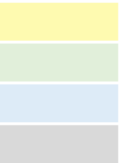


# The EuroHPC Federation Platform (and link with EOSC AAI)

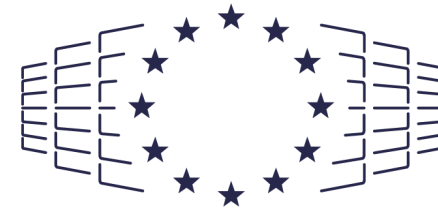
Per Öster – CSC IT Center for Science





# EuroHPC Federation Platform (EFP) – THE WHY

- Contributes to EuroHPC JU's vision to establish a world-leading **federated and secure HPC and quantum service** infrastructure ecosystem in the Union
- Integrates **supercomputing, AI systems, quantum computing and data resources** across Europe, enhancing user access to advanced technologies.
- **Enabler for the new AI objective of the EuroHPC JU** - to drive the development of AI factories or open ecosystems for **AI formed around the EuroHPC centers**.
- Serves the **increasing number of new user-groups, especially industry**, which are not as familiar with classical supercomputing/computing in general or are used to a different set of tools or paradigms.



**EuroHPC**  
Joint Undertaking

## Federation Platform



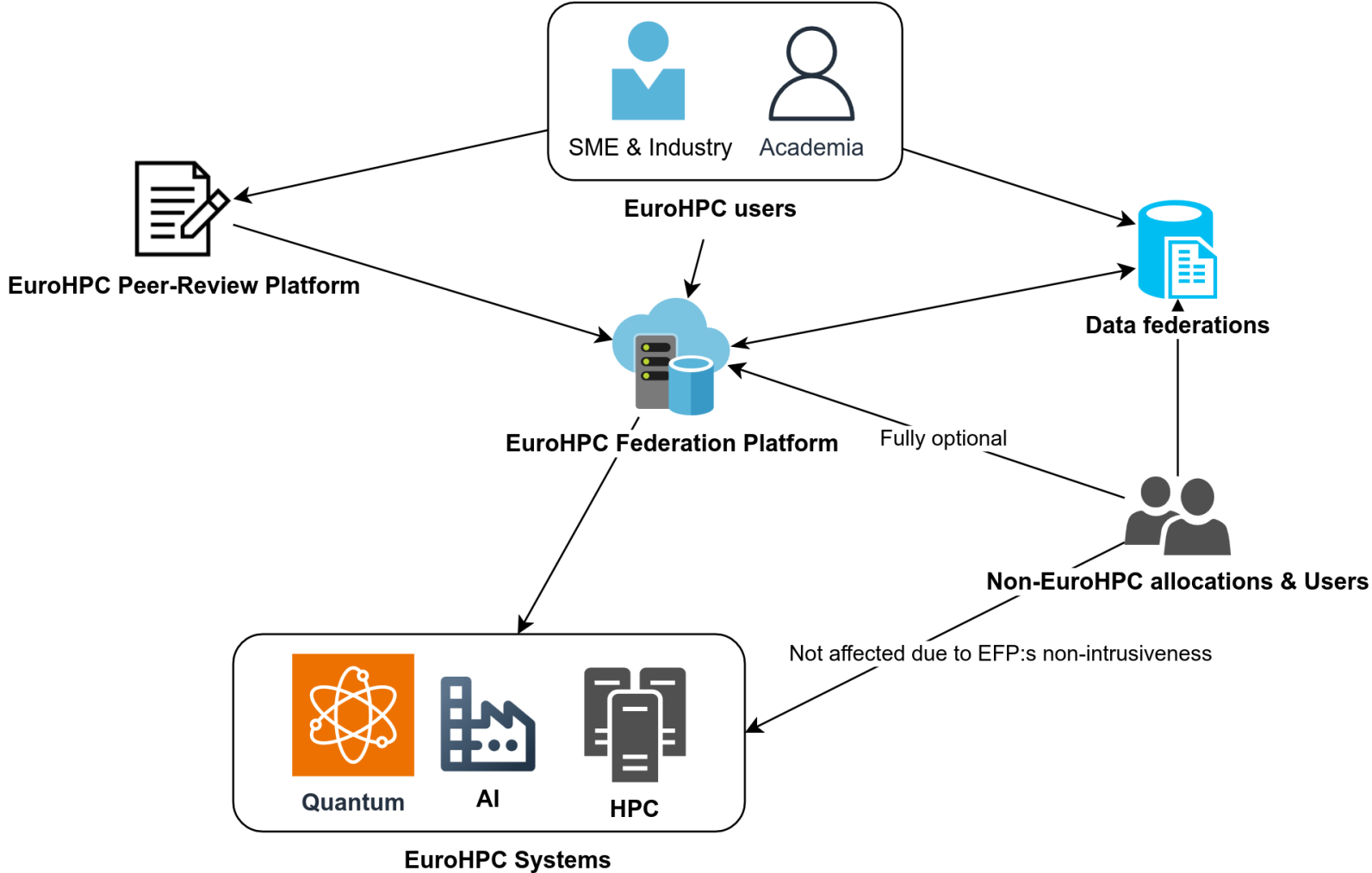
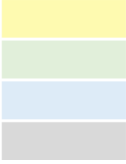
# Call and Consortium

