Computing resource guide - NVIDIA

See this short tutorial which briefly demonstrates the following points.

Initial connection

If you would like to connect to the NVIDIA DGX system, reach out to Asher in the slack channel. We can allow access for up to 20 users on the server.

Once approved, you will be sent a user and password, along with instructions how to connect to the VPN from windows our macOS machines.

(MacOS users – when installing the vpn, change the url in the instructions so that it ends with "fileid=110557", which will take you to the mac installation page).

Each user will be granted a 10GB slice of NVIDIA's newest A100 GPUs and 80GB NVMe SSD storage. You will have a home directory which will store the COVID-19 dataset.

Docker containers

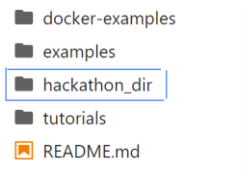
Please note that we only use docker containers on our system. We will set up everything you need to get working so this should be transparent to you as a user and there is no need to learn about docker for this event.

The only requirement is that you decide on a framework you would like to use (Pytorch, Tensorflow2, etc.) and let us know what you chose.

We will then create a container for you (an environment with the chosen framework and other libraries needed for training) along with a running Jupyter lab which you can use to create notebooks and run shell commands from the terminal.

To connect to the jupyter lab we will give you a url and a token (you will need to be connected to the vpn in order to interact with the jupyter lab).

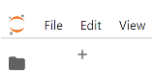
In Jupyter lab you opened in your browser, Notice on the left sidebar the "hackathon_dir".



This will point to your home directory which stores the data. This is also the location where we strongly advise you save the model checkpoints and notebooks you create.

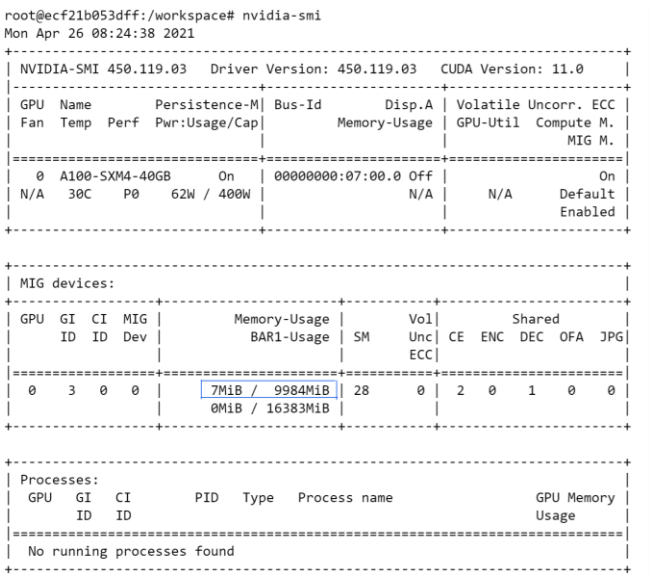
IMPORTANT – if you're docker container gets shut down for any reason, all info which is not inside this folder will get erased. Please only store notebooks/checkpoints/data in the hackathon_dir.

Now notice the "+" symbol in the top left corner



This will allow you to open a terminal and run bash commands or create new notebooks.

For example, running the nvidia-smi command from within the terminal shows that there is a total of 10GB in your allocated GPU.



```
root@ecf21b053dff:/workspace# nvidia-smi
Mon Apr 26 08:24:38 2021
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 450.119.03   Driver Version: 450.119.03   CUDA Version: 11.0     |
|-------------------------------+----------------------+----------------------+
| GPU  Name        Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Compute M. |
|                               |                      |               MIG M. |
|===============================+======================+======================|
|   0  A100-SXM4-40GB      On   | 00000000:07:00.0 Off |                   On |
| N/A   30C    P0    62W / 400W |                  N/A |     N/A      Default |
|                               |                      |              Enabled |
+-------------------------------+----------------------+----------------------+

+-----------------------------------------------------------------------------+
| MIG devices:                                                                |
+------------------+----------------------+-----------+----------------------+
| GPU  GI  CI  MIG |         Memory-Usage |        Vol|         Shared       |
|      ID  ID  Dev |           BAR1-Usage | SM     Unc| CE  ENC  DEC  OFA  JPG|
|                  |                      |        ECC|                      |
|==================+======================+===========+======================|
|  0    3   0   0  |      7MiB /  9984MiB | 28      0 |  2   0    1    0    0 |
|                  |      0MiB / 16383MiB |           |                      |
+------------------+----------------------+-----------+----------------------+

+-----------------------------------------------------------------------------+
| Processes:                                                                  |
|  GPU   GI   CI        PID   Type   Process name                  GPU Memory |
|        ID   ID                                                   Usage      |
|=============================================================================|
|  No running processes found                                                 |
+-----------------------------------------------------------------------------+
```

In case you want to also download any files (or zipped folders) to your local machine, you can right click on the file in the side bar and choose download.

Good luck!!