



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>¹

¹Unshortened link: <https://github.com/FZJ-JSC/tutorial-multi-gpu/>

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- 2 Join training2313 project
→ <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
- 6 Source course environment in a Jupyter Shell
\$ `source $PROJECT_training2313/env.sh`
- 7 Gather course material
\$ `jsc-material-sync`

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- Please start process now
- We'll repeat the following steps in the first hands-on session

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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 the JuDoor Login page. It features two main login options: 'Login using JSC account' and 'Login with e-mail callback'. The 'Login using JSC account' section contains fields for 'Username' and 'Password', and buttons for 'Login', 'Register', and 'Reset password'. A red arrow points to the 'Register' button. The 'Login with e-mail callback' section has a field for 'Login mail address' with explanatory text below it. The page is branded with the Jülich Supercomputing Centre logo and includes a navigation bar with various icons.

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 +

Private Modus

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

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CENTRE

Start Links Documentation

JSC account

xyhet1

Sign in with Helmholtz

Sign in

Helmholtz AAI

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HELMHOLTZ
RESEARCH FOR GRAND CHALLENGES

The screenshot shows the Jupyter-JSC web interface. At the top, there's a header with the Jülich Supercomputing Centre logo, a user dropdown (an_at_email.address.com), and a 'Privater Modus' (Private Mode) button. Below the header, the main content area has a dark blue header with the text 'JupyterLabs' and a '+ New' button, which is highlighted with a red arrow. The main body contains a table with columns: Name, System, Partition, Project, Status, and Actions. There are two rows: one for 'jwb-login' (System: JUWELS, Partition: LoginNodeBooster, Project: training2223) and another for 'jureca' (System: JURECA, Partition: LoginNode, Project: training2231). Both rows have an 'i' icon in the Status column and a '▶ Start' button in the Actions column. On the left side, there's a sidebar with links for 'Jupyter', 'JupyterLabs', 'LINKS', 'Documentation', 'JSC Service Status', 'Jupyter' (with a dropdown menu), and 'JSC' (with a dropdown menu). At the bottom, there are icons for various services: Jupyter-JSC, JUWELS, JURECA, JUSUF, DEEP, HDFML, and HDF-Cloud. The footer contains links for 'Imprint', 'Privacy Policy', 'Support', and 'Terms of Service', along with the Helmholtz Research for Grand Challenges logo.

JÜLICH
Forschungszentrum

JUPYTER

JupyterLabs

LINKS

Documentation

JSC Service Status

Jupyter

JSC

+ New

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

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

Jupyter-JSC JUWELS JURECA JUSUF DEEP HDFML HDF-Cloud

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RESEARCH FOR GRAND CHALLENGES

