

183.663 Deep Learning for Visual Computing

Version

Version	Date	Changes
V1.0	2021-03-30	Initial Release

Preface

Welcome to the course Deep Learning for Visual Computing (DLVC). This document is aimed to give you an overview over the infrastructure provided to you as well as how to use it.

This is the first time this environment exists in this form. Further questions, constructive feedback or wishes for possible improvement are always welcome, please see *Contact*.

General Remarks

For Windows 10, you can use [Windows Subsystem for Linux \(WSL\)](#) to get a convenient linux command line interface. (Clarification Note: it is not necessary to use WSL for this course!)

If not specified otherwise, command examples are meant to be executed on our server when connected per SSH.

Resources, such as necessary datasets and examples will be made available under the following path: `/caa/Student/dlvc/public`

This guide itself also should be available as `/caa/Student/dlvc/public/DLVC2021Guide.md` in plaintext.

SSH Connection

You can reach our server `dlvc.cvl.tuwien.ac.at` over ssh using the username (e.g: `dlvc0000000`) and password you should have received per e-mail.

On Linux and macOS, ssh connections can be made using the terminal command `ssh`.

On Windows, you can use [Putty](#)

Copying Files

You can copy files from and to our server `dlvc.cvl.tuwien.ac.at` using SFTP.

On Linux and macOS, this can be done using the `scp` or `rsync` command.

On Windows, you can use [FileZilla](#) or [WinSCP](#).

Group Cooperation

This course allows for cooperation in groups. We have created the environment such that you can read your colleagues homedirectory by default. If you want to modify this behaviour, see the following commands:

To give your group member read permission to your homedirectory, use `chmod g+rX ~`

To remove your group members read permission to your homedirectory, use `chmod g-rX ~`

Info: The default `umask`, which influences the permissions on newly created files and directories, has been set up to enable group member read access. That is why it should be enough to modify the permissions of only the homedirectory itself, as described above, opposed to recursively changing all file and folder permissions.

SLURM Cluster

We provide you with SSH access to our job submission node `dlvc.cvl.tuwien.ac.at`. While you can move around and edit files using terminal commands (`cd,mv,cp,nano,vim`), the submission node itself provides only very limited computational resources. (While you might see much more resources in `htop`, these are not fully available for use.) We ask you kindly not to attempt any serious computational tasks on this host directly. For that exact reason, only very limited programs are installed on the submission node. Instead, use the tools described in the following sections to let our SLURM cluster, consisting of two nodes, `edna` and `skinner`, execute your tasks.

Overview

Jobs can be submitted either using:

- `srun` (interactively, showing you the output directly, blocking until your job is scheduled)
- `sbatch` (non-interactively, output is redirected to a file, job is executed in background when scheduled)

To show the current queue, use: `squeue --partition pDLVC`

If you found a mistake in your code or want to cancel your job, use: `scancel <jobid>` (`jobid` is shown when submitting a job per `srun` and `sbatch` or using `squeue`)

Example

To get you started, we provide a ready-to-run example.

After you logged in per SSH, you can copy it to your homedirectory as follows:

```
cp -r /caa/Student/dlvc/public/example ~/
```

Then change into the directory and list files:

```
cd ~/example && ls -lah ~/example
```

View the contents of the example files:

```
cat ~/example/dlvc.py
```

```
cat ~/example/dlvc.slurm
```

You can now use `srun` to execute the python script:

```
srun --account=dlvc --partition=pDLVC --gres=gpu:1 dlvc.py
```

You will notice that some parameters are necessary and might find it more convenient to use `sbatch` with a configuration file:

```
sbatch --verbose dlvc.slurm
```

Look at the jobqueue using:

```
squeue
```

After your job has finished, there should be a new file ending with `.log`. Look for it and view its contents:

```
ls -lah ~/example/
```

```
cat ~/example/*.log
```

Limits

We apply some limits to the resources provided. The limits and specific values might be adapted over the course of time as necessary.

Storage

To avoid unintentional mistakes, unnecessary disk usage and disrupting service for others, the disk usage of the homedirectories is limited.

Limit	Value	Description
Homedirectory	1GB	Your homedirectory <code>"/caa/Student/dlvc/dlvcXX/dlvcYYYYYYY"</code>

You can check your current usage as follows:

```
du -sh ~
```

Note: You do not need to copy datasets to your homedirectory. They are available under: `/caa/Student/dlvc/public/datasets`

SLURM

To provide an as fair as possible experience, submitting jobs to our cluster is limited as follows.

Limit	Value	Description
MaxTime	0:30:0	maximum time a submitted job is allowed to run before risking to be killed
MaxSubmit	2	maximum amount of jobs a user is allowed to submit to the queue at the same time
MaxTRES	node=1	maximum amount of nodes a user can occupy at any time
MaxTRESPU	gres/gpu=1	maximum amount of gpus a user can occupy at any time

Disclaimer

Backups

We do our best to keep everything running and available, but can not make guarantees for the availability of your data stored on our servers. Therefore, please be advised to always keep a local copy (see *Copying Files*) of your work. This should protect you from both, unexpected data loss as well as unexpected unavailability of our infrastructure.

Restarts

To allow for the possibility of maintenance, during the following time windows, restarts or service interruption should be expected. We will do our best to keep already submitted jobs running and if somehow possible not disrupt ongoing work even during listed times.

Maintenance Time Slot
Saturday 18:00 - Sunday 6:00
Wednesday 22:00 - Thursday 6:00

Contact

address	use case
dlvc@cvl.tuwien.ac.at	general questions regarding the lecture
dlvc-trouble@cvl.tuwien.ac.at	technical problems, service unavailability
dlvc-feedback@cvl.tuwien.ac.at	feedback in regard to provided infrastructure (for course feedback, please use TISS)