- EuroHPC Work programme 2023
- Call for Tender:
  - “Federation of European Supercomputers”
- Consortium built on experience from Lumi
  - Federation of eleven countries
  - Development of Puhuri federated resource allocation system
  - Distributed support
  - Common development of user environment



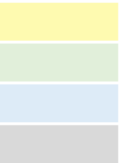
*The consortium delivering the federation platform*

# The Vision: An interconnected ecosystem



- Automated integration and shared identities with the review portal for streamlined access
- Connection to data federations for easy access and transfer of data

# EuroHPC Federation platform design principles



**Modular  
Architecture**

**API-First**

**User-Centric**

**Data Privacy  
and Security**

**Scalability and  
Performance**

**Open to  
Innovation**

**Industry  
Standards**



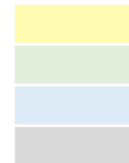
# EFP Main features – THE WHAT

- **Identity:** EFP registers users and ensures a strong identity via biometric passport validation or national eIDs. Extremely broad selection of identity-providers ranging from academia to industry
- **Access:** MFA (From IDP, or the EFP compensates) enforced on all interactions including getting short-lived ssh credentials for direct access
- **Allocations:** Modern programmatic interfaces (API) for getting resource allocation and user information. Several integration options, with full support for human-in-the-loop steps at the HEs
- **Software:** Unified offering across the systems to reduces the cost and complexity of migrating workloads or utilizing multiple systems in complex workflows
- **Graphical interface:**
  - Interactive web-based usage: remote desktop, AI training monitoring Jupiter notebooks, file browser, etc.
  - Creation and management of workflows
  - Interactive computing using powerful domain specific tools

