

Webinar series: Different aspects of EESSI

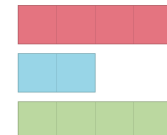
5 Mondays in a row-ish April-May-June 2026

<https://www.eessi.io/docs/training-events/2026/webinar-series-2026Q2/>

- 27 April: **Introduction to EESSI**
- 4 May: Building software on top of EESSI + contributing to EESSI
- 11 May: Using EESSI for Continuous Integration
- 18 May: Introduction to CernVM-FS
- 1 June: Using EESSI as a base for a central software stack



CernVM-FS



EASYBUILD



More info and registration →

Q&A via EESSI Slack

Please join the `#webinar-series-2026q2` channel
in the EESSI Slack for questions and discussion



Step 1) **Join the EESSI Slack**, see “Slack channel” link at <https://eessi.io>

Step 2) **Join #webinar-series-2026q2 channel** in EESSI Slack
(direct link: <https://eessi-hpc.slack.com/archives/C0AP84QKU05>)

*What if you no longer have to install
a **broad range of scientific software**
from scratch on every laptop, HPC cluster,
or cloud instance you use or maintain,
without compromising on performance?*





Streaming Optimised Scientific Software, an Introduction to **E E S S I**

EUROPEAN ENVIRONMENT FOR
SCIENTIFIC SOFTWARE INSTALLATIONS

Main Speaker: Helena Vela (Do IT Now),

Moderators: Thomas Röblitz (UiB), Kenneth Hoste (UGent), Richard

Topouchian (UiB)

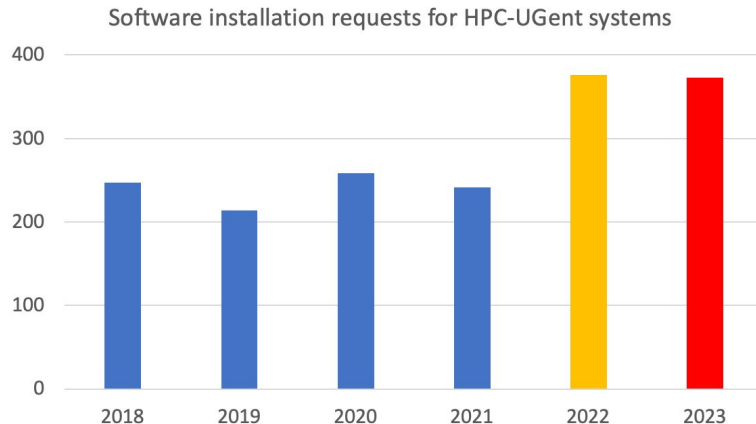
Multi-scale

Mon 27 April, 2026



The changing landscape of scientific computing

- **Explosion of available scientific software** applications (bioinformatics, AI boom, ...)
- Increasing interest in **cloud** for scientific computing (flexibility!)
- **Increasing variety in processor (micro)architectures** beyond Intel & AMD: Arm is coming already here (see [Fugaku](#), [JUPITER](#), ...), RISC-V is available now!
- In strong contrast: available (wo)manpower **in HPC support teams is (still) limited...**



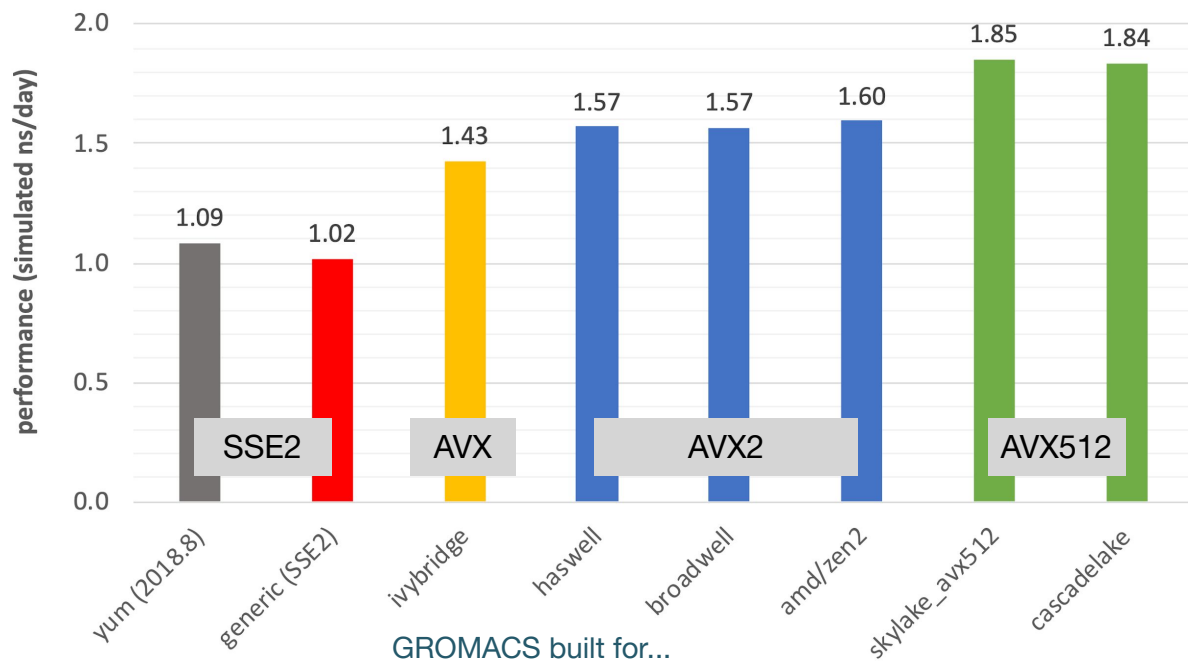
Major goals of EESSI



- Providing a truly **uniform software stack**
 - Use the (exact) same software environment everywhere
 - **Without sacrificing performance** for “mobility of compute” (like is typically done with containers/conda)
- **Avoid duplicate work** (for researchers, HPC support teams, sysadmins, ...)
 - Tools that automate software installation process (EasyBuild, Spack) are not sufficient anymore
 - Go beyond sharing build recipes => work towards a shared software stack
- Facilitate HPC training, development of (scientific) software, ...

Optimized scientific software installations

- Software should be optimized for the system it will run on (keep the P in HPC!)
- Impact on performance is often significant for scientific software!
- Example: GROMACS 2020.1 (PRACE benchmark, Test Case B)
- Metric: (simulated) ns/day, higher is better
- Test system: dual-socket Intel Xeon Gold 6420 (Cascade Lake, 2x18 cores)
- Performance of different GROMACS binaries, on exact same hardware/OS





Demo time!

Demo: Using EESSI

https://www.eessi.io/docs/using_eessi/setting_up_environment/



```
/cvmfs/software.eessi.io/versions/2023.06/software
|-- linux
|   |-- aarch64
|   |   |-- generic
|   |   |-- neoverse_n1
|   |   `-- neoverse_v1
|   `-- x86_64
|       |-- amd
|       |   |-- zen2
|       |   `-- zen3
|       |-- generic
|       `-- intel
|           |-- haswell
|           `-- skylake_avx512
|               |-- modules
|               `-- software
```

```
$ source /cvmfs/software.eessi.io/versions/2023.06/init/lmod/bash
Found EESSI pilot repo @
/cvmfs/software.eessi.io/versions/2023.06!
```

```
archdetect says x86_64/amd/zen3
```

```
Using x86_64/amd/zen3 as software subdirectory
```

```
...
```

Automatically detects CPU microarchitecture

```
Environment set up to use EESSI pilot software stack, have fun!
```

```
{EESSI 2023.06} $ module load R/4.3.2-gfbb-2023a
```

```
{EESSI 2023.06} $ which R
```

```
/cvmfs/software.eessi.io/versions/2023.06/software/linux/x86_64/
amd/zen3/software/R/4.3.2-gfbb-2023a/bin/R
```

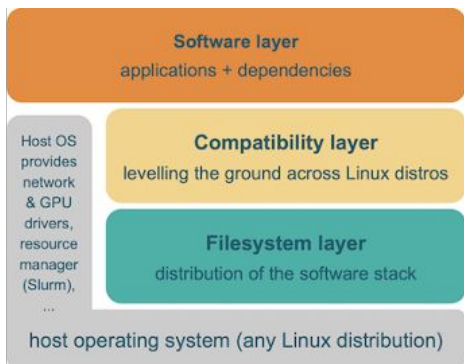
```
{EESSI 2023.06} $ R --version
```

```
R version 4.3.2
```

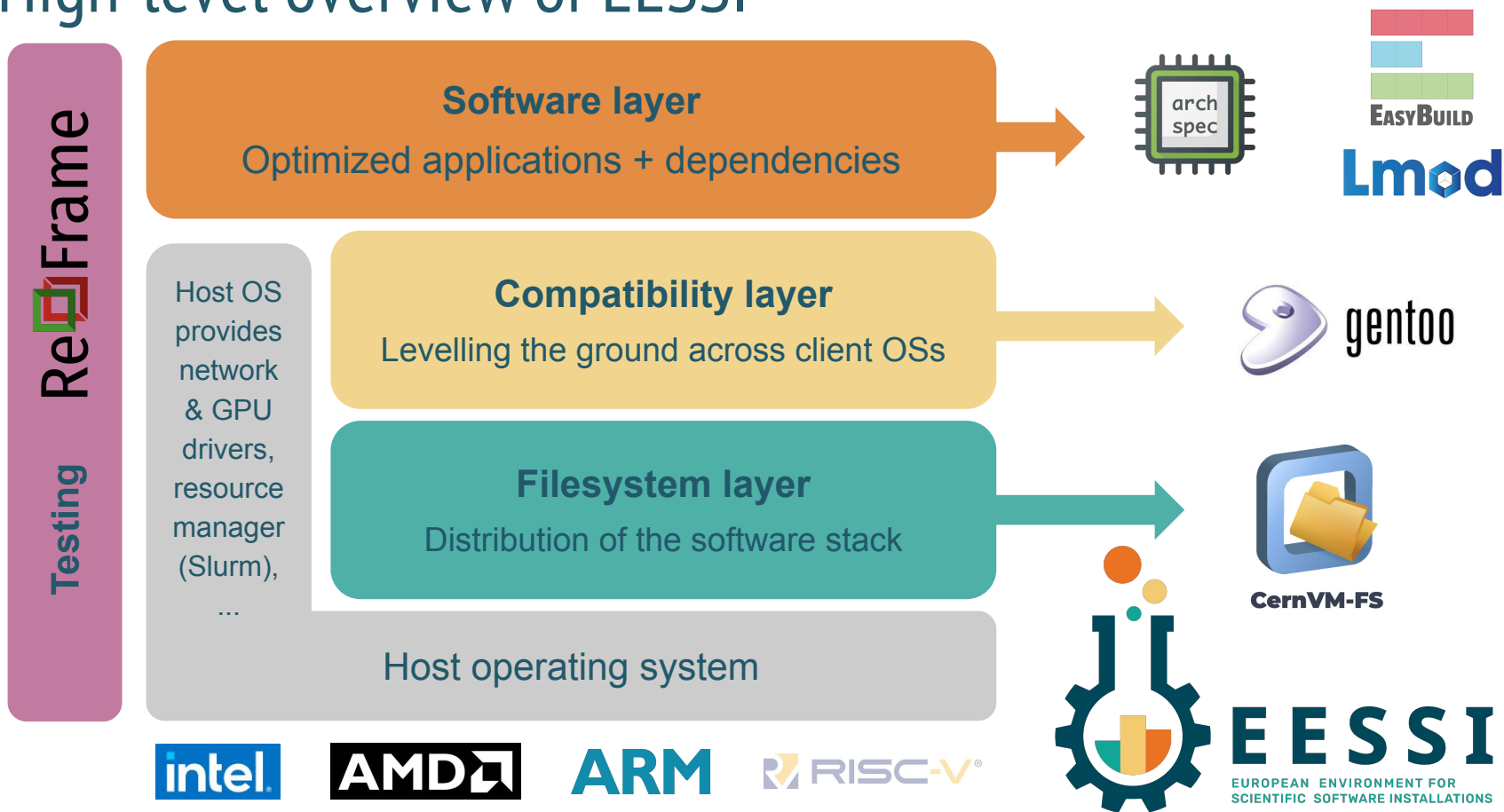
How does EESSI work?



