### Yehong’s HowTo for MSBC cluster

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| Useful website:  <https://msbc-cluster.ucdavis.edu/howto>  Info for login:  the username like “yhqiu24” is your username for **Central Authentication Service (CAS),** and the keyword is **your CAS keyword** | |
| Purpose | Shell commands |
| Login | yh@Yehong:~$  ssh [yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu](mailto:yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu) |
| Request for GPU | srun --gpus=1g.20gb:1 --time=4:0:0 --mem-per-gpu=20GB --cpus-per-gpu=4 --pty /bin/bash -i |
| Activate a conda env | conda activate my\_pytorch\_gpu |
| Open a GPU-enabled ipynb | yh@Yehong:~$  ssh yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu  -L 8888:gpu-6.msbc.ucdavis.edu:8888  (msbc)-~$  srun --gpus=1g.10gb --pty /bin/bash -i  (gpu-6)-~$  conda activate jupyter  (jupyter) (gpu-6)-~$  jupyter notebook --no-browser --ip=0.0.0.0  --port=8888 |
| Open a ipynb in the bkgd | nohup jupyter notebook --no-browser --ip=0.0.0.0 --port=8888 > notebook.log 2>&1 &  tail -f notebook.log |
| Run python script in the bkgd And  Check its status | nohup python3 my\_script.py > output.log 2>&1 &  ps aux | grep Inception\_FT\_HAM.py  tail -f output.log |
| Kill a process | kill -9 <PID> |
| Download file from cluster | scp  [yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu](mailto:yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu): path/to/cluster/file/filename path/to/local/file |
| Upload file from local to cluster | scp  path/to/local/file/filename  [yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu](mailto:yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu): path/to/cluster/file  *from wsl:*  /mnt/c/Users/20878/… |

Hostname: msbc.ucdavis.edu

loginID: [yhqiu24@ad3.ucdavis.edu](mailto:yhqiu24@ad3.ucdavis.edu)

~: /home/yehqiu24

scp yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu:/home/yhqiu24/filename C:\Users\20878\Desktop

ssh [yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu](mailto:yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu)

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srun --gpus=1 --pty /bin/bash -i

apptainer run /share/sifs/pytorch.sif

**Version:**

NVIDIA-SMI 565.57.01 Driver Version: 565.57.01 CUDA Version: 12.7

**Problems encountered:**

1. Try to pull a container from NVIDIA’s NGC Catalog

(gpu-6)-~$ apptainer pull docker://nvcr.io/nvidia/pytorch:24.09-py3

FATAL: While making image from oci registry: error fetching image to cache: while building SIF from layers: failed to read /etc/hosts: open /etc/hosts: permission denied

# Try to download a jupyter notebook and then open it in the pytorch container from the cluster:

**The address of the jupyter notebook in /share/sifs/pytorch.sif**: ~/.local/bin/

## Workflow:

1. Open cmd or ubuntu locally and Login to msbc
2. Apptainer> ~/.local/bin/jupyter notebook --no-browser --ip=127.0.0.1 --port=8888
3. C:\Users\20878> ssh -L 8888:127.0.0.1:8888 [yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu](mailto:yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu)

Or:

yh@Yehong:~$ ssh -L 8888:127.0.0.1:8888 yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu

**For checking:**

C:\Users\20878> netstat -ano | find "8888"

**Or**

yh@Yehong:~$ netstat -tuln | grep 8888

# Use GPU in Apptainer Container

**After login:**

(msbc)-~$ srun --gpus=1 --pty /bin/bash -i

**Check if gpus are allocated:**

(gpu-6)-~$ nvidia-smi

**Check versions of CUDA Toolkit and Apptainer Installation (Optional)**

(gpu-6)-~$ nvcc –version

(gpu-6)-~$ apptainer –version

**Check if Apptainer is Linked with NVIDIA Runtime**

apptainer exec --nv /share/sifs/pytorch.sif nvidia-smi

**Check for the Presence of NVIDIA Libraries in the Container**

apptainer exec --nv /share/sifs/pytorch.sif ls /usr/local/cuda

**Example:**

apptainer exec --nv /share/sifs/pytorch.sif ~/.local/bin/jupyter notebook --no-browser --ip=127.0.0.1 --port=8888

**Using conda env:**

yh@Yehong:~$ ssh yhqiu24@ad3.ucdavis.edu@msbc.ucdavis.edu

-L 8888:gpu-6.msbc.ucdavis.edu:8888

(msbc)-~$ srun --gpus=1g.10gb --pty /bin/bash -i

(gpu-6)-~$ conda activate jupyter

(jupyter) (gpu-6)-~$ jupyter notebook --no-browser --ip=0.0.0.0 --port=8888

How to install matplotlib, prettytable, thop, seaborn into the env of the container?

apptainer exec /share/sifs/pytorch.sif conda list

1. How to download the container to my pc?