ANU CECS MLCV1 GPU Login Instructions

ENGN8501
September 21, 2021

Important notes on using MLCV1:

- MLCV servers are provided for running ENGN8501 related projects only. **Do not** use it for other irrelevant computations. Please note that MLCV server admins have the ability to monitor resource usage at all times.
- Please always work under your personal directory only. Any data created elsewhere may be deleted.
- Please be considerate while using the server - perform only one training scheme at a time. Do not use up all computational power (we might kill your processes if you occupy excess resources!).
- Contact your tutor Sahir Shrestha (u6566739@anu.edu.au) if you have any issues.

1 MLCV1 Server Info

- 8 Nvidia GeForce RTX 2080Ti GPU, 11GB memory each
- GPU driver version: 460.73.01, CUDA version: 11.2
- 12 cores CPU, 125G memory, 7.0G swap space
- Each student should have roughly 5.0G of free disk space in their own directory

2 Setup

Log you Uni account details to the server

- Log into `https://cs.anu.edu.au/streams` using your Uni id and password, then logout. Contact CECS service desk if you don't have a CECS account.

Connect to the Server

- If you are outside the CECS network, you need to first log into the network by ssh u1234567@partch.anu.edu.au through a terminal, replace u1234567 with your Uni id, password is your Wattle password. You might need to use the ANU VPN GlobalProtect to join the ANU network first.
- Once you are in the CECS network, open a terminal, access the GPU server by ssh u1234567@mlcv1.anu.edu.au, replace u1234567 with your Uni id, password is your ANU (Wattle) password.

Using the Server

Anaconda environments

- Create a folder "u1234567" with your uId under /scratch. This will be your working directory in mlcv1.
- There is a default Anaconda environment where most of the required packages (Python, PyTorch-CUDA, Matplotlib, NetworkX, Pandas, Numpy, Scipy, etc) have been installed. To activate this environment, type anaconda in the terminal. You should see u1234567@anaconda in green if the environment was loaded successfully. You can now check installed packages by typing conda list. Please do not modify/install any packages in this base anaconda configuration.
- You can create your own anaconda environment if you require a custom set of package versions by: conda create -n *env_name* python=*python_version* . You can activate the environment by typing: source activate *env_name*. Please be aware that your home directory only has about 5GB space.
- You can refer to the Getting Started with Conda guide.
- Please only use your own personal directory for uploading code and resources.

Tips

- You might lose your ongoing processes on mlcv1 if your ssh connection gets disrupted. To avoid this, you can use **tmux** to create persistent sessions: any programs running inside this session will continue to run even if you get disconnected.
- To create a new tmux session, type: tmux new -s *session_name*. You will see a green bar at the bottom of your terminal indicating your tmux session is now active. You can have multiple active sessions at the same time.
- You can detach from a session by hitting: **Ctrl+b d** from inside an active session. You can kill a session by typing tmux kill-session from inside an active session. To attach a previously created session, type: tmux a -t *session_name*. You can now have a process running inside *session_name* even if you log out of mlcv1 (but remember your session name to re-attach it!). You can find a tmux beginners guide here.
- You can transfer data from your local machine to mlcv1 using **scp**:
scp */local/path/to/file* u1234567@mlcv1.anu.edu.au:/scratch/u1234567/.
- You can use htop to check CPU usage, and nvidia-smi to check GPU usage.

- To run your python program, type following command after activating an environment: CUDA_VISIBLE_DEVICES=0 python *filename.py* change 0 to whichever GPU is available.

3 Example demo

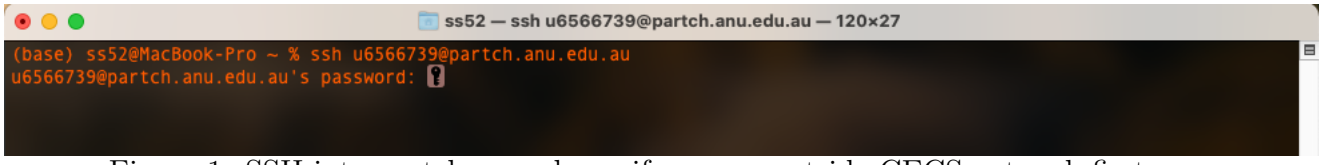

Figure 1: SSH into partch.anu.edu.au if you are outside CECS network first.

