

How To Guide - Reading Renal Cases with Clearcanvas

Before beginning this guide you must have installed Clearcanvas with AIM. Instructions for readers who are being actively assigned cases can be found on the [TCGA Research on the Cloud](#) wiki page. Instructions for those who wish to replicate this project independently can be found on [Renal Group Reader Training](#) page.

Opening the images and AIM Template

1. Double click ClearCanvas from the desktop to begin scoring cases. You will be presented with a login screen. We have already filled this in for you so that all you need to do is click "Login".

Name:
 Login Name:
 Role In Trial:
 Number Within Role of Clinical Trial:

2. The list of assigned cases will appear in the "My Studies" list. Double click one from the list to open it for review.

Explorer [AIM on ClearCanvas Workstation 3.0.4]

File Tools Help

Explorer

DICOM My Computer NBIA Data Service AIM Data Service

Search

Patient ID Name Accession# Study Description

Study Date (From) Study Date (To) Referring Physician Modality

12-Jul-2012 12-Jul-2012

Search Today

Clear Last 7 days

Servers

My Studies

My Servers

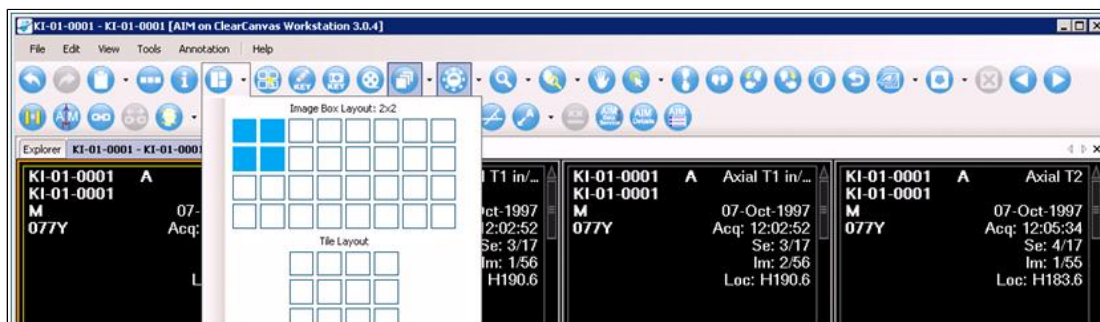
Example Group

Example Server

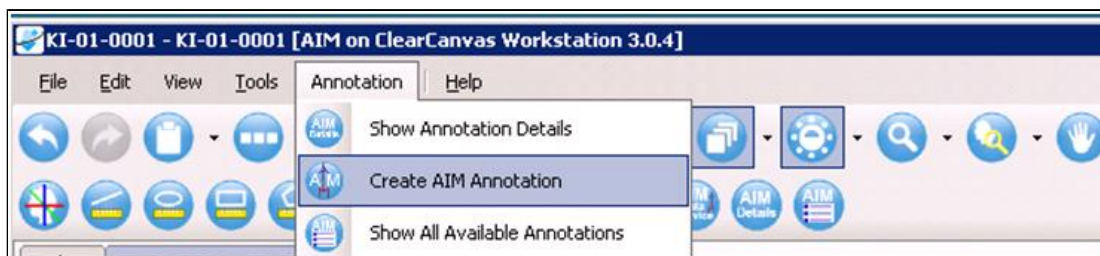
10 studies found on My Studies

Patient ID	Last Name	First Name	DOB	Accession Number	Study Date	Description	Modality	Referring Physician	Instance
TCGA-E2-A...	TCGA-E2-A...						MR...		789
TCGA-E2-A...	TCGA-E2-A...				21-Feb-...	MR BREAST, BILAT...	MR...		781
TCGA-E2-A...	TCGA-E2-A...						MR...		1206
TCGA-E2-A...	TCGA-E2-A...						MR...		862
TCGA-E2-A...	TCGA-E2-A...						MR...		550
TCGA-E2-A...	TCGA-E2-A...				02-Mar-...	MR BREAST, BILAT...	MR		939
TCGA-E2-A...	TCGA-E2-A...				15-Mar-...	MR BREAST, BILAT...	MR		1058
TCGA-E2-A...	TCGA-E2-A...				10-Jun-...	MR BREAST, BILAT...	MR		775
TCGA-E2-A...	TCGA-E2-A...				12-Aug-...	MR BREAST, BILAT...	MR		793
TCGA-E2-A...	TCGA-E2-A...				03-Oct-...	MR BREAST, BILAT...	MR		910

3. The case will be loaded with 4 series visible. You can adjust the panel layout to show different views or numbers of image series using the "Layout Manager" icon.



