



Purpose: To remotely automate data collection and give users control of their acquisitions through Leginon Remote

Authors:

Approved:

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Note: As of July 8, 2020 Leginon Remote is in beta release. These instructions are for the release candidate expected to be pushed July 9, 2020. Leginon Remote is a program developed by NRAMM and NYSBC and is being demonstrated as a potential access workflow through the NCCAT embedded trainee program.

1. Purpose:

- 1.1. To remotely access data collection and give users control of their acquisitions through Leginon Remote.

2. Scope:

- 2.1. Acquiring data sets from microscopes manually is very time consuming, the ability to automate with Leginon on-site has proven to be efficient; our new ability to conduct these acquisitions remotely, in addition to creating an interface that is easy for users to operate, proves to be highly productive.

3. Definitions

- 3.1. Leginon is a system designed for automated collection of images from a transmission electron microscope; it includes the python-side programs written in python and c, the MySQL database and server, and the mainly php-based image and data viewers on a web server.
- 3.2. Leginon Remote is an infallible web interface that allows center staff operators to hand over control of the requested transmission electron microscope to users for their own data acquisition.

4. Responsibilities:

- 4.1. Ahead of your session verify with your appointed center staff member that you have been issued Leginon user accounts, and have a registered and approved Leginon project.
- 4.2. Login to Leginon Remote <https://leginon-remote.semc.nysbc.org/>
- 4.3. Once the microscope operator has calibrated the session, they will relinquish control of the session to the user.
 - 4.3.1. Click the "Home" button to refresh the page
 - 4.3.2. Under Control Status, it should read: "User has control on **[microscope]** session"
- 4.4. Click "**here**" in the Notification section
 - 4.4.1. This is the control panel for the Remote Leginon session



4.5. Sidebar Menu

4.5.1. Main Menu

- 4.5.1.1. Square_Targeting node
- 4.5.1.2. Hole_Targeting node
- 4.5.1.3. Exposure_Targeting node

4.5.2. Leginon Status (status of the current action in queue)

4.5.3. Leginon Tools (contains operation buttons for each node)

- 4.5.3.1. Square_Targeting button will reload the atlas so that you can choose the next square
- 4.5.3.2. Hole_Targeting button will submit the hole targets to the queue
- 4.5.3.3. Exposure_Targeting button will submit the exposure targets
 - 4.5.3.3.1. *If this button is not available, it means that automated targeting is set up and you do not need to submit targets yourself.*
- 4.5.3.4. Scope_Control buttons play all nodes, pause all nodes or abort all nodes

4.5.4. Time

- 4.5.4.1. Indicates the start and end date/time of the session in addition to a progress bar

4.5.5. Chat Window at the bottom of the page, allows you to communicate with staff as needed

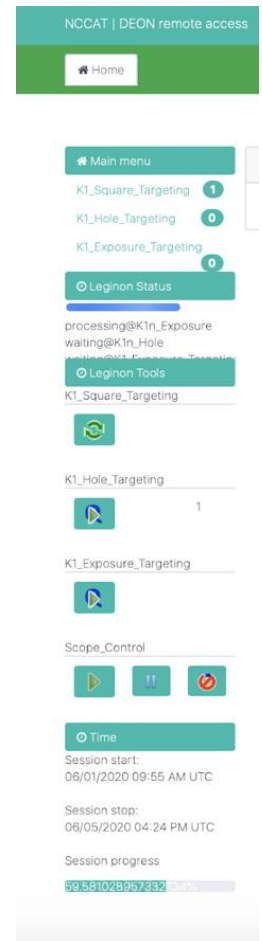
4.6. Things to keep in mind:

