

NoMachine (NX) Portal

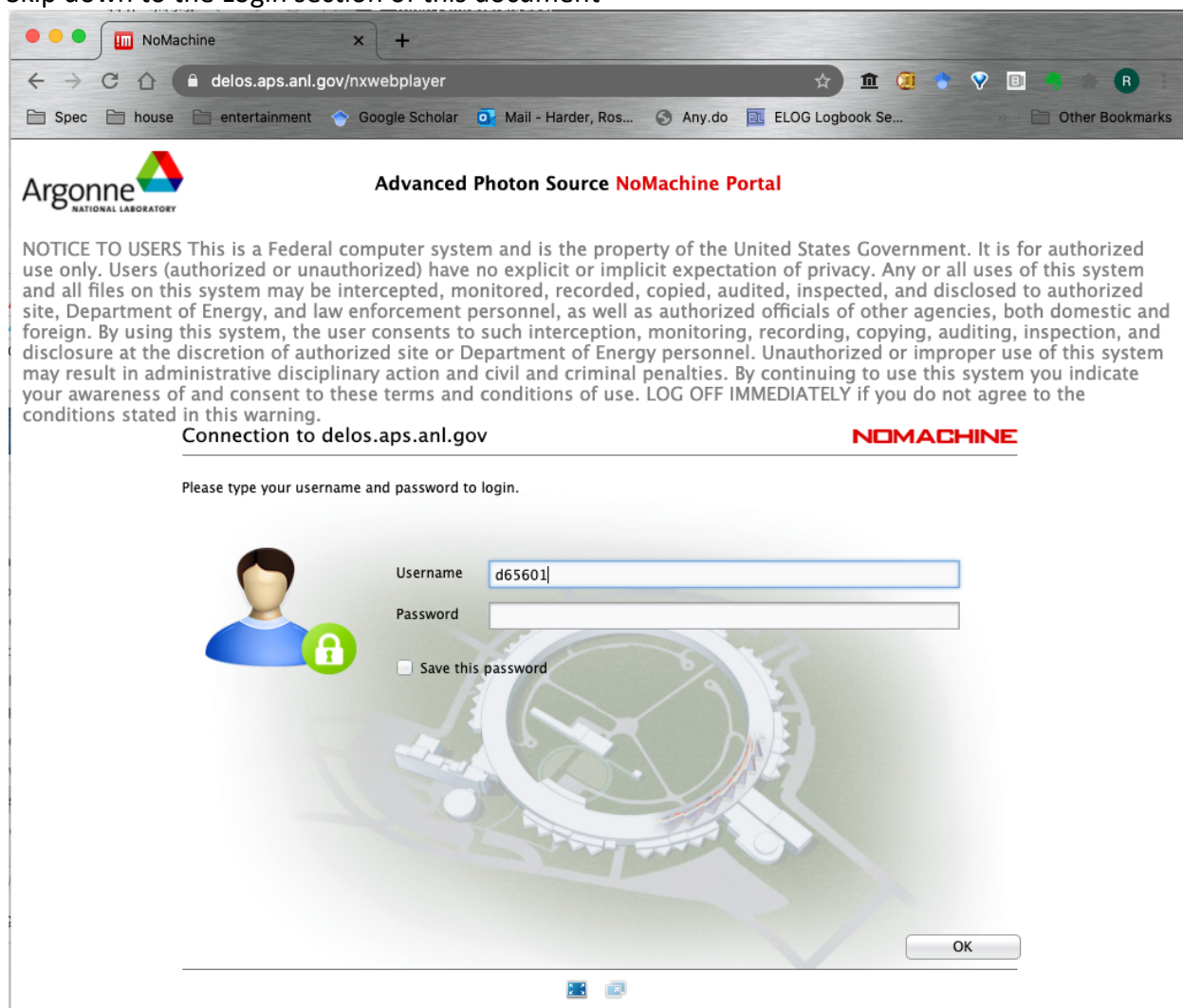
One can use either the Chrome web browser, which has capabilities that are compatible with NoMachine, or one can install the NoMachine Enterprise client software. In some cases we have seen better performance with the stand alone client application, but since upgrading the beamline computers this advantage may have gone away. According to our IT group, the Chrome browser client gets a direct connection to the beamline host, which may provide a better experience when the cloud server at APS gets heavily loaded. We have anecdotal evidence that both are better and both are worse for a given time of day or user load.

Chrome Browser Interface

1. Open a Chrome browser tab.

Go to delos.aps.anl.gov. The nxwebplayer shown below will automatically be added and loaded. You should see a screen like the following.

Skip down to the Login section of this document



The screenshot shows a Chrome browser window with the address bar at delos.aps.anl.gov/nxwebplayer. The page title is "Advanced Photon Source NoMachine Portal". The Argonne National Laboratory logo is in the top left. A "NOTICE TO USERS" paragraph is displayed, stating that the system is a Federal computer system and its use is for authorized personnel only. Below the notice, the connection is identified as "Connection to delos.aps.anl.gov". A login prompt asks the user to "Please type your username and password to login." The login form includes a "Username" field with the text "d65601", a "Password" field, and a "Save this password" checkbox which is unchecked. To the left of the fields is a user icon and a green lock icon. An "OK" button is at the bottom right of the form. The background of the page features a faint image of a particle accelerator.

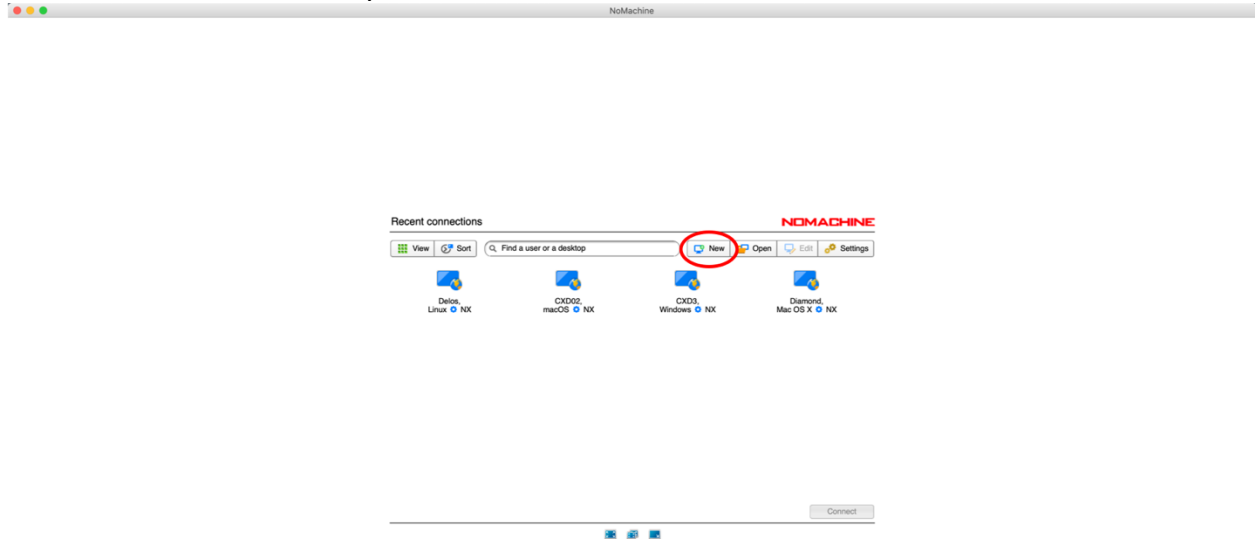
NoMachine Client Application Interface

1. Install NoMachine client software

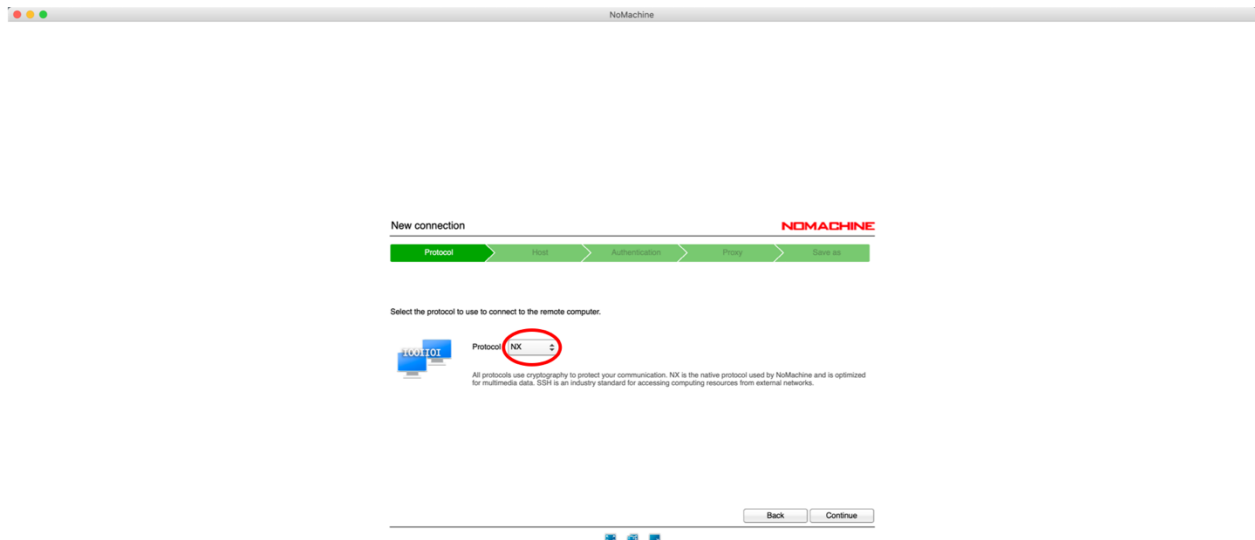
NoMachine (NX) Portal works with NoMachine client software and Chrome. We suggest to install the client software because it occupies less resources than Chrome. You can download the NoMachine software from <https://www.nomachine.com/product&p=NoMachine%20Enterprise%20Client>

