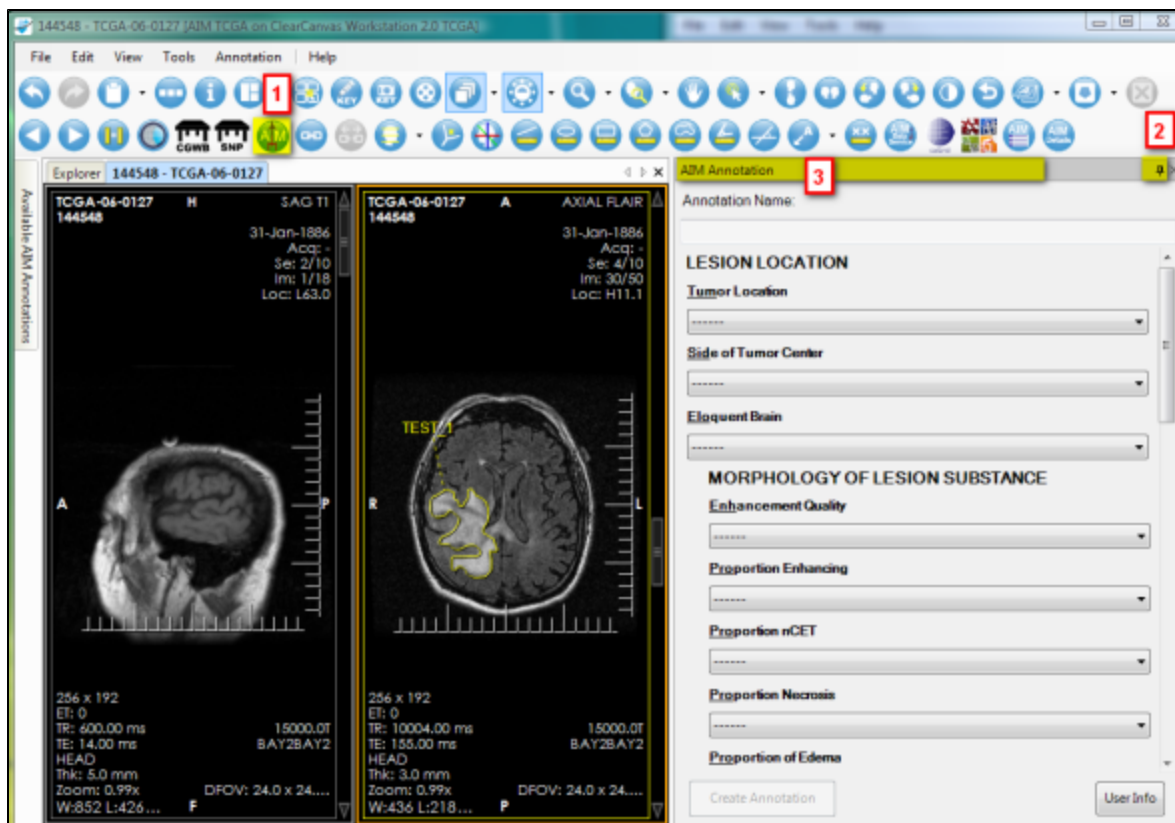


Figure 1. Activate AIM Template

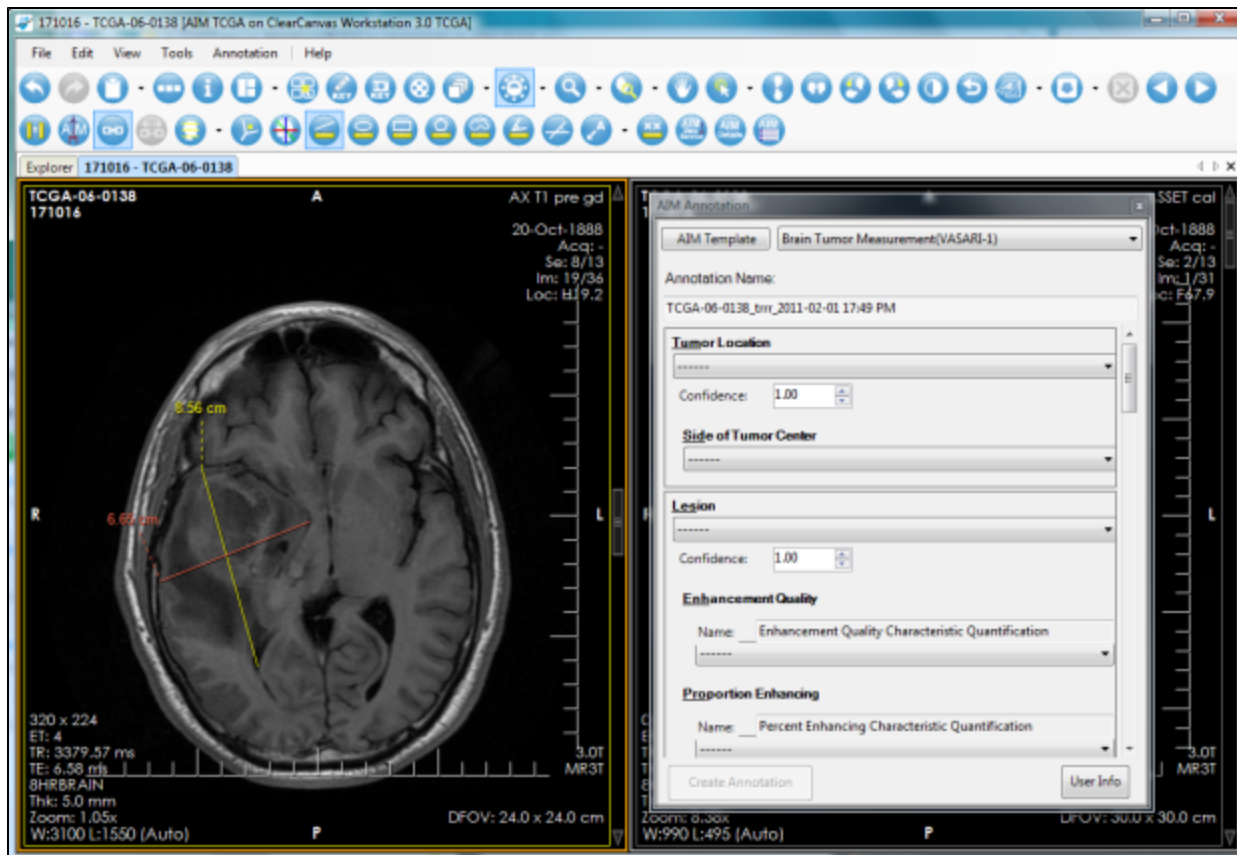


Figure 2. Detached AIM Template Tool



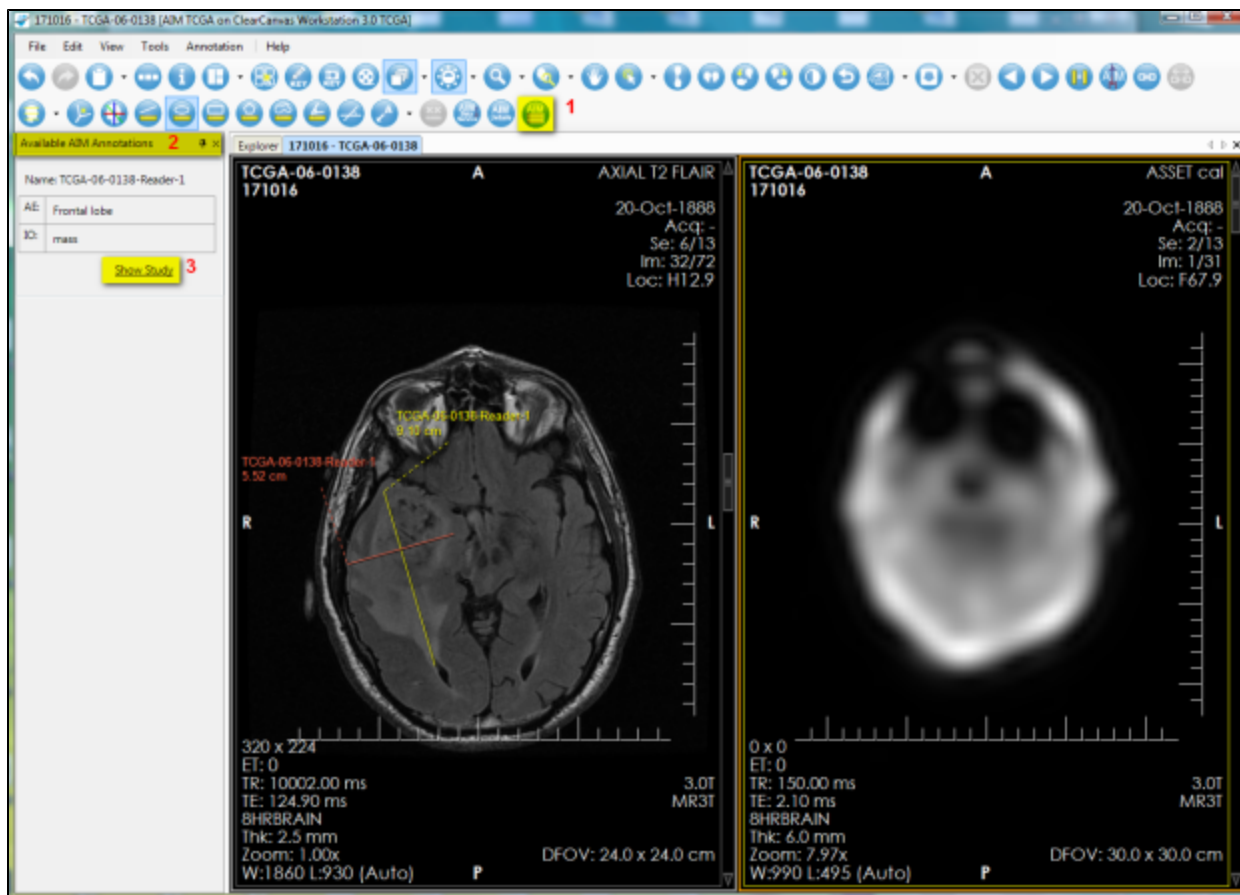
#### Important

When an AIM annotation is created, the following conditions are applied (based on AIM default settings described in [Specifying AIM Preferences](#))

1. A user must answer all questions presented in the AIM Annotation window.
2. A graphical markup is required on an image if *Require Graphic Markup in Annotation* is selected before an AIM annotation can be saved to the AIM Data Service and/or stored locally.
3. User information must be entered if *Require User Information* is selected.