4. Use the Annotation menu at the top and choose "Create Annotation" to open the AIM Plugin.



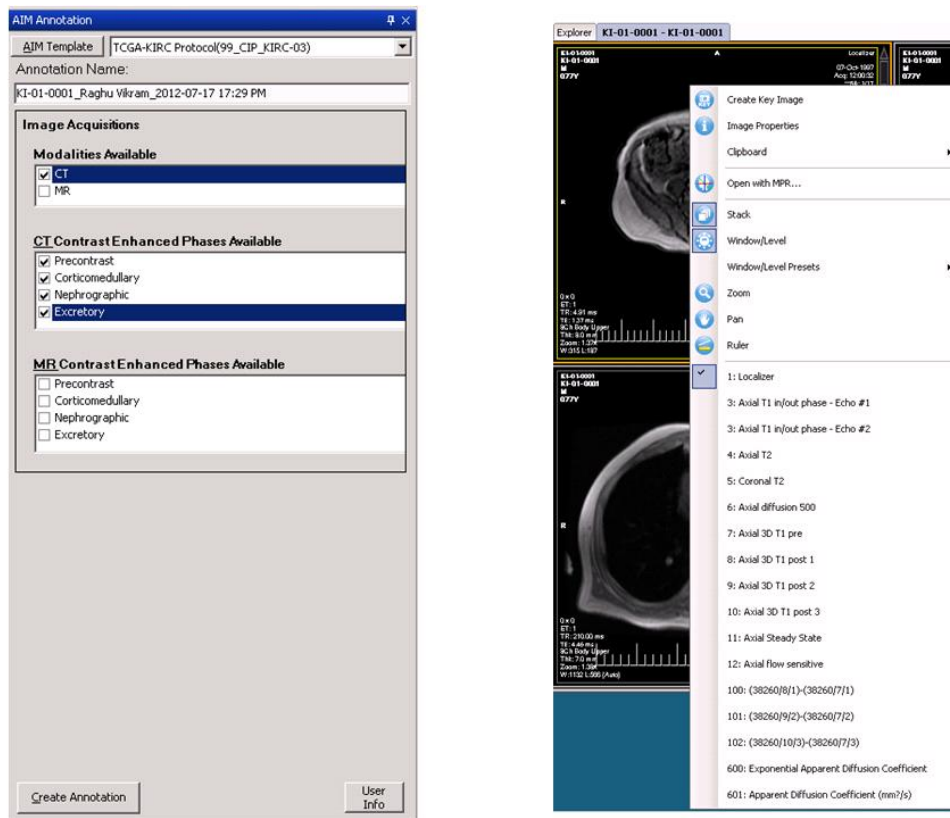
5. The AIM Template menu will pop up on the right side of the screen.



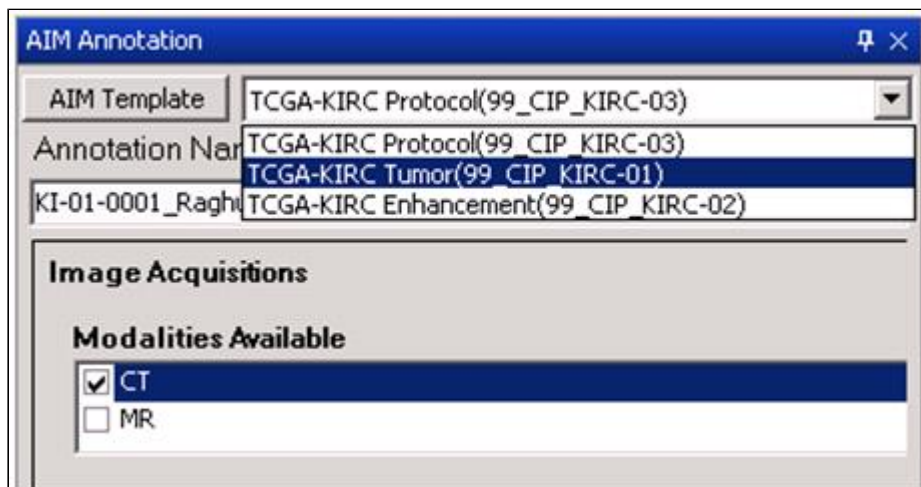
Completing the templates

6. The Protocol template is the first AIM Template, and is used for indicating what images were available for review. Check all applicable boxes from the lists and click the "Create Annotation" button in the bottom left corner of the window.