2. Create a new connection (NoMachine client software only)

When you open the NoMachine client software, you need to create a new connection to the APS. Click the 'New' button to create a new one. The image below is a screenshot from a beamline staff, so more connections are listed than you will see.



Leave 'Protocol' as 'NX'.




Set 'Host' as delos.aps.anl.gov.

Leave "Use UDP communication for multimedia data" selected.

New connection NoMachine

Protocol > Host > Authentication > Proxy > Save as

Insert the hostname or IP and port where you want to connect.

 Host delos.aps.anl.gov Port 4000

The port was chosen automatically based on the default for the protocol. If the remote computer was configured to listen on a different port, please insert it above.

☒ Use UDP communication for multimedia data


Back Continue


Check 'Password' for authentication.


New connection NoMachine

Protocol > Host > Authentication > Proxy > Save as

Choose which authentication method you want to use.

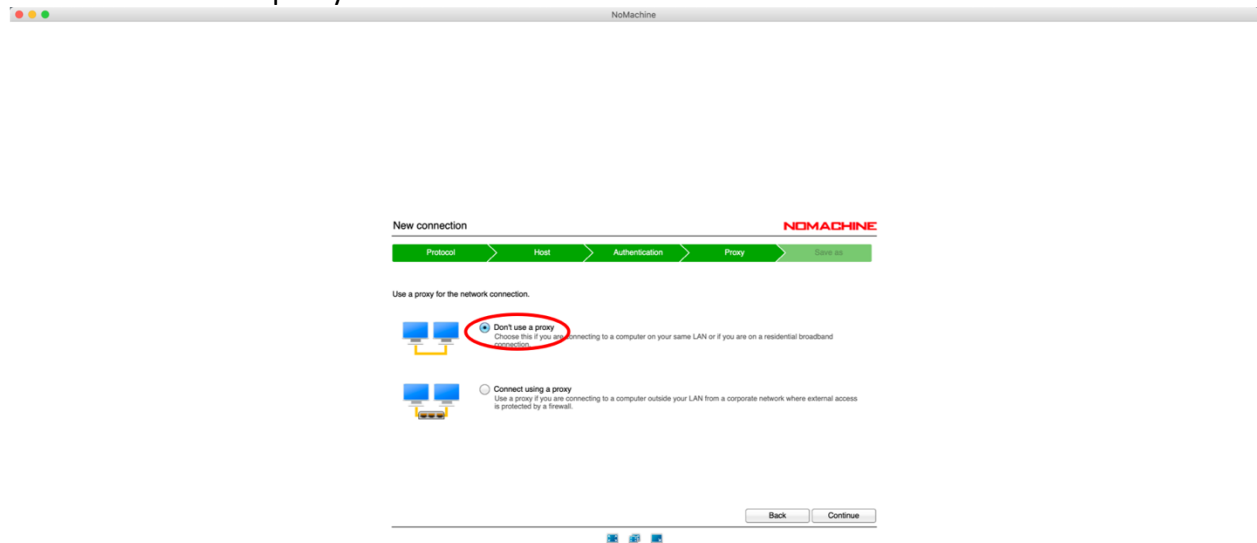
 ☒ Password
Use password authentication.

 ☐ Private key
Use key-based authentication with a key you provide.

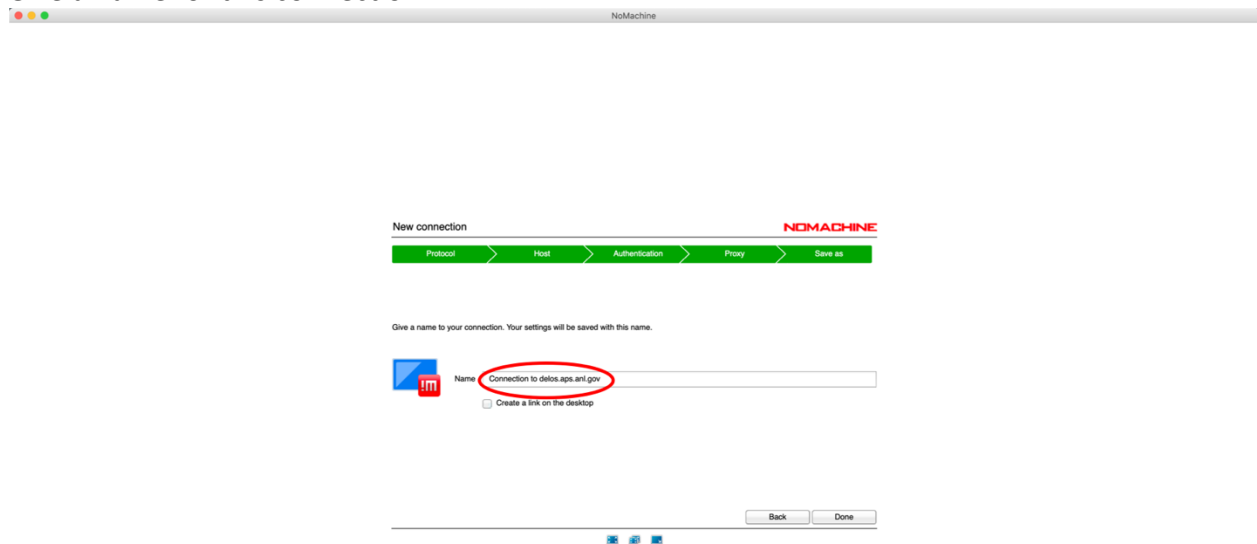
 ☐ Kerberos
Use Kerberos ticket-based authentication.

Back Continue

Choose 'Don't use a proxy' for network connection.

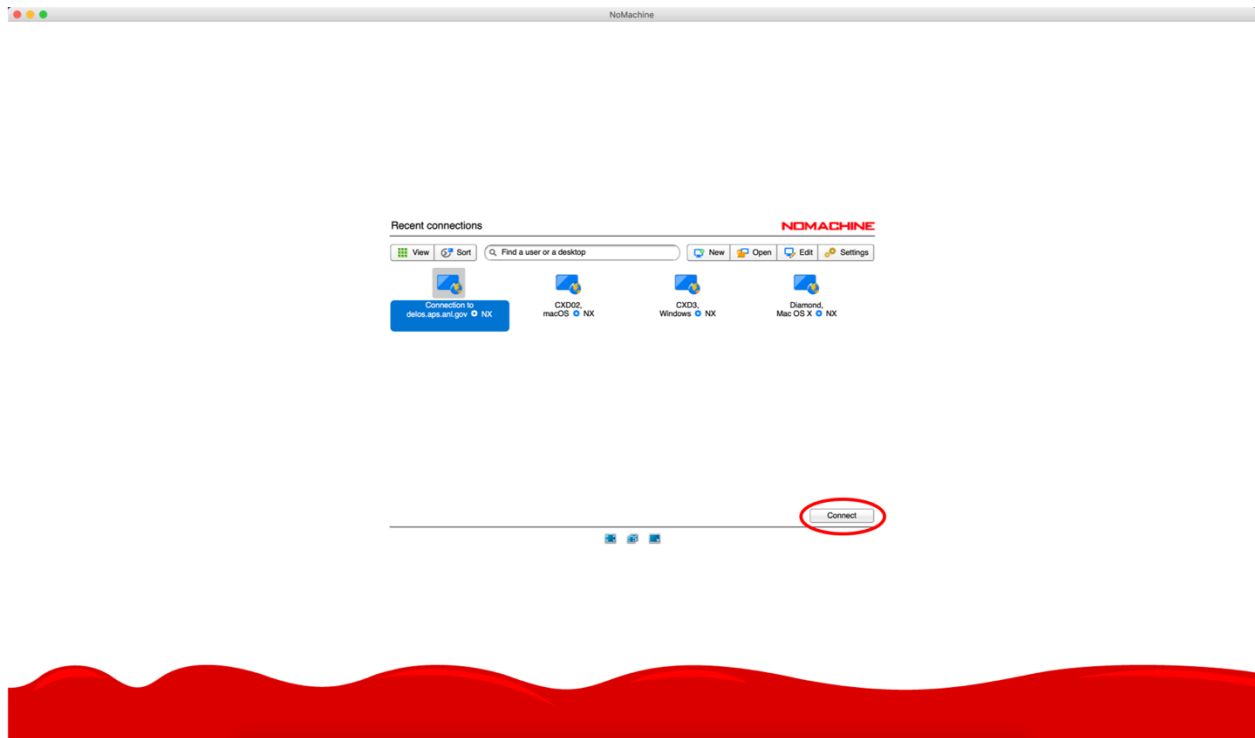


Give a name for this connection.



