



GUIs on Blanca

GUIs on Blanca

- Daniel Trahan & Andrew Monaghan
- *Email:* Daniel.Trahan@Colorado.edu, Andrew.Monaghan@Colorado.edu
- *RC Homepage:* <https://www.colorado.edu/rc>

Sign in! <http://tinyurl.com/curc-names>

- Slides available for download at:
https://github.com/ResearchComputing/CHANGE_2019



Outline

- X11 Forwarding
- VNC
- Engineframe



X11 Forwarding

- X11 forwarding – Presents interactive GUI applications running on RC resources on your local machine.
- Requires additional software installed locally:
 - Windows: Xming X11 Server - <https://sourceforge.net/projects/xming/>
 - MacOS: XQuartz X11 Server - <https://www.xquartz.org/>
 - Linux: Built into OS
- After installing the application, simply open the X11 server application and log into blogin01 with the command:

```
ssh -Y <username>@login.rc.colorado.edu
```

- The string <username> should be replaced with your username.



X11 Forwarding

- Once on blogin01, you can access any GUI application by loading the associated module and running the application from the command line.
- GUI applications like MATLAB can be run directly from blogin01 or directly on ics owned Blanca nodes.
 - Start an interactive job on ICS nodes to run GUI applications
- Spin up an interactive job:

```
sinteractive --time=00:10:00 --qos=blanca-ics
```



VNC

- VNC = Virtual Network Computing
- Displays a full remote desktop on your local machine!
- Blanca ICS users have access to blogin01's installed VNC server
- To access blogin01's VNC server, users must have a VNC client installed on their local machines:
 - Windows: No built in solution! Must install external software. Download VNC Viewer from RealVNC here: <https://www.realvnc.com/en/connect/download/viewer/>
 - MacOS: Built into operating system
 - Linux: Varies, download vncviewer from package manager if not installed



Using VNC (1)

1. Load up a terminal (or PowerShell) on your local machine and connect to blogin01.rc.colorado.edu
2. On blogin01, run the command `vncserver`
 - Opens a specific port on blogin01 to connect to from your local machine

```
[datr2651@blogin01 ~]$ vncserver  
  
New 'blogin01:9 (datr2651)' desktop is blogin01:9  
  
Starting applications specified in /home/datr2651/.vnc/xstartup  
Log file is /home/datr2651/.vnc/blogin01:9.log
```

- Copy the digits following the colon on blogin01
- In this example, my port is **9**



Using VNC (2)

3. On blogin01 run the command `vncpasswd`

- This will prompt you to set a password to access your vncserver port. Simply set and verify your password. You can change this by rerunning the command.

```
[datr2651@blogin01 ~]$ vncpasswd  
Password:  
Verify:
```

4. Open a new terminal (or PowerShell) on your local machine and run the command:

```
ssh -N -L 59<xx>:localhost:59<xx> <username>@blogin01.rc.colorado.edu
```

- Replace `<xx>` with the port number given by `vncserver`. Single digit ports should be lead with a 0. In this example I would replace `<xx>` with `09`
- Login using your normal RC credentials



Using VNC (3)

5. Open your VNC Client!

- On Windows open the installed VNCViewer application
- On MacOS, open up Finder and press [Command] + K or navigate to the “Go” menu and click “Connect to server”
- On Linux, run the command `vncviewer`

6. Connect to `localhost:59<nn>`

- On mac, type: `vnc://localhost:59<nn>`
- On Linux machines steps 5 and 6 can be done with 1 command:

```
vncviewer localhost:59<nn>
```

- The value of `<nn>` is again the port number given by vncserver on step 2
- In this example the value of `<nn>` is again `09`

7. Type in the password you created with `vncpasswd`



Some VNC Notes

- The VNC utilizes KDE as its windows and desktop manager
- Everything that could be done on a login node can be done on this desktop
- Specialized GUI applications installed onto blogin01 can be accessed through KDE's Menus
- More general software available through modules should be accessed through KDE's terminal
- VNC is not officially supported by RC. Generally this means we cannot ensure assistance on issues regarding VNC



Engineframe

- RC also offers access to a visualization cluster useful for viewing models and data
- Must request access to cluster through rc-help@colorado.edu
- When added, you can access the cluster through viz.rc.colorado.edu
- All files located within your home and projects directory are available to you within Engineframe's environment.
- Demo!



Thank you!

- Please fill out the survey: <http://tinyurl.com/curc-survey18>
- Sign in! <http://tinyurl.com/curc-names>
- Contact information:
rc-help@Colorado.edu
Daniel.Trahan@Colorado.edu
- Slides and Examples from this course:
https://github.com/ResearchComputing/CHANGE_2019

