High Performance
Computing &
Big Data Services

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@ULHPC

LUXEMBOURG
LET'S MAKE IT HAPPEN

HPC School - Beginner

S1-1 - Connection to ULHPC

UNIVERSITÉ DU
LUXEMBOURG

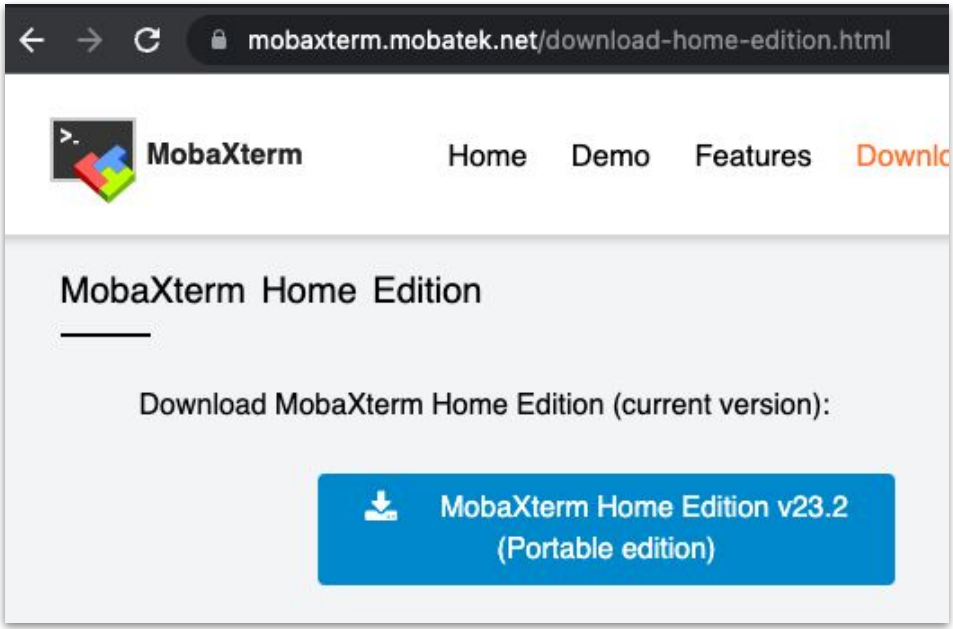
Overview

The main steps are:

1. Install the necessary software to connect to the ULHPC
2. Create a pair of SSH keys to authenticate yourself on the ULHPC
3. Set your public key in our authentication system
4. Establish a first connection

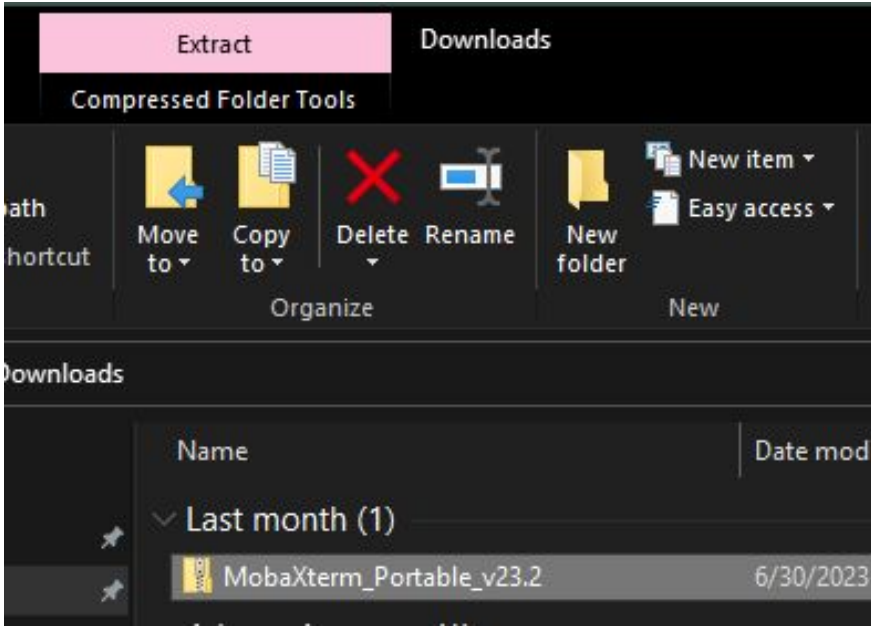
Step 1 - necessary software

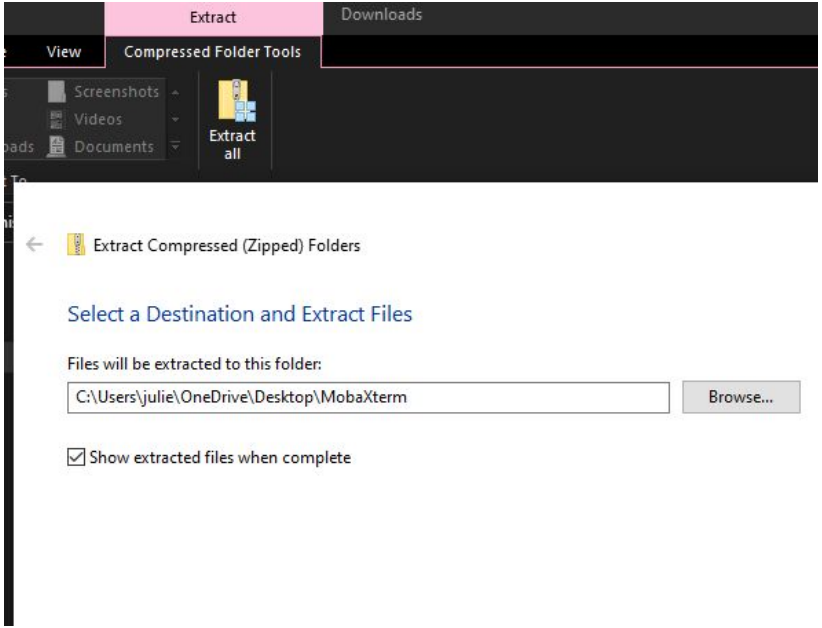
Download MobaXterm Home Edition (portable), use this link