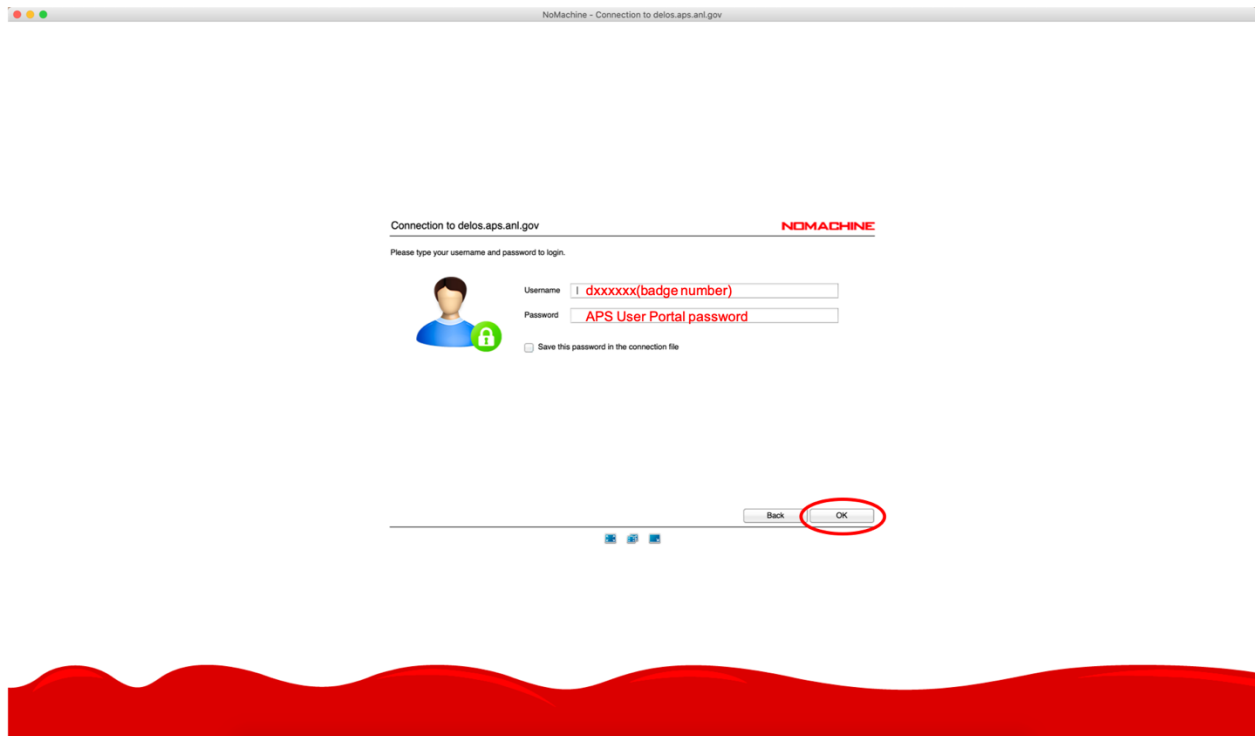
3. Connect to delos.aps.anl.gov

You can simply double click the icon which you created or select the icon and click the 'Connect' button.

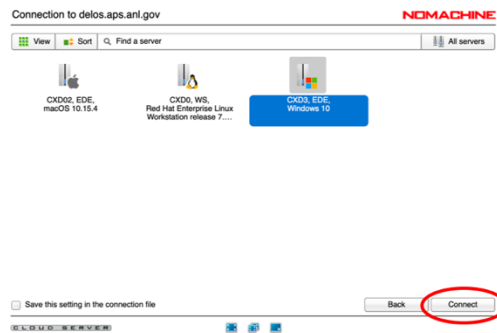


Login to delos.aps.anl.gov and attach to beamline

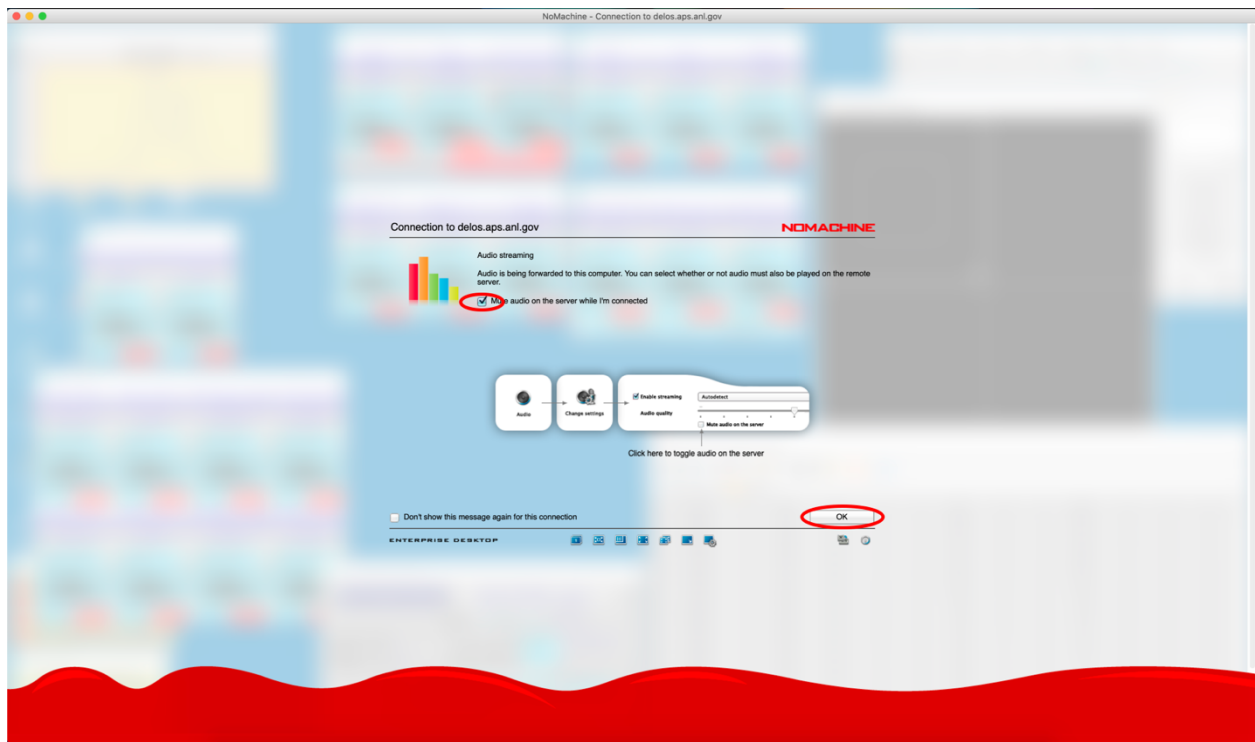
1. Your username is d+badge number and password is APS User Portal password, mostly often used for ESAF submission.



2. You can connect to CXD3 (beamline control computer, Windows) and CXD2 (analysis computer, Mac) by simply double clicking an icon or clicking the OK button after choosing an icon. CXD0 is the beamline linux computer. Here you will get your own virtual desktop and not need to compete for mouse and keyboard. But that also means that nobody use will see what you are doing. On CXD0 you can type cxdusermenu in a terminal and you should see a menu interface to open the familiar 34-ID-C controls screens.



4. Initial settings for beamline connections.
It is best to mute audio on the server. Otherwise there is an annoying clicking sound at the beamline that bothers the staff.



