



# JUWELS BOOSTER ONBOARDING ISC TUTORIAL SESSION 1B

21 May 2023 | Andreas Herten | Jülich Supercomputing Centre, Forschungszentrum Jülich

# Accessing JUWELS Booster

- Everything listed on GitHub repo of tutorial:  
<https://go.fzj.de/mg-gh><sup>1</sup>

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→ <https://go.fzj.de/mg-jd>
- 3 Accept usage agreement
- 4 Wait 15 minutes 
- 5 Access system via Jupyter 3.4  
→ [jupyter-jsc.fz-juelich.de](https://jupyter-jsc.fz-juelich.de)
- 6 Source course environment in a Jupyter Shell  
\$ `source $PROJECT_training2313/env.sh`
- 7 Gather course material  
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JuDoor Login

https://judoor.fz-juelich.de/login?show=/projects/join/training2216

# JuDoor Login

You need to login in order to visit that page.

Portal for managing accounts, projects and resources at JSC.

Login using JSC account

Username

Password

Login Register Reset password

Login with e-mail callback

Login mail address

A confirmation email to confirm your identity will be sent to this address.

Send identification mail



The screenshot shows a web browser window for the JuDoor Login portal. The URL in the address bar is https://judoor.fz-juelich.de/login?show=/projects/join/training2216. The page title is "JuDoor Login". On the right, there is a logo for "JÜLICH Forschungszentrum" and "JÜLICH SUPERCOMPUTING CENTRE". A pink banner at the top states "You need to login in order to visit that page." Below it, a heading says "Portal for managing accounts, projects and resources at JSC." There are two main login sections. The left section, titled "Login using JSC account", contains fields for "Username" and "Password", and buttons for "Login", "Register" (which has a red arrow pointing to it), and "Reset password". The right section, titled "Login with e-mail callback", contains a field for "Login mail address" with a descriptive note below it and a "Send identification mail" button.

Send join request to project

https://judoor.fz-juelich.de/projects/join/training2216

Your account xyhert1

# Send join request to project

Do you want to send a project join request to the **training2216** project?

The following information will be given to the PI and PA of the project: Dr. Andreas Herten, **xyhert1, an@email.address.com**

Optional additional information for the PI and PA

I'm attending the tutorial on Multi-GPU Computing and am excited to start. LET ME IN ALREADY!

**Send join request to project.**

**Legal Notice**  
**Privacy Policy**

Forschungszentrum Jülich, JSC

**Contact Support**  
**JuDoor Requests**

Jupyter-JSC      +

https://jupyter-jsc.fz-juelich.de/hub/login?next=%2Fhub%2Fhome

Private Modus

**JÜLICH**  
Forschungszentrum JÜLICH SUPERCOMPUTING CENTRE

Start Links Documentation

**Next-Generation Notebook Interface**

We are pleased to bring "Supercomputing in your browser". Jupyter-JSC gives access to JupyterLab, a web-based interactive development environment for Jupyter notebooks, code, and data. JupyterLab is flexible: configure and arrange the user interface to support a wide range of workflows in data science, scientific computing, and machine learning. JupyterLab is extensible and modular: write plugins that add new components and integrate with existing ones. [Read more](#).

**JUPYTER**  
SUPERCOMPUTING INSTITUTE

resources. These can be JUWELS, JURECA, JUSUF, HDFML or DEEP's login or compute nodes or even the HDF cloud - depending on the computing resources available to you.

Please use your JSC account to log in or register if you have not already done so. It's also possible to log in via Helmholtz AAI.

[Login](#)  [Register](#)

 [Jupyter-JSC](#)  [JUWELS](#)  [JURECA](#)  [JUSUF](#)  [DEEP](#)  [HDFML](#)  [HDF-Cloud](#)

Jupyter-JSC OAuth2 Authorizati X

https://unity-jsc.fz-juelich.de/jupyter-oauth2-as/oauth2-authz-web-entry

JÜLICH  
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SUPERCOMPUTING  
CENTRE

Start   Links   Documentation

JSC account

xyhet1

\*\*\*\*

Sign in with Helmholtz

Helmholtz AAI

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RESEARCH FOR GRAND CHALLENGES

JupyterLabs

+ New

You can configure your existing JupyterLabs by expanding the corresponding table row.