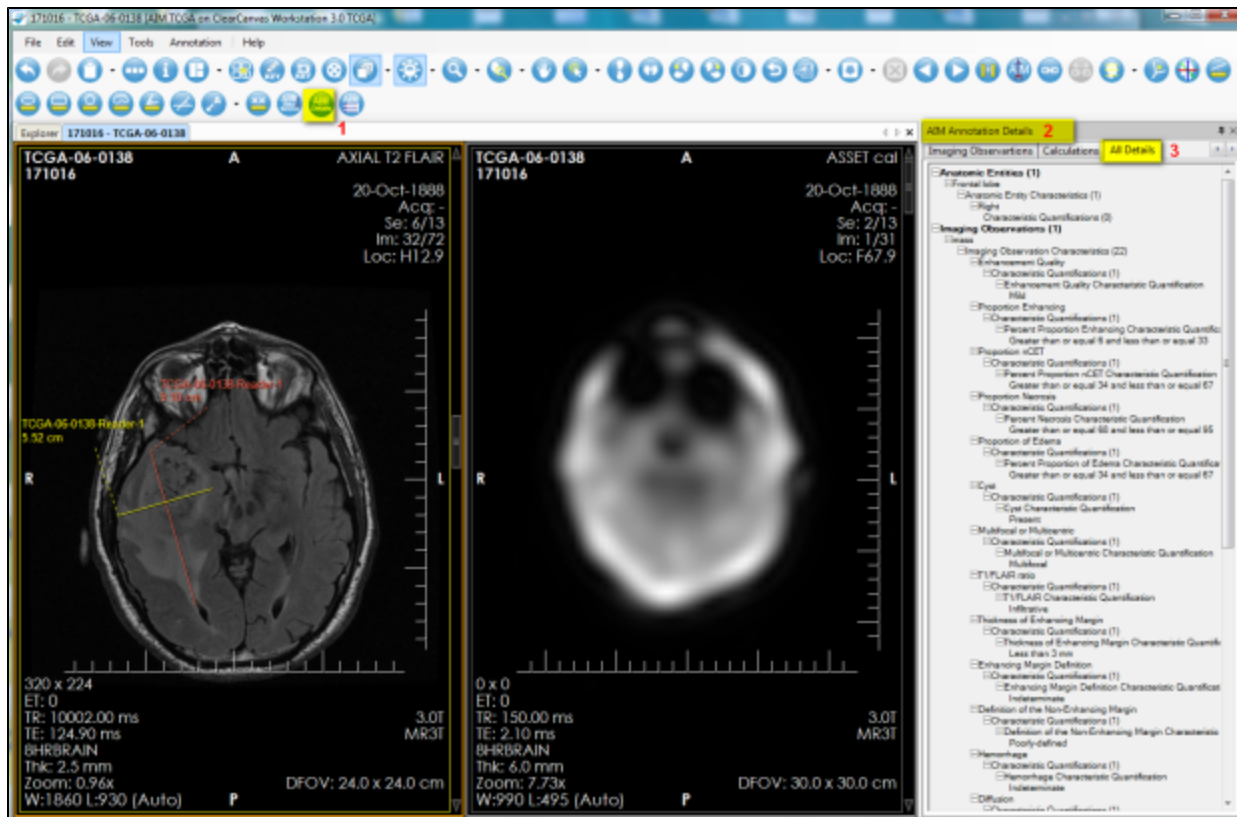
## AIM Object Locator Tool

The AIM Object Locator tool, depicted in the following image, allows users to see existing AIM instances available in a study. A list of available AIM instances is displayed below the **Available AIM Annotations** section, which is #2 in the following image. To access this feature and see an AIM annotation, click **Show Study**, which is #3 in the following image.



## AIM Annotation Details Tool

The AIM annotation details, as illustrated by the following image, allow a user to examine detailed information captured in an AIM instance. To access this feature, you select an image containing an AIM instance and then click the **AIM Details** button, as shown in (#1). The AIM Annotation Details panel appears. This panel contains information tabs including Anatomic Entity, Imaging Observation, Calculations, and All Details. The All Details tab (shown in #3) allows a user to see information related to both Anatomic Entity and Imaging Observation and their characteristics.



## Importing AIM Templates

Import an AIM template XML document by clicking the **AIM Template** button. Windows Explorer opens the folder you already specified, which is described in [Specifying AIM Preferences](#).



### Importing Legacy AIM Templates

You can import AIM templates that were created using the AIM XML schema version 2 and above into AIM on ClearCanvas Workstation and capture all of the data in the original template.

Unlike [AIM Template Builder](#), which updates AIM templates to the current XML schema version, AIM on ClearCanvas Workstation does not convert all of the information in AIM templates created in pre-2.0 XML schema versions. You can open legacy AIM templates in AIM on ClearCanvas Workstation but it is possible that not all of your questions and answer choices will appear. Data is not lost but options controlling the display of questions and answer choices are not automatically converted upon import.

You can avoid this problem for legacy AIM templates by first opening the template in AIM Template Builder and reviewing the options set for each question and answer choice. Specifically, do the following

- Ensure that the **Should Display** option is set to **Yes**.
- Ensure that the number of **Answer Choices** is at least 1 for each question.

