# Accessing NVIDIA A100 GPU on NegevHPC Cluster

**To access the NegevHPC cluster, you need to download FortiClient (or any other tool) to set up a VPN connection to the remote cluster (NegevHPC) and then connect via ssh from your local terminal/cmd.**

**See more details here: [NegevHPC - How to Connect Guide](#).**

**Notes:**

- A VNC window (as described in the link above) is not allocated to you, so **connection is available only via the terminal**.
- Each of you is provided with a unique username, and you are allowed to **access only your dedicated user** (check the following table).
- Please **do not exceed 150MB usage** in your home directories (to avoid overflow in our dedicated partition).
- After you set up the VPN connection, the user server you need to connect with ssh is **10.10.10.7**. So, for the user tech_stud_i, you connect via: **`ssh tech_stud_i@10.10.10.7`**


- Your initial password is "**Wh0Aa123456!**". When you first log in, you will be asked to change the password.

| student ID | username |
|---|---|
| 204030720 | tech_stud_1 |
| 205375504 | tech_stud_2 |
| 207286519 | tech_stud_3 |
| 207421660 | tech_stud_4 |
| 207644527 | tech_stud_5 |
| 208835637 | tech_stud_6 |
| 209661073 | tech_stud_7 |
| 211515606 | tech_stud_8 |
| 212234140 | tech_stud_9 |
| 212243257 | tech_stud_10 |
| 212324313 | tech_stud_11 |
| 314884842 | tech_stud_12 |
| 314998931 | tech_stud_13 |
| 315032029 | tech_stud_14 |
| 316028216 | tech_stud_15 |
| 317580900 | tech_stud_16 |
| 318461753 | tech_stud_17 |
| 318585577 | tech_stud_18 |
| 319115267 | tech_stud_19 |
| 319126546 | tech_stud_20 |
| 322440744 | tech_stud_21 |
| 322793910 | tech_stud_22 |
| 323095521 | tech_stud_23 |

- You can edit your files via the **vim** command (you cannot use advanced editors as you do not have VNC windows to show graphics).
- You can copy files (or directories) from other computer via the **scp** command:

```
C:\Users\yehon>
C:\Users\yehon>scp -r C:\Users\yehon\OneDrive\Desktop\DAXPY tech_stud_24@10.10.10.7:/home/tech_stud_24/DAXPY
tech_stud_24@10.10.10.7's password:
compile_and_run.sh                                    100%  161     7.8KB/s   00:00
daxpy_offload                                         100%  486KB   2.2MB/s   00:00
daxpy_offload.c                                       100%  911    47.1KB/s   00:00
```

- A **gcc** compiler (version 9.1.0) is available on the cluster that supports offloading to NVIDIA GPUs.
- Check DAXPY directory for an example how to compile and submit a job to the GPU node via the SLURM scheduler:

```
[tech_stud_24@usersrv1 ~]$ ll
total 4
drwxr-xr-x 2 tech_stud_24 tech_stud_24 4096 Jan 23 18:33 DAXPY
[tech_stud_24@usersrv1 ~]$ cd DAXPY/
[tech_stud_24@usersrv1 DAXPY]$ ll
total 500
-rw-r--r-- 1 tech_stud_24 tech_stud_24    161 Jan 23 18:33 compile_and_run.sh
-rw-r--r-- 1 tech_stud_24 tech_stud_24 497976 Jan 23 18:33 daxpy_offload
-rw-r--r-- 1 tech_stud_24 tech_stud_24    911 Jan 23 18:33 daxpy_offload.c
[tech_stud_24@usersrv1 DAXPY]$ sbatch compile_and_run.sh
Submitted batch job 143470
[tech_stud_24@usersrv1 DAXPY]$ squeue -p gpua100
             JOBID PARTITION     NAME     USER ST       TIME  NODES NODELIST(REASON)
            143470   gpua100 compile_ tech_stu  R       0:06      1 gpu002
[tech_stud_24@usersrv1 DAXPY]$ ll
total 504
-rw-r--r-- 1 tech_stud_24 tech_stud_24    161 Jan 23 18:33 compile_and_run.sh
-rwxrwxr-x 1 tech_stud_24 tech_stud_24 497976 Jan 23 18:39 daxpy_offload
-rw-r--r-- 1 tech_stud_24 tech_stud_24    911 Jan 23 18:33 daxpy_offload.c
-rw-rw-r-- 1 tech_stud_24 tech_stud_24    393 Jan 23  2023 slurm-143470.out
[tech_stud_24@usersrv1 DAXPY]$
```

- You can ensure your job is running on the GPU if you connect with ssh to the allocated node (gpu002, and only while your job is running) and run "**nvidia-smi**":

```
[tech_stud_24@usersrv1 DAXPY]$ sbatch compile_and_run.sh
Submitted batch job 143471
[tech_stud_24@usersrv1 DAXPY]$ ssh gpu002
The authenticity of host 'gpu002 (192.168.2.65)' can't be established.
ECDSA key fingerprint is SHA256:m+qhqdX4Ou8y/XSu+n0otuYJ6/EK7rE6MxvxstxsTvs.
ECDSA key fingerprint is MD5:61:66:94:e1:6c:24:b6:37:75:64:26:c8:22:0a:4f:72.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'gpu002,192.168.2.65' (ECDSA) to the list of known hosts
tech_stud_24@gpu002's password:
[tech_stud_24@gpu002 ~]$ nvidia-smi
Mon Jan 23 18:43:45 2023
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 515.43.04    Driver Version: 515.43.04    CUDA Version: 11.7     |
|-------------------------------+----------------------+----------------------+
| 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 A100-PCI...  Off  | 00000000:4B:00.0 Off |                    0 |
| N/A   48C    P0   217W / 250W |   4849MiB / 40960MiB |    100%      Default |
|                               |                      |             Disabled |
+-------------------------------+----------------------+----------------------+

+-----------------------------------------------------------------------------+
| Processes:                                                                  |
|  GPU   GI   CI        PID   Type   Process name                  GPU Memory |
|        ID   ID                                                   Usage      |
|=============================================================================|
|    0   N/A  N/A     51135      C   ./daxpy_offload                  4847MiB |
+-----------------------------------------------------------------------------+
[tech_stud_24@gpu002 ~]$
```