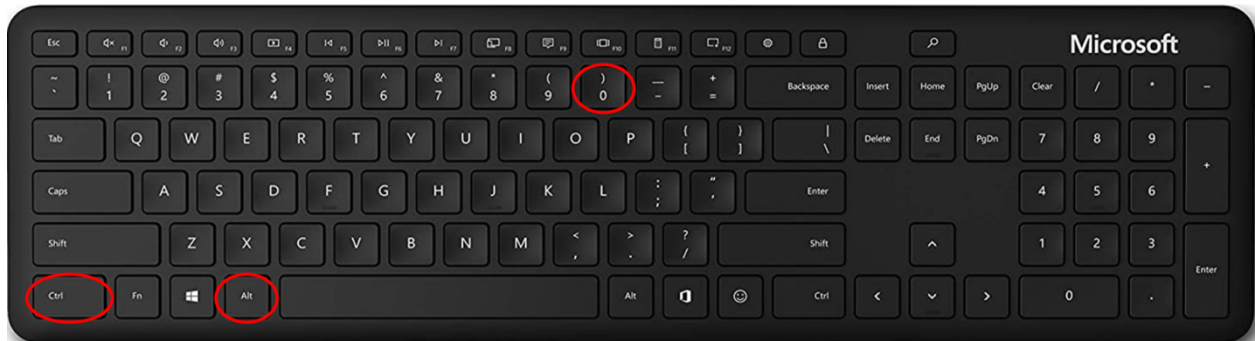
For video resolution leave the check box empty. **This is important.** If you check this box, you will change monitor resolution of the actual computer at 34-ID-C and it will cause everyone's screen resolution to be messed up.



5. Control panel

You can change settings using the noMachine control panel. Bring it up with combined key stroke, Ctrl+Alt+0 for Windows and control+alt/option+0 for Mac (see below). Also, if you position the mouse in the top left corner of the display a “tear-down” will appear. Clicking in the tear-down will bring up the menu screen.