Step 1 - necessary software

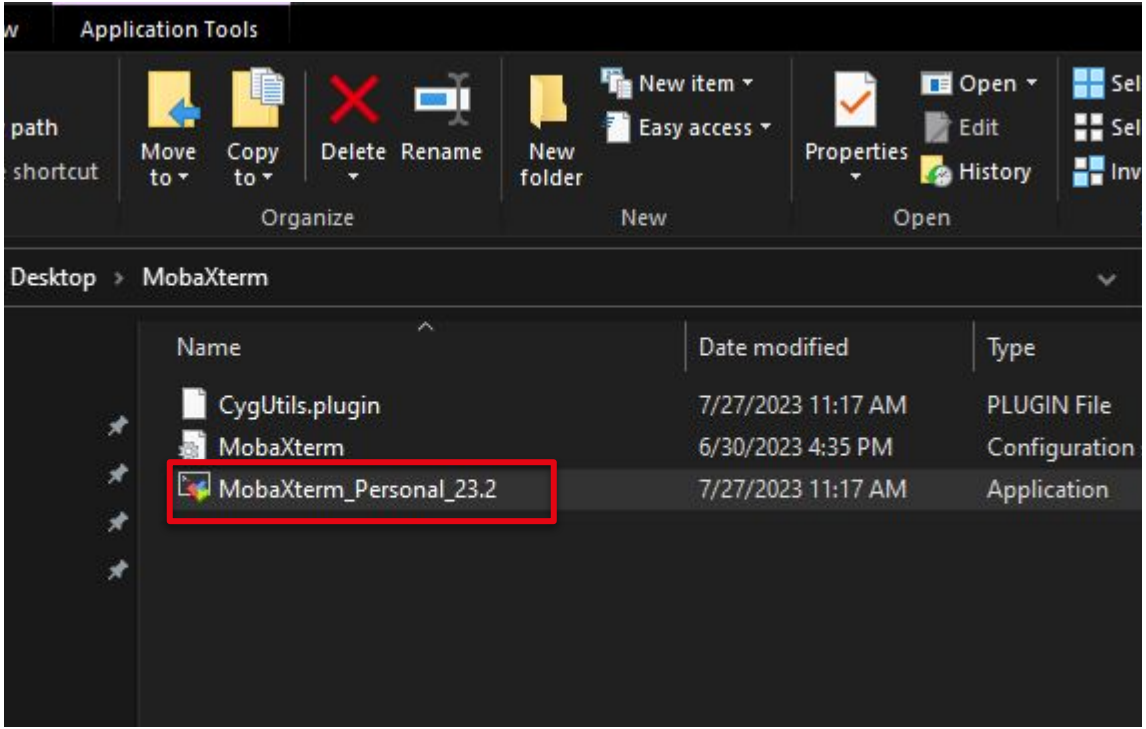
Extract the archive containing the application in a folder of your choice