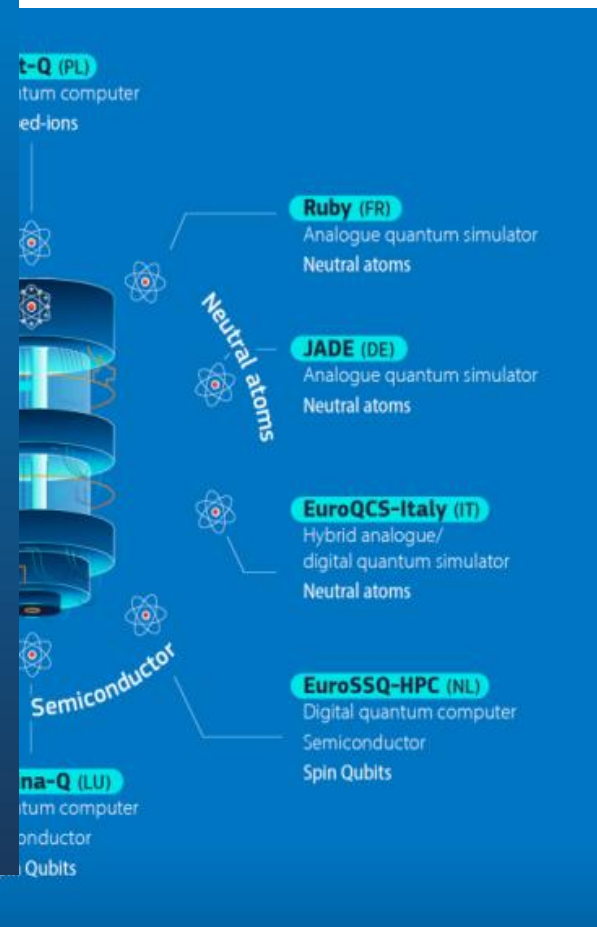
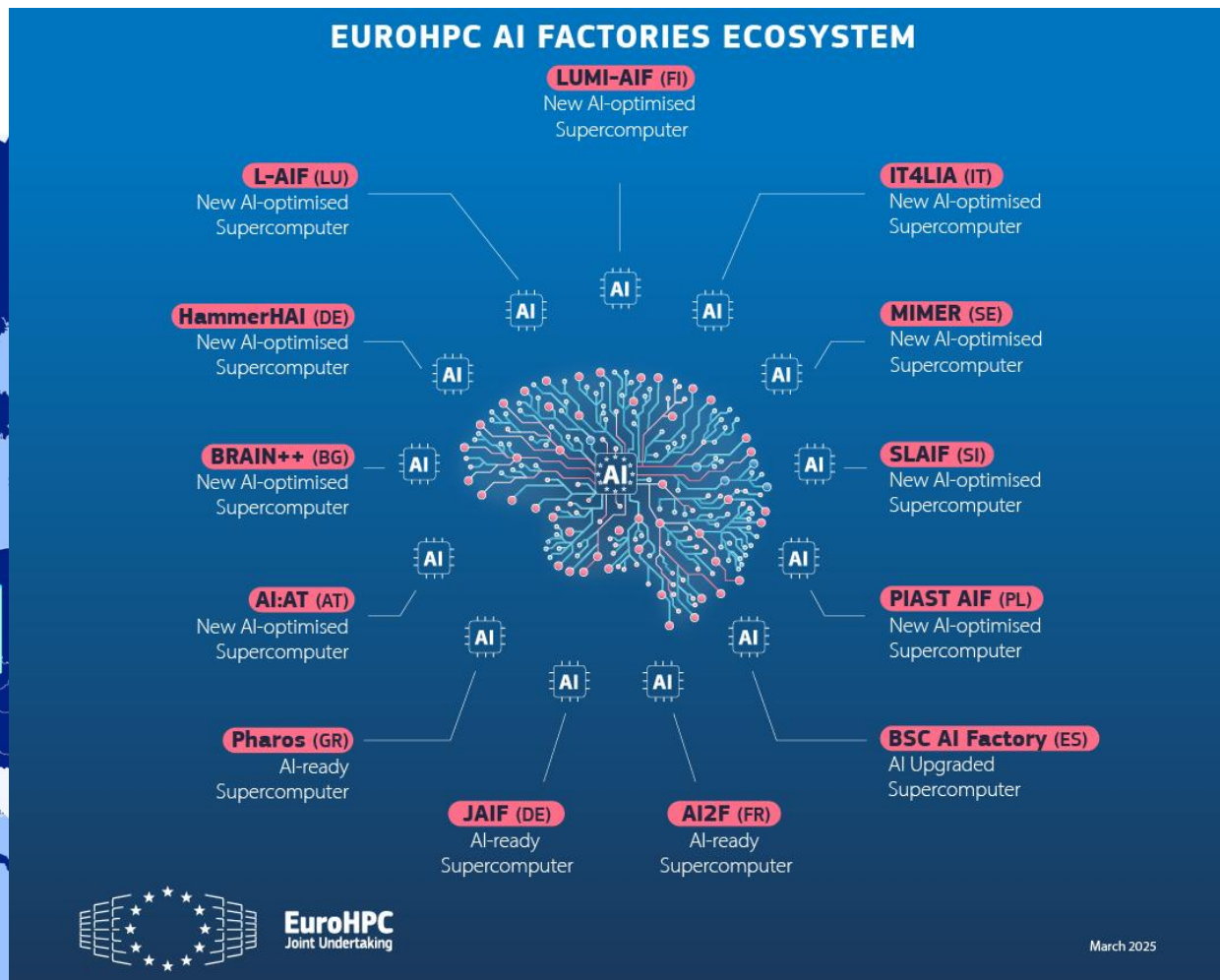
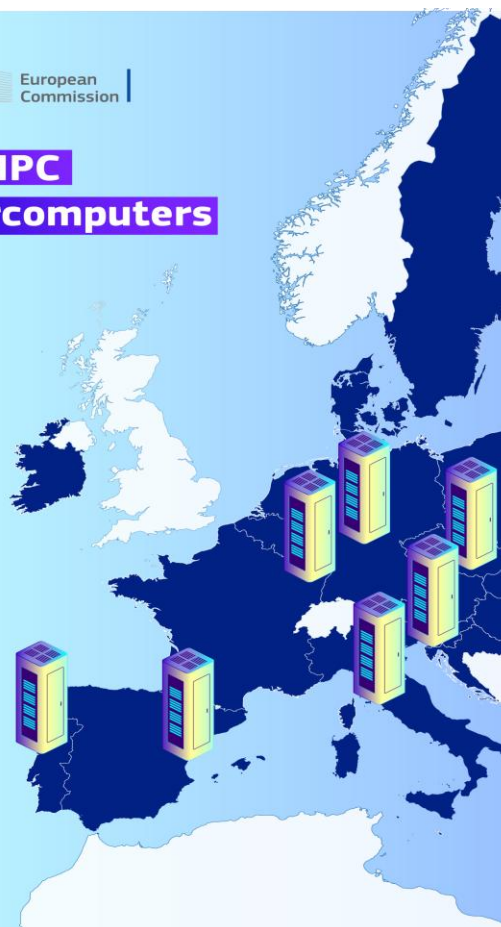