Once you are sure that all of your question and answer choices have the correct options, save and then export your AIM template, then import the template into AIM on ClearCanvas Workstation.



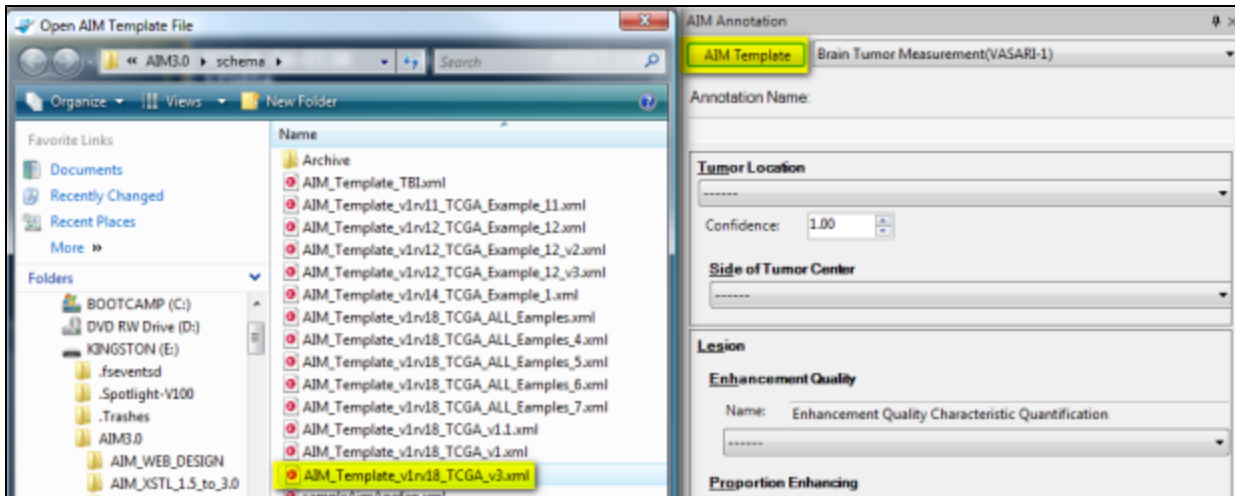
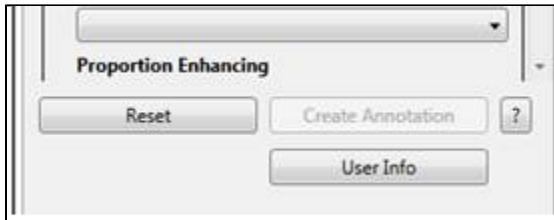


Figure 7. Importing an AIM Template

## Locating Missing Answer Choices

You can locate missing answer choices from a question after you import an AIM template. Click on the question mark icon to find out which questions do not have an answer.



## Enforcing Markup Requirements

Before you can add an annotation to an image, AIM on ClearCanvas Workstation verifies that the annotation you have drawn complies with the rules in the AIM template. AIM on ClearCanvas Workstation verifies new annotations according to the following rules:

Template Condition	Verification Condition
Template has multipoint geometric shape	Line or angular markup has to be drawn on image
Template has polyline geometric shape	Rectangular or polygonal markup has to be drawn on image.
Template has circle or ellipse geometric shape	Elliptical markup has to be drawn on image.
Template has point geometric shape	Cross hair markup has to be drawn on image.

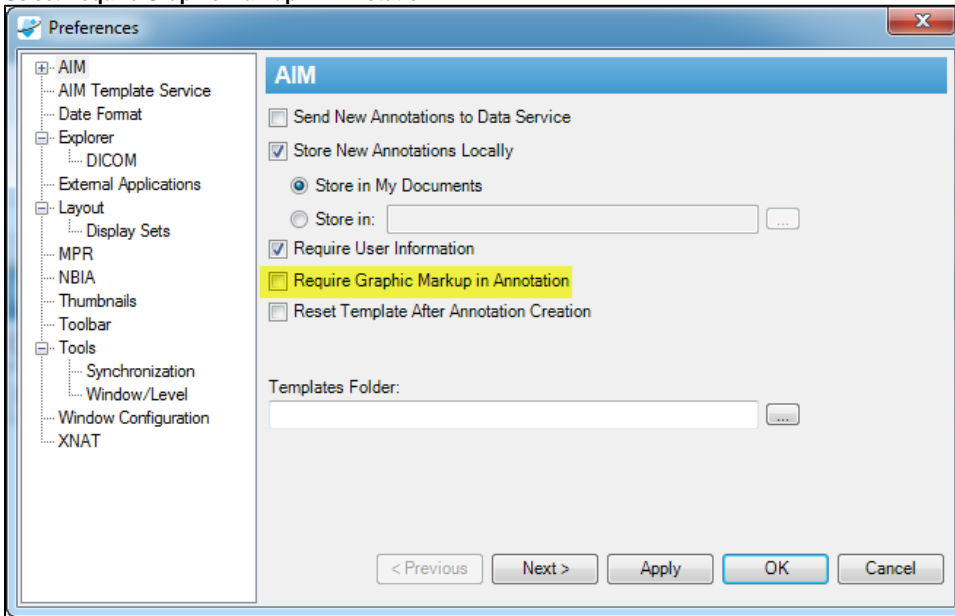
In addition to verifying specific new annotations, AIM on ClearCanvas Workstation also checks that no additional marks are on the image that the template does not allow.