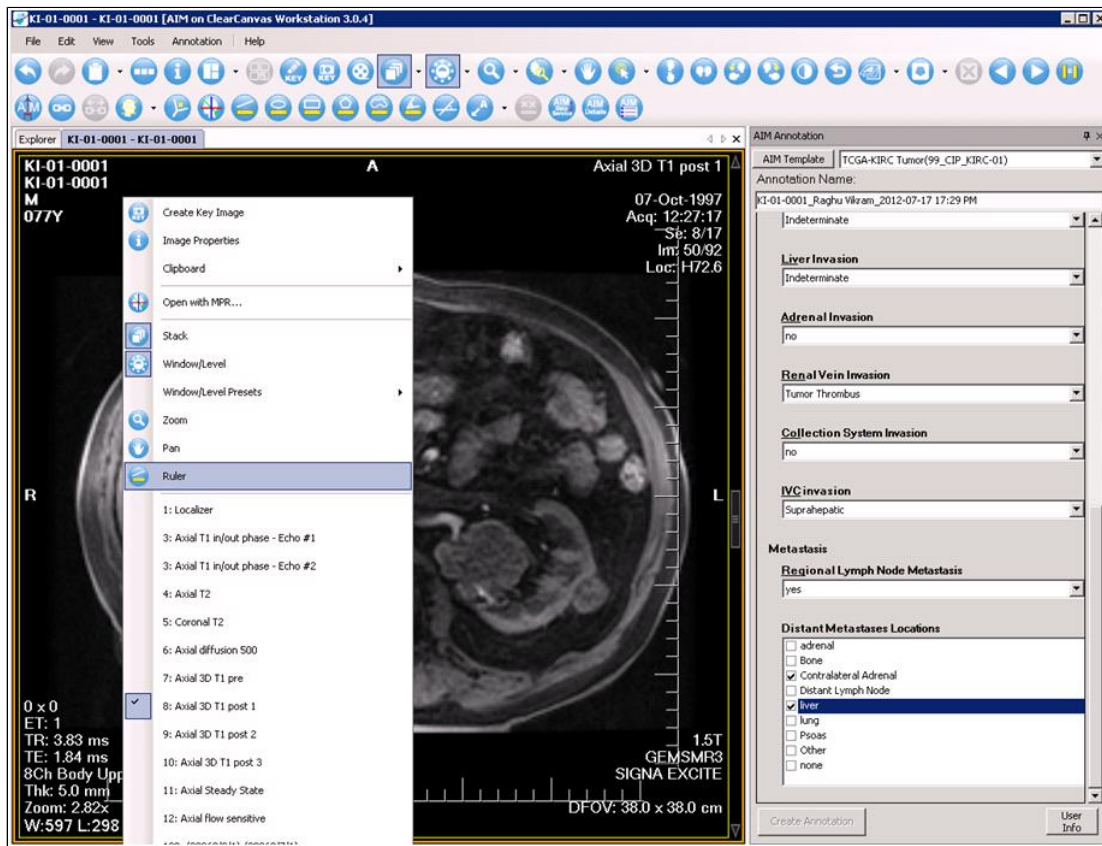
Note: You can right click anywhere on the images to view a list of all available image series.



