ISCRA/EuroHPC users: a startup guide

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What to do when your project is approved

Once your ISCRA/EuroHPC project gets approved, you'll receive a letter from the ISCRA/EuroHPC Staff (*iscra@cineca.it*, *access@eurohpc-ju.europa.eu*). This letter will contain guidelines for utilising your project's granted HPC resources.

Initially, the proposer, now referred to as the "Principal Investigator" (**PI**), must access the https://userdb.hpc.cineca.it/ website to complete their profile and gain HPC access. This step is a one-time requirement, but it's advisable to periodically check your status by logging into your UserDB profile and navigating to the "HPC access" section.

> ⚠️ **Remember**
>
> Your UserDB portal username corresponds to your email address, and if needed, you can reset your password using a specific link (https://userdb.hpc.cineca.it/user/password).

Subsequently, an automated process will extend your project (referred to as "*account*") to the designated HPC platform, generating usernames/passwords, along with a computing-time budget assigned to your project. This process occurs twice daily, at 7 am and 2 pm. Usernames generated by this process are typically derived from names/surnames. Each user will receive a personalized notification regarding their username/password creation via email from *HPCuser@cineca.it*.

In particular, you'll receive **two** emails: one containing the username and another with a link to configure two-factor authentication (2FA) necessary for accessing our clusters. Detailed instructions on configuring 2FA are available on the "How to activate the 2FA and configure the OTP" page. Additionally, you'll need to install a smallstep client ("How to install the smallstep client") on your personal PC to obtain a temporary certificate required for login. During 2FA setup, you'll also be prompted to set a password. Our password policy can be found on the dedicated page.

It is recommended to read the "getting started" guide page where all the aforementioned steps are covered.

Within the UserDB portal, the PI can designate **project collaborators**. Note that all collaborators must have prior registration on UserDB. To add collaborators, the PI should access their portal profile, select the "my project" link, choose the relevant project, and add collaborators as necessary. At this point, they will receive individual usernames for HPC systems and access to the project's budget.

How to use your project resources

1. Log into the HPC platform using "ssh" with your personal username:

Galileo100

```
$ ssh <username>@login.g100.cineca.it
```

Leonardo Booster / Leonardo DCGP

```
$ ssh <username>@login.leonardo.cineca.it
```

2. Verify if you have one or more active projects (accounts). This can be done with the "saldo" command:

Leonardo Booster / Galielo100

```
$ saldo -b
```

Leonardo DCGP

```
$ saldo -b --dcgp
```

An example of the output of "saldo" could be:

```
--------------------------------------------------------------------------------------------------
------------------------
account            start       end      total      localCluster   totConsumed    totConsumed
monthTotal     monthConsumed
                                              (local h)   Consumed(local h)   (local h)         %
(local h)       (local h)
--------------------------------------------------------------------------------------------------
------------------------
IscrB_xx               ...        ...         ...             ...          ...
...           ...            ...
EuHPC_yy               ...        ...         ...             ...          ...
...           ...            ...
```

In this case you can see that you are associated with two different accounts: IscrB_xx (Iscra type B project) and EuHPC_yy, (EuroHPC), each granted with a certain amount of compute-time (reported in the "total" column).

> ⚠ **Warning**
>
> If the "saldo -b" command returns the following result:
>
> ```
> $ saldo -b
> username not existing
> ```
>
> this means you are associated with any account.

One possible reason is that the association with the new account is quite recent, and the procedure of syncronization described above are still not tool place. Another possibility is that you have account only on Leonardo DCGP, but you did not use the "–dcgp" flag.

4. Interactive activities

Interactive activities (on login nodes or under the serial partition) and data movement (with the datamover service) are free of charge and will not decrease the budget of your accounts.

5. Submit Jobs

Batch jobs can be submitted to the SLURM scheduler only if you have an active **account** (see below). In the batch job script, you select the account to charge by specifying a keyword the batch scheduler:

```
#SBATCH -A <account>
```

with <account> being one of the accounts (projects) you are authorized to use. If this entry is not included in the batch submission script, the resource manager will reject the request (questo non è corretto, viene preso il default).

How the PI can manage the project resources

The PI can use the "saldo" command in order to monitor the resource usage of his/her project.

- The command without options shows an help page.
- "saldo -b" shows the total budget of all the accounts you are associated with (and lists all the collaborators for your account if you add the "-a" flag)
- "saldo -r" shows the daily usage of all your accounts and gives you a measure of which collaborator used your budget

In both cases, you can use the flag "-a" to focus on a specific account and show, not only the information about the budget, but also the list of project's collaborators.

For example:

```
$ saldo -ba IscrB_example
PI: <username_pi>
COLLABORATORS: <username_collaborator_1>,<username_collaborator_2>
------------------------------------------------------------------------------------------------------------
------------------------
account             start        end      total     localCluster  totConsumed    totConsumed
monthTotal      monthConsumed
                                        (local h)   Consumed(local h)   (local h)           %
(local h)        (local h)
------------------------------------------------------------------------------------------------------------
------------------------
IscrB_example      20240101     20250101     100000           50000          50000
50              0               0
```

```
$ saldo -ra IscrB_example -y 2024

------------------Resources used from 202401 to 202412-----------------
date         username    account          localCluster     num.jobs
                                            Consumed/h
-----------------------------------------------------------------------
20240101     userXXXX    IscrB_example        65:36:06            1
20240102     userXXXX    IscrB_example        63:17:58            1
20240103     userZZZZ    IscrB_example         3:54:24            3
20240103     userYYYY    IscrB_example        48:14:24            1
...
20240408     userYYYY    IscrB_example         6:14:43           14
20240408     userZZZZ    IscrB_example         0:01:24            5
20240408     userXXXX    IscrB_example       231:00:00            3

--------------------Total from 202401 to 202412----------------------
             username    account          localCluster     num.jobs
                                            Consumed/h

             userXXXX    IscrB_example       641:51:05          175
             userYYYY    IscrB_example        61:28:04           25
             userZZZZ    IscrB_example        86:51:28           36
-----------------------------------------------------------------------
                         Total               790:10:37          236
```

What happens when the budget is exhausted

Whenever an account is running out of budget (in CPU hours), or when its expiring date has been reached, the account becomes **unactive** and is shut down. This meaning that all the usernames referring to that account won't be able to submit batch jobs (but they will still be able to do so, if they are authorized for other projects account).

Nevertheless, the usernames will still be able to access the HPC platforms in order to perform some lightweight post-processing (e.g. using interactive sessions) and/or to retrieve their data (e.g. using interactive sessions or the archive class). Usernames will be kept alive for a year after their last (most recent) account has been shut down. $WORK area related to your project will be canceled 6 months after the expiring date of the account.

For more information

For more information see the our "HPC UserGuide" is a very useful document for hints on using HPC resources

- The mail addr **iscra@cineca.it** is available for questions related to project submission and help on administrative and organisation procedures.
- The mail addr **superc@cineca.it** refers to our HPC user support and is available for questions related to using the HPC machines.
- The mailing list HPC-NEWS is for posting news, information, scheduled downs, software updates, any problems ..., about our HPC computing resources. It is advisable for HPC users to be included in that list! Follow the link to register.
- The portal hpc.cineca.it contains documentation, up-to-date status of HPC machines, ...