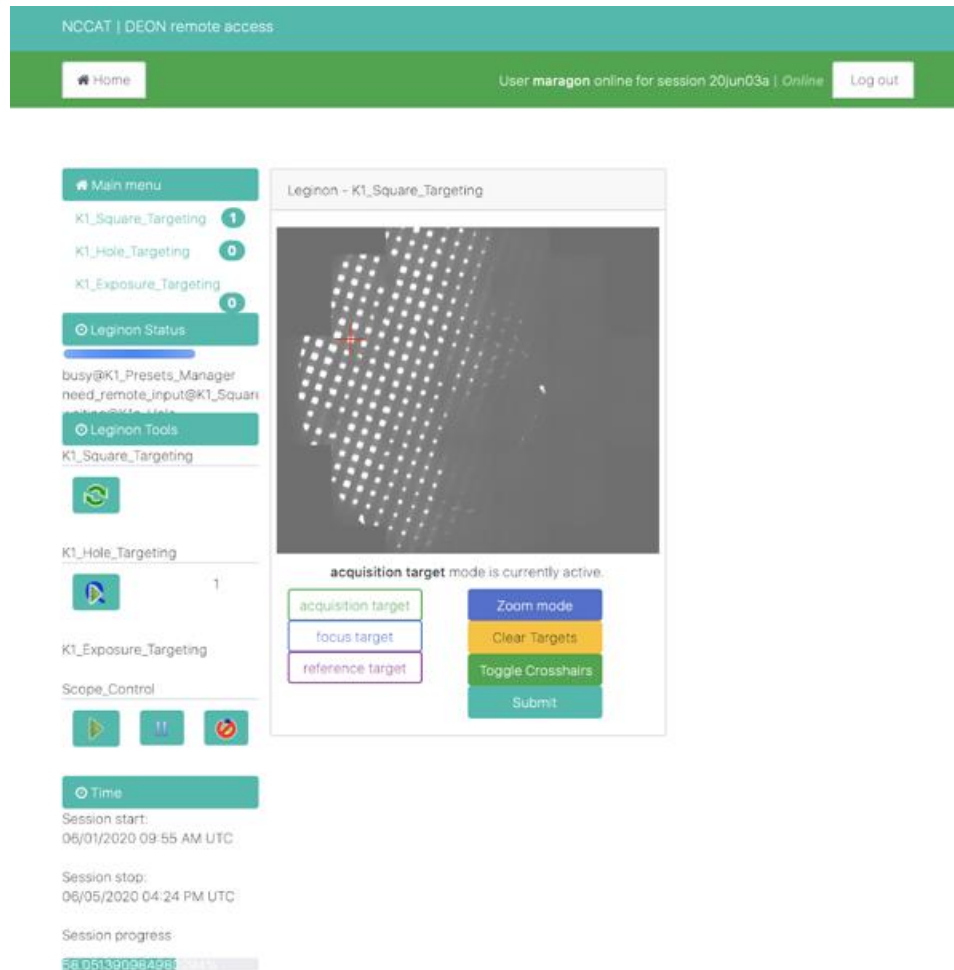
- 4.6.1. Selecting any option in the interface has a slight delay, so please be patient; click it once and wait for a response. If an option is selected before the action is completed, an error will appear cautioning the user to wait
- 4.6.2. Do not submit both Hole_Targeting and Exposure_Targeting queues at the same time, an error will appear stating that the scope is busy

4.7. Square Targeting

4.7.1. Click the Square_Targeting button (in **Leginon Tools** section)

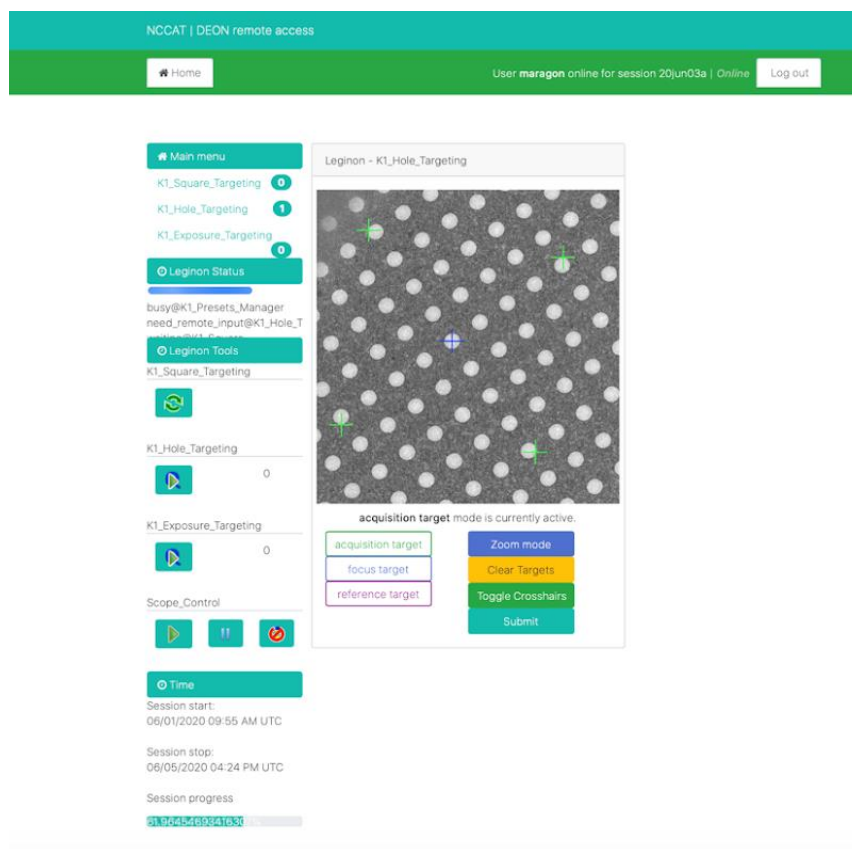
- 4.7.1.1. The Square_Targeting node (in the **Main Menu** section) should have a (1) to the right, has an image awaiting input
- 4.7.1.2. Click the “*acquisition target*” button and select the squares to image
- 4.7.1.3. Use the “*zoom*” and “*clear targets*” features as needed
- 4.7.1.4. Once selected click the “*submit*” button
 - 4.7.1.4.1. Wait for the images to be processed, once the image is processed, a (1) should appear by the Hole_Targeting node (in the **Main Menu** section)