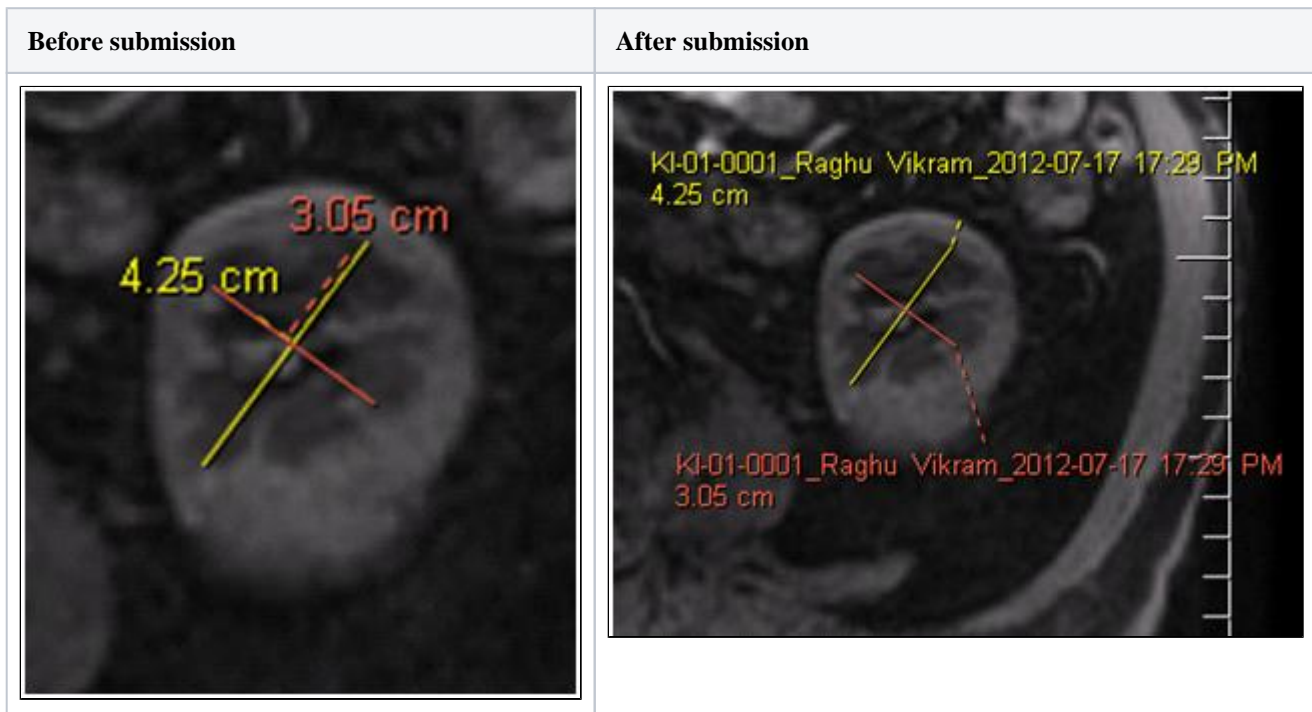
7. After submitting the Protocol form, then use the drop down box at the top to switch to the Tumor template.



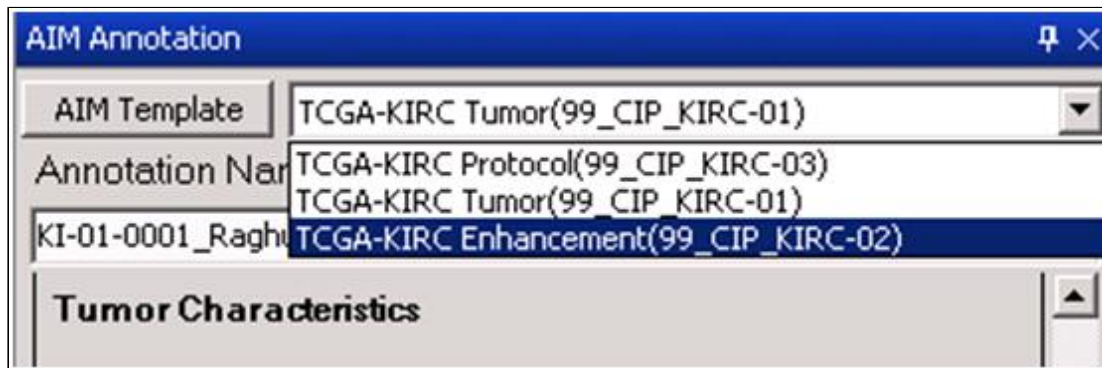
8. Fill out the Tumor form (all answers must be filled in). Then right click and select the Ruler tool. Use the Ruler tool to measure the tumor and then click "Create Annotation".