To begin enforcing markup requirements, do the following:

1. Select **Tools > Preferences > AIM**.  
The AIM tab appears.



2. Select **Require Graphic Markup in Annotation**.



3. Click **OK**.

## User Information

Author information as depicted in (Figure 8) can be changed. To use this feature, click the **User Info** button to activate the AIM User Information form. Enter appropriate information and click **Save**.



### User information is saved

The user information will be saved on the workstation for future use. If you are sharing the workstation with another reader, you must change or at least verify that the information in the **User Info** section reflects your personal credentials.

The [AIM Template Builder](#) is a tool used to create an AIM template XML document.

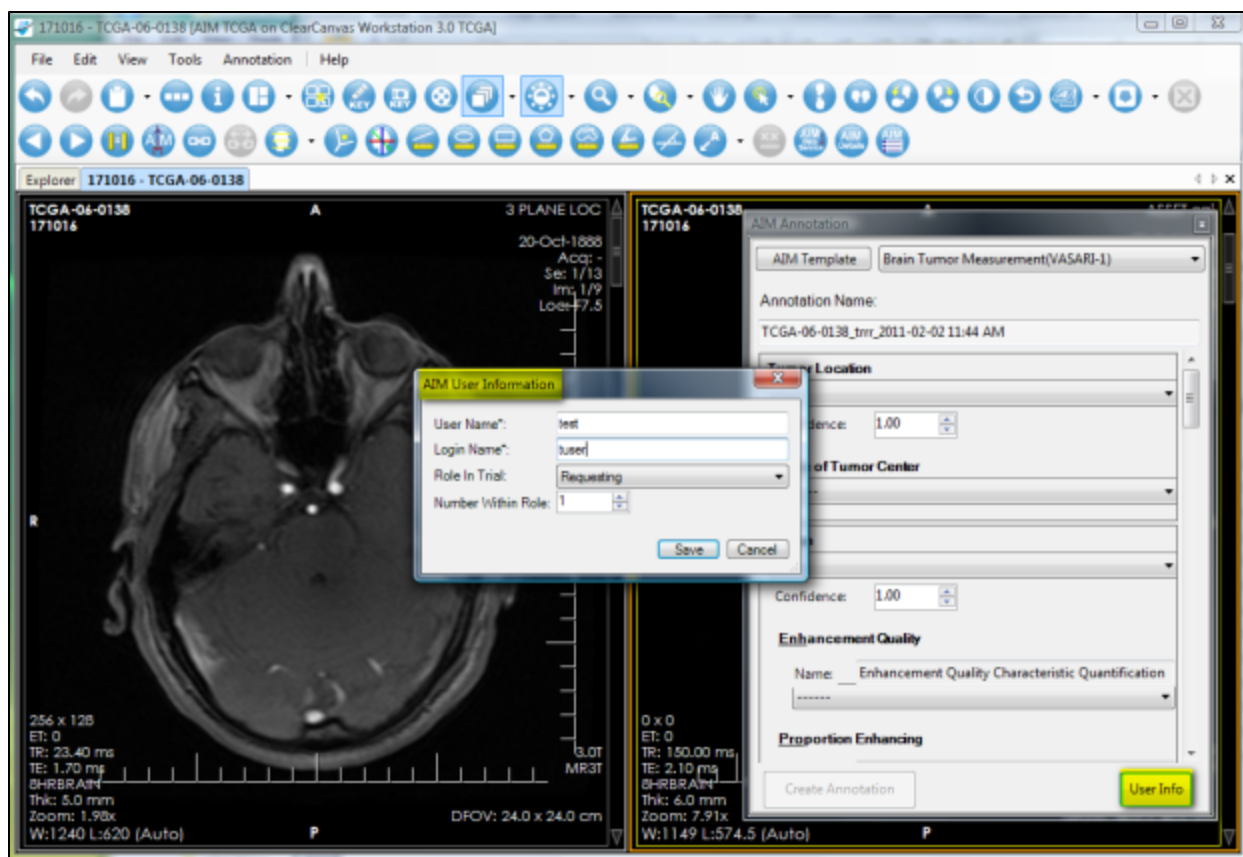


Figure 8. AIM User Information

## Detailed Description of a Question

A detailed description of a question can be seen by placing the mouse pointer over the first three characters of each feature name, as shown in Figure 9.

AIM Annotation

Annotation Name:

**LESION LOCATION**

**Tumor Location**

-----

**Side of Tumor Center**

-----

**Eloquent Brain**

-----

**PROPORTION OF LESION SUBSTANCE**

Visually, when scanning through the entire tumor, what proportion of the entire tumor is estimated to represent non-enhancing tumor (not edema)? Nonenhancing tumor is defined as regions of T2W hyperintensity (less than the intensity of cerebrospinal fluid, with corresponding T1W hypointensity) that are associated with mass effect and architectural distortion, including blurring of the gray-white interface.(Assuming that the the entire abnormality may be comprised of: (1) an enhancing component, (2) a non-enhancing component, (3) a necrotic component and (4) a edema component.)