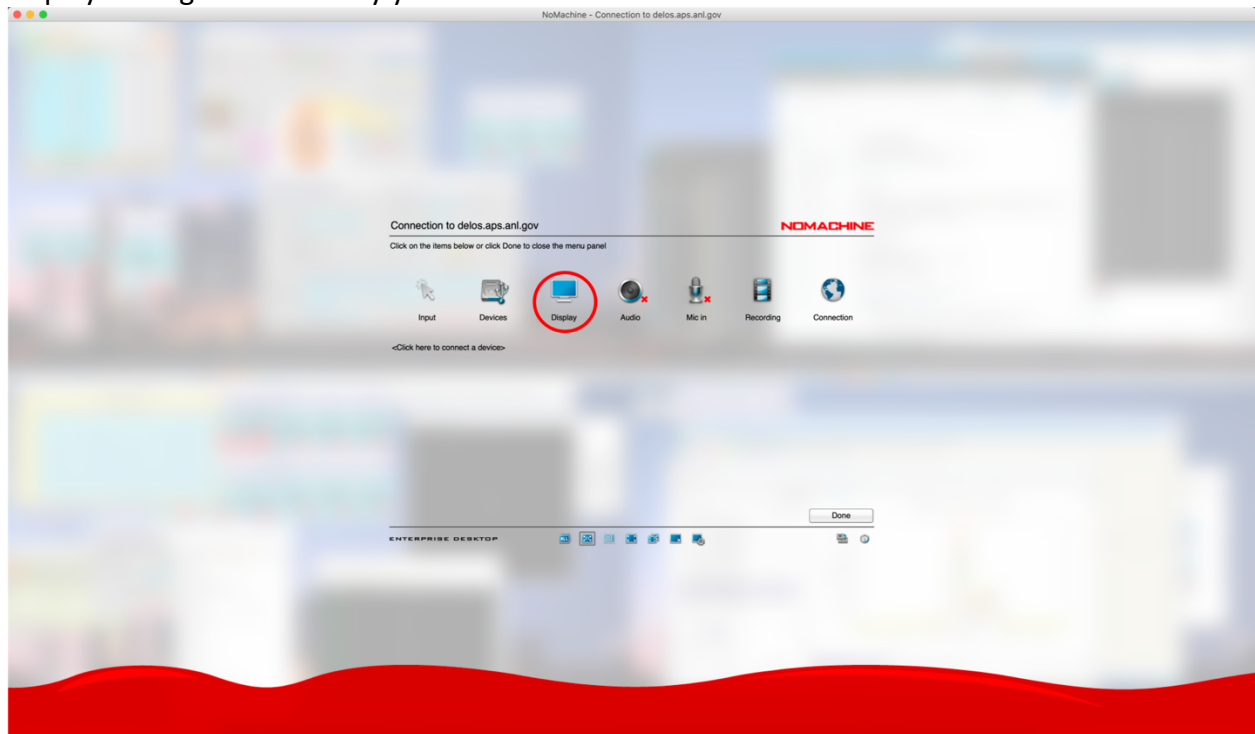
Windows



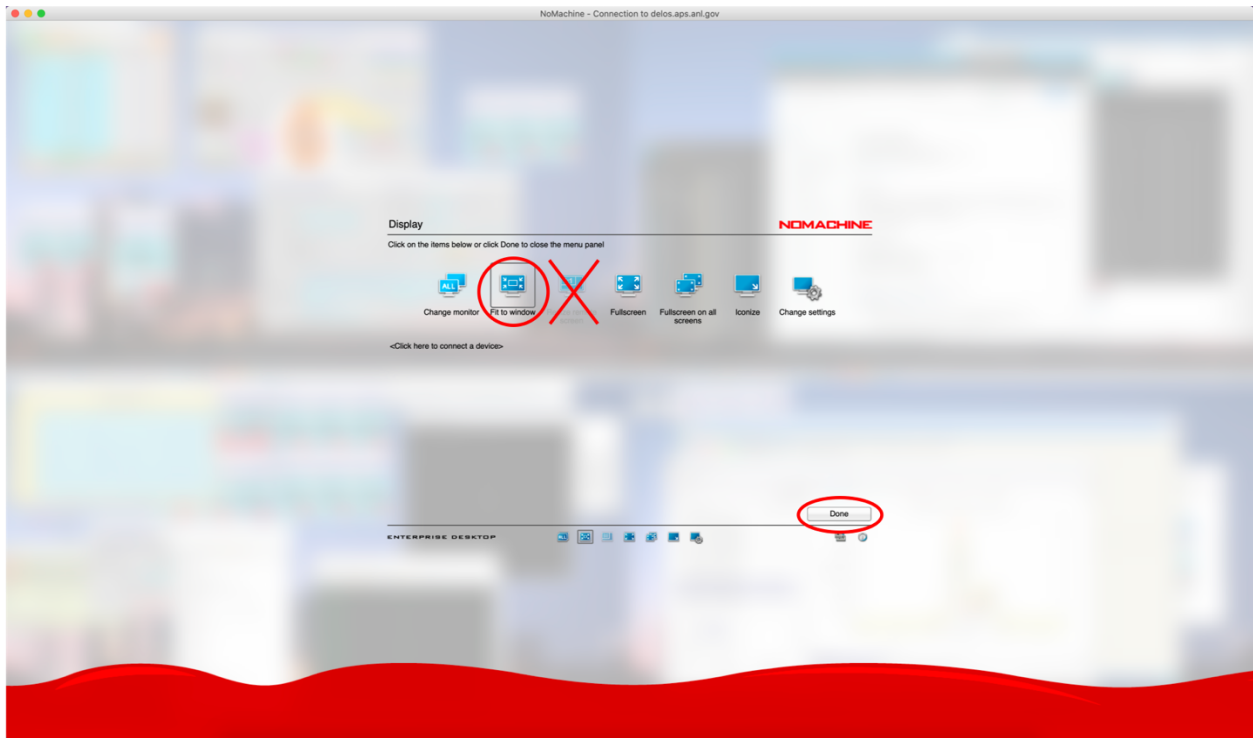
Mac



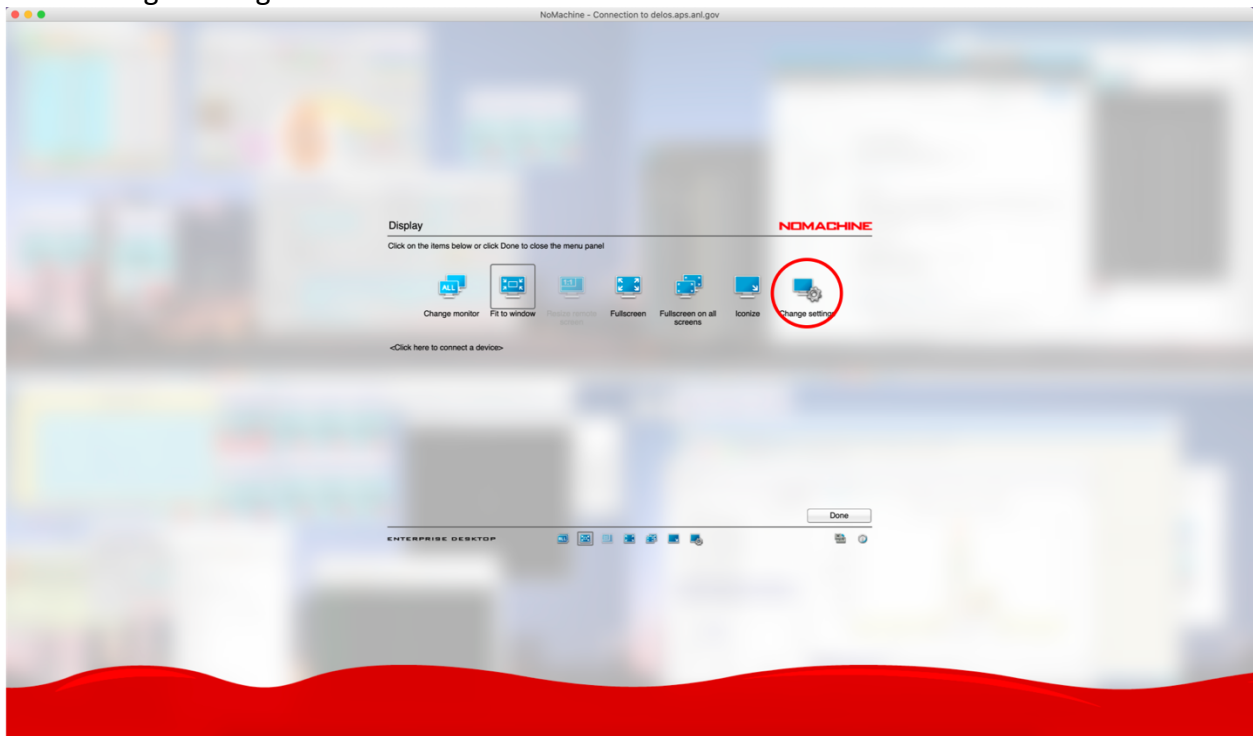
Display setting affects mostly your NoMachine connection.



'Fit to window' option will change the apparent screen size to fit into your NoMachine window. There will be no scroll bar. **Don't choose 'Resize remote screen'.** This option will change the monitor resolution of the actual computer at the beamline and this affects everyone's screen resolution. This is important!

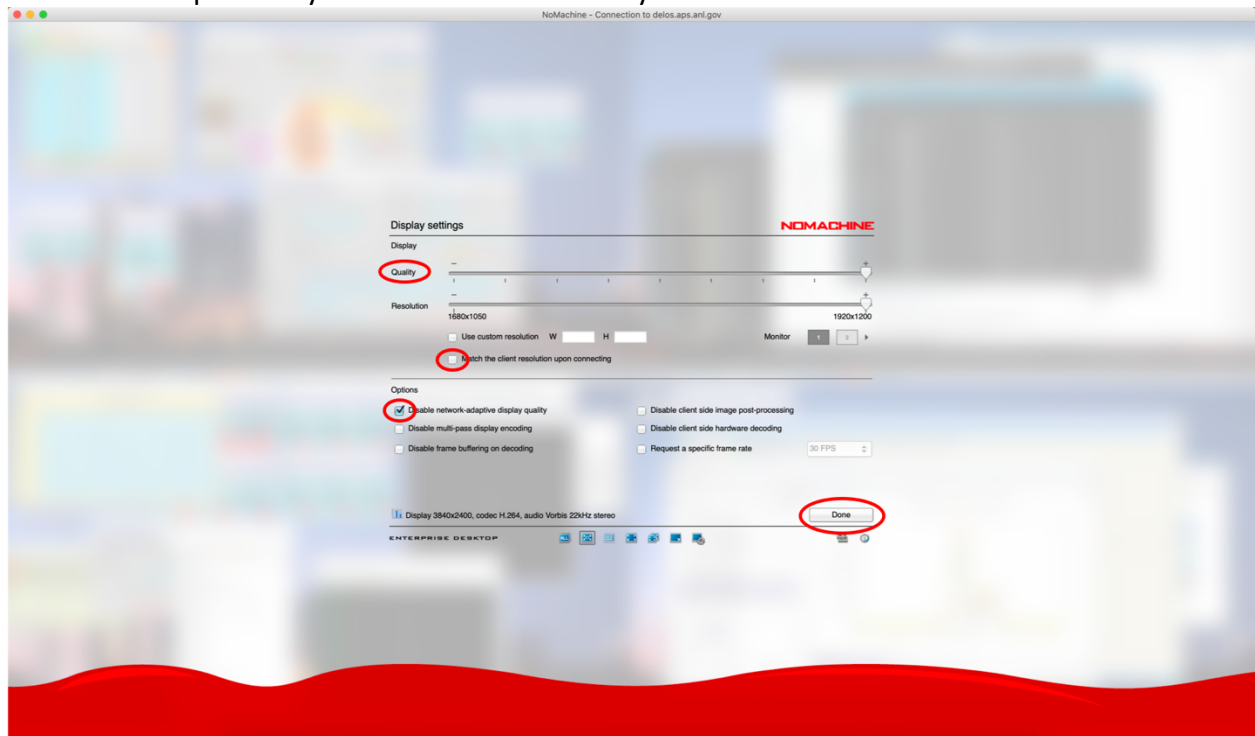


Click 'Change settings'.

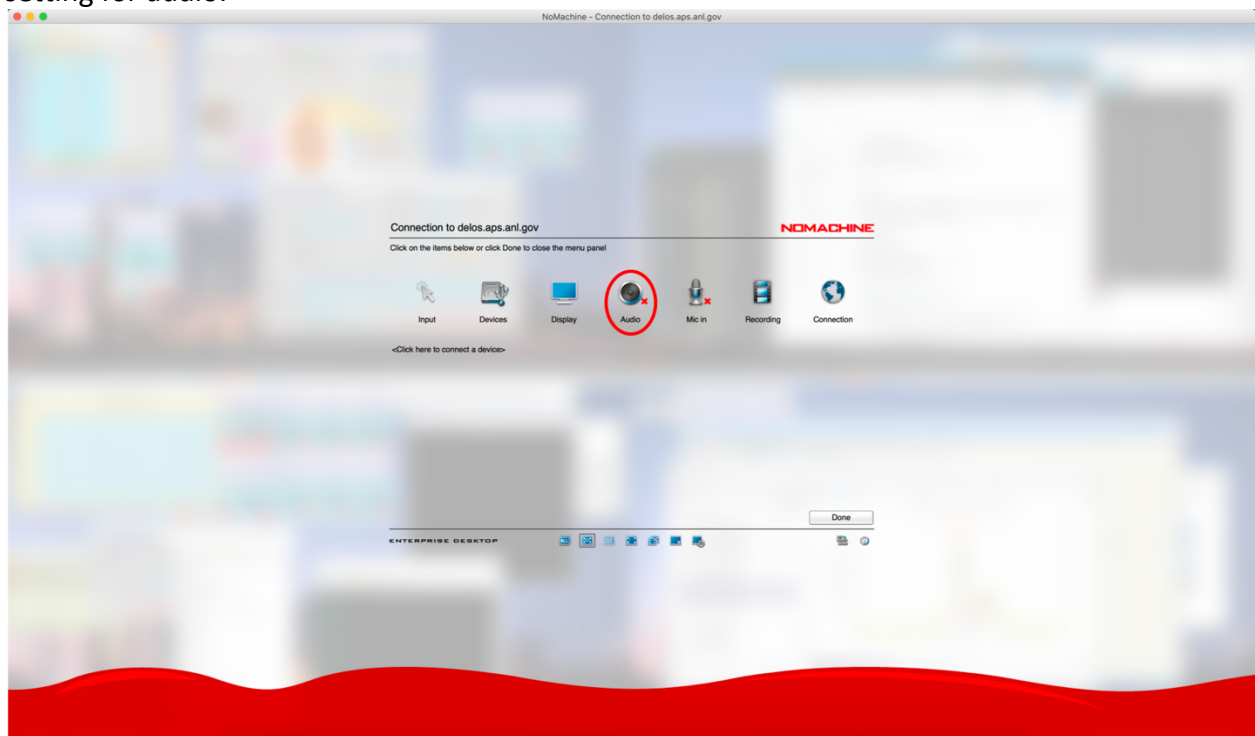


These setting options are not perfectly optimized, however, they seem to work. You can slide a bar for 'Quality' of your image depending on your internet speed. Leave a check box for 'Match the client resolution upon connecting'.