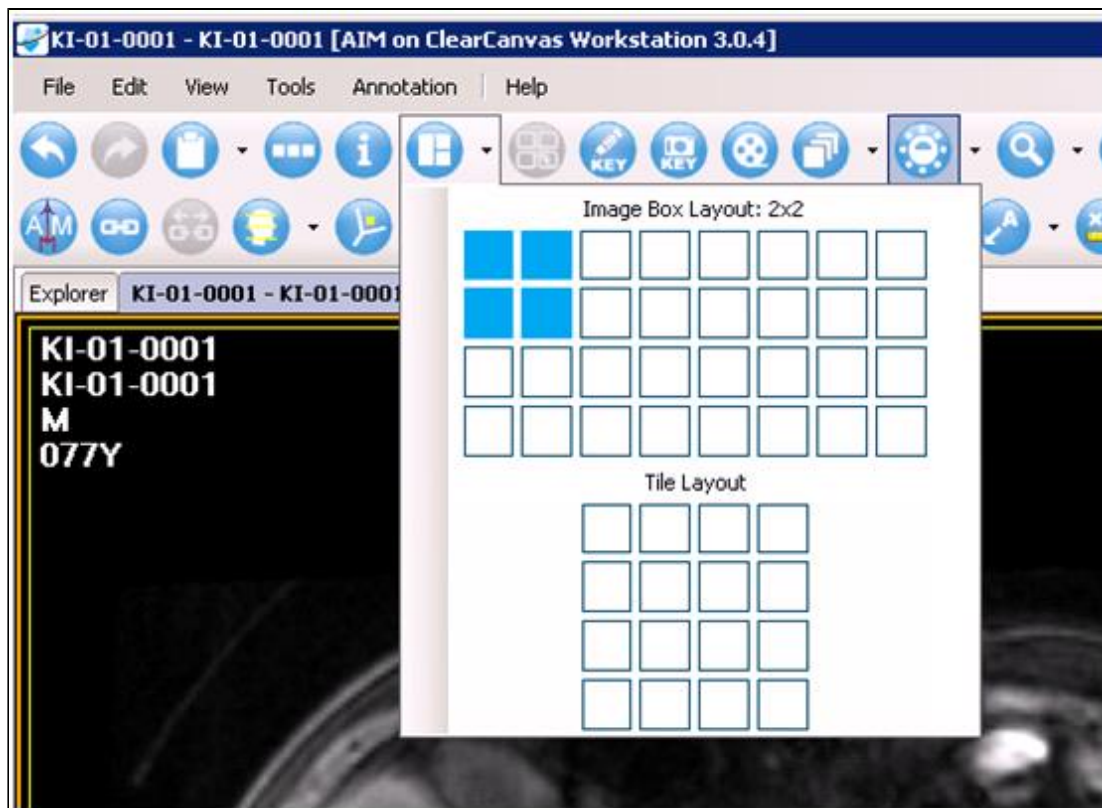
Note: You can confirm that your markup was sent successfully with your form by the appearance of some additional labels on the screen.



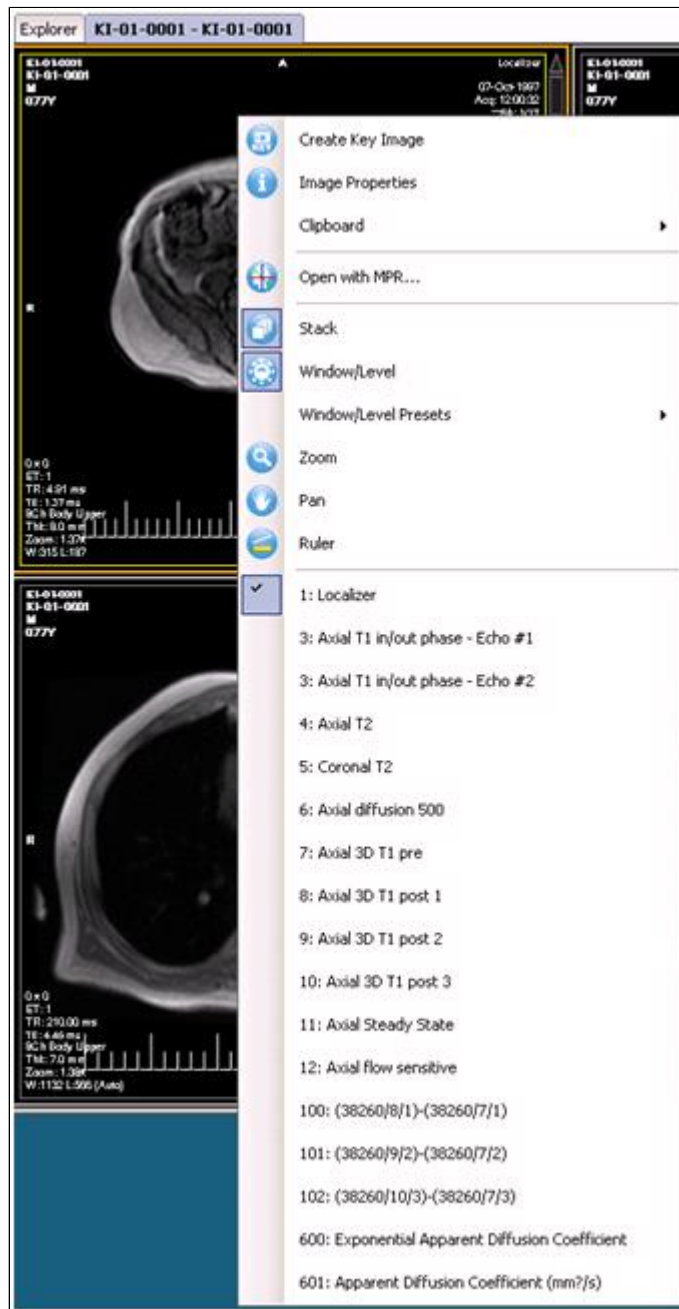
9. After creating the Tumor annotations and markup, use the drop down box at the top again to select the "Enhancement" template.