	Name	System	Partition	Project	Status	Actions
▼	jwb-login	JUWELS	LoginNodeBooster	training2223	<span>info</span>	<span>▶ Start</span>
▼	jureca	JURECA	LoginNode	training2231	<span>info</span>	<span>▶ Start</span>

Jupyter-JSC JUWELS JURECA JUSUF DEEP HDFML HDF-Cloud

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Jupyter-JSC

https://jupyter-jsc.fz-juelich.de/hub/home

## Configuration

Service	Name	sctut
Options	Type	JupyterLab 3.4
Resources		
Reservation		

Cancel Start

JURECA JUWELS JURECA LoginNode training22ST

Jupyter-JSC JUWELS JURECA JUSUF DEEP HDFML HDF-Cloud

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The screenshot shows a configuration dialog box over a JupyterHub interface. The dialog has tabs for 'Service' (selected), 'Options' (with a yellow exclamation icon), 'Resources', and 'Reservation'. In the 'Service' tab, the 'Name' field is set to 'sctut' and the 'Type' dropdown is set to 'JupyterLab 3.4'. Below the dialog, the JupyterHub interface shows a list of services: JURECA, JUWELS, JURECA, LoginNode, and training22ST. At the bottom, there are links for Jupyter-JSC, JUWELS, JURECA, JUSUF, DEEP, HDFML, and HDF-Cloud. The footer contains copyright information for Forschungszentrum Jülich and the Helmholtz logo.