- Software installations included in EESSI are:
 - Automatically **“streamed in” on demand** (via CernVM-FS)
 - Built to be **independent of the host operating system**
“Containers without the containing”
 - **Optimized** for specific CPU generations + specific GPU types
- Initialization script **auto-detects** CPU + GPU of the system



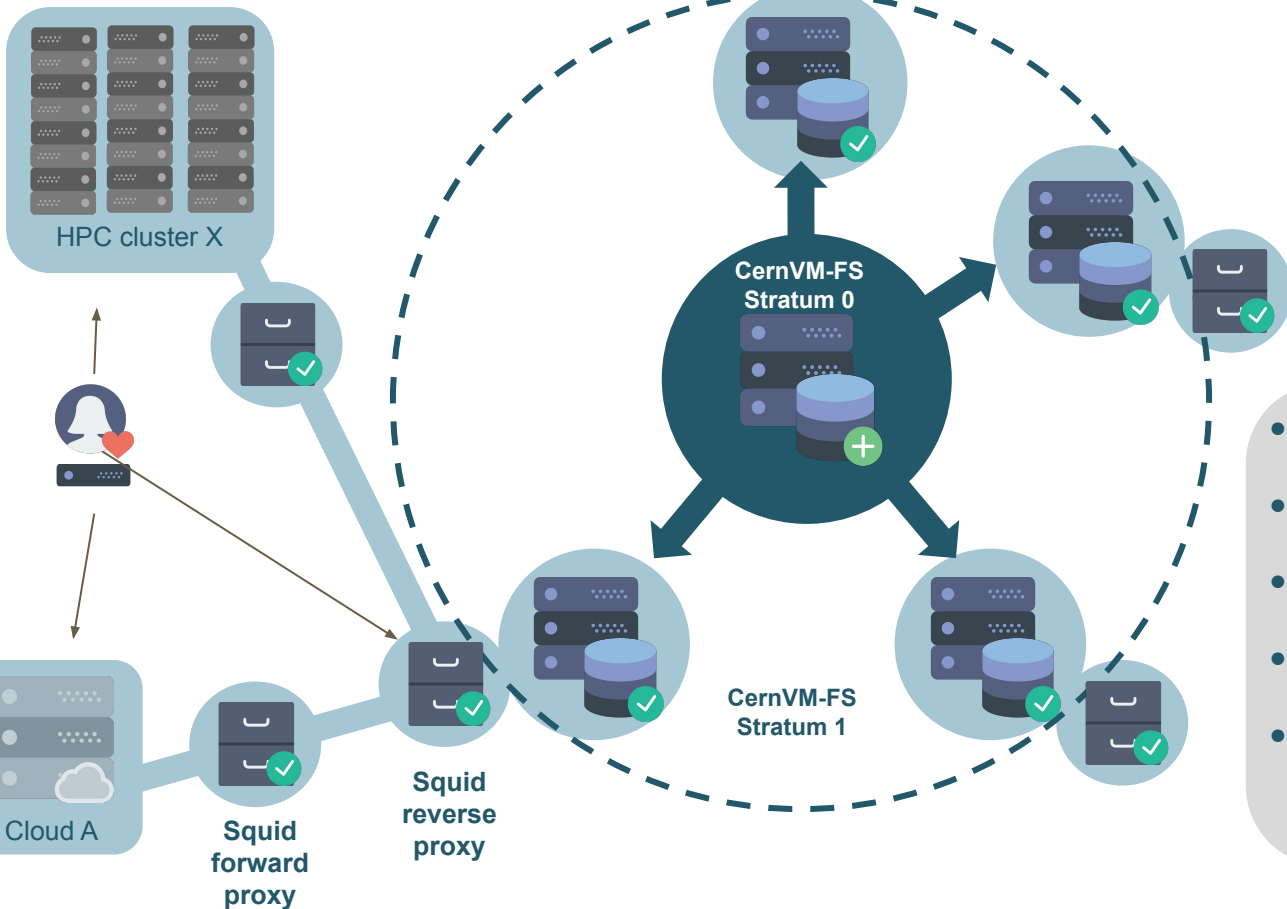
High-level overview of EESSI



Filesystem layer

github.com/EESSI/filesystem-layer

(icons via <https://www.flaticon.com/authors/smashicons>)

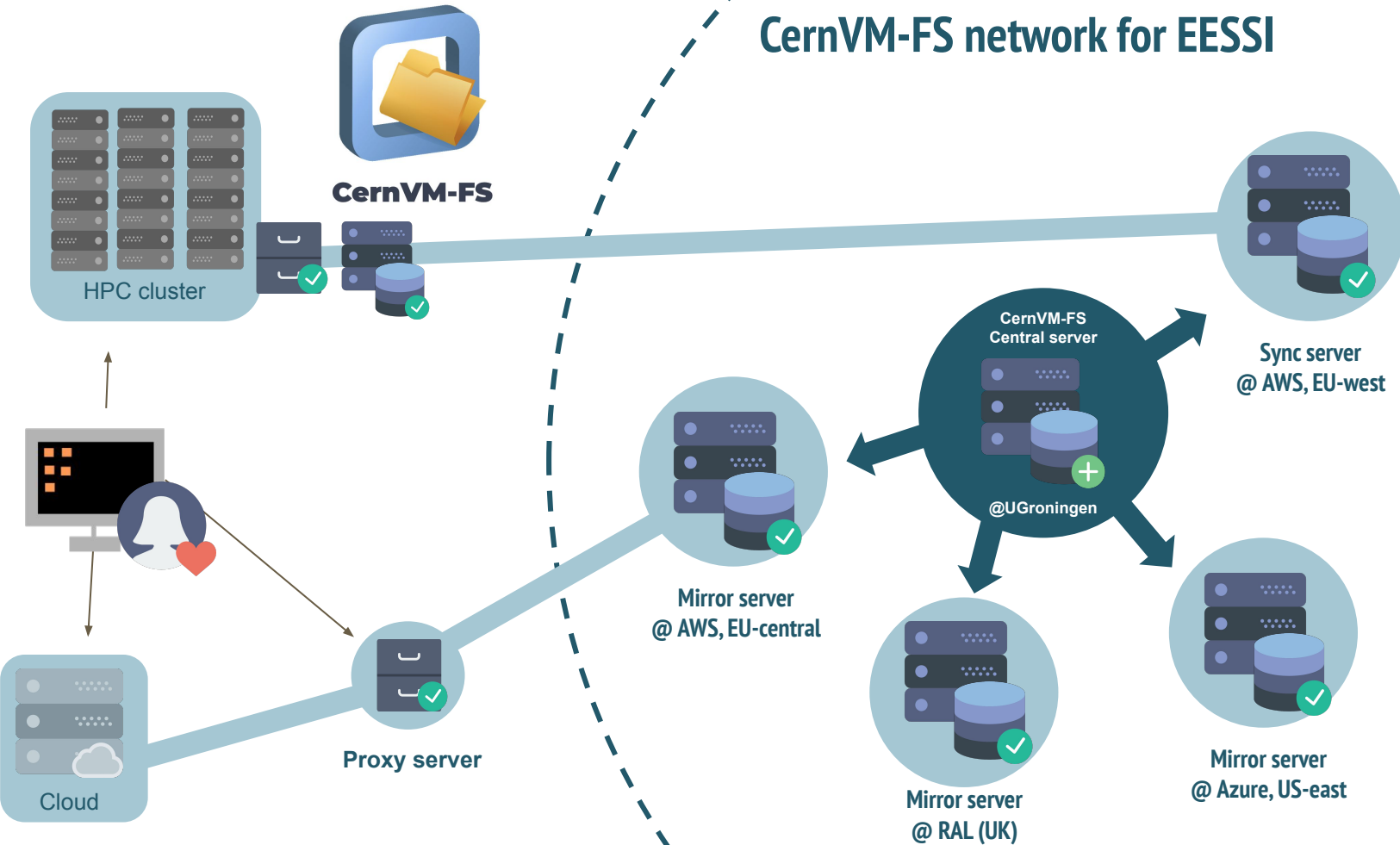


CernVM-FS

cvmfs.readthedocs.io

- Global distribution of software installations
- Centrally managed software stack
- Redundant network of “mirrors”
- Multiple levels of caching
- **Same software stack everywhere:**
laptops, HPC clusters, cloud VMs, ...