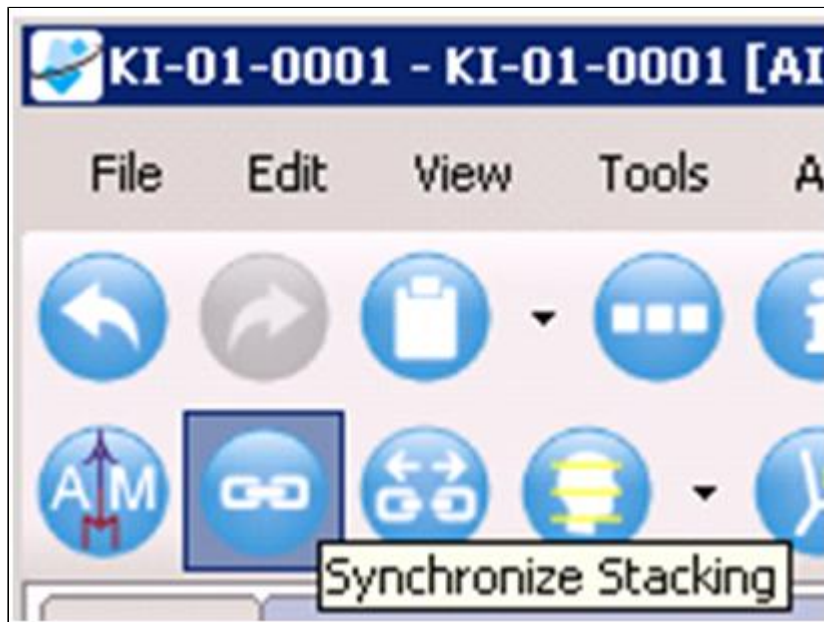
10. It may be helpful to switch layouts to show 4 series at a time for this template.



11. Set each of the 4 panels to display the available enhancement phases by right clicking inside each window and selecting a different phase. E.g. Open the pre-contrast phase in the top left panel, the arterial phase in the top right panel, etc.



12. Synchronizing the stacking between all 4 series may also be helpful. Click the icon that looks like a chain link to activate this feature.



13. Scroll to the location of the tumor. Then select the Elliptical tool and draw an ROI around one of the enhancing entities (tumor, aorta, normal renal cortex). Then select the associated phase and entity which corresponds with the ROI you've just drawn from the template on the right and click "Create Annotation". The mean intensity or Hounsfield Units for your ROI will be automatically submitted and tagged based on your entries in the Enhancement form.