Jupyter-JSC Privater Modus

https://jupyter-jsc.fz-juelich.de/hub/home

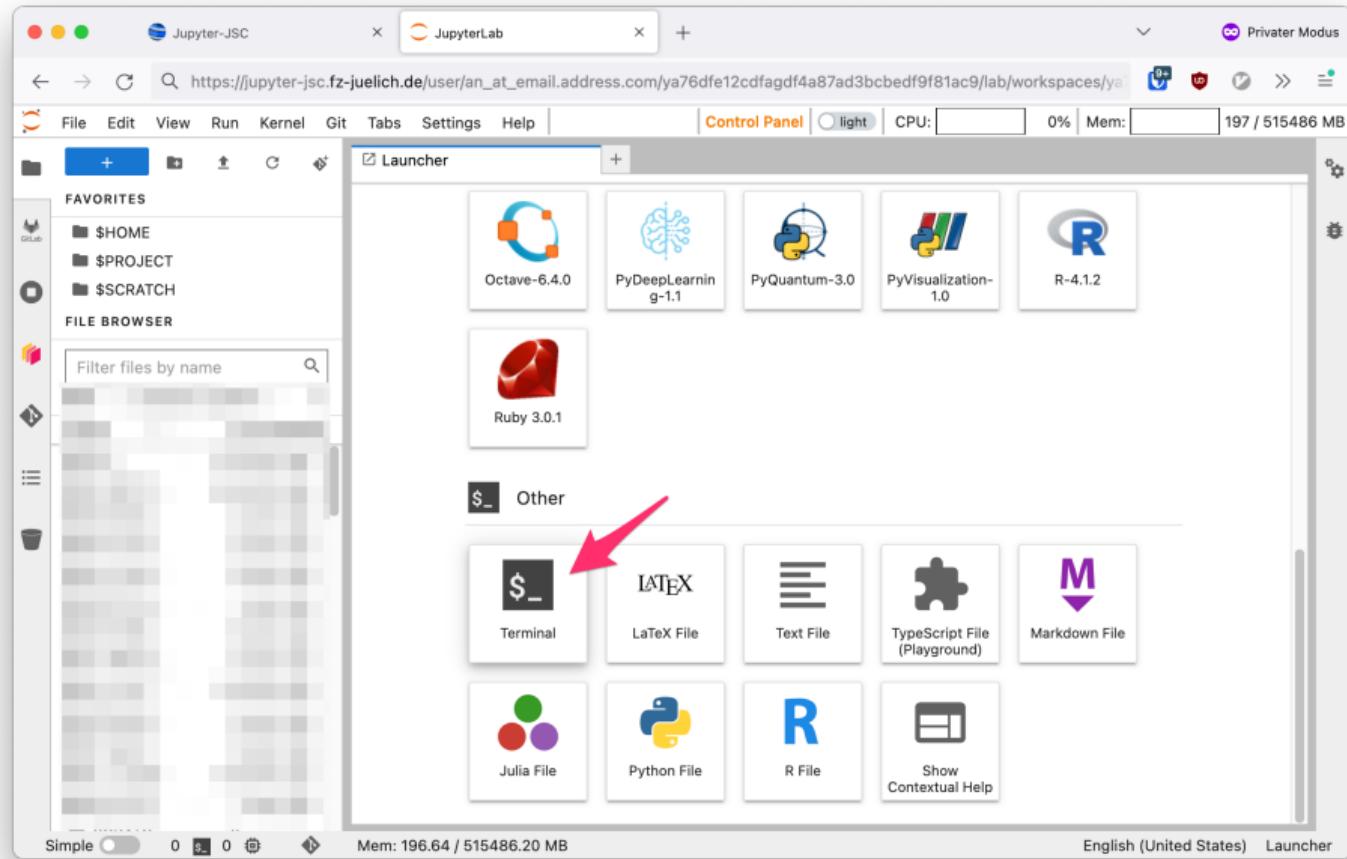
## Configuration

Service Options JUWELS Account xyhert1 Resources Project training2232 Reservation Partition LoginNodeBooster

Cancel Start

Jupyter-JSC JUWELS JURECA JUSUF DEEP HDFML HDF-Cloud

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A screenshot of a JupyterLab interface on a Mac OS X system. The title bar shows 'Jupyter-JSC' and 'juwels - JupyterLab'. The top menu includes File, Edit, View, Run, Kernel, Git, Tabs, Settings, Help, Control Panel, light, CPU: 0%, Mem: 203 / 515486 MB, and Private Modus. A red arrow points to the terminal window which displays the command:

```
~ via M  
10:07:30 > source $PROJECT_training2232/env.sh
```

Jupyter-JSC juwels - JupyterLab Private Modus

File Edit View Run Kernel Git Tabs Settings Help Control Panel light CPU: 0% Mem: 204 / 515486 MB

~ via M  
10:07:30 > source \$PROJECT\_training2232/env.sh  
The following modules were not unloaded:  
(Use "module --force purge" to unload all):  
1) Stages/2022

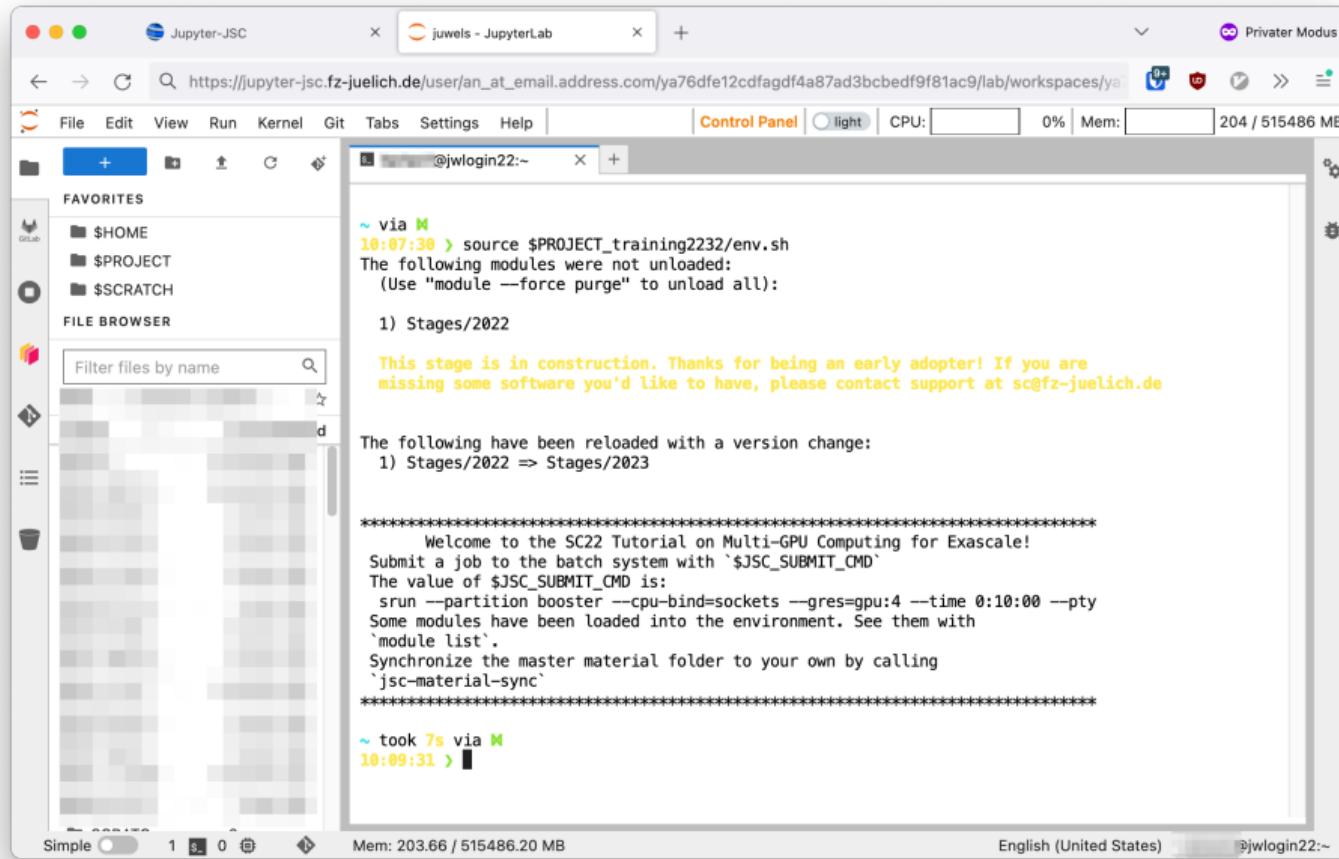
This stage is in construction. Thanks for being an early adopter! If you are missing some software you'd like to have, please contact support at sc@fz-juelich.de

