

UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Blade Cluster



14 nodes

DELL PowerEdge M600
2 QuadCore CPU (12MB cache, 3 Ghz)
16 GB RAM

Scheduler

Sun Grid Engine
Queue priority
Projects



- qsub** *submit a batch job to Sun Grid Engine*
- cwd** launches job from current dir (output/error file)
 - m b|e|a|s|n** selects events for notification email
 - b** (beginning)
 - e** (end)
 - a** (abort)
 - s** (suspend)
 - n** (never) *#default*
-
- qstat** *show the status of Sun Grid Engine jobs and queues*
- f** shows full queue list
 - j [num]** shows full details of job #num



- qhost** *show the status of Sun Grid Engine hosts, queues, jobs*
- <no params>** lists host list and their configuration
 - q** lists available queues on hosts
 - j** lists running jobs on hosts
-
- qdel** *delete Sun Grid Engine jobs from queues*
- u <myaccount>** deletes all my enqueued jobs
 - <job#list>** deletes all jobs in the list



Course Root Dir	/nfsd/hda
Datasets Root Dir	/nfsd/hda/DATASETS
Personal Root Dir	/nfsd/hda/<your_DEI_account>

Your personal root dir could be organized with many subfolders:

/nfsd/hda/<your_DEI_account>/my_prj_1

/nfsd/hda/<your_DEI_account>/my_prj_2

/nfsd/hda/<your_DEI_account>/my_group_prj

Respectively containing files of your personal project 1 and 2 and of your HDA final project.



- git**
 - + sophisticated and powerful versioning system
 - + distributed
 - + main repository
- git**
 - [local process] clone / add / delete / commit
(your daily work – could be offline)
 - [remote process] push / pull
(toward the cloud, once you are online again)
 - collaborative work merge
- Gitlab** DEI git main repository



web based repo manager + issue tracker and wiki features

The screenshot displays the GitLab web interface for a newly created project named 'MY-AWESOME-PROJECT'. The interface is divided into a left sidebar, a top navigation bar, and a main content area.

- Top Navigation Bar:** Includes the GitLab logo, navigation links (Projects, Groups, Activity, Milestones, Snippets), a dropdown menu with a plus icon, a search bar, and icons for repository, merge requests, issues, and a globe.
- Left Sidebar:** Contains a list of project features: Overview (selected), Details, Activity, Cycle Analytics, Issues (0), Merge Requests (0), CI / CD, Wiki, Snippets, and Settings.
- Main Content Area:**
 - A blue banner at the top states: "Project 'MY-AWESOME-PROJECT' was successfully created."
 - Below the banner is a large circular icon with the letter 'M' and the project name "MY-AWESOME-PROJECT".
 - Under the project name are buttons for "Star" (0), "SSH" (git@gitlab.dei.unipd.it:anemos/), a file icon, a dropdown menu with a plus icon, and a "Global" notification bell.
 - A section titled "The repository for this project is empty" provides instructions on how to push files using command-line instructions, including adding a README, LICENSE, or .gitignore file. It also mentions that the master branch is automatically protected and that Auto DevOps (Beta) can be activated for CI/CD configuration.
 - A section titled "Command line instructions" shows the "Git global setup" commands:

```
git config --global user.name "Simone Friso"
git config --global user.email "simone.friso@dei.unipd.it"
```

A red arrow points from the top navigation bar's dropdown menu to the main content area, highlighting the project's details.



GitLab Projects ▾ Groups Activity Milestones Snippets

MY-AWESOME-PROJECT

Overview

Details

Activity

Cycle Analytics

Issues 0

Merge Requests 0

CI / CD

Wiki

Snippets

Settings

<< Collapse sidebar

Create a new repository

```
git clone git@gitlab.dei.unipd.it:anemos/MY-AWESOME-PROJECT.git
cd MY-AWESOME-PROJECT
touch README.md
git add README.md
git commit -m "add README"
git push -u origin master
```

Existing folder

```
cd existing_folder
git init
git remote add origin git@gitlab.dei.unipd.it:anemos/MY-AWESOME-PROJECT.git
git add .
git commit -m "Initial commit"
git push -u origin master
```

Existing Git repository

```
cd existing_repo
git remote rename origin old-origin
git remote add origin git@gitlab.dei.unipd.it:anemos/MY-AWESOME-PROJECT.git
git push -u origin --all
git push -u origin --tags
```

Remove project



Putting everything together

Login to Blade

ssh <your_DEI_account>@login.dei.unipd.it

Your Dataset Root Dir

/infds/hda/DATASETS/<my_dataset>

(NB Your dataset is possibly shared – i.e. used read only by many groups - saving disk space)

Project Root Dir

/infds/hda/<your_DEI_account>/my_group_prj

In your project root dir you must have:

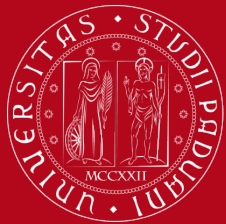
- 1) Main execution file of your code (.py) + dep*
- 2) Script to submit your job to scheduler (.job)*
- 3) git versioning (ignore for .job files)*

Example 1

“Hello World!” from “dataset” file

Example 2

Tensorflow tutorial



Putting everything together

Example 1 ***Printing “Hello World!” to standard output reading the string from a “dataset” file***

Input files *first.py* # main Python file
 firstsubmit.job # submission script

qsub *job #1643278 submitted*

Output files *firstsubmit.job.e1643278* # error file (empty)
 firstsubmit.job.o1643278 # output file (stdout dump)

```
anemos@login:/nfsd/hda/anemos$ls -la
total 20
drwxr-sr-x. 2 anemos hda 4096 May 23 16:47 ./
drwxrwsr-x. 44 root   hda 4096 May 21 10:04 ../
-rw-r--r--. 1 anemos hda   96 May 18 14:15 first.py
-rw-r--r--. 1 anemos hda  490 May 18 14:17 firstsubmit.job
-rw-r--r--. 1 anemos hda    0 May 23 16:47 firstsubmit.job.e1643278
-rw-r--r--. 1 anemos hda   39 May 23 16:47 firstsubmit.job.o1643278
```