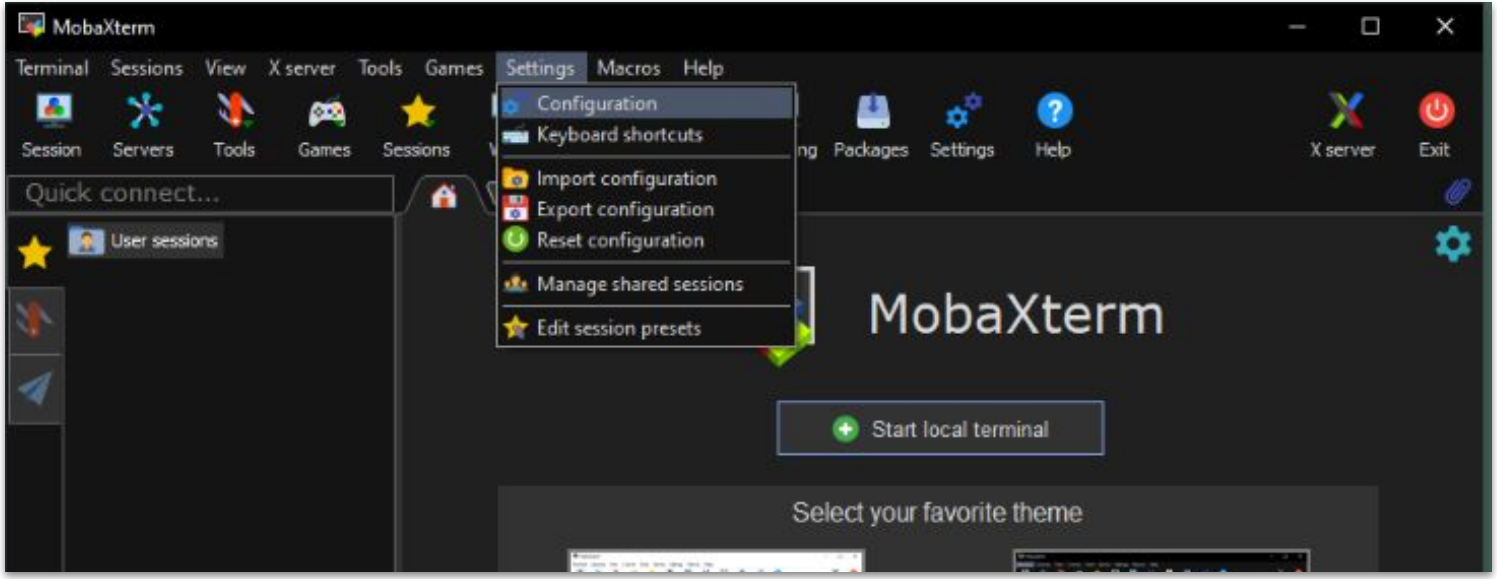
Step 1 - necessary software

Open MobaXterm



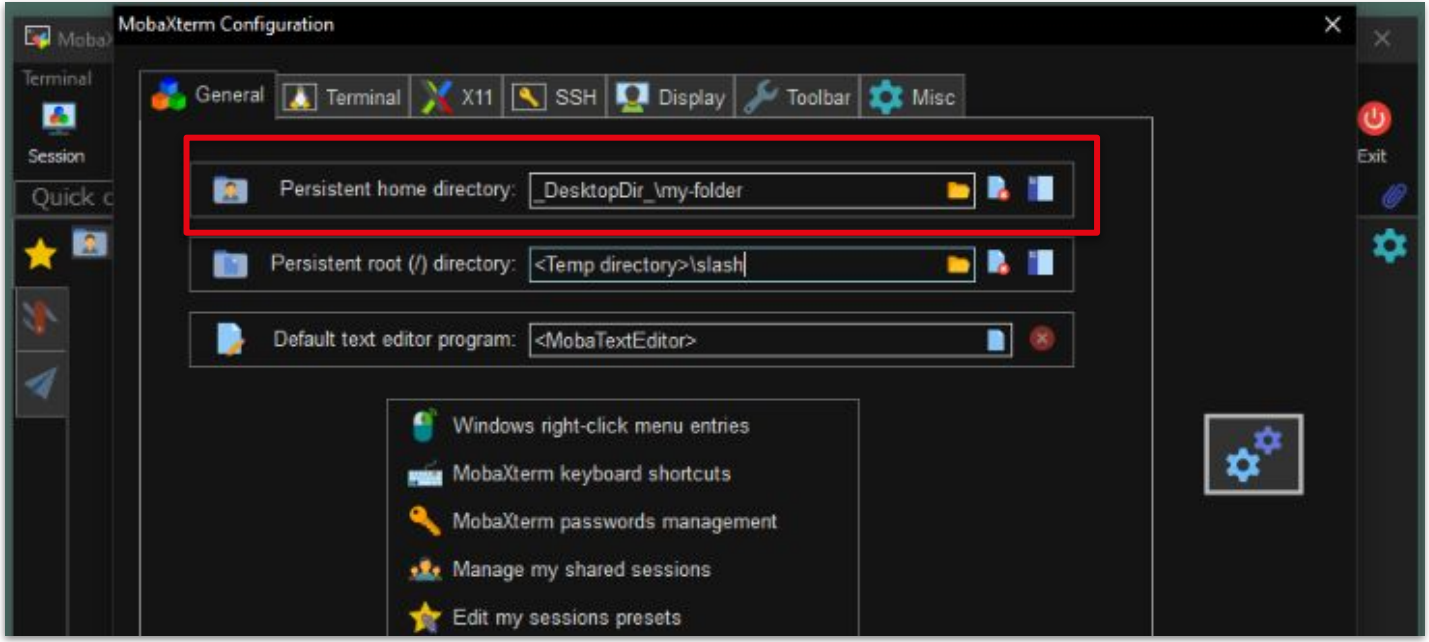
Step 1 - necessary software

Go to the configuration screen



Step 1 - necessary software

Change the persistent home directory to a folder of your choice on your machine



Step 2 - Creation of the SSH key pair

What is it?

SSH key pairs are a couple of files used to authenticate a user on a server without exchanging password

A pair of keys?

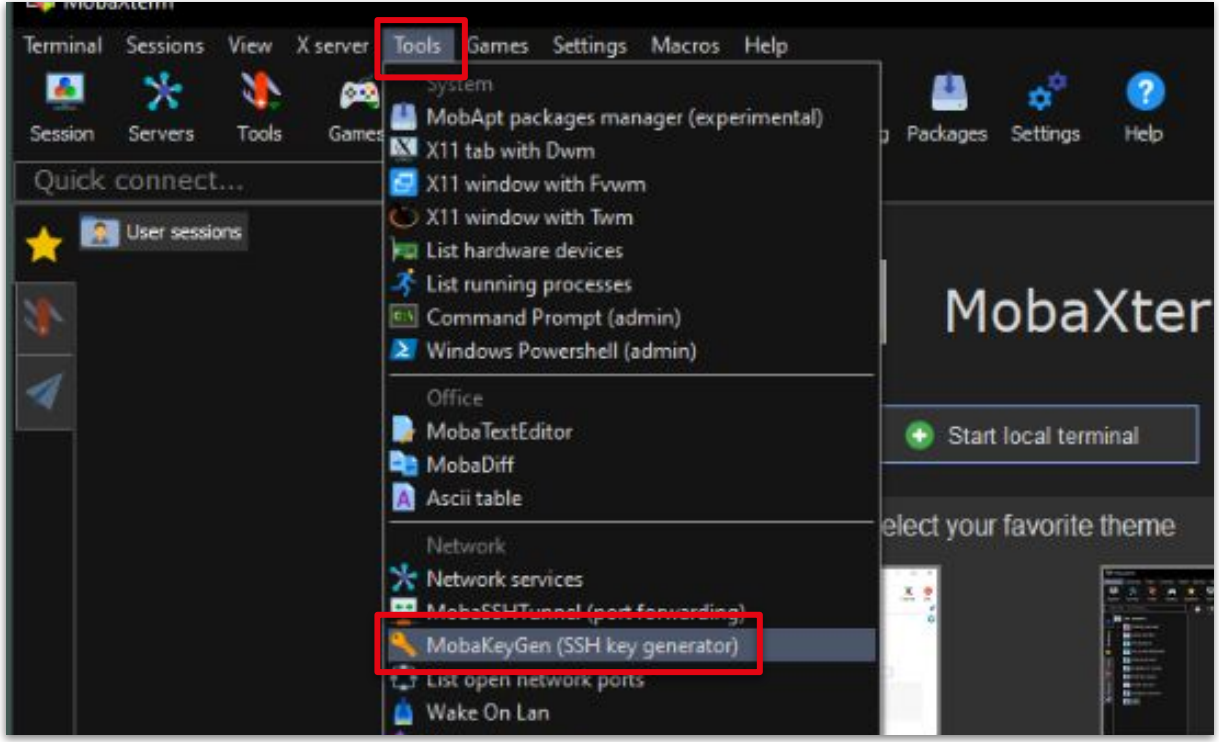
- the public key can (and should) be shared
- the private key should never be shared

Why not passwords?