CernVM-FS network for EESSI





CernVM-FS webinar

In two Mondays!
18 May 2025, 14:00-16:00 CEST



<https://www.eessi.io/docs/training-events/2026/webinar-series-2026Q2/>

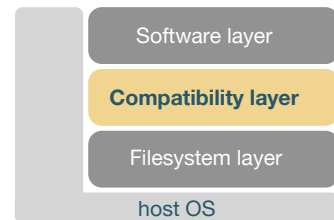
Compatibility layer

github.com/EESSI/compatibility-layer



- Gentoo Prefix installation (in `/cvmfs/.../compat/<os>/<arch>/`)
- **Set of Linux tools & libraries installed in non-standard location**
- Limited to low-level stuff, incl. glibc (no Linux kernel or drivers)
- Similar to the OS layer in container images
- Only targets a supported **processor family** (`aarch64`, `x86_64`, `riscv64`)
- **Levels the ground for different client operating systems** (Linux distributions)
- Currently in production repository:
`/cvmfs/software.eessi.io/versions/2025.06/compat/linux/aarch64`
`/cvmfs/software.eessi.io/versions/2025.06/compat/linux/x86_64`

powered by



Software layer

github.com/EESSI/software-layer

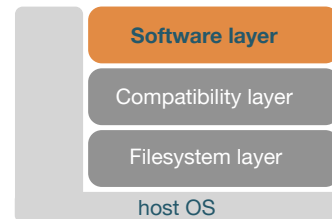


- Provides **installations of scientific software** applications & libraries (incl. deps)
- Optimized for specific CPU microarchitectures (AMD Zen5, ...)
 - Separate subdirectory/tree for each (in `/cvmfs/.../software/...`)
- Support for specific generation of **(NVIDIA) GPUs** via `/accel/` subdirectories
- **Leverages libraries** (like glibc) **from compatibility layer** (*not* from host OS)
- Installed with EasyBuild, incl. environment module files
- Lmod environment modules tool is used to access installations
- **Best subdirectory for host is selected automatically** via `archdetect`

powered by



Lmod



Supported system architectures



- Different generations of x86_64 (Intel, AMD) and Arm 64-bit CPUs; RISC-V is already available!
 - Including A64FX (Deucalion, WIP) & NVIDIA Grace (JUPITER, WIP)
 - Also works on laptops, in virtual machines in the cloud, on Raspberry Pi boards, etc.
- Different accelerators: **NVIDIA GPUs** (today) + **AMD GPUs** (soon)
 - Available combination: AMD Rome (Zen2) + NVIDIA A100 (cc80), AMD Milan (zen3) + NVIDIA A100 (cc80) and AMD Genoa (zen4) + NVIDIA H100 (cc90) only software installations for AMD Rome (Zen2) + NVIDIA A100 are available + AMD Turin (Zen 5) + NVIDIA GB200/GB300 (cc120)
- **Various interconnects** like Infiniband, via “fat” MPI libraries
 - Support for injecting a vendor-provided MPI library is available
- Goal is to support system architecture of **all** (current & future) **EuroHPC systems**

New releases and repositories

pilot.eessi.io

dead & buried (RIP)

software.eessi.io

2023.06

- Default one since June 2023
- **1189** software installed (total: 16,681)
- **6151** unique packages
- foss/(2022b+23a+23b) -> GCC 12.4 ↓

riscv.eessi.io

- Development versions of an EESSI RISC-V software stack
- **Deprecated: part of dev.eessi.io**

dev.eessi.io

- Developer repository
- More about it later :)

2025.06

- Already available but ongoing effort to add more software
- **775** software installed (total: 11,821)
- **414** unique packages
- foss/(2024a+25a+25b) -> GCC 13.3 ↑

(new) CPU targets

aarch64		generic a64fx neoverse_n1 neoverse_v1	graviton2 thunderx2
	nvidia		grace
x86_64		generic	
	amd		zen2 zen3 Zen4 Zen5
	intel		cascadelake haswell icelake sapphirerapids skylake_avx512

pink -> former architectures in pilot repository

bold -> from the beginning of the project

*A bit of a special one



GPU targets

amd (rocm)

Coming soon...

nvidia

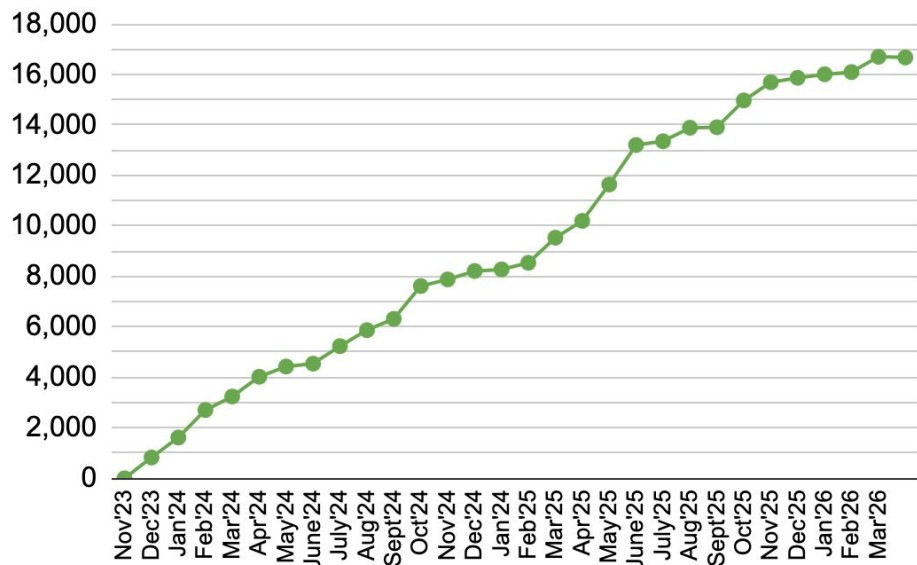
nvidia

2023.06: cc70 cc80 cc90
2025.06: cc70 cc80 cc90 cc100 cc120
(cc: CUDA compute capability)

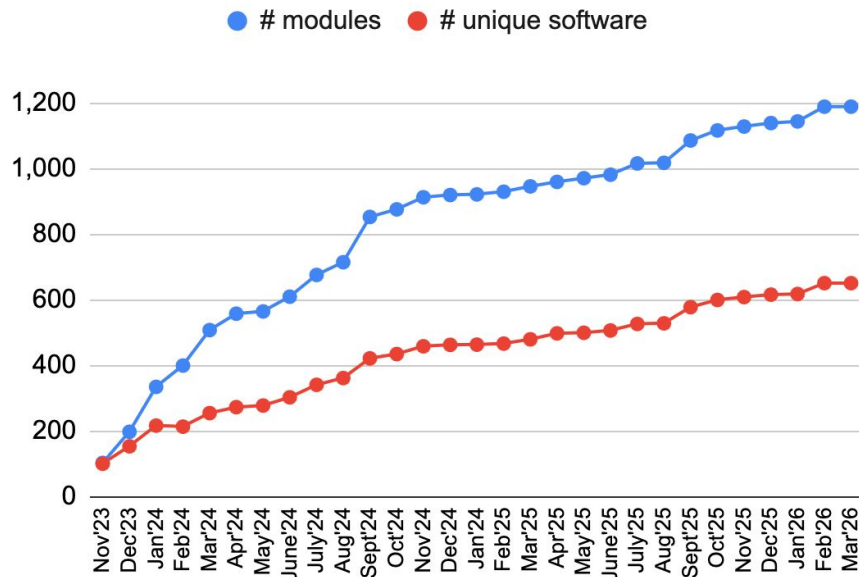
New software evolution (2023.06)



software installations in EESSI 2023.06 (total)



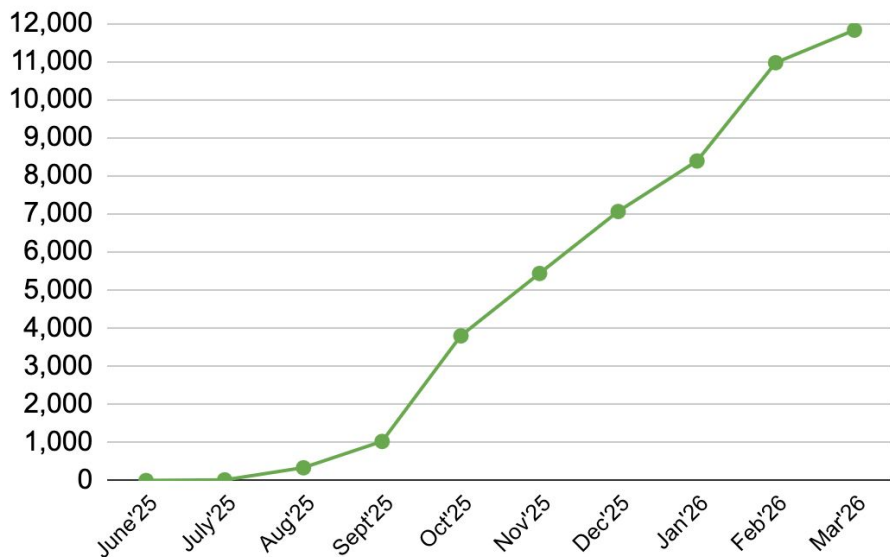
software installations in EESSI 2023.06 (per CPU target)



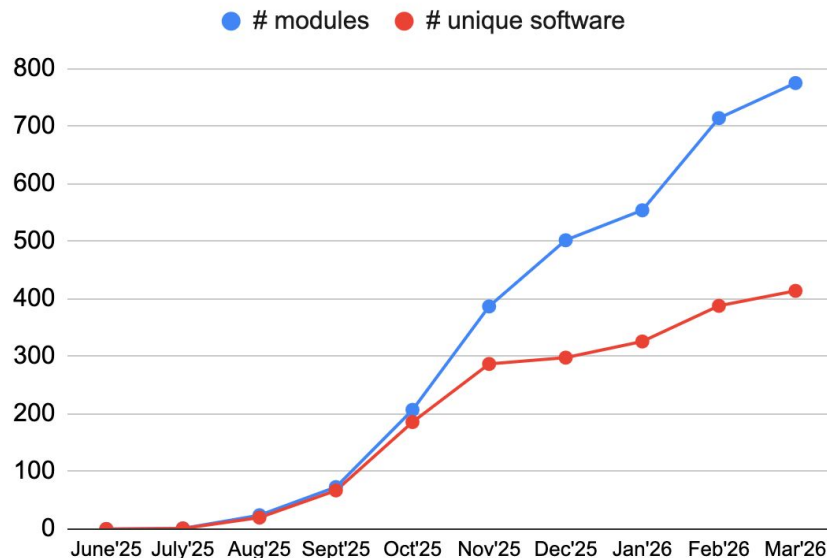
New software evolution (2025.06)



software installations in EESSI 2025.06 (total)



software installations in EESSI 2025.06 (per CPU target)



On which systems is EESSI already available?