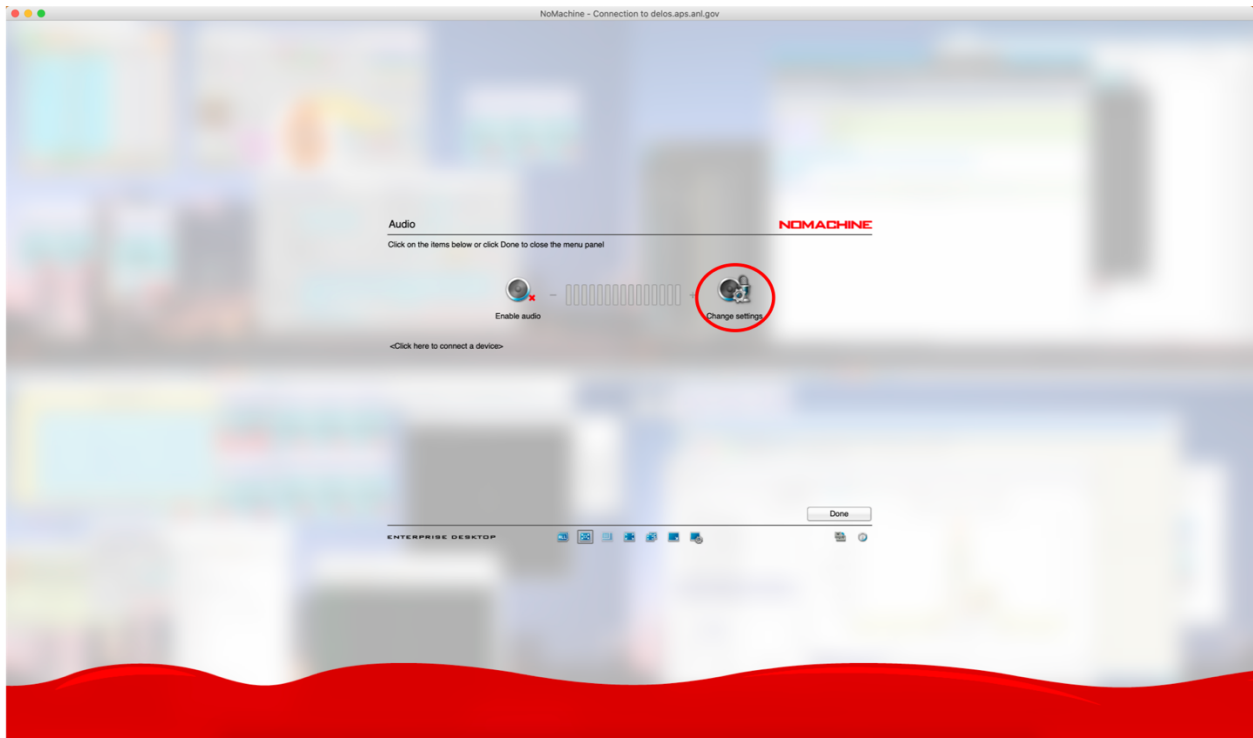
In the option, disabling network-adaptive display quality seems to work well. If you enable this by leaving the check box empty, you will see frequent screen resolution changes on your monitor. You can check all options if you want. Let us know if you learn what works best.



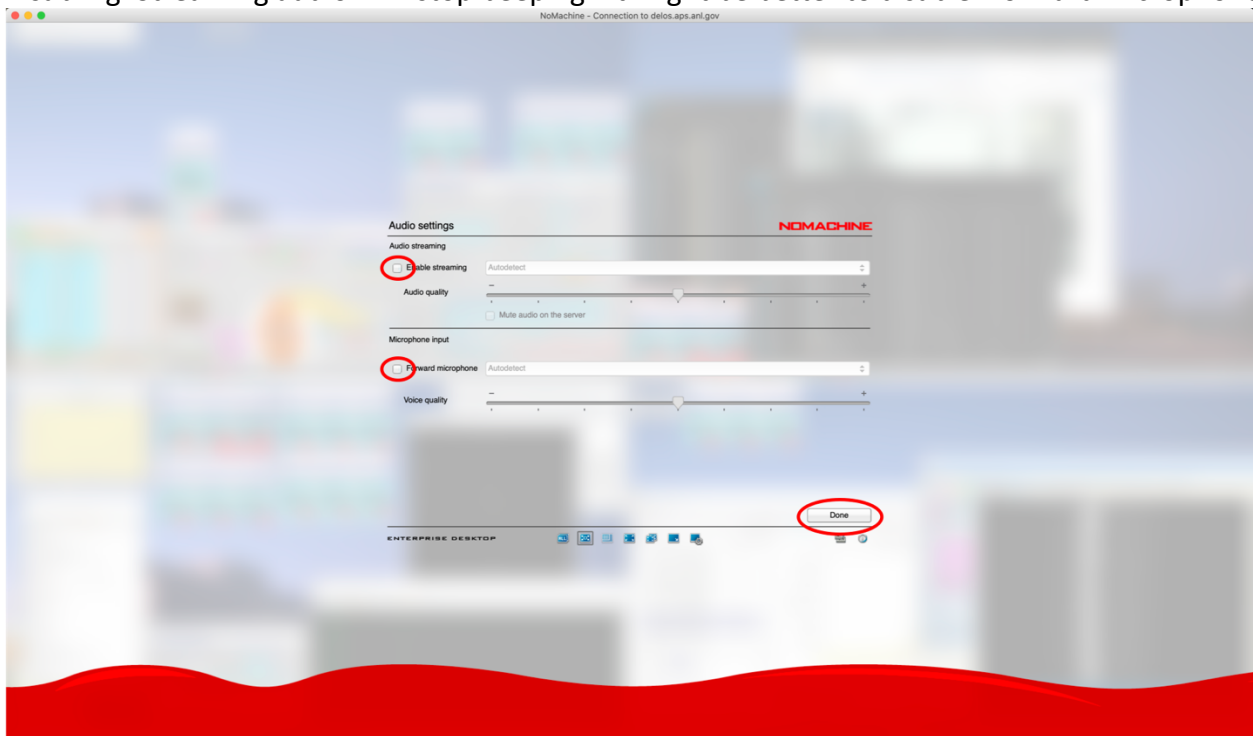
If your computer continuously beeping when you are on NoMachine connection, you need to change setting for audio.



Then click 'Change settings'.



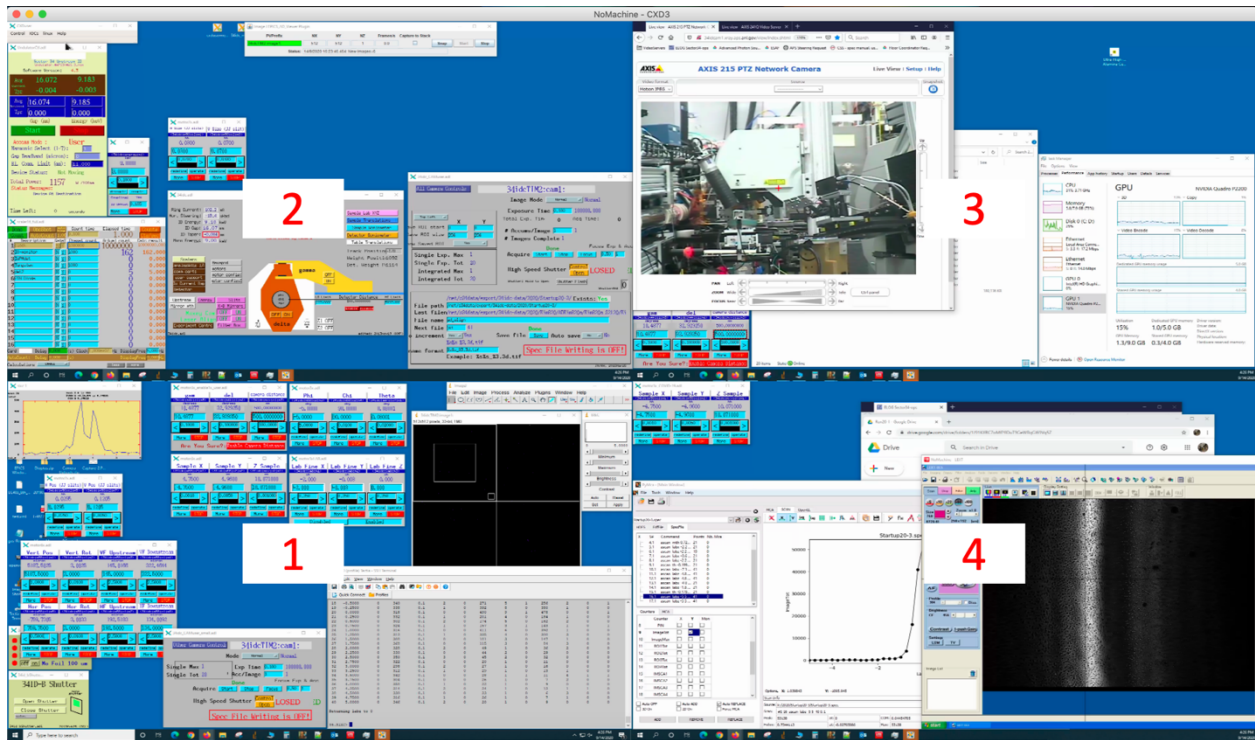
Disabling 'Streaming audio' will stop beeping. It might be better to disable 'Forward microphone'.



