Additional commands for running files on the server

Ghadi Al Hajj

1 Copying files between local computer and server

Important Note: You run the commands in this section (1) from your local machine, i.e. not after logging in on the server!

1.1 Upload files and folders to the server

To copy a file from your computer to the server, use the command:

```
$ scp path/to/file/on/your/computer your_username@ml6.hpc.uio.no:.
```

If you want to copy a folder instead, use the following command:

```
$ scp -r path/to/folder/on/your/computer your_username@ml6.hpc.uio.no:.
```

These commands would copy the file/folder to your directory on the server, i.e. the one you enter when you log in on the server. You would use these commands to push your files to the server so you can use the GPUs to train your models.

1.2 Download files and folders from the server

If you want to copy files (or folders) the other way around, i.e. from the server to your local computer, for example after you have trained your models and gotten the results/images/files that you need to submit as part of the deliverables, then just swap the file/folder path with the server link.

So to copy a file from your username directory to your computer, use:

```
$ scp your_username@ml6.hpc.uio.no:./path/from/your/username/directory path/on/your/computer/
```

For example, if you have a file called "my_file.py" in a "my_folder" folder inside your_username@ml6 (or ml7), then you can download that file to, e.g. your Downloads folder, by using:

```
$ scp your_username@ml6.hpc.uio.no:./my_folder/my_file.py path/to/Downloads/folder
```

If you want to use the absolute path from the server, you would use (note that there is no dot after the semi-column):

```
$ scp your_username@ml6.hpc.uio.no:/path/on/the/server path/on/your/computer/
```

For example, to download the .tar file from the server (the one containing all the files) to, e.g. your Downloads folder, you would use:

```
$ scp your_username@ml6.hpc.uio.no://itf-fi-ml/shared/IN5400/2022_mandatory1/rainforest.tar
path/to/Downloads/folder
```

2 Running the files on the server

Before you can run the python files on the server as described in the PDF file on pages 6 and 7, you run this command to load the necessary libraries (torch, numpy...):

```
$ module load PyTorch-bundle/1.10.0-MKL-bundle-pre-optimised
```

To check which GPUs are available, you can run this command:

```
$ nvidia-smi
```

This will give you an overview of all the available GPUs with the current usage of each, so choose one that has a low Memory-Usage

```
[ghadia@ml7 ghadia]$ nvidia-smi
Wed Feb 23 19:21:26 2022
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 465.19.01    Driver Version: 465.19.01    CUDA Version: 11.3     |
|-------------------------------+----------------------+----------------------+
| 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  NVIDIA GeForce ...  On   | 00000000:01:00.0 Off |                  N/A |
| 22%   26C    P8    14W / 250W |   3870MiB / 11019MiB |      0%      Default |
|                               |                      |                  N/A |
+-------------------------------+----------------------+----------------------+
|   1  NVIDIA GeForce ...  On   | 00000000:23:00.0 Off |                  N/A |
| 22%   25C    P8     6W / 250W |   1308MiB / 11019MiB |      0%      Default |
|                               |                      |                  N/A |
+-------------------------------+----------------------+----------------------+
|   2  NVIDIA GeForce ...  On   | 00000000:41:00.0 Off |                  N/A |
| 22%   26C    P8     8W / 250W |   1190MiB / 11019MiB |      0%      Default |
|                               |                      |                  N/A |
+-------------------------------+----------------------+----------------------+
|   3  NVIDIA GeForce ...  On   | 00000000:61:00.0 Off |                  N/A |
| 23%   43C    P2   153W / 250W |   9554MiB / 11019MiB |     99%      Default |
|                               |                      |                  N/A |
+-------------------------------+----------------------+----------------------+
```

You would then use the corresponding GPU, e.g. 0, by calling

```
$ CUDA_VISIBLE_DEVICES=0 python yourscript.py
```

as described on page 7 in the PDF file of the mandatory exercise.