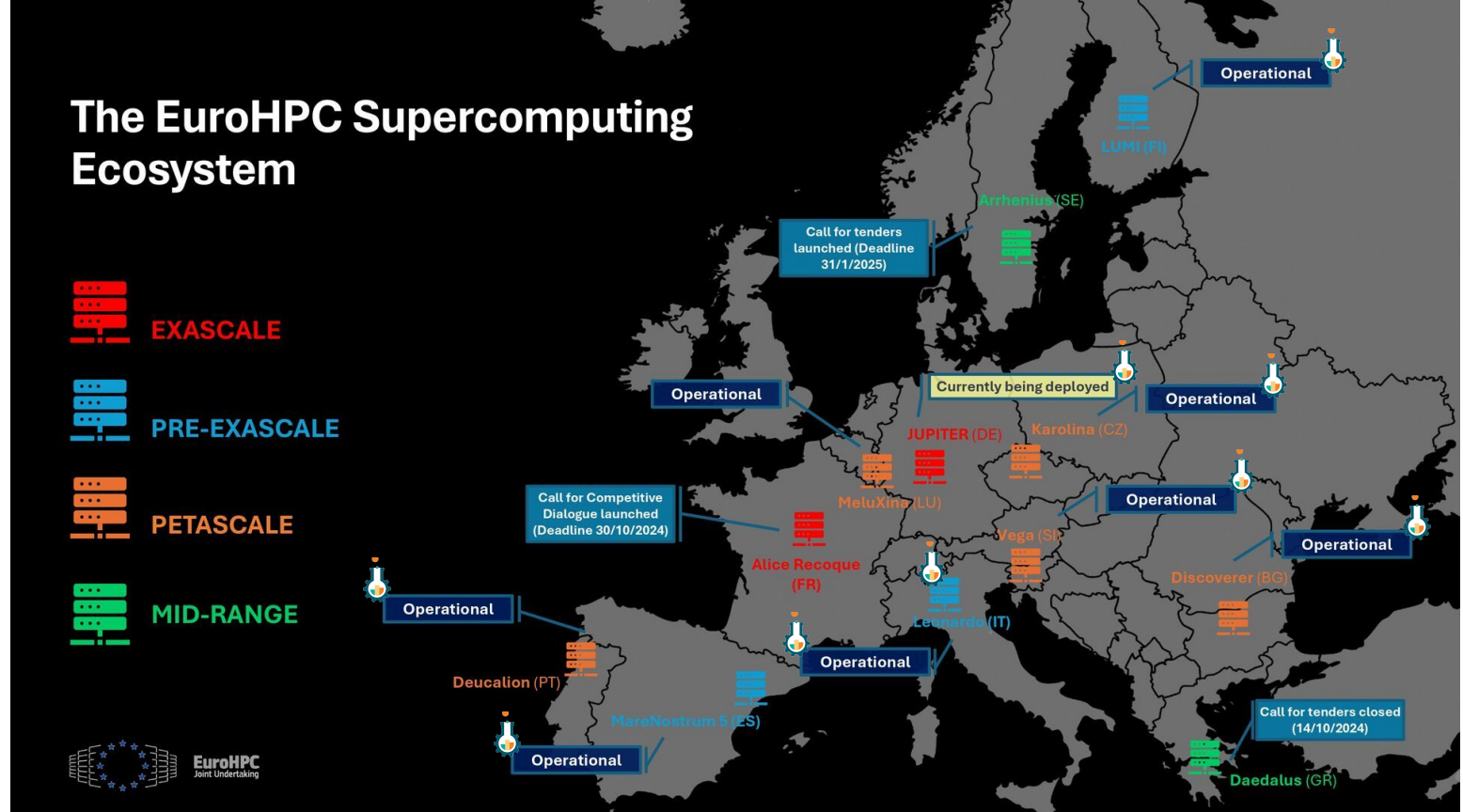
- EuroHPC JU systems:
 - Native installation (via CernVM-FS) on **Vega + Karolina + Deucalion**
 - Semi native installation (via rsync) on **MareNostrum5**
 - Via CVMFS shrinkwrap utility on **LUMI** ([see docs](#))
 - EESSI can be used via `cvmfsexec` tool on Discoverer, MeluXina ([see blog post](#))
 - Native installation on **MeluXina** is a work-in-progress
 - JSC will make EESSI available on **JUPITER**
- EESSI is already available on various other European systems (and beyond)
 - Snellius @ SURF, EMBL, Univ. of Stuttgart, VSC sites in Belgium, Sigma2 & Olivia in Norway, etc.
- **Overview of (known) systems that have EESSI available at eessi.io/docs/systems**

EuroHPC systems with EESSI available



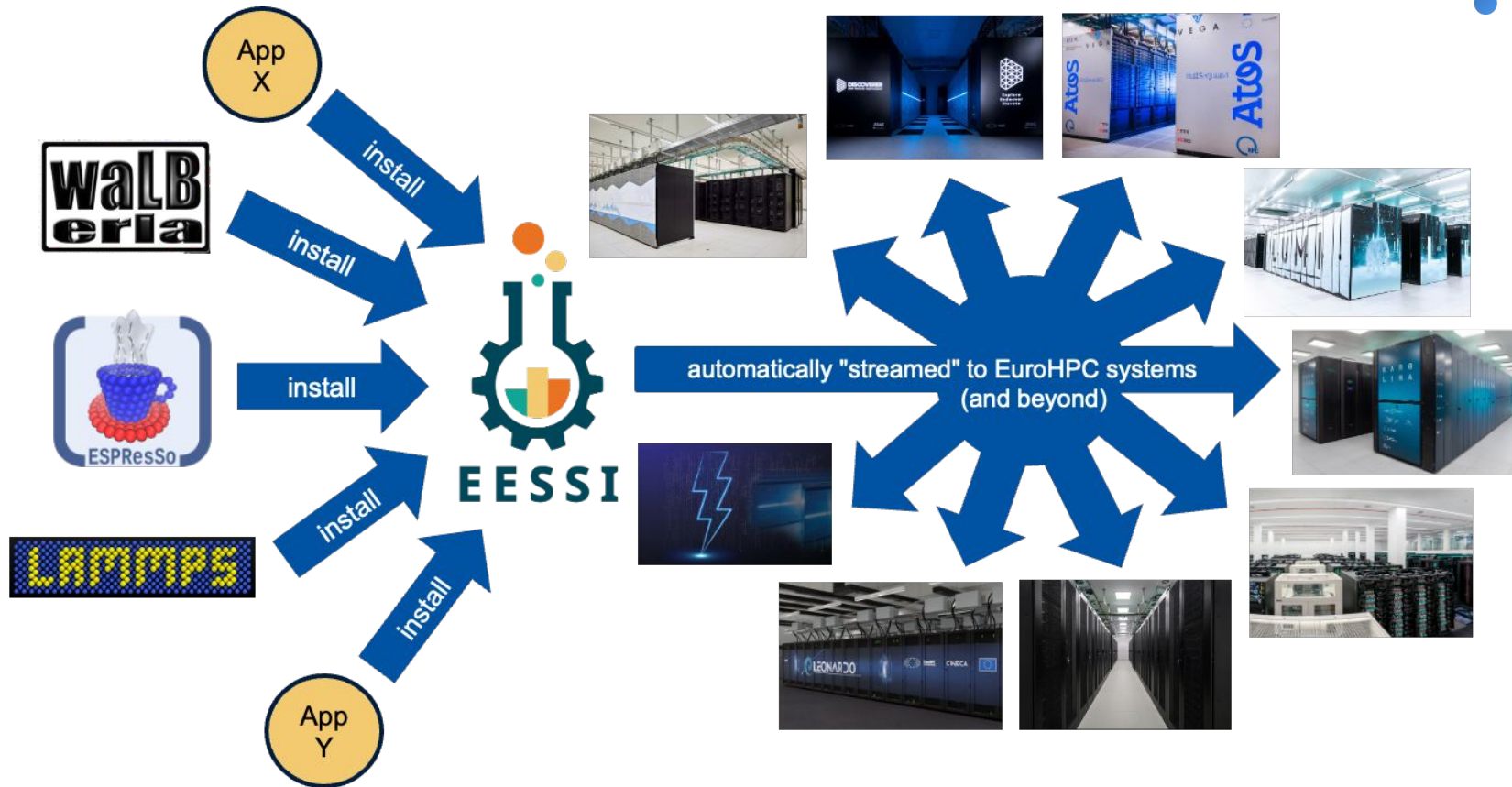
The EuroHPC Supercomputing Ecosystem

-  EXASCALE
-  PRE-EXASCALE
-  PETASCALE
-  MID-RANGE

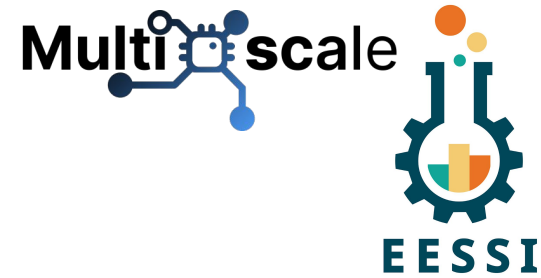


<https://www.eessi.io/docs/systems/>

EESSI as a shared software stack





NVIDIA GPU support in EESSI



- Initial support for CUDA software is in place in EESSI version 2023.06 + 2025.06
- Detailed documentation available at eessi.io/docs/gpu
- Problems we had to deal with:
 - 1) We don't know where the **NVIDIA GPU driver libraries** are in host OS...
 - 2) We **can not redistribute the full CUDA installation** due to EULA, only runtime libraries...
- In EESSI, we provide scripts to deal with both these problems:
 - 1) `link_nvidia_host_libraries.sh` script to link GPU driver libraries provided by OS "into" EESSI;
(requires write access to (target of) `/cvmfs/software.eessi.io/host_injections`)
 - 2) `install_cuda_host_injections.sh` script to **install full CUDA installation** to subdirectory of
(target of) `/cvmfs/software.eessi.io/host_injections` (and unbreak symlinks in CUDA in EESSI)
- **Available CUDA software in EESSI:** CUDA-Samples, GROMACS, ESPResSo, LAMMPS, NCCL, OSU Micro-Benchmarks
- More CPU/GPU combos and software (PyTorch, TensorFlow, AlphaFold, ...) coming soon...
- Testing of the software we install complicates the process of adding GPU software

EESSI status page


EESSI status! 




Normal service

EESSI services operating without issues.