Servers allowing access via password exchange are prone to be attacked

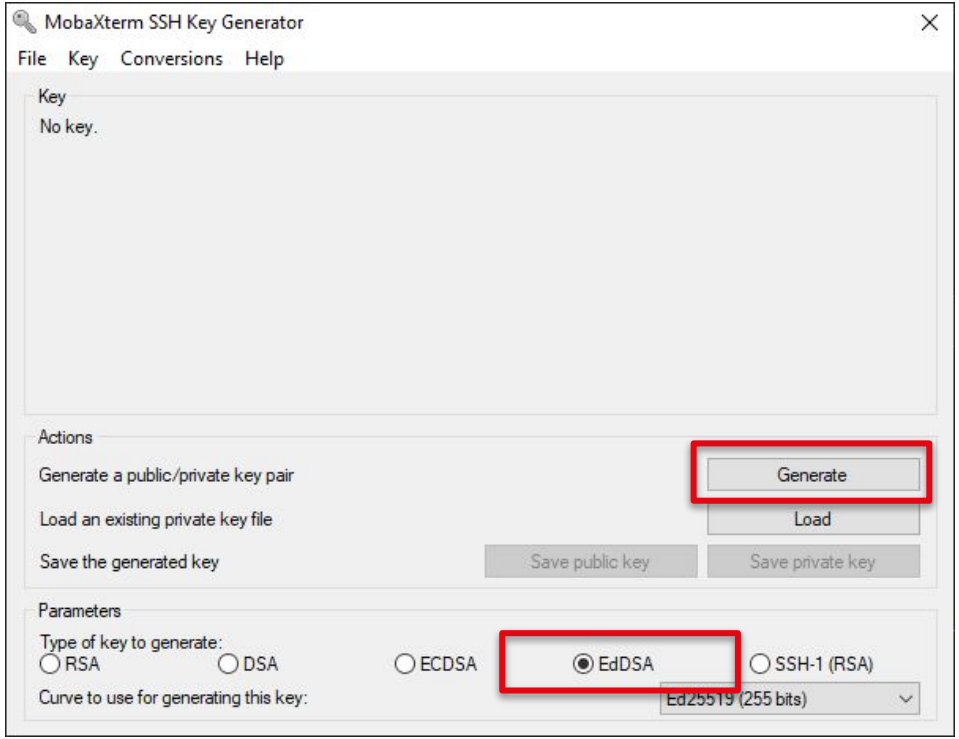
Step 2 - Creation of the SSH key pair

Go to the Tools menu and select MobaKeyGen (SSH key generator)



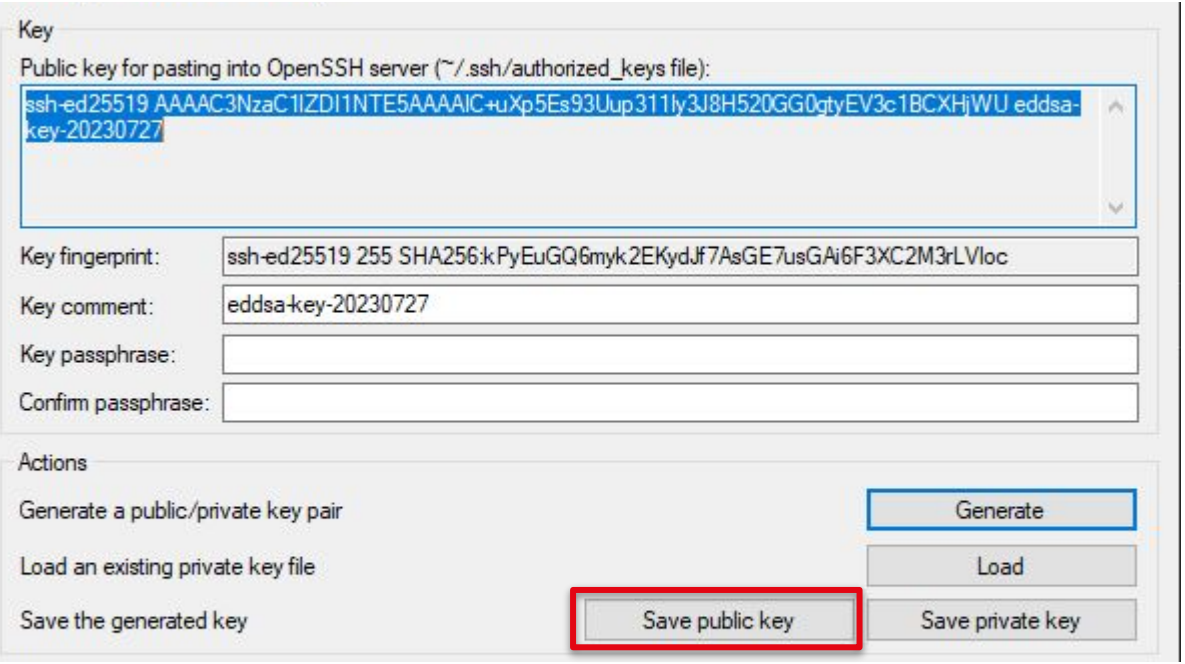
Step 2 - Creation of the SSH key pair

Select EdDSA and click on Generate and **move your mouse to speed up the generation process**