**Proportion nCET**

-----

**Proportion Necrosis**

-----

**Proportion of Edema**

-----

**Cysts**

-----

**Multifocal or Multicentric**

-----

**T1/FLAIR Ratio**

-----

Figure 9. Detailed Description of a Question

## Displaying Markups from Different Users

For a given image in an imaging study that has more than one reader interpreting and creating AIM annotations, the workstation can display every annotation while allowing you to turn off markups from a selected group of readers. Figure 12 depicts an image with three markups from three readers. The markup from reader named *qwe-3* was turned off.

A right-mouse click on the image activates a pop-up menu with a Visible AIM Users option to turn readers' markups on or off.

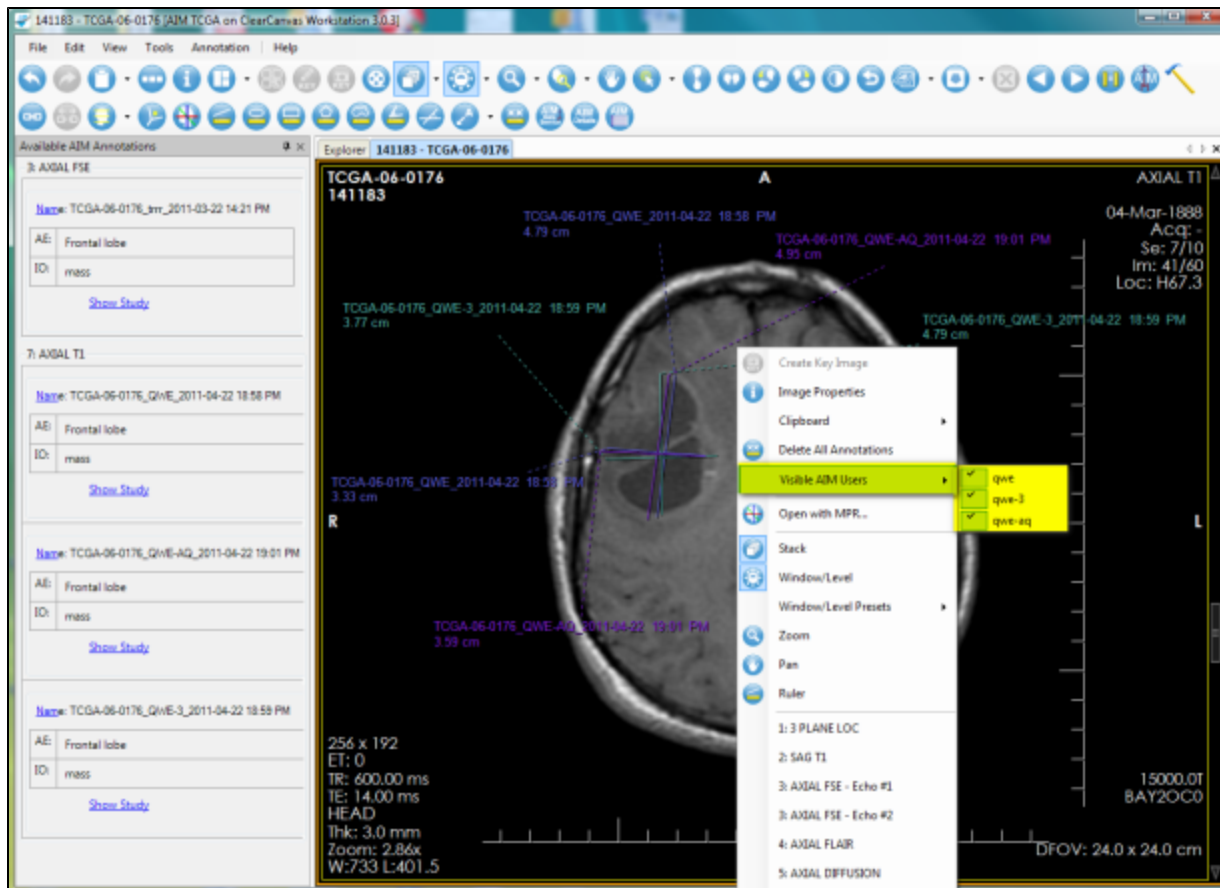
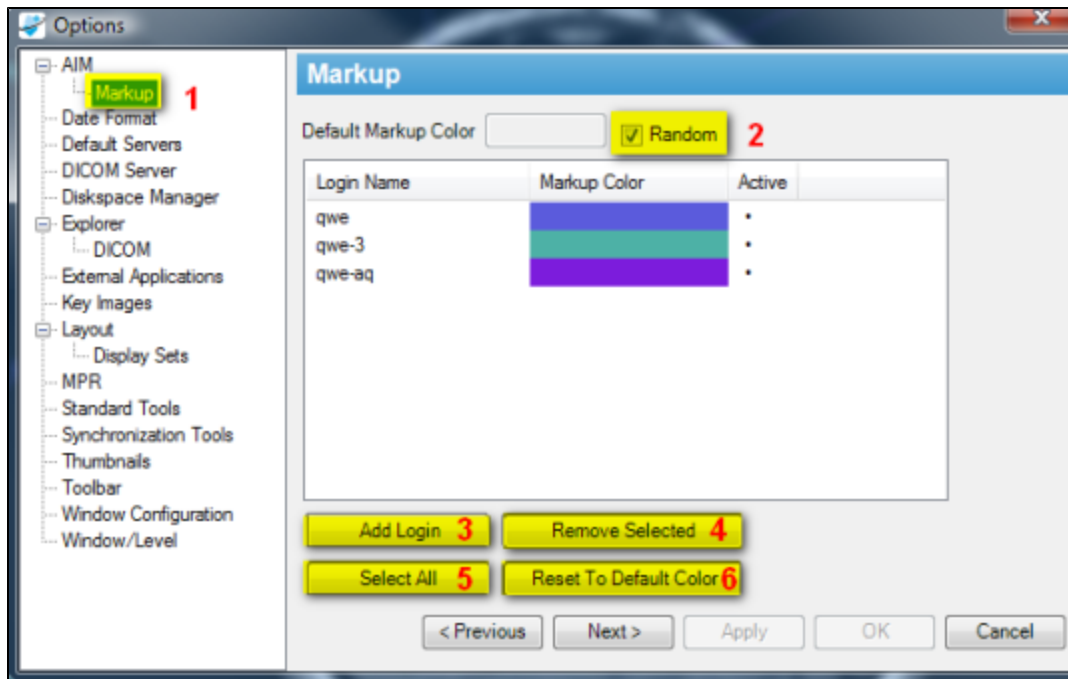