✓ Normal service 🟡 Degraded ⚠ Warning ❌ Failed 🔧 Maintenance


 **Stratum0** ✓

- dev.eessi.io:667
- riscv.eessi.io:524
- software.eessi.io:18001


 **Syncservers** ✓

aws-eu-west-s1-sync.eessi.science **Updates GeoAPI**

 ✓ ✓

 **Stratum1s** ✓

	Updates	GeoAPI
aws-eu-central-s1.eessi.science	✓	✓
azure-us-east-s1.eessi.science	✓	✓
ral-uk-s1.eessi.science:8000	✓	✓

 **Repositories** ✓

	Version	Snapshot
dev.eessi.io	✓	✓
riscv.eessi.io	✓	✓
software.eessi.io	✓	✓



<https://status.eessi.io/>



Hands-on live demo

Getting access to EESSI

Using EESSI



E E S S I

Native installation of CernVM-FS



CernVM-FS

- For a single system, it's sufficient to install and configure CernVM-FS client
- For an HPC cluster, a bit more work is needed to:
 - Enhance the reliability of the access to EESSI
 - Improve startup performance of software
- It is recommended to:
 - Have a full copy of the EESSI repositories in your local network, by setting up a private CernVM-FS Stratum-1 "mirror" server
 - Have one or more proxy servers, to offload the Stratum-1 server(s)
- See also <https://multixscale.github.io/cvmfs-tutorial-hpc-best-practices>

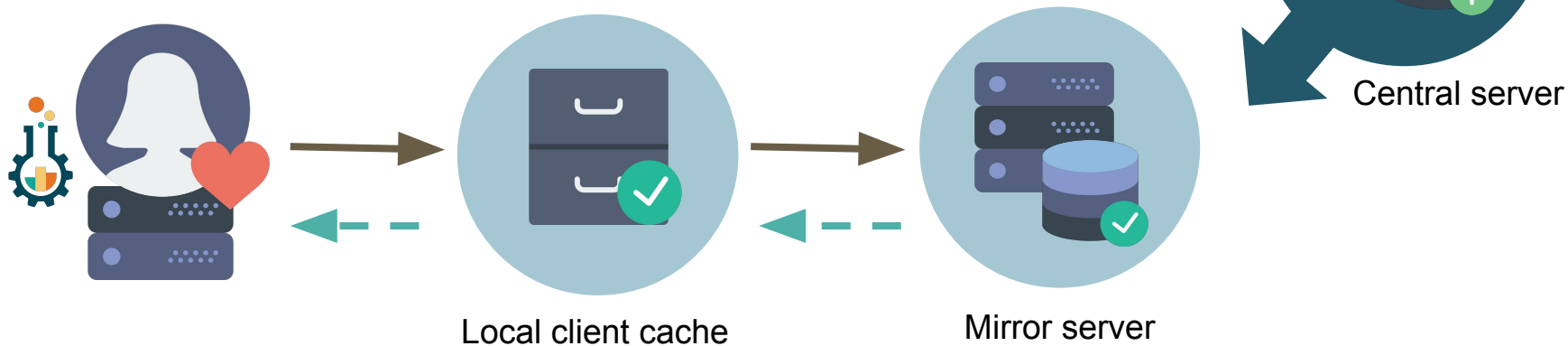
Monday!

**18 May 2026, 14:00-16:00
CEST**



The EESSI User Experience

```
$ source /cvmfs/software.eessi.io/versions/2025.06/init/lmod/bash
{EESSI 2025.06} $ module load GROMACS/2025.2-foss-2025a
{EESSI 2025.06} $ gmx mdrun ...
```

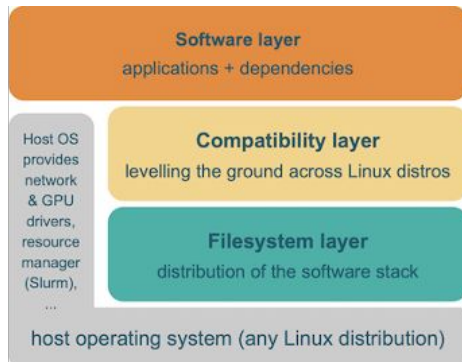


EESSI provides **on-demand streaming**
of (scientific) software (like music, TV-series, ...)

How does EESSI work again?



- Software installations included in EESSI are:
 - Automatically **“streamed in” on demand** (via CernVM-FS)
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“Containers without the containing”
 - **Optimized** for specific CPU generations + specific GPU types
- Initialization script **auto-detects** CPU + GPU of the system



Native installation of CernVM-FS

```
# Native installation
# Installation commands for RHEL-based distros
# like CentOS, Rocky Linux, AlmaLinux, Fedora, ...

# install CernVM-FS

sudo yum install -y

https://ecsft.cern.ch/dist/cvmfs/cvmfs-release/cvmfs-release-latest.noarch.rpm

sudo yum install -y cvmfs

# create client configuration file for CernVM-FS
# (no proxy, 10GB local CernVM-FS client cache)

sudo bash -c "echo 'CVMFS_CLIENT_PROFILE="single"' > /etc/cvmfs/default.local"
sudo bash -c "echo 'CVMFS_QUOTA_LIMIT=10000' >> /etc/cvmfs/default.local"

# Make sure that EESSI CernVM-FS repository is accessible

sudo cvmfs_config setup
```



See docs for alternative ways of installing CernVM-FS natively, via a VM on a personal computer
eessi.io/docs/getting_access/eessi_wsl/ - eessi.io/docs/getting_access/eessi_limacl/

Case 1: Native installation + configuration of CernVM-FS to access EESSI

- On x86_64 (AMD CPUs) virtual machine in AWS
- Install & configure CernVM-FS (requires root access)
- Use case: laptops, virtual machines, or any system with administrative privileges

Case 2: Accessing EESSI via container that includes CernVM-FS

- On aarch64 (Arm CPUs) virtual machine in AWS
- Run `eessi_container.sh` script (no root access required)
- Requires Apptainer 1.0.0 (or newer) or Singularity 3.7.x , Git
- Use case: HPC systems where Apptainer is available but no native installation of CernVM-FS

EESSI demo focus

Part 1: getting access to EESSI on VM in AWS (RHEL9 x86-64)

- Install + configure CernVM-FS and show the availability of EESSI software stack
- Show different versions of the same software for a specific arch, clarifying that same software exists for other architectures too
- Run GROMACS demo simple test case :
[GROMACS_TestCaseA.tar.gz](#)
- Run TensorFlow demo

Part 2: on another CPU architecture (RHEL Arm)

- Run the same tests within eessi_container script inside a VM (requires Apptainer)



Example: Running LAMMPS in a Slurm job script

```
#!/bin/bash
#SBATCH --time=00:30:00
#SBATCH --account="<SLURM_ACCOUNT>"
#SBATCH --partition small
#SBATCH --nodes 2
#SBATCH --ntasks-per-node 1
#SBATCH --cpus-per-task 1
#SBATCH --network=single_node_vni,job_vni,def_tles=0
#SBATCH --constraint=eessi

# CPU microarchitecture is automatically detected by EESSI init script
source /cvmfs/software.eessi.io/versions/2023.06/init/lmod/bash
module load LAMMPS/22Jul2025-foss-2024a-kokkos
mkdir /tmp/$USER && cd /tmp/$USER
curl -o in.lj https://raw.githubusercontent.com/lammps/lammps/refs/heads/develop/bench/in.lj
export OMP_NUM_THREADS=1
mpirun -np 2 lmp -in in.lj
rm -r /tmp/$USER
```



CernVM-FS

What if the software you need is not provided by EESSI yet ?



- Build software locally on top of EESSI with EasyBuild:
 - https://www.eessi.io/docs/using_eessi/building_on_eessi
- Build software locally on top of EESSI manually(without EasyBuild):
 - https://www.eessi.io/docs/using_eessi/building_on_eessi
- Contribute to the EESSI software stack and make the software available for others!
 - Contributions to the EESSI software stack are welcome: https://eessi.io/docs/adding_software/overview
 - The contribution policy is to provide guidelines for adding software to EESSI: https://www.eessi.io/docs/adding_software/contribution_policy

For example: software that can be redistributed (open source), ...



What if the software you need is not provided by EESSI yet ?



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For example: software that can be redistributed (open source), ...





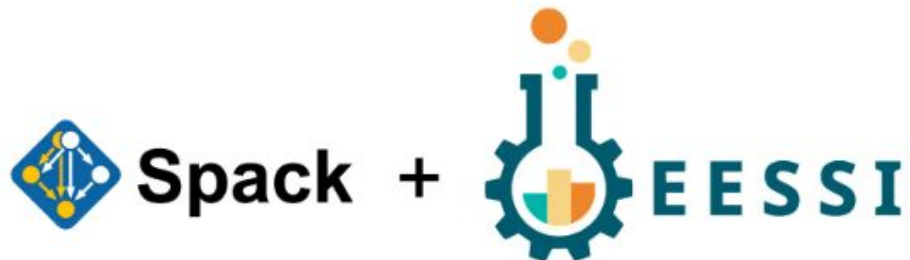
**Building software on top of
EESSI + contributing to EESSI**

**Next Monday!
04 May 2025, 14:00-16:00 CEST**



<https://www.eessi.io/docs/training-events/2026/webinar-series-2026Q2/>

Using Spack on top of EESSI: A Proof of Concept



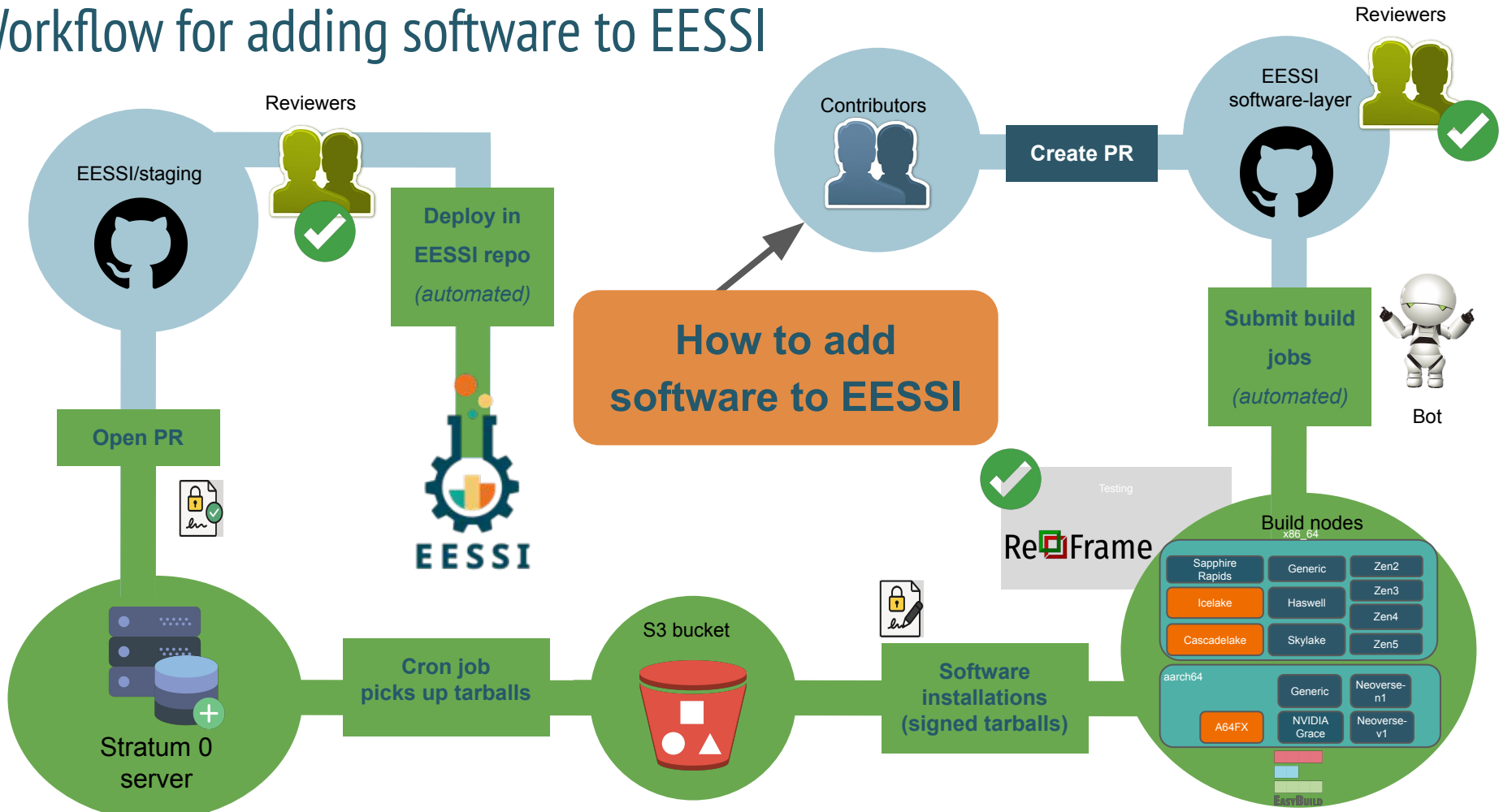
EESSI provides a rich set of software installations, which were built and installed using [EasyBuild](#).