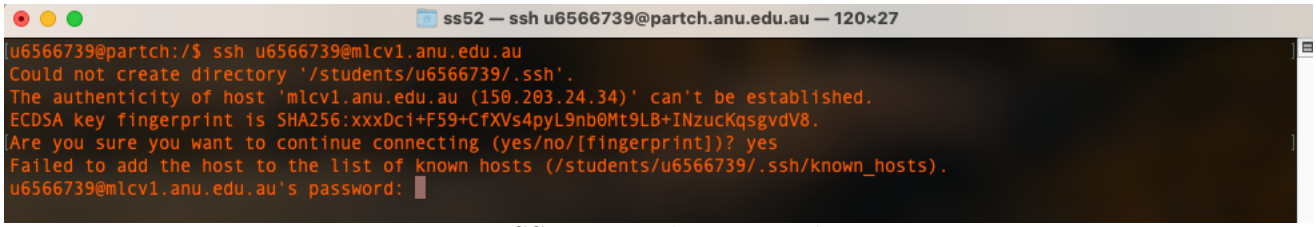

Figure 2: SSH into mlcv1.anu.edu.au.

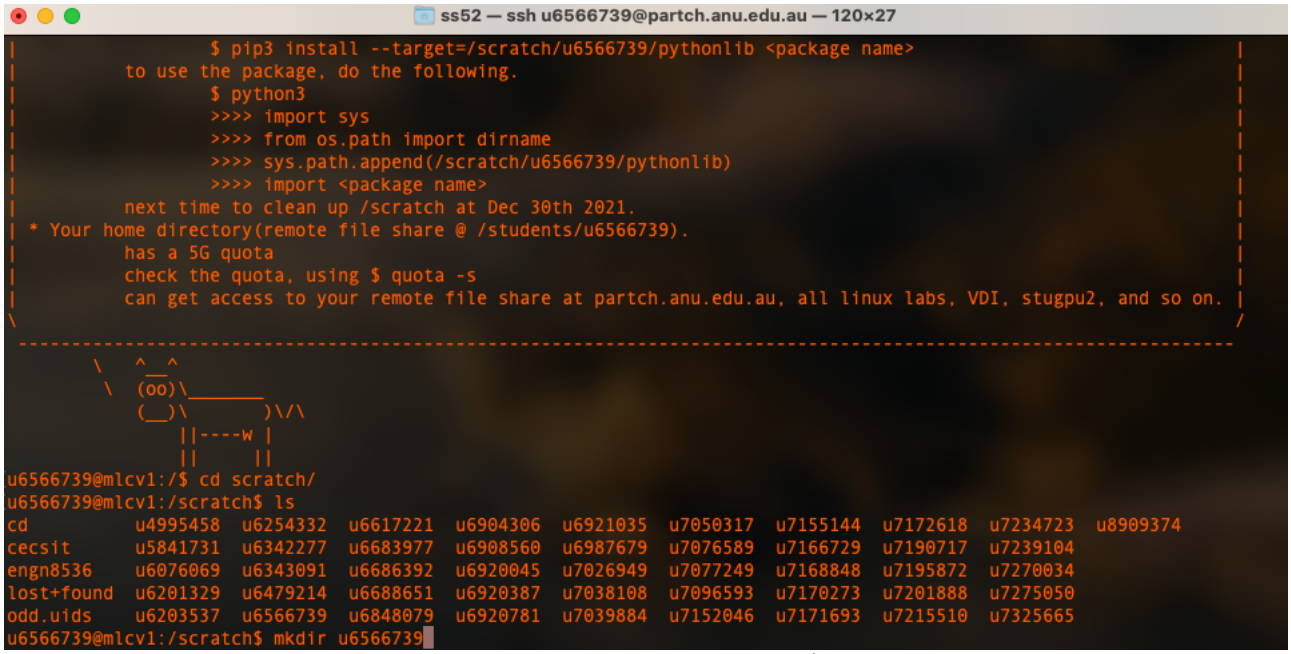

Figure 3: After successfully logging into mlcv1, navigate to /scratch and create your directory with your UID.