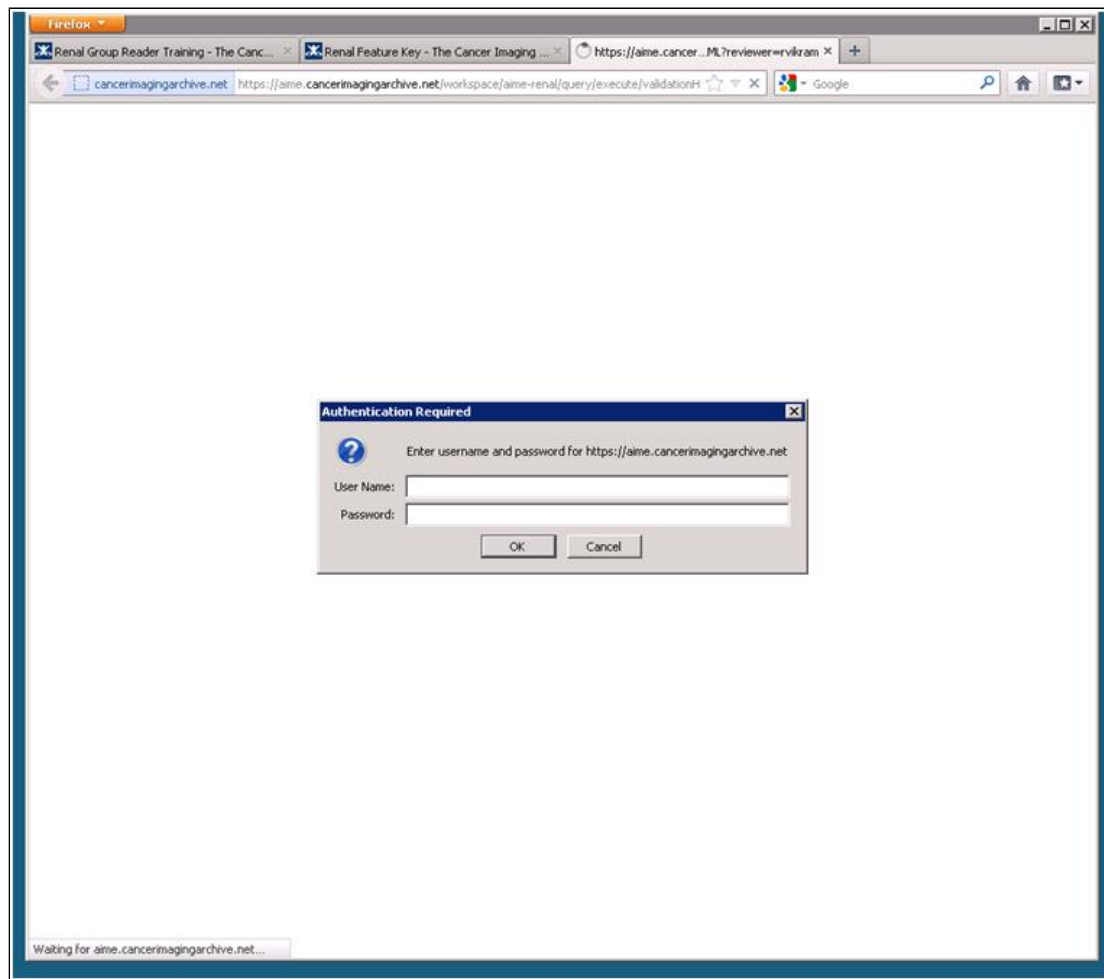


14. Repeat step 13 for each enhancing entity in each of the enhancement phases that are available.

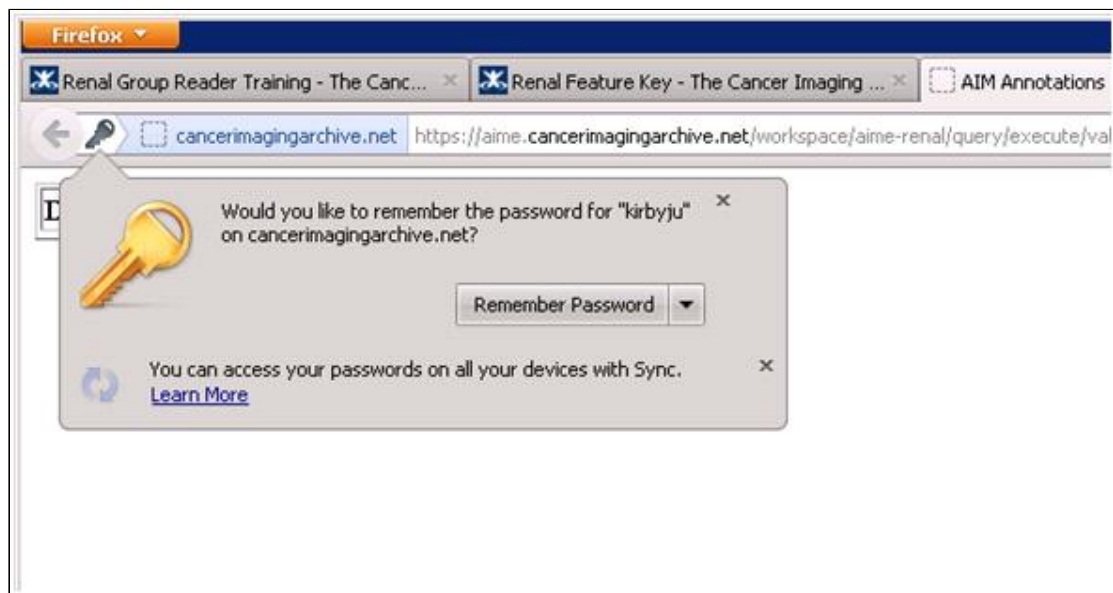
Validating your submissions (This section only applicable to readers being assigned cases on [Renal Image Feature Scoring Project](#))

15. Open Firefox by double clicking the icon on your desktop.

16. Firefox will prompt you for a user name and password. Use your TCIA credentials. You can reset your account at <http://public.cancerimagingarchive.net/ncia/accountSupport.jsf> if you do not remember your login, or you can call the TCIA Helpdesk at 314-747-4254.



17. Allow the browser to save your user name and password so you don't have to enter this again in the future.



18. Once this is done you will see 3 tabs open in Firefox. The active tab will likely be the 3rd one which required your TCIA credentials. This tab shows you the scores you have already submitted to the server.