Can we convince [Spack](#) to reuse software installed in EESSI, and by doing so make EESSI more attractive to those of you who prefer using Spack over EasyBuild?

Several people have expressed interest in exposing the software installations provided by EESSI to Spack, so they can be used as dependencies when building and installing software with Spack.

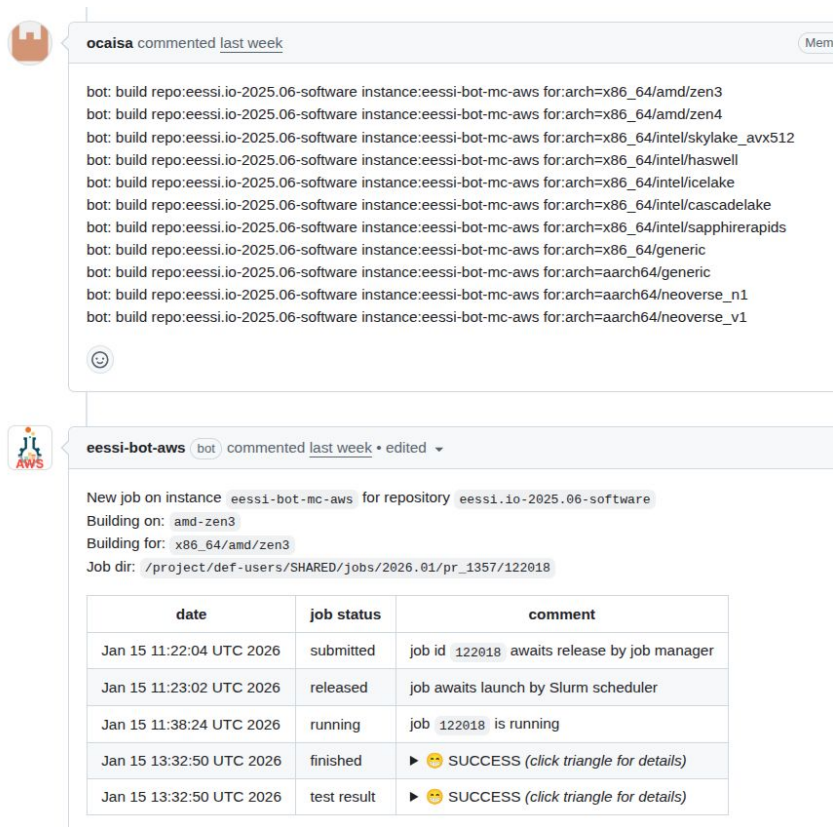
<https://www.eessi.io/docs/blog/2026/01/09/Spack-on-top-of-EESSI-PoC/>

Workflow for adding software to EESSI



Build-test-deploy bot

- Build/Deploy/Ingest Strategy - Fully automatic or with human in the loop
- Interaction model: Plain CI, external CLI, GitHub App, ...
 - GitHub App / scripts that understand(s) structured commands in PR comments, labels, and merge/close
- Whole CI infrastructure underneath:
 - GitHub runners, self-hosted runners → HPC clusters (on-prem/Cloud), each running its own bot instance
- Bot only defines interface, repo owners define the actual build & test logic



ocaisa commented last week

bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/amd/zen3
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/amd/zen4
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/intel/skylake_avx512
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/intel/haswell
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/intel/icelake
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/intel/cascadelake
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/intel/sapphirerapids
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=x86_64/generic
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=aarch64/generic
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=aarch64/neoverse_n1
bot: build repo:eessi.io-2025.06-software instance:eessi-bot-mc-aws for:arch=aarch64/neoverse_v1

eessi-bot-aws (bot) commented last week • edited

New job on instance `eessi-bot-mc-aws` for repository `eessi.io-2025.06-software`
Building on: `amd-zen3`
Building for: `x86_64/amd/zen3`
Job dir: `/project/def-users/SHARED/jobs/2026.01/pr_1357/122018`

date	job status	comment
Jan 15 11:22:04 UTC 2026	submitted	job id <code>122018</code> awaits release by job manager
Jan 15 11:23:02 UTC 2026	released	job awaits launch by Slurm scheduler
Jan 15 11:38:24 UTC 2026	running	job <code>122018</code> is running
Jan 15 13:32:50 UTC 2026	finished	▶ 😊 SUCCESS (click triangle for details)
Jan 15 13:32:50 UTC 2026	test result	▶ 😊 SUCCESS (click triangle for details)



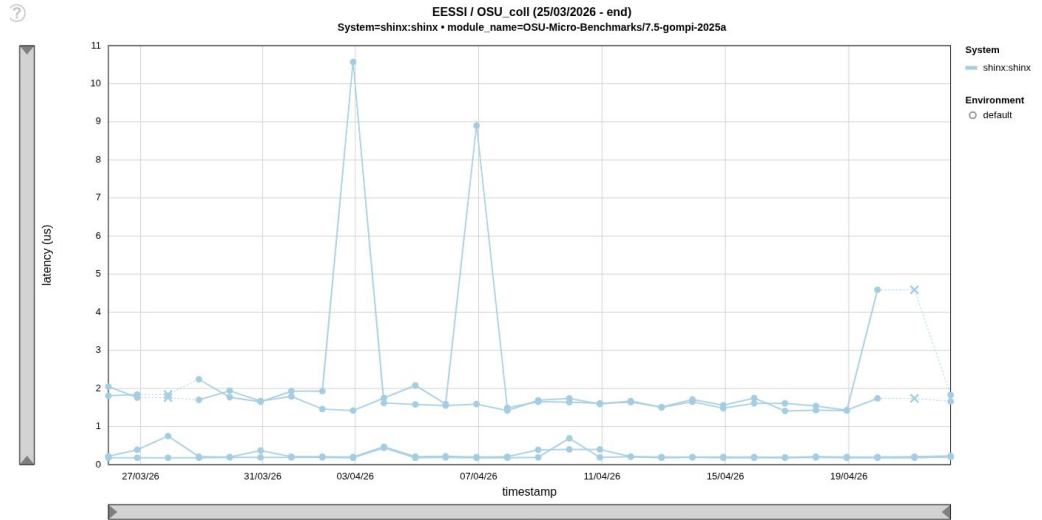
Software testing is an important part of EESSI

- Smoke test: sanity check commands are run by EasyBuild to check that installed software is not horribly broken while using EasyBuild
- Regression testing via EESSI test suite: eessi.io/docs/test-suite
 - Collection of portable tests for software available in EESSI
 - Running on selected (single node) tests when building new software for EESSI (before deployment)
 - Periodically (daily/weekly) on about multiple different systems
 - Can also be used for other software stacks (that are built with EasyBuild)
 - Periodic runs of EESSI test suite help to catch performance regressions



EESSI dashboard

- Centralized interface for visualizing results generated by the EESSI test suite. It supports a range of use cases, including:
 - System monitoring, providing insight into the health and stability of platforms where EESSI is deployed
 - Cross-system performance comparison
 - Aids in regression source identification
- Open to publish data from other systems, contact: support@eessi.io





EESSI use cases

Use cases enabled by EESSI

- A **uniform software stack** across HPC clusters, clouds, laptops
- EESSI is integrated as the common, open-source software stack for the **EFP**
- Enable **portable workflows**
- Significantly facilitates setting up infrastructure for **HPC training**
- EESSI is now **integrated** in Open OnDemand (OoD), in collaboration with OoD developers
 - EESSI provides the scientific software, OoD provides an easy way to access it
- Can be leveraged in **continuous integration (CI)** environments
- Enhanced **collaboration with software developers** and application experts



Also discussed in our open-access paper, available via doi.org/10.1002/spe.3075

Leveraging EESSI in CI environments

Monday!

11 May 2026, 14:00-16:00
CEST

- EESSI can be used in CI environments like:
- EESSI can provide:
 - Different compilers to test your software with
 - Required dependencies for your software
 - Additional tools like ReFrame, performance analysis tools, ...
- Other than CernVM-FS to get access to EESSI, no software installations required!
 - Everything that is actually needed is pulled in on-demand by CernVM-FS
- Significantly facilitates also running CI tests in other contexts (laptop, HPC, ...)

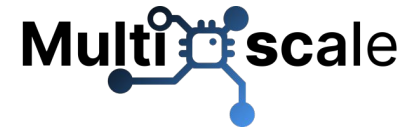


https://www.eessi.io/docs/using_eessi/eessi_in_ci

Collaboration with software developers + experts



- A central software stack by/for the community opens new doors...
- We can **work with software developers/experts** to verify the installation
 - Check how installation is configured and built
 - Help to verify whether software is functional for different use cases
 - Show us how to do extensive testing of their software
 - Evaluate performance of the software, enable performance monitoring
 - *"Approved by developers"* stamp for major applications included in EESSI
- Relieve software developers from burden of getting their software installed
 - Remove need to provide pre-built binary packages?
- Developers can also leverage EESSI themselves: dependencies, CI, ...



European Open Science Cloud (EOSC)



October 22, 2025 · 5 min read

EESSI available on EOSC EU Node



EESSI has recently been working together with the [European Open Science Cloud \(EOSC\)](#) to provide easy access to EESSI for those using EOSC compute resources.

A first implementation of EESSI support is now available as the [EESSI Compute Node tool in the EOSC EU Node Tools Hub](#).

[Continue reading](#)

Tools Hub

The place to find, create, publish and run tools.