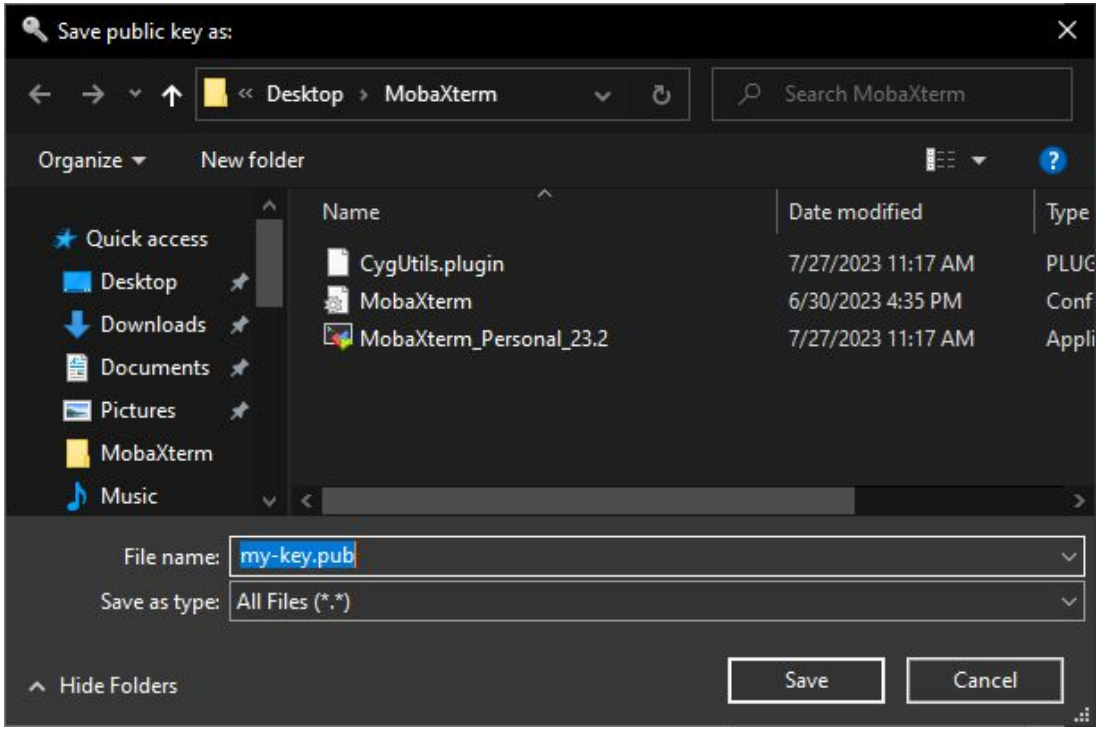
Step 2 - Creation of the SSH key pair

After a moment you should see a similar screen, click on Save public key



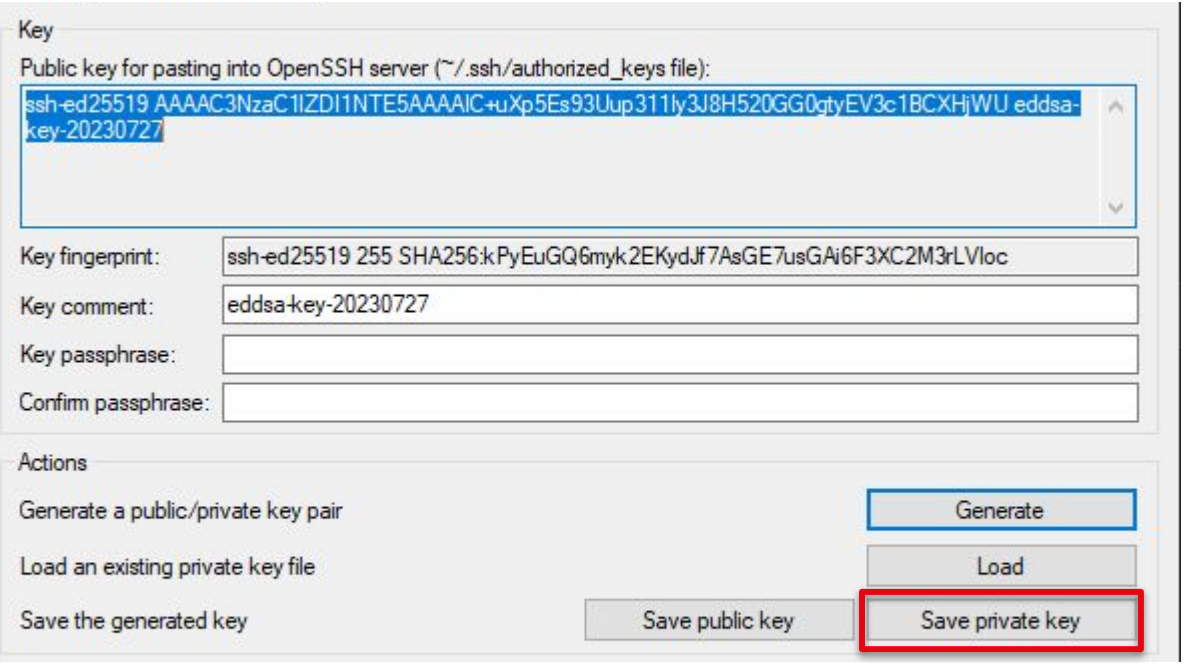
Step 2 - Creation of the SSH key pair

Select a folder and pick up a name, e.g. my-key.pub for your public key



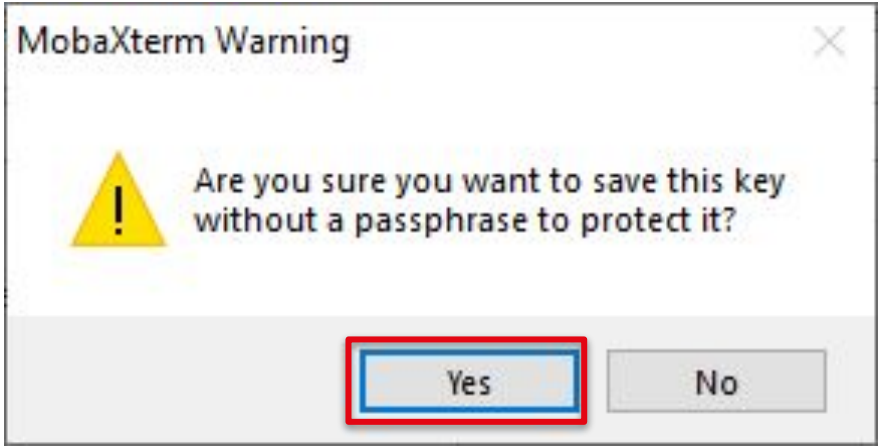
Step 2 - Creation of the SSH key pair

Then click on Save private key



Step 2 - Creation of the SSH key pair

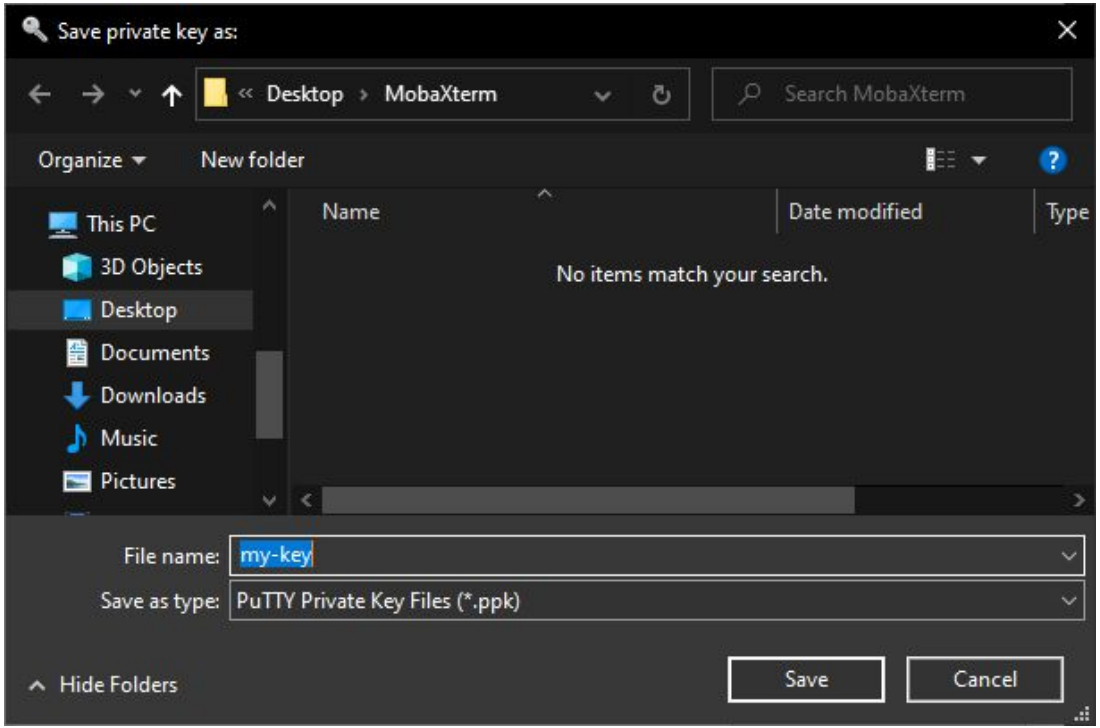
Choose Yes



Unlike what is shown, you can add a passphrase to add an extra layer of security. In this presentation we do not use it for the sake of simplicity.

Step 2 - Creation of the SSH key pair

Find the folder in which you stored your public key pick up a name, e.g. my-key for your private key



Step 3 - Give us your public key

IPA is the name of our authentication server: https://hpc-ipa.uni.lu

When your account has been created, you should have received an email with a link to IPA in order to set your account password.

Before being able to connect to the cluster, you need to add your public key to your account.

📚 Full documentation available here: https://hpc-docs.uni.lu/connect/ipa/#upload-your-ssh-key-on-the-ulhpc-identity-management-portal