6. Switching monitors

You can look at all 4 monitors of the beamline control computer (CXD3) simultaneously on your screen. You can also switch to view an individual monitor. Combined key stroke, Ctrl+Alt+a (Windows) and control+alt/option+a (Mac), will bring all 4 monitors in your NoMachine screen. See '5. Control panel' to check keyboard layout for both Windows and Mac.

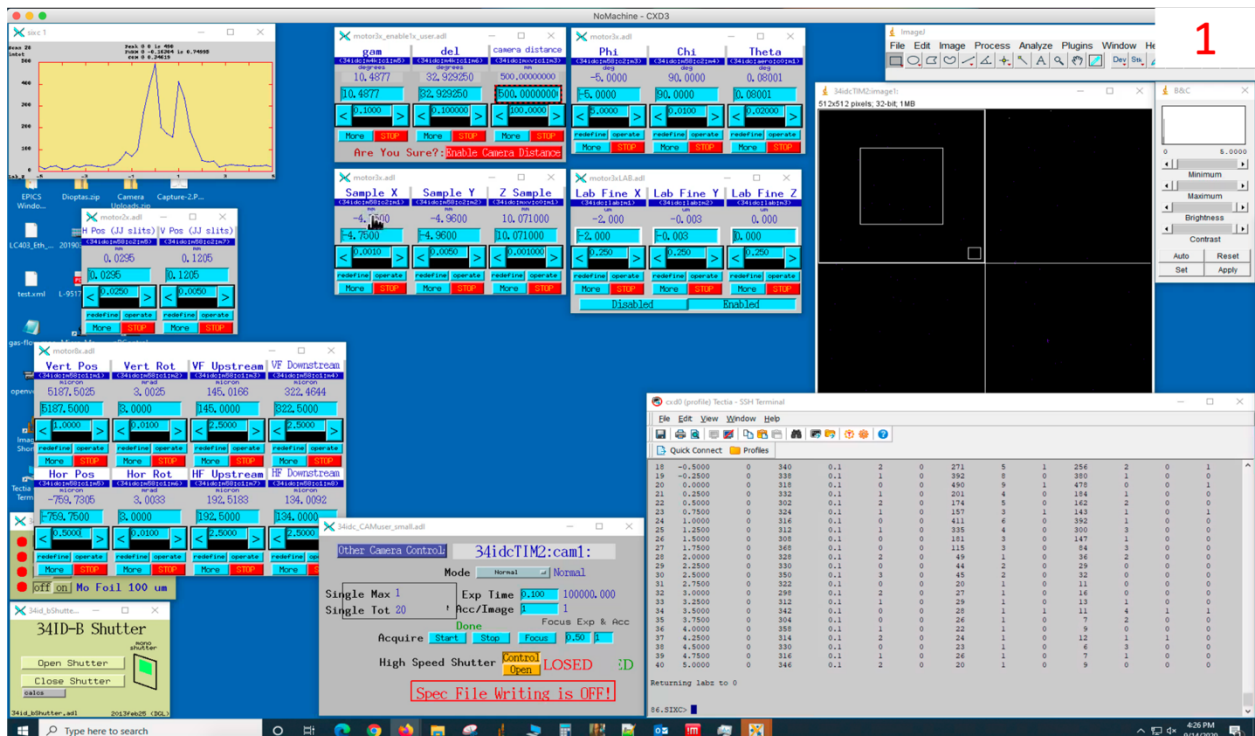
It may not be easy to read text if you don't have a big monitor. But this mode is very useful when you move windows across monitors.



You can have individual monitor 1, 2, 3, and 4 of CXD3 using Ctrl+Alt+1,2,3,4 (Windows) and control+alt/option+1,2,3,4 (Mac), respectively. CXD2 has only 2 monitors.

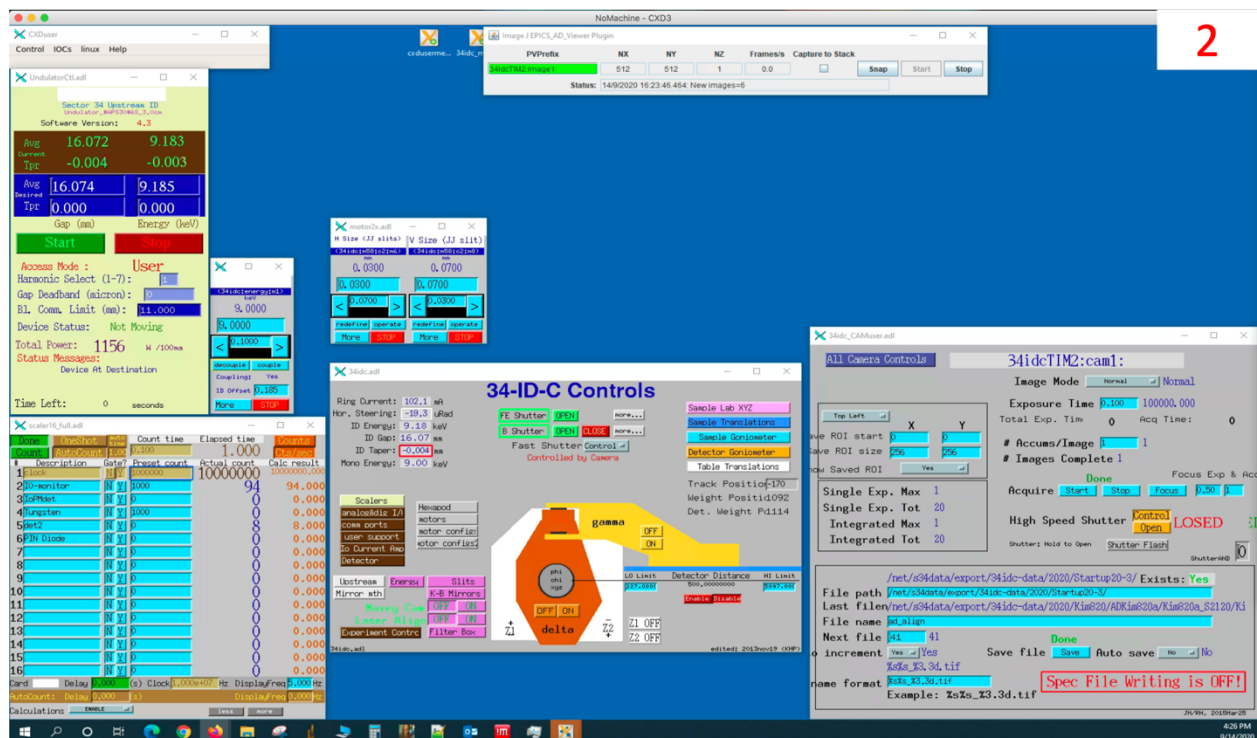
Monitor 1

This is where we typically have the spec terminal and area detector view along with motor controls.