# EFP Targets – FOR WHOM

Reaching **Academia, Industry & SMEs, public sector** through the federation of the **EuroHPC JU**:



**EuroHPC**  
supercomputers

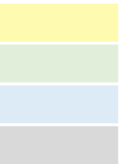


# EFP Targets – FOR WHOM

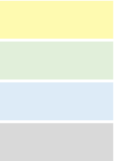
- Connections to/interoperability with other federation efforts such as **EOSC, SIMPL, FENIX**
- Support to flagship initiatives like **Destination Earth**



**Destination Earth**

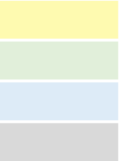


# Timeline



- Start January 2025
- **1st phase (2025-2026)** The development of a Minimum Viable (Federation) Platform (MVP) covering six key areas including federated AAI, resource allocations, and complex workflow manager including smart scheduler.
  - **1st release:** Q1/2026 with integration to currently online EuroHPC systems
  - **2nd release:** Q4/2026 additional EFP components and integration online HEs, AI factories and quantum systems + initial integration of Fenix, SIMPL and EOOSC
- **2nd phase (2027 – 2029)** - Focus on the development of further enhancements and integration of new systems

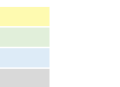
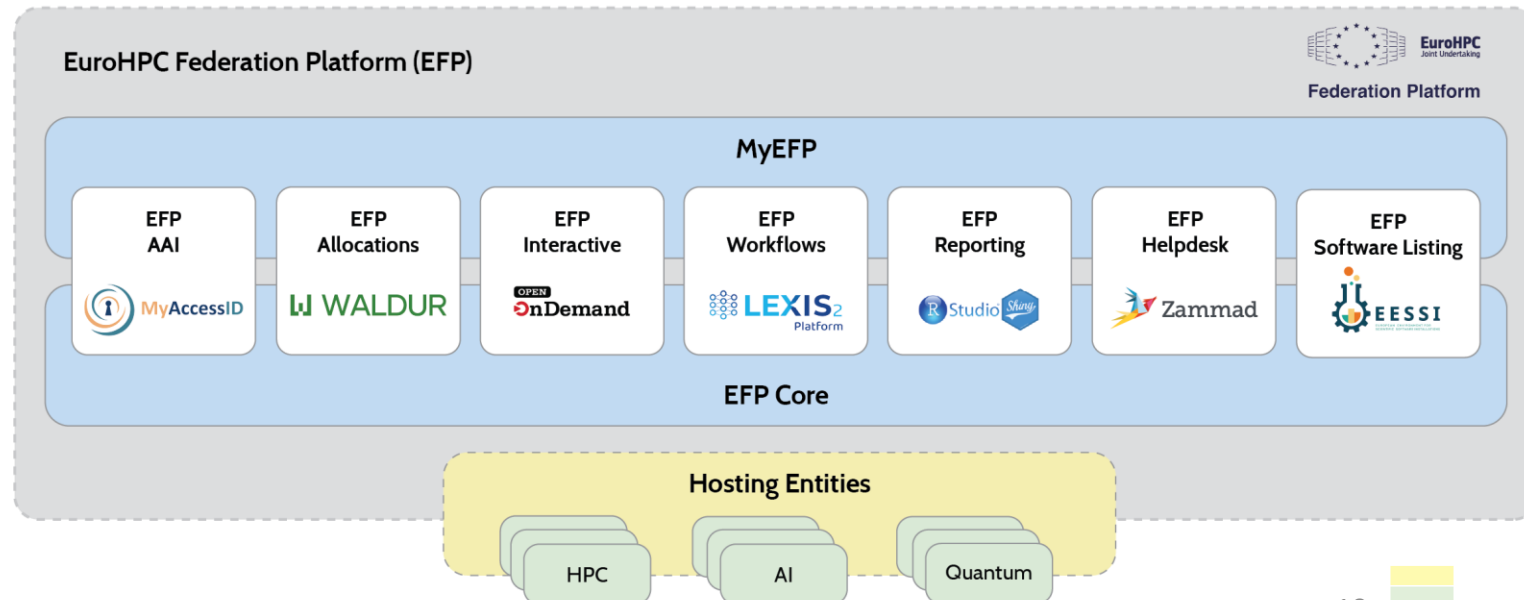