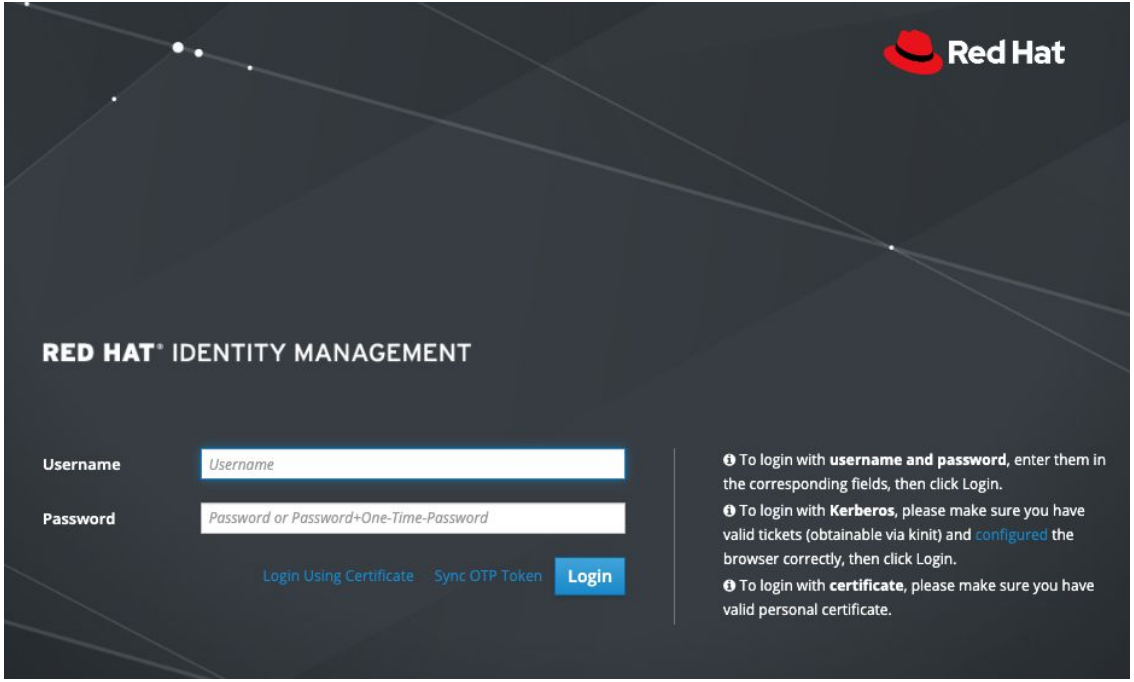
Step 3 - Give us your public key

- Log in on IPA with your password
- Select Identity / Users.
- Select your login (**this is not your UL account**, check your account creation email if you don't remember)
  - e.g., for me, it is `jschleich` and **not** `julien.schleich@uni.lu` or `julien.schleich`

📚 Full documentation available here: https://hpc-docs.uni.lu/connect/ipa/#upload-your-ssh-key-on-the-ulhpc-identity-management-portal

Step 3 - Give us your public key

Go to the following URL: https://hpc-ipa.uni.lu and enters your ULHPC username and password



Step 3 - Give us your public key

Click on your username and a similar page should open:

Identity | Policy | Authentication | Network Services | IPA Server

Users | Hosts | Services | Groups | ID Views | Automember

Active users » jschleich

User: jschleich

jschleich is a member of:

Settings | User Groups | Netgroups | Roles | HBAC Rules | Sudo Rules

Refresh | Revert | Save | Actions

Identity Settings

Job Title	Research scientist
First name *	Julien
Last name *	Schleich
Full name *	Julien Schleich
Display name	
Initials	
GECOS	Julien Schleich <Julien.Schleich@uni.lu>, Belval - MNO/E02/0225100, +352 46 66 44 5337

