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## Accessing HPC cluster from Linux / Mac

- Set up workstation for SSH tunneling will make logging in and transferring files significantly easier
- Installing and running an X server will allow you to use graphical software on the HPC clusters.
  - a. X server is a software package that draws on your local screen windows created on a remote computer (such as an NYU HPC). [XQuartz](#).

### 1. Setting up a tunnel you can reuse

- a. set up a folder named as ".ssh" under your home directory
  - i. to see the contents of a directory, enter "ls -la"
  - ii. enter "mkdir ~/.ssh" to establish
  - iii. enter "chmod 700 ~/.ssh"
- b. edit the file ".ssh/config"
  - i. enter "sudo nano ~/.ssh/config"
  - ii. paste the following into config

# first we create the tunnel, with instructions to pass incoming  
# packets on ports 8024, 8025 and 8026 through it and to specific  
# locations

Host hpcgwtunnel

HostName gw.hpc.nyu.edu

ForwardX11 no

LocalForward 8025 dumbo.hpc.nyu.edu:22

LocalForward 8026 prince.hpc.nyu.edu:22

User **NetID**

# next we create an alias for incoming packets on the port. The  
# alias corresponds to where the tunnel forwards these packets

Host dumbo

HostName localhost

Port 8025

ForwardX11 yes

User **NetID**

Host prince

HostName localhost

Port 8026

ForwardX11 yes

User **NetID**

# Use HPC

1. starting the tunnel
  - a. enter "ssh hpcgwtunnel"
    - i. **Important:** you must leave this window open for the tunnel to remain open. It is best to start a new terminal window for subsequent logins.
  - b. Logging in via the tunnel
    - i. Open a new terminal window
    - ii. Use ssh to log in to the cluster
      1. enter "ssh -Y prince"
2. Check the available module
  - a. \$ module avail
    - i. tensorflow
      1. specify version
3. find jupyter
  - a. jupyter
    - i. \$ mkdir envtemp
    - ii. \$ ls
      1. envtemp
    - iii. cp /share/apps/examples/jupyter/run-jupyter-gpu.sbatch .
    - iv. \$ ls
      1. envtemp
    - v. run-jupyter-gpu.sbatch slurm-5469219.out
    - vi. \$ less slurm-5469219.out
      1. to open jupyter notebook
    - vii. \$ module avail
  - b. \$ ssh -L 9562:localhost:9562 [gc2300@prince.hpc.nyu.edu](mailto:gc2300@prince.hpc.nyu.edu)
4. Make a directory, then install python, set kernel, nano batch, install tensorflow,
  - a. mkdir tensorflowEnv
  - b. module load tensorflow/python3.5/1.4.0
  - c. virtualenv --system-site-packages tensorflowEnv
  - d. source tensorflowEnv/bin/activate
  - e. ls
  - f. nano run-jupyter-gpu.sbatch
    - i. module purge
    - ii. module load tensorflow/python3.5/1.4.0
  - g. rm slurm-5489390.out
  - h. scancel 5489390
  - i. sbatch run-jupyter-gpu.sbatch
  - j. ls
    - i. wait until slurm-5489468.out appears
  - k. less slurm-5489468.out
    - i. open new terminal

ii. ssh -L 6530:localhost:6530 [gc2300@prince.hpc.nyu.edu](mailto:gc2300@prince.hpc.nyu.edu)

iii. back to original window, type q to exit

l. scancel 5489468

m. ls

n. python -m ipykernel install --user --name myTensorflowKernel --display-name  
myTensorflowKernel

o. ls

p. rm slurm-5489468.out

q. ls

r. sbatch run-jupyter-gpu.sbatch

s. less slurm-5489548.out

i. enter

t. less slurm-5489548.out

i. launch!

ssh -L 9368:localhost:9368 [gc2300@prince.hpc.nyu.edu](mailto:gc2300@prince.hpc.nyu.edu)

deactivate

cd ~