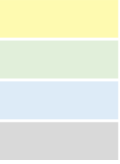
# The 1<sup>st</sup> Release

First release, March 2026, delivers the core functionality and interfaces for the base federation of the online EuroHPC systems:

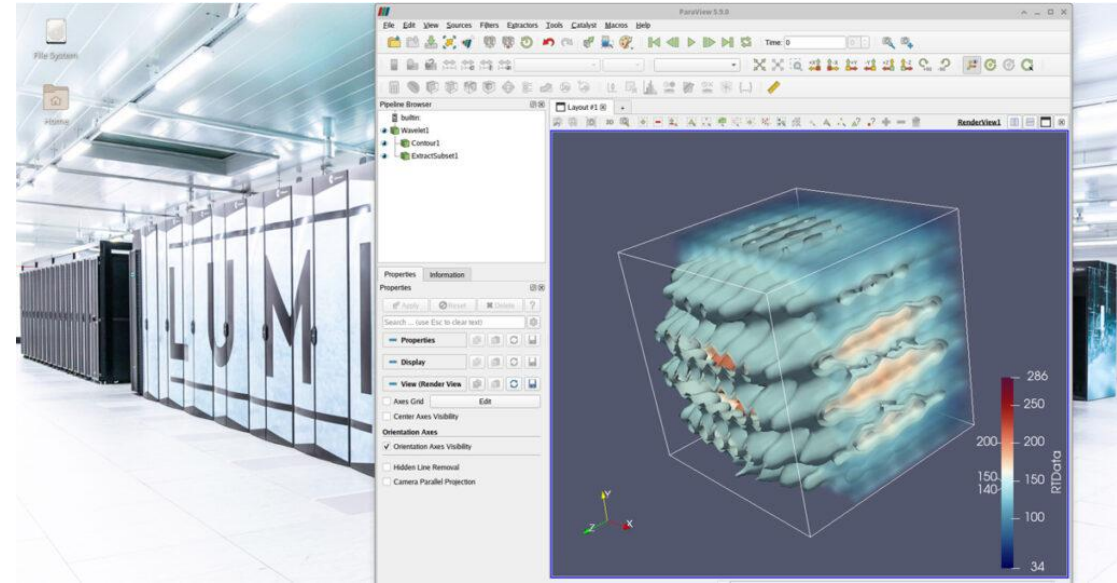
- Federated Resource allocation, monitoring and management
- Federated AAI
- Federated Software Catalogue
- EFP Interactive
- Workflows and Data Transfer
- EFP Helpdesk
- EFP reporting
- MyEFP (user portal)