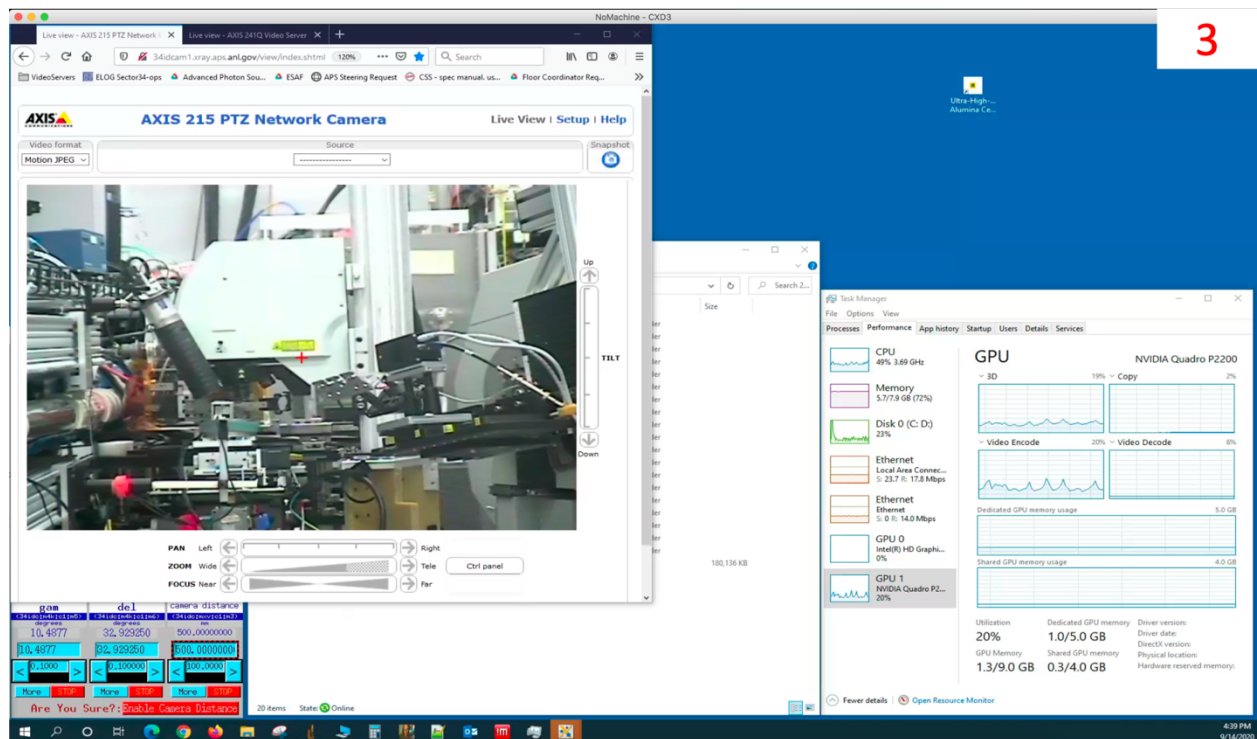
Monitor 2

The usual location for less frequently used controls.



Monitor 3

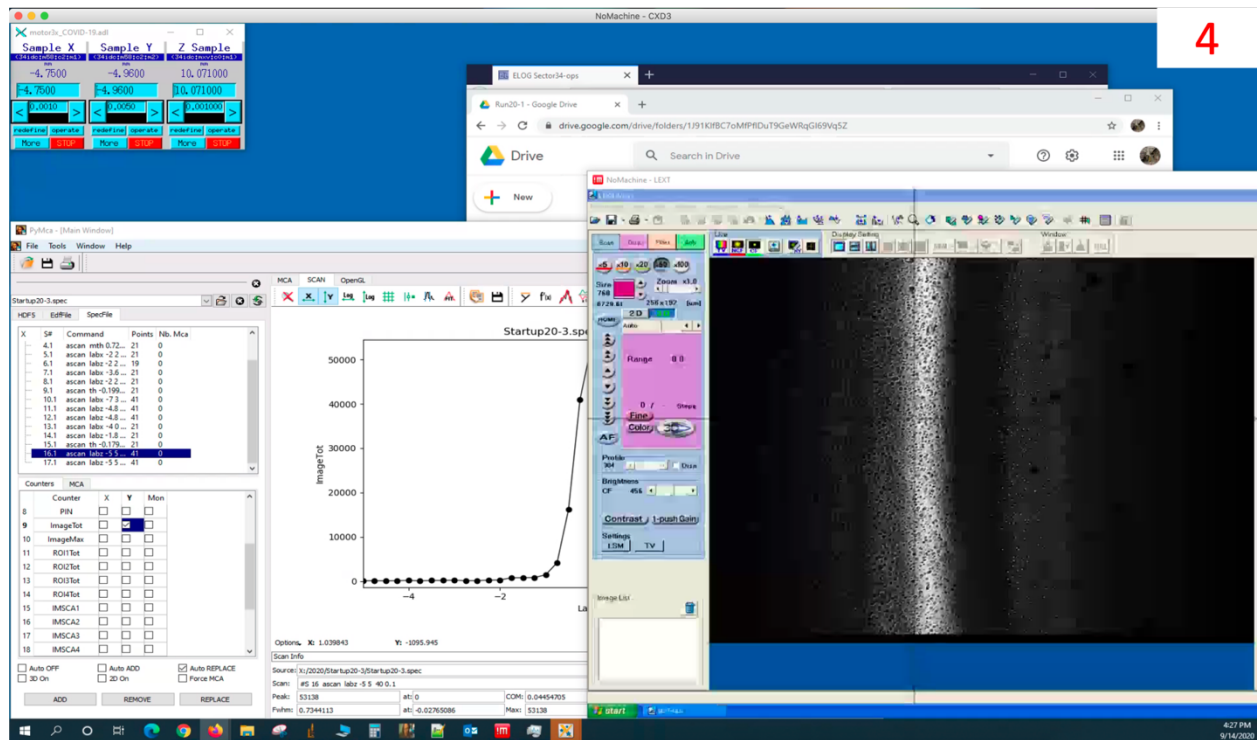
Generally where file managers are opened, web browsers and importantly the pan/tilt/zoom camera that lets you see what is going on inside the hutch. The Tischler cam is also available on a video web server that is on the bookmark bar of Firefox, if it is not already open in another tab.



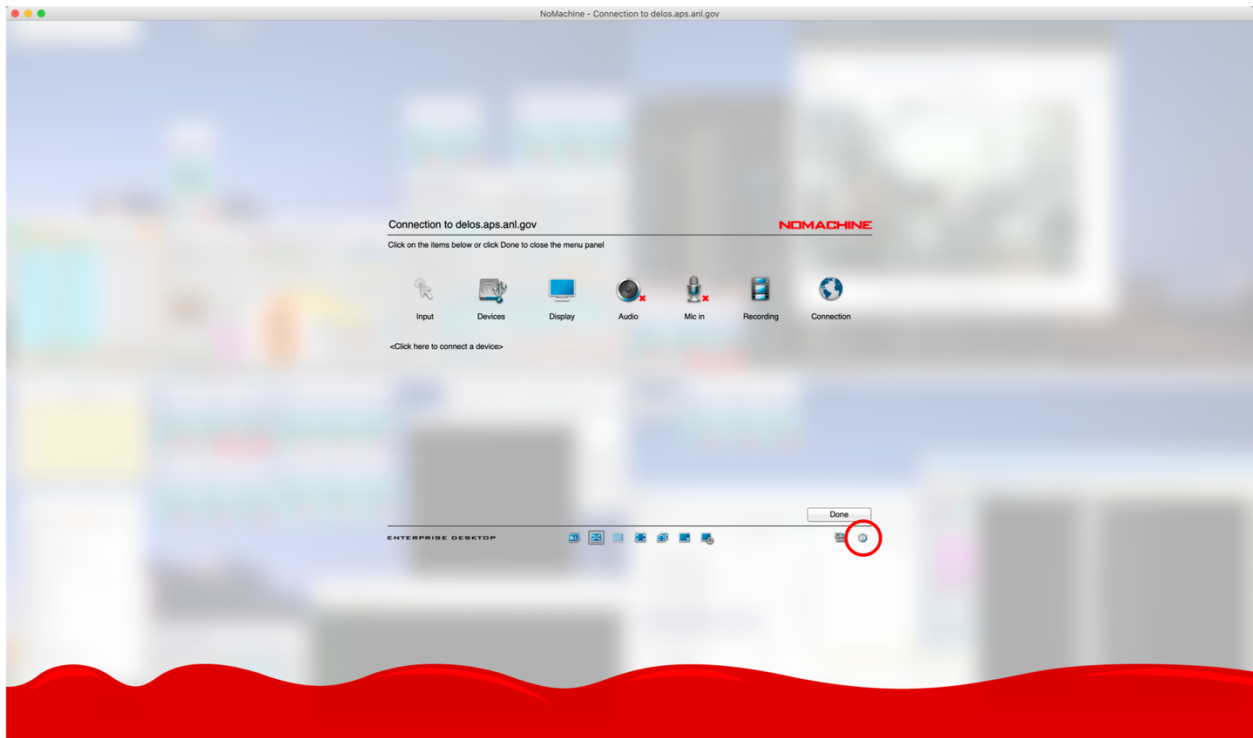
Monitor 4

The microscope control computer is on another NoMachine connection (right bottom). Be careful when you use combined key stroke on this CXD3 monitor. Don't type Ctrl+1 for Windows (control+1

for Mac) when the mouse cursor is on the microscope NoMachine window. This will remove the cross hair which indicates where the center of rotations are.



7. We have made duplicate versions of some of the motor control and detector control screens to allow us to have them on separate monitors. So typically we leave detector arm controls on the screen with the hutch view for making long range moves of the detector. We also leave coarse motion XYZ on the screen with the microscope view for aligning samples. Let us know if we should add others.
8. Tips
It is better to reduce the number of live images streaming from the server to have more clear screens. When you don't need to watch inside the hutch with the web camera, bring another tab with static image on it to the front. Even if you are not looking at this monitor the live image stream is still being sent out and taking resources. You can also turn off TV and CF mode of the microscope when you don't need to look at the sample.
9. Log out
You need to bring the control panel using Ctrl+Alt+0 for Windows and control+alt/optn+0 for Mac. Click a button says disconnect under 'Done' button.



Then click 'Disconnect from the server'. Or just close the window.