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

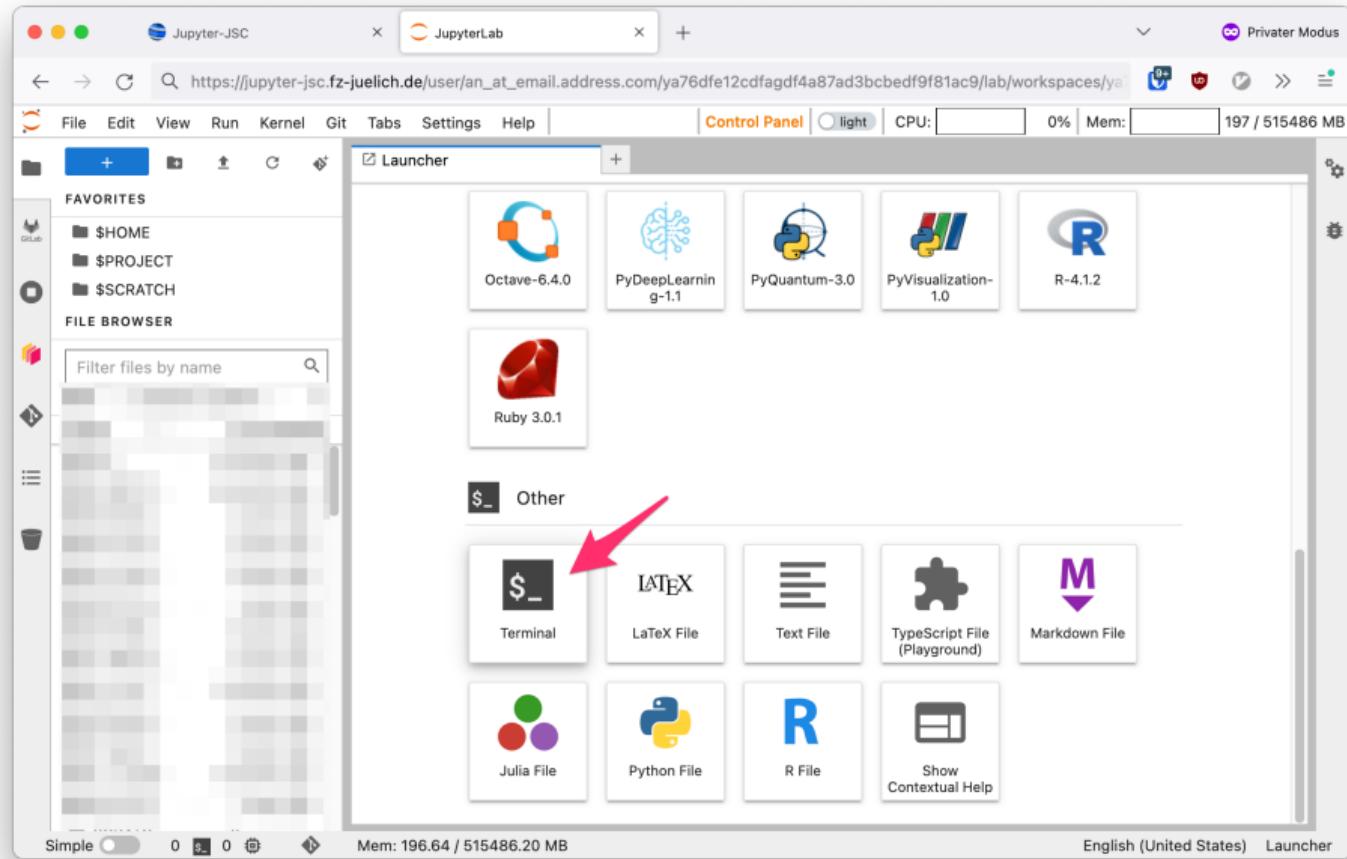
Configuration

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 'juwels - JupyterLab'. The main area has a terminal tab open with the command:

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

A red arrow points to the end of the command line. On the left, there's a sidebar with 'FAVORITES' containing '\$HOME', '\$PROJECT', and '\$SCRATCH'. Below it is a 'FILE BROWSER' section with a search bar and a list of files. The bottom status bar shows 'Mem: 203.39 / 515486.20 MB' and 'English (United States)'. The top right corner shows 'Private Modus' and resource usage: CPU 0%, Mem: 203 / 515486 MB.

Jupyter-JSC juwels - JupyterLab Private Modus

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

FAVORITES

- \$HOME
- \$PROJECT
- \$SCRATCH

FILE BROWSER

Filter files by name

~ 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

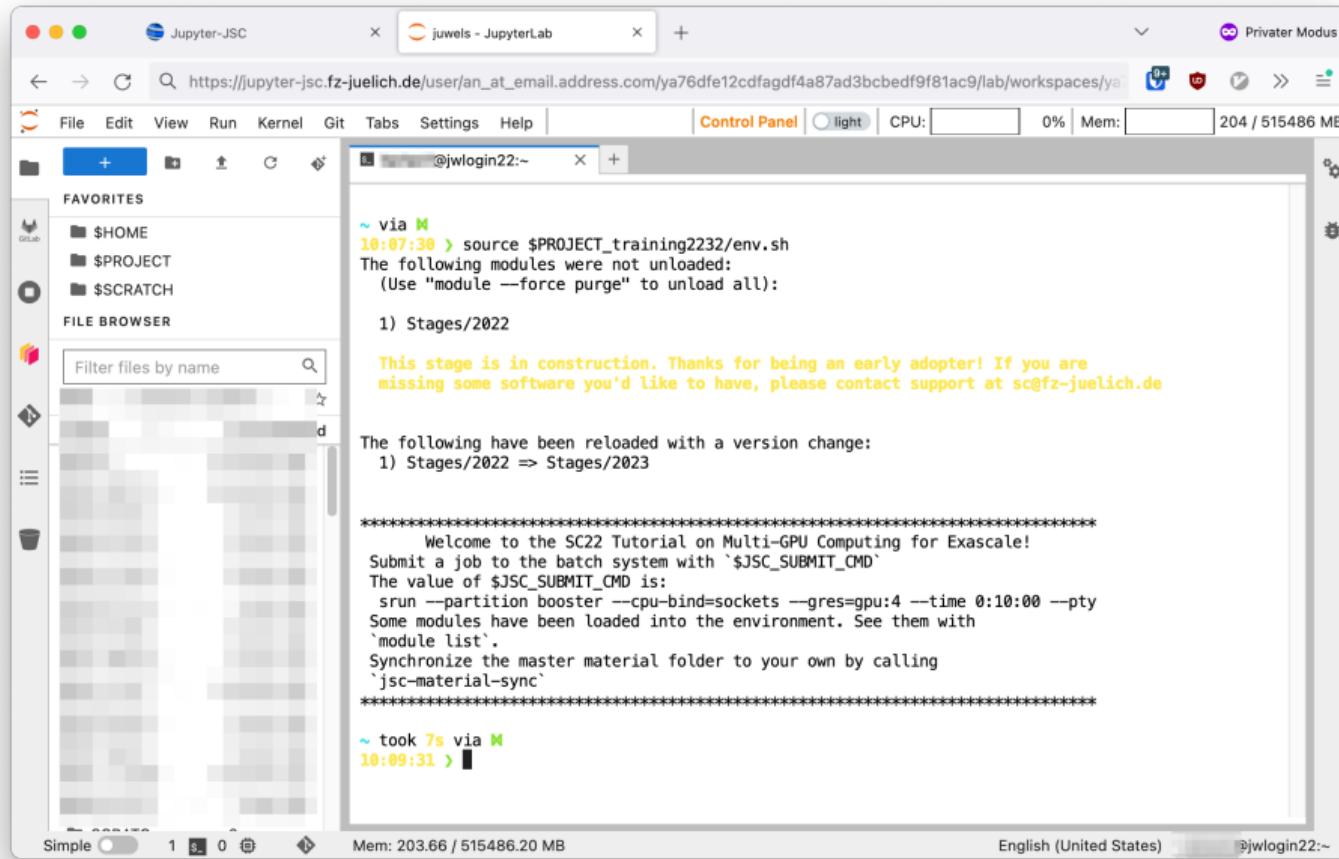
This stage is in construction. Thanks for being an early adopter! If you are missing some software you'd like to have, please contact support at sc@fz-juelich.de

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 > []

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-2022-4
- Also: Via package manager 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="140.221.247.0/24" ssh-ed25519 AddddACadsfzaC1lZDI1NTE5AAAAsa
```

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

- Help at 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",...`