[About Tools Hub](#)

+ Create

Search

Q Search

All Tools

My Tools

Favourites

Deployments

Alan O'Cais

EESSI Compute Node

Deploy a compute node with an extra HD disk, EESSI (<https://eessi.github.io/docs>) installed, getting the IP and SSH credentials to access via ssh.

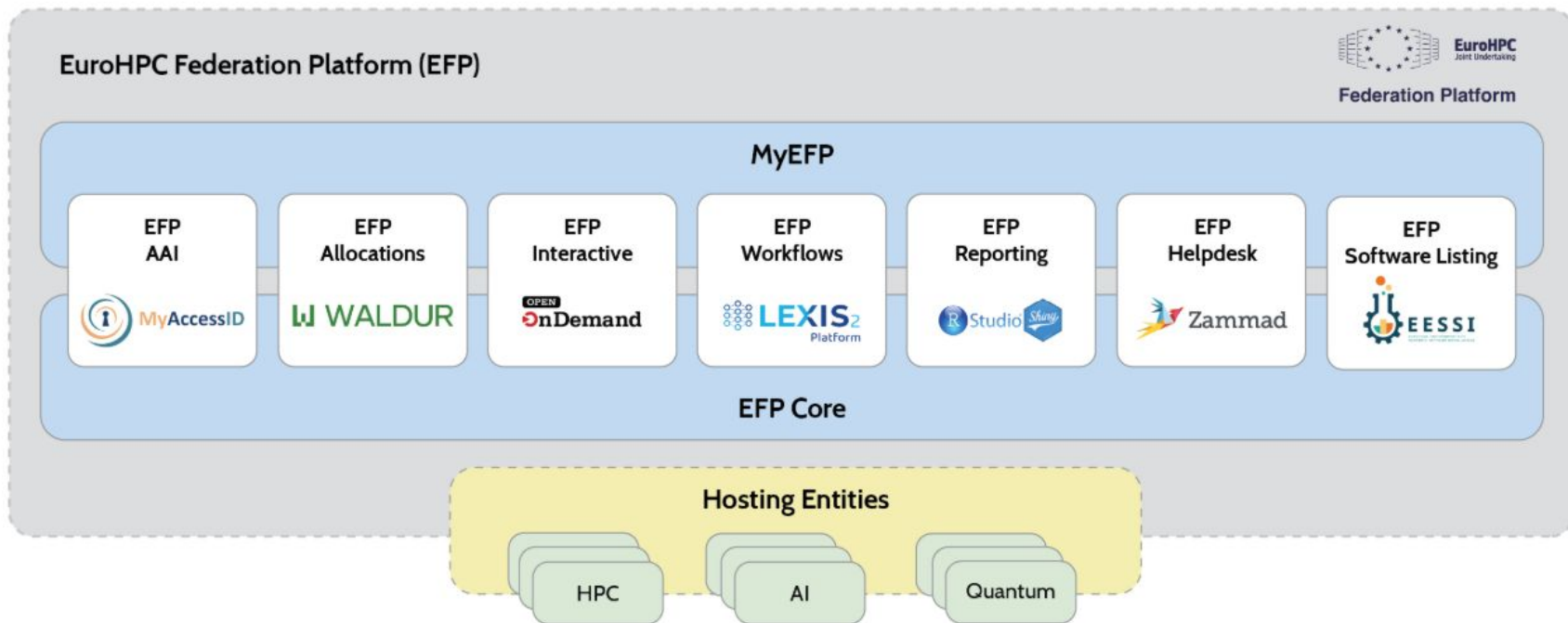
Status: Published



Deploy

<https://www.eessi.io/docs/blog/2025/10/22/eosc/>

European Federation Platform (EFP)



<https://my-eurohpc.eu/>

Open OnDemand (OOD)

- Web Desktop Based application
- Modules field to select software needed by the user
- Selected modules unwritable field to check the selected ones
- Search mechanism to find specific modules

Home / My Interactive Sessions / EESSI General App

Interactive Apps

- Desktops
 - Classiq
 - Desktop XFCE-GNOME
 - Desktop w.Container
- GUIs
 - Avogadro2
 - DIA
 - MATLAB
 - ParaView
 - VMD
- Script Execution
 - Cnes App
 - Pandoc App
 - Script launcher (DEMO)
- Servers
 - Code Server
 - Jupyter Notebook
 - Jupyter Notebook EESSI
- Test
 - API test
- EESSI General App**

EESSI General App

This app will launch a Desktop on one node with the modules of EESSI loaded. You will be able to interact with it through a VNC session.

Desktop Environment:

Account:

Number of hours:

Module list

Module Filter:

- Abseil/20230125.2-GCCcore-12.2.0
- HDF/4.2.15-GCCcore-12.2.0
- OpenJPEG/2.5.0-GCCcore-13.2.0
- Abseil/20230125.3-GCCcore-12.3.0
- HDF/4.2.16-2-GCCcore-12.3.0
- OpenMPI/4.1.4-GCC-12.2.0

Selected Modules:

* The EESSI General App session data for this session can be accessed under the data root directory.



software.eessi.io (production)

- Permanent installations
- Only install releases
- Builds for all CPU architectures
- `/cvmfs/software.eessi.io/version/`

```
/cvmfs/dev.eessi.io/versions/2023.06/software
```

```
  |-- linux
    |-- x86_64
      |-- amd
        |-- zen2
          |-- modules
            |-- all
              |-- ESPResSo
                |-- 4.2.2-foss-2023a-2ba17de6096933275abec0550981d9122e4e5f28.lua
              |-- GROMACS
                |-- 2024.3-foss-2023b-d0f934abfd1394621c40858a2c2dd9123451df4e.lua
              |-- LAMMPS
                |-- 570c9d190fee556c62e5bd0a9c6797c4dffcc271-foss-2023a-kokkos-dev_OBMD.lua
              |-- ...
```

dev.eessi.io

- Temporary installations
- Can install from commits
- Patches can be added
- Can skip some CPU targets
- dev.eessi.io built on top of software.eessi.io
- Subdirectories per project
- `/cvmfs/dev.eessi.io/project/version/`

For the moment only available for codes within the MultiXScale project!



EESSI CLI

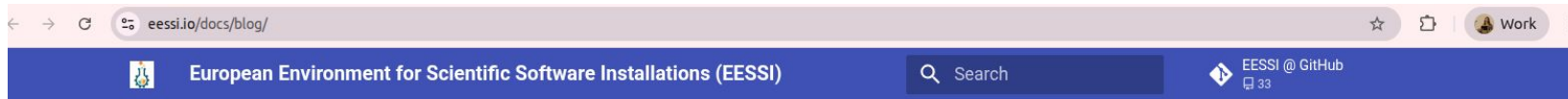
```
hvela@ThinkPad-hvela:~  
hvela@ThinkPad-hvela:~$ eessi check  
Checking for EESSI repositories...  
OK /cvmfs/dev.eessi.io is available  
OK /cvmfs/riscv.eessi.io is available  
OK /cvmfs/software.eessi.io is available  
Inspecting EESSI repository software.eessi.io...  
OK /cvmfs/software.eessi.io is available  
Revision (client): 18001  
Client cache:  
Path to client cache directory: /var/lib/cvmfs/shared  
Shared cache: yes  
Client cache quota limit: 9.765625 GiB  
Cache Usage: 2615117k / 10240001k  
OK Number of cache cleanups in last 24h: 0  
Server/proxy settings:  
List of Stratum-1 mirror servers:  
http://aws-eu-central-s1.eessi.science/cvmfs/software.eessi.io  
http://azure-us-east-s1.eessi.science/cvmfs/software.eessi.io  
Proxy servers:  
AUTO  
DIRECT  
GeoAPI enabled: yes  
Other:  
Client profile: single  
hvela@ThinkPad-hvela:~$ eessi shell --eessi-version 2025.06  
Found EESSI repo @ /cvmfs/software.eessi.io/versions/2025.06!  
archdetect says x86_64/intel/haswell  
archdetect could not detect any accelerators  
Using x86_64/intel/haswell as software subdirectory.  
Found Lmod configuration file at /cvmfs/software.eessi.io/versions/2025.06/software/linux/x86_64/intel/haswell/.lmod/lmodrc.lua  
Found Lmod SitePackage.lua file at /cvmfs/software.eessi.io/versions/2025.06/software/linux/x86_64/intel/haswell/.lmod/Modulefiles/SitePackage.lua  
Using /cvmfs/software.eessi.io/host_injections/2025.06/software/linux/x86_64/intel/haswell as the site extension directory for installations.  
Using /cvmfs/software.eessi.io/host_injections/2025.06/software/linux/x86_64/intel/haswell as the site extension directory for accelerated installations.  
Using /cvmfs/software.eessi.io/versions/2025.06/software/linux/x86_64/intel/haswell/modules/all as the directory to be added to MODULEPATH.  
Using /cvmfs/software.eessi.io/host_injections/2025.06/software/linux/x86_64/intel/haswell/modules/all as the site extension directory to be added to MODULEPATH.  
Initializing Lmod...  
Prepending /cvmfs/software.eessi.io/versions/2025.06/software/linux/x86_64/intel/haswell/modules/all to $MODULEPATH...  
Prepending site path /cvmfs/software.eessi.io/host_injections/2025.06/software/linux/x86_64/intel/haswell/modules/all to $MODULEPATH...  
Environment set up to use EESSI (2025.06), have fun!  
[EESSI 2025.06] hvela@ThinkPad-hvela:~$
```

- New CLI tool to make access to EESSI even easier!!
- Still a WIP, but few commands available

<https://pypi.org/project/eessi/>



Blog posts



European Environment for Scientific Software Installations (EESSI)