Figure 12. AIM Markup Display

By default, the workstation also displays annotations created by different users in different colors. You can change which colors are used for which user's AIM annotations. To assign a color to a user, go to **Tools > Preferences > AIM > Markup**.

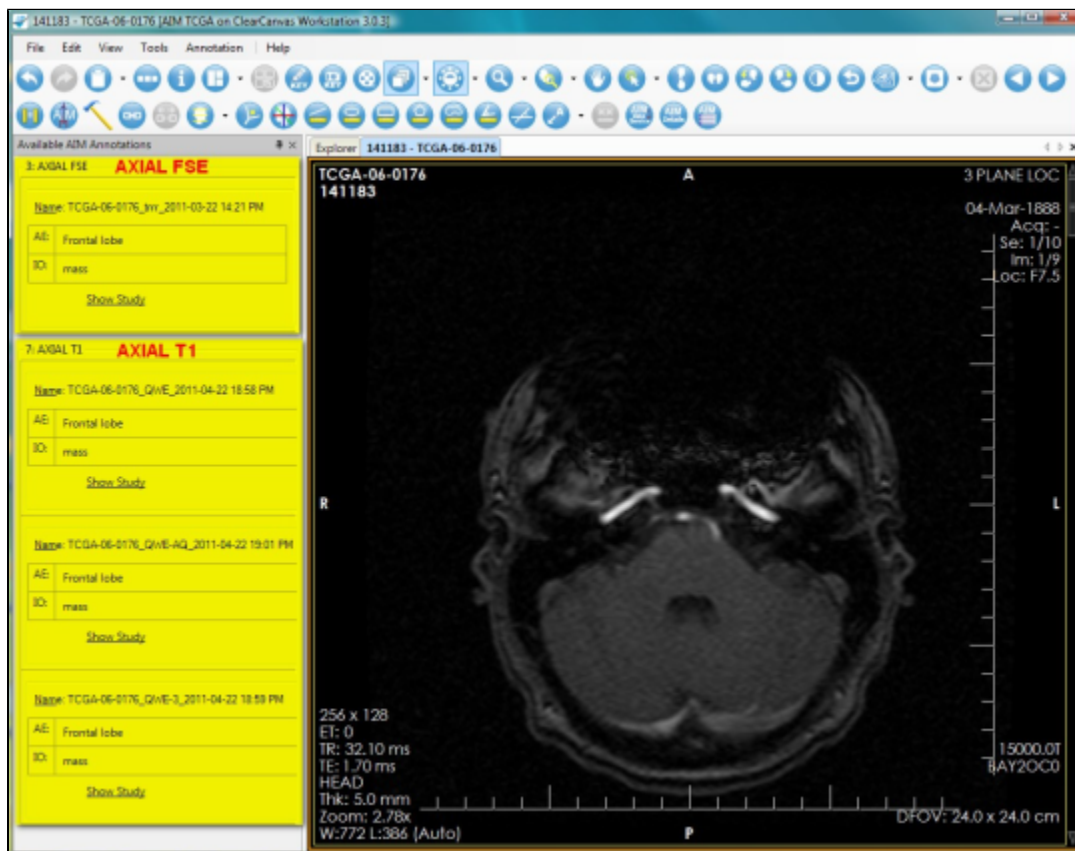
By default, the Random checkbox (#2) is selected, which assigns a random color to each user's markup drawings. By clearing the Random checkbox, a default color is used instead. Colors may be assigned to a single user's markup drawings by selecting the color next to the user's name in the list. Click the **Add Login** button (#3) to add a new user to the list.

Selected users may be removed from the list by clicking the **Remove Selected** button (#4). Users removed from the list will have their annotations reset to the default color. Select all users in the list by clicking the **Select All** button (#5). Click the **Reset To Default Color** button (#6) to reset the color assigned to selected users to the default color.



## Viewing AIM Data for Each Image Series

You can see AIM annotations for an imaging study grouped by image series in the Available AIM Annotations section. The following screen shows two different image series. The first, Axial FSE, includes one AIM instance. The second, Axial T1, includes three AIM instances.