# EFP Interactive:



- Easy to use web interface for new and industrial users to be in interactive mode with HPC
- Applications like Jupyter notebooks, remote desktops and shell
- Fine-grained job level management and file management across the federated resources.



```
Host: mahti-login.csc.fi
[(u, 7)@M-l12 ~/] ls
1.1.0
150_node_nextflow.txt
affinity_tests
allas_setup
a.out
BASHRC
Desktop
dirColors
Documents
[(u, 7)@M-l12 ~/]

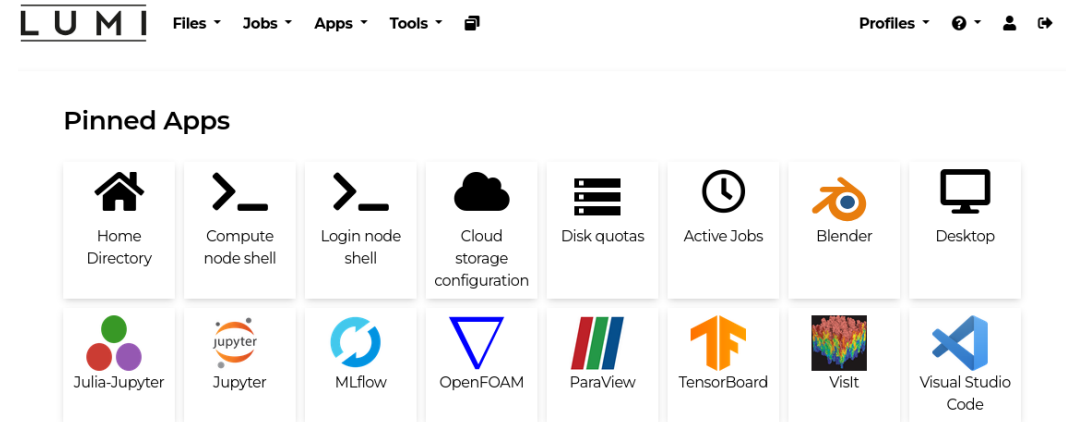
Downloads
encrypted.sif
encryptedU.sif
enter.sh
Fort
fulls.txt
full.txt
get_aff
go

hello
hello.c
hello.f90
hosts
HQJOBS
hq-v0.10.0-linux-x64.tar.gz
index.html
init.py
intel.sif

INTELTEST
IO-Tests
job.sh
list_quota
logs
Lustre
mahti_arch.svg
main_bu.f90
main.cu

main.py
m.c
min.c
min.py
MPI_TEST
MungeJWT
Music
novnc.log
nvim

nvim-linux64.tar.gz
ondemand
ood_jobs_jan.txt
ood_jobs.txt
OODUsage
out.json
output.txt
out.strace
out.svg
```



- Overview
- Allocations
- Workflows
- Software Catalog
- Data Management
- Interactive
- Support
- Logout

### Welcome

Welcome to MyEFP Henrik Nortamo

You last logged in on 08.05.2025 klo 9:02

**MELUXINA** will be down for maintenance on May 15th from 8:00 PM to 10:00 PM EEST. [More Info](#) →

### Workflows

<b>Running</b> workflows 2	<b>Pending</b> workflows 0
<b>Failed</b> workflows 3	<b>Finished</b> workflows 25

[Go to Workflows](#) →

### Batch Jobs

<b>Running</b> jobs 0	<b>Pending</b> jobs 0
<b>Failed</b> jobs 0	<b>Finished</b> jobs 6

[Go to Jobs](#) →

### Interactive Sessions

<b>Active</b> sessions 53	<b>Pending</b> sessions 47
------------------------------	-------------------------------

[Go to Sessions](#) →

### Locations

Allocations by system

2 VEGA 3 MARENOSTRUM 5 1 LUMI 2 DEUCALION 1 DISCOVERER 1 JUPITER

[Go to Allocations](#) →

### Events

- Running** Convallis Morbi Odio Odio Elementum  
Started at 08.05.2025 klo 9:41 Workflow
- Running** Consequat Metus  
Started at 08.05.2025 klo 9:40 Workflow
- Finished** Eget Eros Elementum Pellentesque Quisque Porta  
Finished at 08.05.2025 klo 9:40 in 13.74 seconds Batch job
- Finished** Amet Turpis Elementum Ligula  
Finished at 08.05.2025 klo 9:40 in 8.43 seconds Workflow
- Failed** Odio Elementum Eu Interdum Eu Tincidunt  
Failed at 08.05.2025 klo 9:40 in 10.65 seconds Workflow
- Finished** Sodales Scelerisque Mauris Sit  
Finished at 08.05.2025 klo 9:40 in 11.55 seconds Workflow

**Blog published today 9 Dec 2025:**

**EuroHPC Federation Platform: Preparing for the first release**

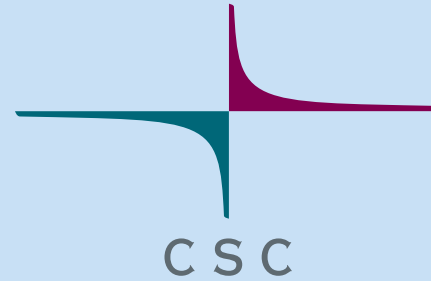
[https://lumi-supercomputer.eu/efp\\_preparation/](https://lumi-supercomputer.eu/efp_preparation/)

Hosting Entities

HPC

AI

Quantum



**Acknowledgement:**

Thanks to Pekka Lehtovuori, Henrik Nortamo, Timea Biro, Alberto Lanzanova and all EFP partners



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