Account Settings

User login	jschleich
Password	******
Password expiration	2024-02-21 07:57:44Z
UID	5026
GID	666
Principal alias	jschleich@HPC.UNI.LUX Delete
	Add

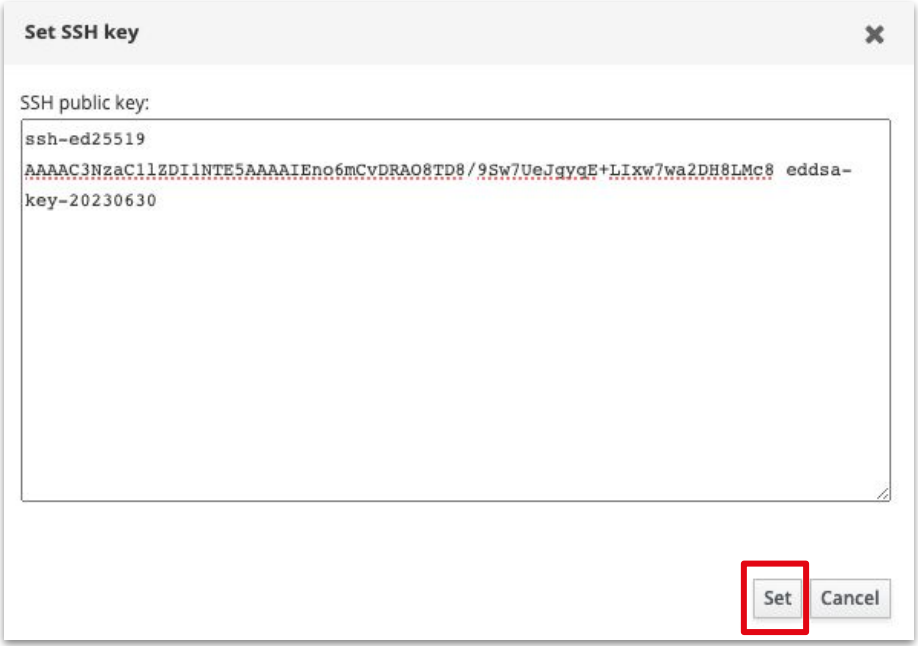
Step 3 - Give us your public key

On the right side, find `SSH public keys` and click on the `Add` button

Full documentation available here:
https://hpc-docs.uni.lu/connect/ipa/#upload-your-ssh-key-on-the-ulhpc-identity-management-portal

Step 3 - Give us your public key

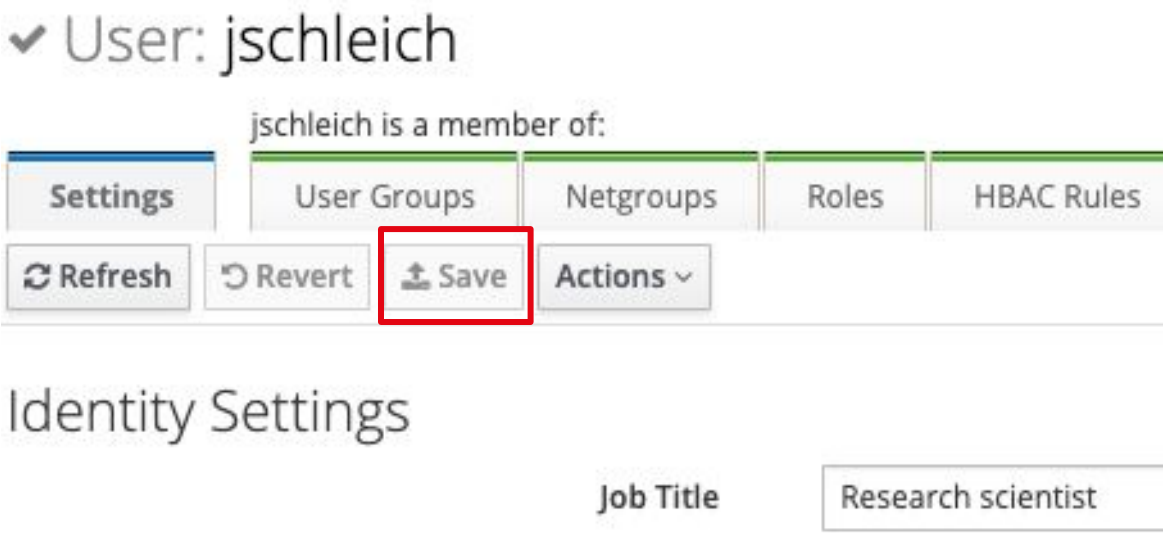
Paste the content of your public key and click on `Set`



Full documentation available here:
https://hpc-docs.uni.lu/connect/ipa/#upload-your-ssh-key-on-the-ulhpc-identity-management-portal

Step 3 - Give us your public key

Ensure that you clicked on `Save` before leaving IPA otherwise your key will not be taken into account.