## Using the National Biomedical Imaging Archive (NBIA) Data Service

The NBIA Data Service tab, shown below, provides the ability to connect and retrieve studies from NBIA directly within the workstation. Holding the **Ctrl** key allows you to click and select multiple studies. Right-clicking a search result activates a feature that allows you to retrieve selected studies.

Explorer [AIM TCGA on ClearCanvas Workstation 3.0.3]

File Tools Help

Explorer

Search

Patient ID:  Patient's Name:  Sex:  Birth Date:

Project:  Slice Thickness:  Study Instance Uid:  Modality:

119 results found

Patient Id	Patient's Name	Sex	DOB	Project	Study Instance Uid	Modality
TCGA-08-0357	152322		30-Sep-1845	TCGA	1.3.6.1.4.1.9328.50.46.119967927917425608159550386921730387316	MR
TCGA-08-0521	388428		29-Sep-1875	TCGA	1.3.6.1.4.1.9328.50.46.238470932121913921057408160948004332734	MR
TCGA-08-0524	175038		29-Feb-1876	TCGA	1.3.6.1.4.1.9328.50.46.195614997200019607573614338362310942818	MR
TCGA-08-0349	377529		29-Aug-1844	TCGA	1.3.6.1.4.1.9328.50.46.332458644648317929088378244732560835385	MR
TCGA-08-0346	210429		27-Oct-1834	TCGA	1.3.6.1.4.1.9328.50.46.292260970790043171027518614307907437725	MR
TCGA-08-0510	258285		26-Apr-1815	TCGA	1.3.6.1.4.1.9328.50.46.9087050380938713408523136486252536218	MR
TCGA-08-0353	281143		25-Oct-1835	TCGA	1.3.6.1.4.1.9328.50.46.337574128368720942371163019020121221936	MR
TCGA-08-0529	210818		25-Jul-1839	TCGA	1.3.6.1.4.1.9328.50.46.91269640369694209118454745231713585034	MR
TCGA-08-0511	370964		24-Jan-1822	TCGA	1.3.6.1.4.1.9328.50.46.4044644837056626301089618635780855988	MR
TCGA-08-0355	422892		23-Jan-1864	TCGA	1.3.6.1.4.1.9328.50.46.21836108900053296235485171358969305006	MR
TCGA-08-0381	327934		23-Dec-1822	TCGA	1.3.6.1.4.1.9328.50.46.274462953578324978434212485056598809550	MR
TCGA-08-0354	240436		21-Oct-1841	TCGA	1.3.6.1.4.1.9328.50.46.193272565505328856496292965242232139691	MR

Study Retrieve Progress

Status	Study Count	Patient Id	Patient's Name	Study
--------	-------------	------------	----------------	-------

Users can enter search parameters, shown below, based on a single value or multiple values of Patient ID, Patient's Name, Sex, Birth Date, Project name at NCI, Slice Thickness, Study Instance UID, and Modality.

Search

Patient ID:  Patient's Name:  Sex:  Birth Date:

Project:  Slice Thickness:  Study Instance Uid:  Modality:

Columns in the NBIA Data Service page can be selected or deselected to display or hide an available result. The following image depicts that all available columns for the service have been selected.

119 results found

Select Columns to Display

Patient Id	Patient's Name	Sex	DOB	Project	Study Instance Uid	Modality
TCGA-08-0357	152322		30-Sep-1845	TCGA	1.3.6.1.4.1.9328.50.46.119967927917425608159550386921730387316	MR
TCGA-08-0521	388428		29-Sep-1875	TCGA	1.3.6.1.4.1.9328.50.46.238470932121913921057408160948004332734	MR
TCGA-08-0524	175038		29-Feb-1876	TCGA	1.3.6.1.4.1.9328.50.46.195614997200019607573614338362310942818	MR
TCGA-08-0349	377529		29-Aug-1844	TCGA	1.3.6.1.4.1.9328.50.46.332458644648317929088378244732560835385	MR
TCGA-08-0346	210429		27-Oct-1834	TCGA	1.3.6.1.4.1.9328.50.46.292260970790043171027518614307907437725	MR
TCGA-08-0510	258285		26-Apr-1815	TCGA	1.3.6.1.4.1.9328.50.46.9087050380938713408523136486252536218	MR
TCGA-08-0353	281143		25-Oct-1835	TCGA	1.3.6.1.4.1.9328.50.46.337574128368720942371163019020121221936	MR
TCGA-08-0529	210818		25-Jul-1839	TCGA	1.3.6.1.4.1.9328.50.46.91269640369694209118454745231713585034	MR
TCGA-08-0511	370964		24-Jan-1822	TCGA	1.3.6.1.4.1.9328.50.46.4044644837056626301089618635780855988	MR
TCGA-08-0355	422892		23-Jan-1864	TCGA	1.3.6.1.4.1.9328.50.46.21836108900053296235485171358969305006	MR
TCGA-08-0381	327934		23-Dec-1822	TCGA	1.3.6.1.4.1.9328.50.46.274462953578324978434212485056598809550	MR
TCGA-08-0354	240436		21-Oct-1841	TCGA	1.3.6.1.4.1.9328.50.46.193272565505328856496292965242232139691	MR