

## Connecting with Kabré

Establishing an SSH session

Open a terminal program and type:

```
$ ssh user@cluster.cenat.ac.cr
```

Deploying SSH keys

In your computer, open a terminal and type:

```
$ ssh-keygen -t rsa -C "your_email@example.com"
```

```
$ ssh-copy-id user@cluster.cenat.ac.cr
```

Copying files

From your computer to Kabré:

```
$ scp files [user]@cluster.cenat.ac.cr:[path]
```

From Kabré to your computer:

```
$ scp [user]@cluster.cenat.ac.cr:[files] [path]
```

These commands must be executed in your computer.

Change your password

```
$ ssh -p22222 user@cluster.cenat.ac.cr
```

```
$ passwd
```

```
$ exit
```

## Kabré's Queues System

Writing a PBS job file

```
#PBS -N [job_name]
```

```
#PBS -q [queue_name]
```

```
#PBS -l nodes=1:ppn=1
```

```
#PBS -l walltime=00:15:00
```

```
cd $PBS_O_WORKDIR
```

```
execute your program here
```

Submitting your job

```
$ qsub job_file.pbs
```

Monitoring your jobs

In Kabré, type:

```
$ watch -n 5 qstat -a
```

In the web browser, go to:

```
cluster.cenat.ac.cr/torquitor
```

Retrieving results

All jobs produce two files, corresponding with standard output and standard error:

```
[job_name].o[job_id]
```

```
[job_name].e[job_id]
```

Interactive jobs

```
$ qsub -I -q debug_queue_name
```

## Environment Modules

List loaded modules

```
$ module list
```

List available modules

```
$ module avail
```

Load a module

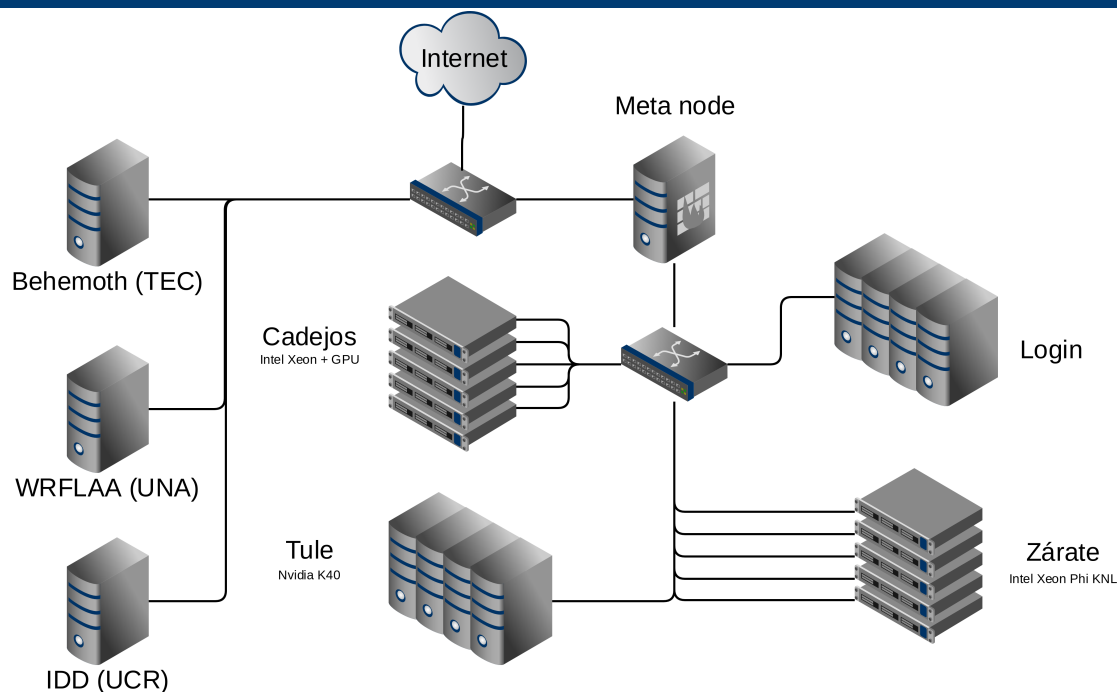
```
$ module load module_name
```

Unload a module

```
$ module unload module_name
```



## Kabré's composition



### Meta node

Just don't mess up here!

Don't execute programs here! These nodes are a shared-working area, use them to:

- ▶ Create and edit files
- ▶ Create directories and move files
- ▶ Copy files to and from your computer
- ▶ Compile code
- ▶ Submit jobs
- ▶ Manage your active jobs

### Login-nodes

### Zárate

Each blade has 4 Intel Xeon Phi KNL nodes with 64 cores @ 1.3 GHz and 96 GB

### Tule

Nvidia Tesla K40. Hoster has an Intel Xeon with 4 cores @ 3.2 GHz and 16 GB

### Cadejos

Every node has 2 Intel Xeon with 4 cores @ 2.4 GHz and 32 GB, some nodes has 2 Nvidia Tesla C1060

## Available Queues

Name	Platform	Number of nodes	Time slot (in hours)
phi-n2h72	Xeon Phi KNL	2	72
phi-n5h24	Xeon Phi KNL	5	24
phi-n6h96	Xeon Phi KNL	6	96
phi-debug	Xeon Phi KNL	1	0.5
k40	GPU @ Tule	4	2
gpu-n1h72	GPU @ Cadejos or Tule	1	72
gpu-n2h24	GPU @ Cadejos or Tule	2	24
gpu-debug	GPU @ Cadejos or Tule	1	0.5
cpu-n3h72	Cadejos	3	72
cpu-n5h24	Cadejos	5	24
cpu-debug	Cadejos	1	0.5
debug	All platforms	29	0.5