4.8. Hole Targeting

- 4.8.1. Click the Hole_Targeting node (in the **Main Menu** section)
- 4.8.2. Click the “*acquisition target*” button and select the hole targets to image
- 4.8.3. Click the “*focus target*” button and select a focus point (suggested to be equidistant between acquisition targets)
- 4.8.4. Once satisfied with selections, click the “*submit*” button.
- 4.8.5. You will see “No Leginon images ready for targeting at this acquisition level.” appear on the screen
- 4.8.6. Wait for the image to be processed. A (1) should appear next to Hole_Targeting (in the **Leginon Tools** section), now that you have submitted a target
 - 4.8.6.1. This number will increase each time you submit the hole target image and it is added to the queue
- 4.8.7. If you have selected more than one square target, the images will appear one by one in the Hole_Targeting (in the **Main Menu** section), so repeat until you have submitted all the hole targets for all the squares you have chosen
- 4.8.8. Once you have submitted all of the hole targets, click the submit to queue button under Hole_Targeting (in the **Leginon Tools** section).
- 4.8.9. If the submit queue button is available under the Exposure_Target (in the **Leginon Tools** section), continue to Exposure Targeting. Notice that a (1) should appear by the Exposure_Targeting node (in the **Main Menu** section). If the button is not available, automatic exposure targeting is enabled.
- 4.8.10. Refresh your LOI in <http://nccatweb.nysbc.org/nccatweb/> to ensure that your submission is in queue



4.9. Exposure Targeting

- 4.9.1. To select exposure targets, go to the Exposure_Targeting node (in the **Main Menu** section).
- 4.9.2. Click the “*acquisition target*” button and select the exposure targets to image
- 4.9.3. Click the “*focus target*” button and select a focus target
- 4.9.4. Once done, click the “*submit*” button.
- 4.9.5. You will see “*No Leginson images ready for targeting at this acquisition level.*” appear on the screen.
- 4.9.6. Wait for the image to be processed. Notice that a (1) should appear next to Exposure_Targeting (in the **Leginson Tools** section), now that the target is submitted. This number will increase each time an exposure target image is submitted because it is added to the queue.
- 4.9.7. If several hole targets are selected, the images will appear one by one in the Exposure_Targeting node (in the **Main Menu** section), so repeat until all exposure targets are submitted for all the holes selected
- 4.9.8. Once you have submitted all of the exposure targets, click the submit to queue button under Exposure_Targeting (in the **Leginson Tools** section).
- 4.9.9. Refresh your LOI in <https://nccatweb.nysbc.org/nccatweb/> to ensure that your submission is in queue



NCCAT | DEON remote access

Home User maragon online for session 20Jun03a | Online Log out

Main menu


- K1_Square_Targeting 1
- K1_Hole_Targeting 0
- K1_Exposure_Targeting 1

Leginon Status


need_remote_input@K1_Exposure_Targeting
waiting@K1n_Hole

Leginon Tools


K1_Square_Targeting






K1_Hole_Targeting

 1

K1_Exposure_Targeting



Scope_Control

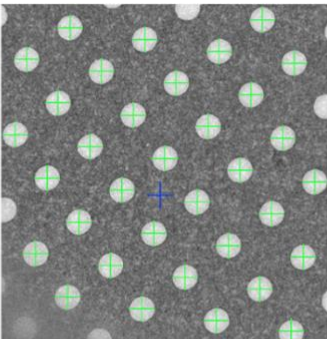
Time

Session start:
06/01/2020 09:55 AM UTC

Session stop:
06/05/2020 04:24 PM UTC

Session progress
00:03:17.8577228

Leginon - K1_Exposure_Targeting



acquisition target mode is currently active.

- acquisition target
- focus target
- reference target

- Zoom mode
- Clear Targets
- Toggle Crosshairs
- Submit