Date Time	Subject ID	Reviewer	Type	Size (mm)	AIM UID
2012-07-06T17:47:57	KI-01-0001	oakin	TCGA-KIRC Enhancement	7836.5762422808	1.3.6.1.4.1.25403.37383564959666.4068.20120706054757.3
2012-07-12T21:05:46	KI-01-0001	oakin	TCGA-KIRC Tumor		1.3.6.1.4.1.25403.37383564959666.3936.20120712090546.1
2012-07-12T21:06:04	KI-01-0001	oakin	TCGA-KIRC Enhancement	1483.51888514551	1.3.6.1.4.1.25403.37383564959666.3936.20120712090604.1
2012-07-12T21:06:20	KI-01-0001	oakin	TCGA-KIRC Enhancement	1360.12759433411	1.3.6.1.4.1.25403.37383564959666.3936.20120712090620.3
2012-07-12T21:06:34	KI-01-0001	oakin	TCGA-KIRC Enhancement	1037.99264720657	1.3.6.1.4.1.25403.37383564959666.3936.20120712090634.3
2012-07-12T21:13:04	KI-01-0001	oakin	TCGA-KIRC Protocol		1.3.6.1.4.1.25403.37383564959666.3936.20120712091304.1

Note: The TCGA-KIRC Protocol is the only type of form that should be missing a Size entry. Below you can see the Tumor entry (2nd row) is missing a Size entry. This means that the markup did not get properly recorded. If this occurs to you, please try filling out the form and re-drawing the markup again. Then notify Justin/John to delete the errant score.

19. The middle tab displays the Renal Feature Key wiki page. This page is helpful if you need a refresher about the feature set. It includes a full break down of all the questions/answers and a link to the visual PPT examples.

The screenshot shows a Firefox browser window with three tabs: 'Renal Group Reader Training - The Cancer Imaging Archive', 'Renal Feature Key - The Cancer Imaging Archive', and 'AIM Annotations'. The address bar shows the URL 'https://wiki.cancerimagingarchive.net/display/Public/Renal+Feature+Key'. The page header features the National Cancer Institute logo and the text 'National Institutes of Health | www.cancer.gov'. Below the header is a navigation bar with links to 'Dashboard', 'The Cancer Imaging Archive', 'Renal Image Feature Scoring', 'Renal Feature Key', and 'Browse'. A 'Log In' button and a search bar are also present. The main content area is titled 'Renal Feature Key' and includes a 'Tools' dropdown menu. Below the title is a note: '2 Added by jfreymann, last edited by kirbylu on Jul 12, 2012 (view change)'. A link is provided: 'Click here for: Visual Guide (PowerPoint slides) June 25'. A table follows, detailing features for renal imaging.

Template	Container	Subgroup	Feature	Verbose (Tool tips on CRF)	Options
Image Acquisition					
			Modalities Available		CT MR
			CT Contrast enhanced phases available		Precontrast Corticomedullary Nephrographic Excretory
			MR Contrast enhanced phases available		Precontrast Corticomedullary Nephrographic Excretory
Tumor	Tumor Measurement				
			Tumor Size	Measure the longest axial diameter of the tumor with the ruler tool. Then measure the longest perpendicular axis with the ruler tool.	

20. The first tab in the browser shows the reader assignments. We will periodically update it to reflect which cases have been completed by each reader to keep the group informed about everyone's progress.

Firefox

Renal Group Reader Training - The Canc... x Renal Feature Key - The Cancer Imaging ... x AIM Annotations

cancerimagingarchive.net https://wiki.cancerimagingarchive.net/display/Public/Renal+Group+Reader+... Google

Renal Group Reader Training

2 Added by [kirbylu](#), last edited by [ifreyman](#) on Jul 12, 2012 ([view change](#))

Summary

This page describes the training steps utilized by the TCGA Renal Phenotype Research Group to develop and test their Renal Feature Key.

Training Progress

This is the latest progress on training cases. See instructions for obtaining the data and setting up the software below.

Completed - Reader has finished reading the case and submitted their AIM characterizations to the AIM data service
In Progress - Reader has been instructed to review this case, but has not yet completed it
Unassigned - Reader has not yet been asked to review this case

Round 1

Case	oakin	sprasad	rvikram	mheller	aoto	hvgarg	ckarlo	vkatabathina	vsurabhi
KI-01-0001	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-01-0002	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-01-0003	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-01-0004	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-02-0001	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-02-0002	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-02-0003	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress
KI-02-0004	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress	In Progress