Home

Design >

Available software

Repositories >

Installation and configuration >

Basic usage >

Advanced usage >

Adding software to EESSI >

Community and support >

Training & events

Systems where EESSI is available

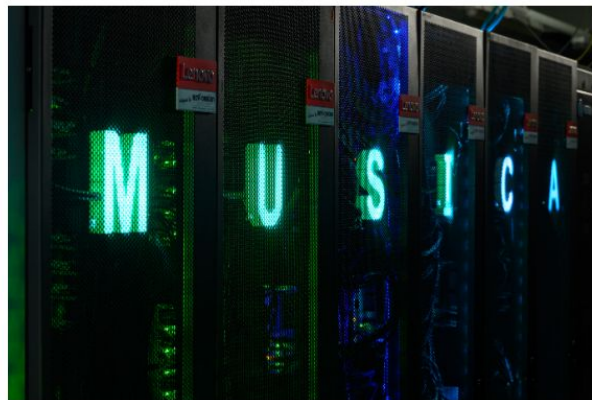
Governance >

Blog

Blog

 April 2, 2026 · 8 min read

Choosing EESSI as a base for MUSICA



<https://www.eessi.io/docs/blog/>

Table of contents

Choosing EESSI as a base for MUSICA

Update on EESSI in EuroHPC Federation Platform

Using Spack on Top of EESSI: Best of Both Worlds

EESSI at FOSDEM'26

Easy EESSI at EMBL

Using Spack on top of EESSI: A Proof of Concept

EESSI on Kubernetes: A Proof of Concept

GitHub CI/CD workflows with EESSI

MPI at Warp Speed: EESSI Meets Slingshot-11

EESSI available on EOSC EU Node

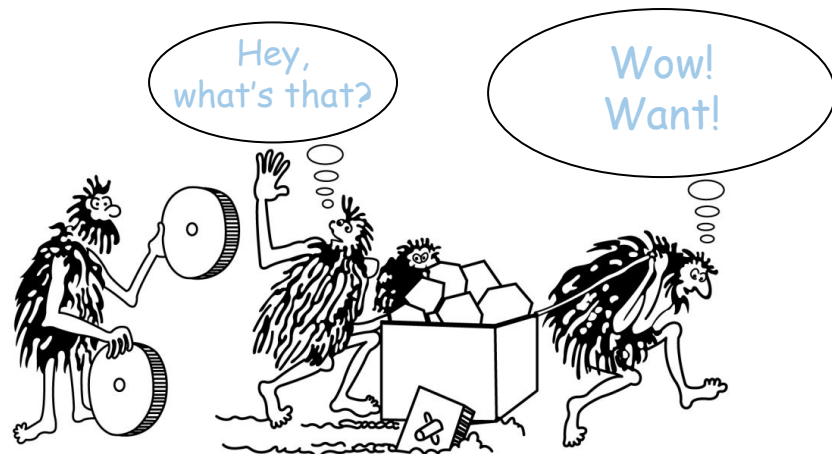
EESSI in a nutshell

- **On-demand streaming of optimized scientific software installations**
- **Works on any Linux distribution** thanks to EESSI compat layer
- **Uniform software stack** across various systems: laptop, HPC, cloud, ...
- **Community-oriented: let's tackle the challenges we see together!**



E E S S I

EUROPEAN ENVIRONMENT FOR
SCIENTIFIC SOFTWARE INSTALLATIONS



EESSI won an HPCWire Reader's Choice award!



eessi.io/docs/blog/2024/11/18/hpcwire-readers-choice-awards-2024-for-eessi

Hackathons, and other events



Copenhagen, EuroHPC User days 2025

Spotify podcast!↓



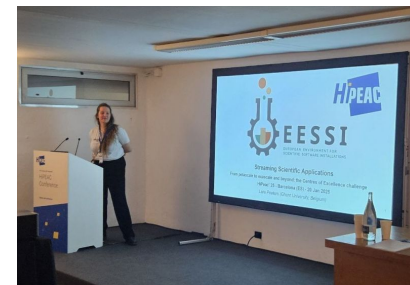
SUPERCOMPUTING IN EUROPE EURO EURO100 CoE



HPCPK 2025, Bcn



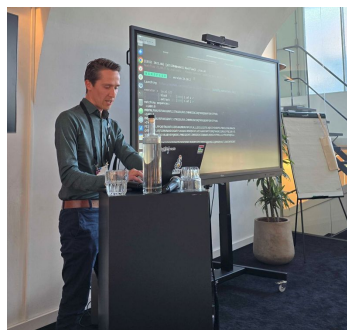
ISC 2025, Hamburg



HIPEAC 2025, Bcn



RSE Days Belgium 2025



SURF Research days 2025



SC 2024, Atlanta



EUM 2026, Guimarães

And much more to come!

Support for installing, using, contributing to EESSI



eessi.io/docs/support

- **Via GitLab, or via email: support@eessi.io**
- Report problems
- Ask questions
- Request additional software
- Get help with contributing to EESSI
- Suggest enhancements, additional features, ...
- Confidential tickets possible (security issues, ...)

Search or go to...

EESSI / EESSI support portal



Project

- EESSI support portal
- Manage >
- Plan >
- Code >
- Build >
- Deploy >
- Operate >
- Monitor >
- Analyze >

Help

README.md

EESSI support portal

MultiXscale  

Thanks to the [MultiXscale EuroHPC project](#) we are able to provide support to the u

Contact

Create an issue with you GitLab account

If you have a GitLab account or create one you can create and manage your issue also use one of our issue templates.

Contact us via E-mail

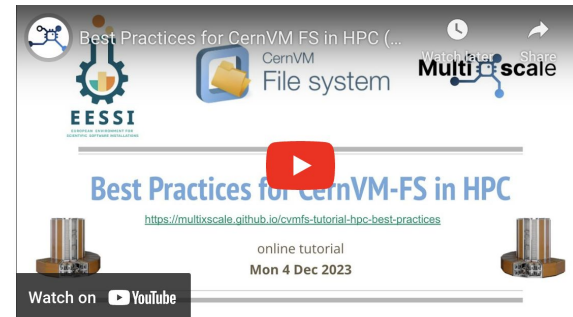
If you do not have a GitLab account you can also ask for support via E-mail.

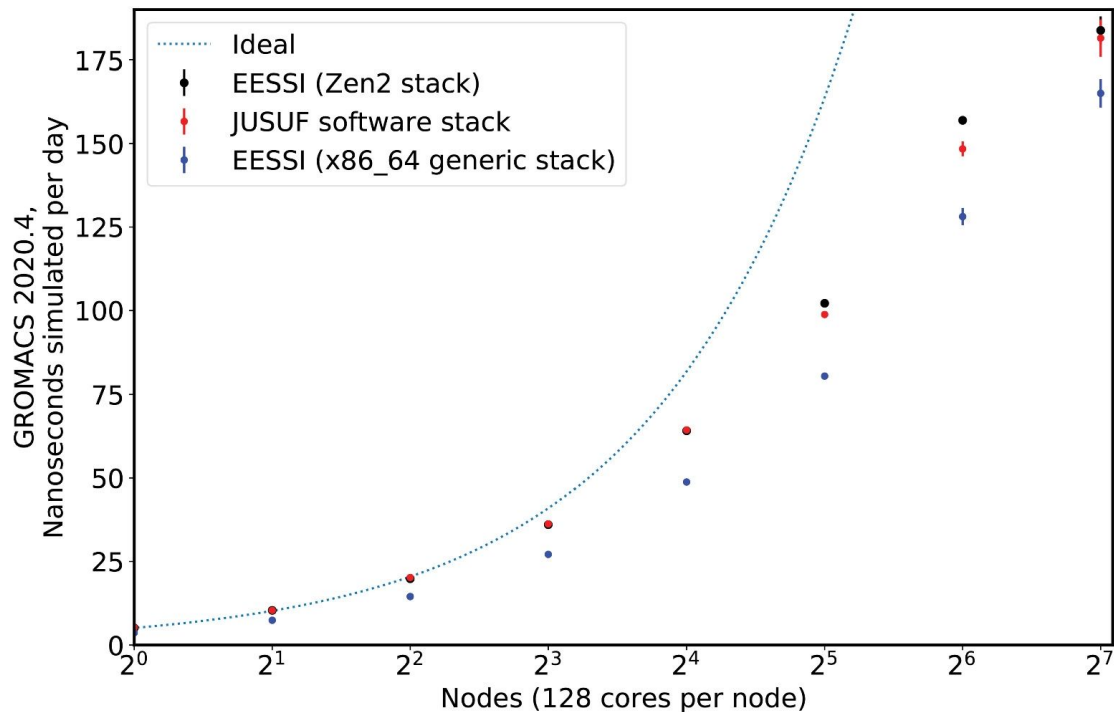
Dedicated support team, thanks to EuroHPC Centre-of-Excellence



Tutorial “Best Practices for CernVM-FS in HPC”

- multixscale.github.io/cvmfs-tutorial-hpc-best-practices
- Held online on 4 Dec 2023 (~3 hours), recorded & available on YouTube
- Over 200 registrations, ~125 attending the meeting
- Lecture + hands-on demos
- Topics:
 - Introduction to CernVM-FS + EESSI
 - Configuring CernVM-FS: client, Stratum 1 mirror server, proxy server
 - Troubleshooting problems
 - Benchmarking of start-up performance w/ TensorFlow
 - Shorter version of this is presented next week, see





Paper includes proof-of-concept performance evaluation compared to system software stack, performed at JUSUF @ JSC using GROMACS 2020.4, up to 16,384 cores (CPU-only)



E E S S I

EUROPEAN ENVIRONMENT FOR
SCIENTIFIC SOFTWARE INSTALLATIONS

Website: eessi.io

GitHub: github.com/eessi

Documentation: eessi.io/docs

Blog: eessi.io/docs/blog

[Join](#) the EESSI Slack

YouTube channel: youtube.com/@eessi_community

Paper (open access): doi.org/10.1002/spe.3075

EESSI support portal: gitlab.com/eessi/support

[Bi-monthly online meetings](#) (1st Thu, odd months, 2pm CE(S)T)

Happy hours



Come join us every
monday!!!!!!



Older sessions
available in YouTube

EESSI Happy Hour sessions

provided by [EuroHPC CoE MultiXscale](#)

What if you no longer have to install a broad range of scientific software from scratch on every laptop, HPC cluster, or cloud instance you use or maintain, without compromising on performance?

The European Environment for Scientific Software Installations [EESSI](#) comes to the rescue!

Join us for EESSI Happy Hour, an informal, weekly online session to explore and discuss key EESSI topics and updates with the community.

Each series will focus on a specific main topic over several sessions, giving participants the opportunity to ask questions, get hands-on guidance, and share experiences.

 **Where? Online, via Zoom ([click here to join!](#))**

 **When? Mondays, 14:00-15:00 CE(S)T**

 **Who should join?** Everyone interested in EESSI.

MultiXscale

Web page: multixscale.eu

Facebook: [MultiXscale](https://www.facebook.com/MultiXscale)

Twitter: [@MultiXscale](https://twitter.com/MultiXscale)

LinkedIn: [MultiXscale](https://www.linkedin.com/company/multixscale)

BlueSky: [MultiXscale](https://bsky.app/profile/multixscale)



Co-funded by
the European Union



EuroHPC
Joint Undertaking



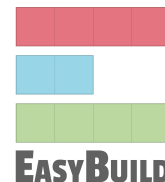
Webinar series: Different aspects of EESSI

5 Mondays in April-June 2026

<https://www.eessi.io/docs/training-events/2026/webinar-series-2026Q2>



- **Introduction to EESSI webinar/tutorial** (today)
- Building software on top of EESSI + contributing to EESSI (4 May)
- Using EESSI for Continuous Integration (11 May)
- Introduction to CernVM-FS (18 May)
- Using EESSI as a base for a central software stack (1 June)



More info and registration ->