The following have been reloaded with a version change:  
1) Stages/2022 => Stages/2023

\*\*\*\*\*  
Welcome to the SC22 Tutorial on Multi-GPU Computing for Exascale!  
Submit a job to the batch system with '\$JSC\_SUBMIT\_CMD'  
The value of \$JSC\_SUBMIT\_CMD is:  
srun --partition booster --cpu-bind=sockets --gres=gpu:4 --time 0:10:00 --pty  
Some modules have been loaded into the environment. See them with  
'module list'.  
Synchronize the master material folder to your own by calling  
'jsc-material-sync'  
\*\*\*\*\*

~ took 7s via M  
10:09:31 > [ ]

Simple 1 Mem: 203.66 / 515486.20 MB English (United States) @jwlogin22:-~



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# Profiling Tools

- Extra Credits: Prepare for *Profiling Session*
- Download **Nsight Systems** now; install!  
→ [developer.nvidia.com/gameworksdownload#?dn=nsight-systems-2023-2](https://developer.nvidia.com/gameworksdownload#?dn=nsight-systems-2023-2)
- Also: Via package manager [developer.download.nvidia.com/devtools/repos](https://developer.download.nvidia.com/devtools/repos)

# SSH Login

# SSH Login

- Login with SSH available
- We recommend Jupyter JSC: easier, more features
- Add SSH key via JuDoor to JUWELS Booster
- **Important:** from clause (limits connections to be from defined sources)
- Example

```
from="80.146.183.0/16" ssh-ed25519 AddddACadsfzaC1lZDI1NTE5AAAAsa
```

→ SSH: ssh user1@juwels-booster.fz-juelich.de

- Help at [apps.fz-juelich.de/jsc/hps/juwels/access.html](https://apps.fz-juelich.de/jsc/hps/juwels/access.html)

JupyterLab

Dr. Andreas Herten

Your account

Germany

## Systems

juwels [Manage SSH-keys](#)

Usage agreement confirmed on 21.03.2019

JUWELS: [training2216](#) JUWELS BOOSTER: [training2216](#) JUWELS\_GPUS: [training2216](#)

Show Home Quota

## Projects

Training 2216 [training2216](#)

[Join a project](#)

## Software

[Request access to restricted software](#)

The screenshot shows a web browser window with the following details:

- Tab Bar:** 1 - JupyterLab (active tab), SSH keys on juwels
- Address Bar:** https://judoor.fz-juelich.de/account/a/JSC\_LDAP.../system/juwels/add\_ssh\_key
- User Information:** xyhert1

The main content area displays the following:

## Upload SSH public keys

To use our systems your public key options have to include a `from=`-clause to restrict the usage of the key to your personal IP address range.

Your current IP address is **46.183.103.8**. See [the documentation](#) for more information.

Remove all other existing public keys.

Your public key and options string

```
from="46.183.103.8" ssh-ed25519  
AdddddACadsfzaC1lZDI1NTE5AAAAAsadf5yDS3Sht52425D0gV0AWzu52hnxiO92Ynksadfijr3bDq
```

Paste the content of your `.pub`-file here or upload a file below.

Your public key file      Additional public key options

e.g. `from="46.183.103.8",...`