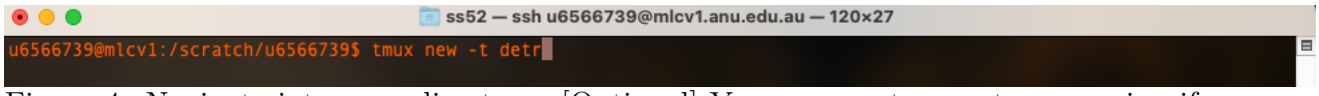

Figure 4: Navigate into your directory. [Optional] You can create new tmux session if you wish to have persistent sessions.

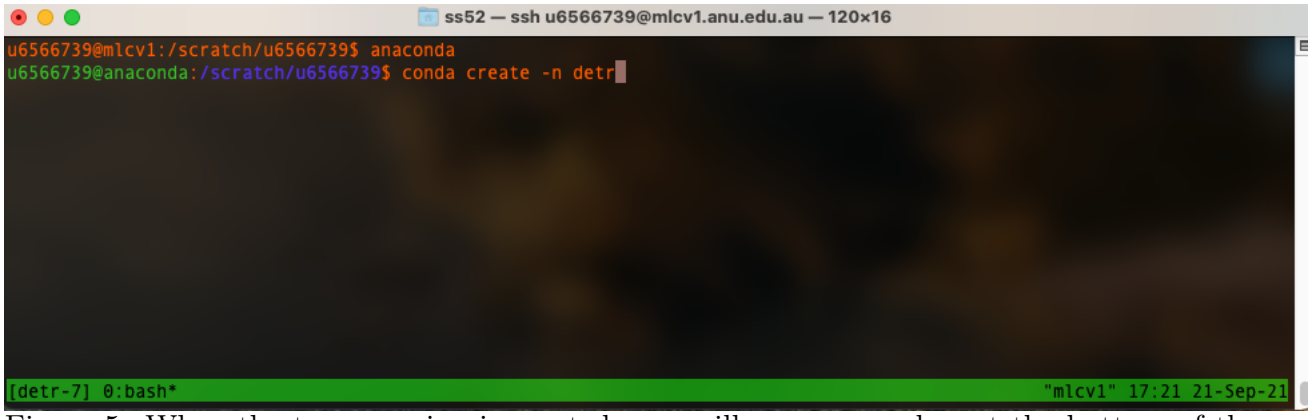

Figure 5: When the tmux session is created, you will see a green bar at the bottom of the terminal. You can activate anaconda then create a new environment if you need to.

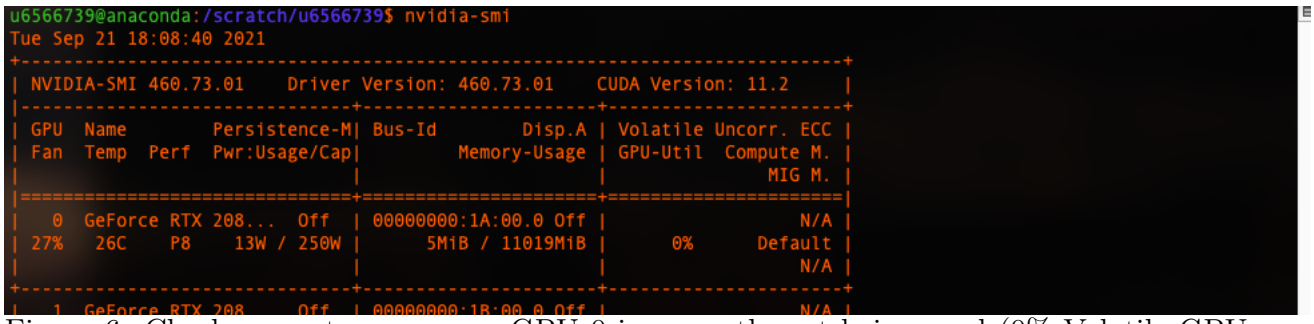

Figure 6: Check current gpu usage. GPU 0 is currently not being used (0% Volatile GPU-Util) and has has fully available memory space (Memory-Usage is 5MiB/11019MiB).