Full documentation available here:
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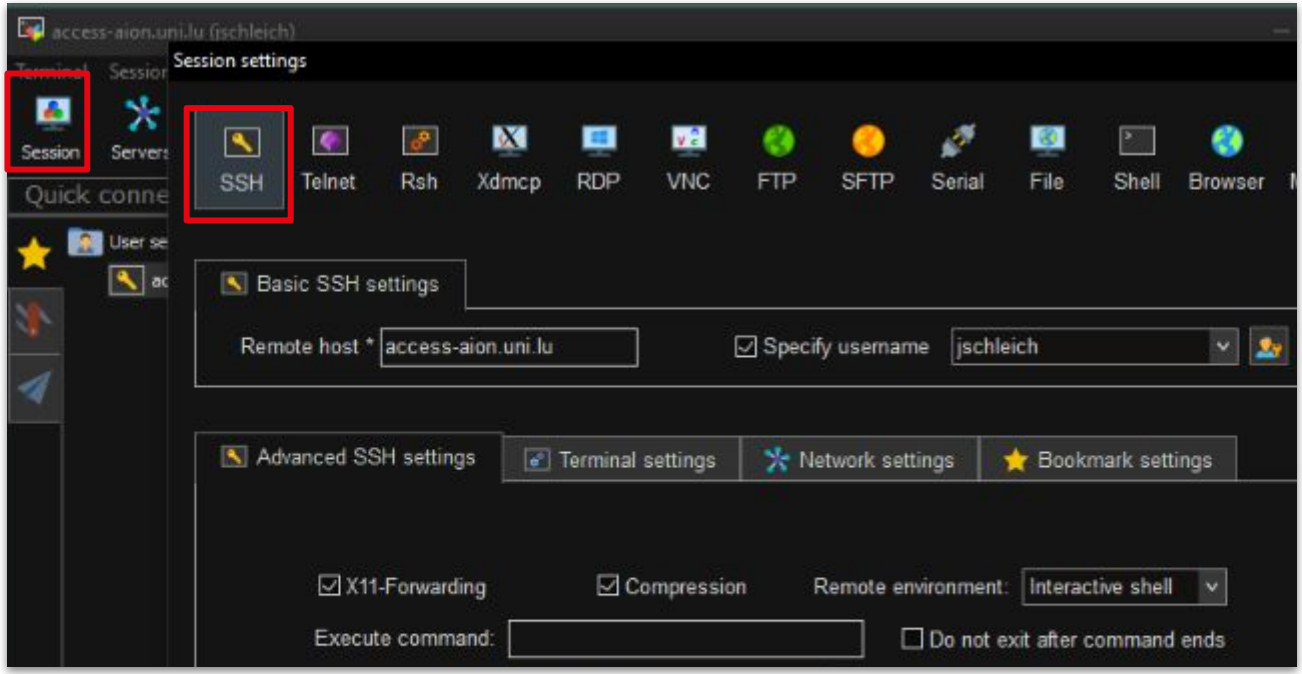
Step 4 - First connection

Click on Session and select SSH



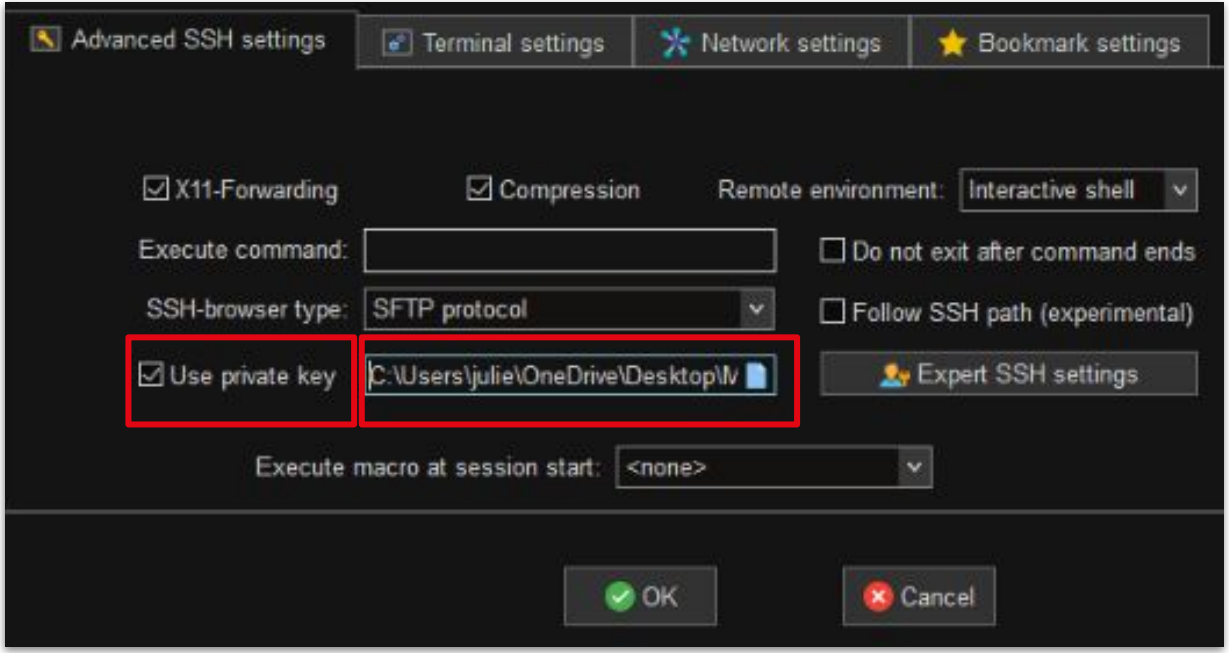
Step 4 - First connection

In Basic SSH settings, fill in:

- Remote host (access-aion.uni.lu or access-iris.uni.lu)
- Specify your ULHPC username
- Specify the port (8022)

Step 4 - First connection

In Advanced SSH settings, select Use private key and select your private key file



Step 4 - First connection

Upon your first connection, you will be prompted with the following message. Type yes to accept.

```
The authenticity of host '[access-aion.uni.lu]:8022 ([172.20.3.16]:8022)' can't be established.
ED25519 key fingerprint is SHA256:jwbW8pkfCzXrh1Xhf9n0UI+7hd/YGi4FlyOE92yxxe0.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
```

Step 4 - First connection

Click on the Ok button and you should be connected on the cluster!

```
==========================================================================
 Welcome to access1.aion-cluster.uni.lux
==========================================================================
 Atos BullSequana XH2000 Direct Liquid Cooling (DLC) supercomputer
                                                https://hpc-docs.uni.lu/systems/aion/
=== Computing Nodes ========================================== #RAM/n === #Cores ==
 aion-[0001-0354] 354 Atos X2410 AMD compute blade              256GB      40704
                    (2 AMD Epyc ROME 7H12 @ 2.6 GHz [64c/280W])
```

Troubleshooting

Connection timeout

You probably use an internet connection that filters out the 8022 port.

Try to use Eduroam or ethernet.

No route to host

Check that there is no typo in your configuration

Permission denied

1. You may have forgot to copy your public key in IPA
2. Check if you copy pasted correctly your key in IPA
3. If you already had other SSH keys, ensure you use the correct key to connect

Connection the cluster - Troubleshooting

A different situation? Open a support ticket here

Provide as many details as you can about the issue and what you tried to solve it.