



5 Sept 2024

<https://github.com/EESSI/meetings/wiki>

Agenda



1. Quick introduction by new people
2. EESSI-related meetings and events in last month(s)
3. Progress update per EESSI layer
4. Update on EESSI production repository `software.eessi.io`
5. Modulefile for initializing the EESSI stack
6. Update on EESSI documentation + test suite + build-and-deploy bot
7. EESSI as backend in Ramble
8. Status page and monitoring
9. AWS/Azure sponsorship update
10. Upcoming/recent events
11. Frequency of EESSI update meeting
12. Q&A

Quick introduction by new people



New people on the call: feel free to introduce yourself!

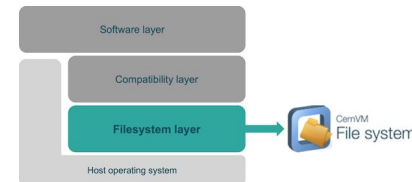
- Who are you, where do you work, on what?
- Why are you interested in the EESSI project?
- Are you planning to actively contribute,
and if so, to which aspect(s) of the project?

EESSI-related meetings & events



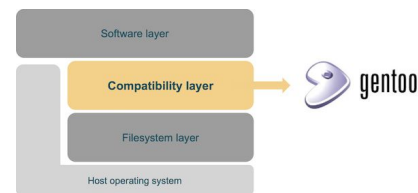
- (8 July + 12 Aug'24) CernVM-FS coordination meeting
(CVMFS 2.11.4 release, CernVM Workshop, discussions about specific issues)
- (25 July + 8 Aug'24) EESSI test suite sync meeting ([notes](#), [notes](#))
- (30 Aug'24) Sync meeting on CVMFS monitoring dashboard ([notes](#))
- (July+Aug'24) Weekly support team sync meetings (*notes are in private wiki on EESSI support portal*)
- (30 July + 20 Aug '24) Mini-hackathons: team-up with a colleague to move forward some topic
 - Next dates: 10 Sept and 1 Oct → ask if you want to join

Progress update: filesystem layer



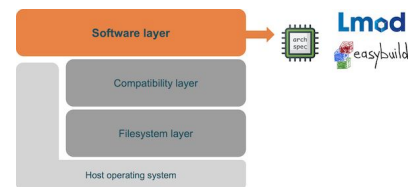
- Servers have been updated to the latest CernVM-FS release (2.11.5)
- Automatically generate an Lmod admin file for displaying known issues when loading modules ([WIP PR #197](#))
- Working on CVMFS monitoring dashboard: see dedicated slide
- Create a top-level modules directory that will be populated with EESSI initialization module files (see dedicated slide and [PR #198](#))
- [PR #198](#) shows that some CI is now failing due to CentOS 7 being end-of-life
 - We should bump the OS of the affected containers (e.g. the client container)

Progress update: compatibility layer



- Discussion / ideas for compatibility layer of next EESSI version:
<https://gitlab.com/eessi/support/-/issues/56>
 - Installation of `foss/2024a` requires this new version, as it needs OpenSSL 3 in the compatibility layer (see <https://github.com/EESSI/software-layer/pull/685>)
 - Probably makes sense to wait until EasyBuild 5.0 is released?

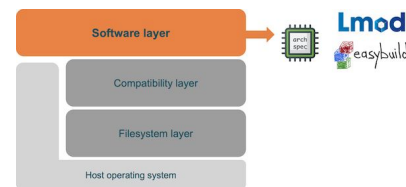
Progress update: software layer (1/3)



Recently merged PRs:

- Additional software: CP2K 2023.1 ([PR #630](#)), bioinformatics packages ([PR #634](#)), Extrae 4.2.0 ([PR #640](#)), pystencils 1.3.4 ([PR #641](#)), MetalWalls 21.06.1 ([PR #642](#)), Blast+ 2.14.0 ([PR #649](#)), amdahl 0.3.1 ([PR #650](#)), pyMBE 0.8.0 ([PR #651](#)), SciTools-iris + xarray ([PR #656](#)), BioPerl 1.7.8 ([PR #658](#)), grpcio 1.57.0 ([PR #660](#)), gnuplot 5.4.6 ([PR #661](#)), h5py 3.8.0 ([PR #663](#)), MDAnalysis 2.4.2 ([PR #664](#)), orjson 3.9.15 ([PR #665](#)), STAR 2.7.11b ([PR #671](#)), wradlib 2.0.3 ([PR #684](#)), MBX 1.1.0 ([PR #687](#)), Transrate 1.0.3 ([PR #689](#)), Critic2 1.2 ([PR #691](#)), HPL 2.3 ([PR #692](#))
- Additional software zen4: ParaView 5.11.2 ([PR #632](#)), OpenFOAM 10 + 11 ([PR #639](#)), Modflow 6.4.4 ([PR #659](#)), BioPerl 1.7.8 ([PR #662](#))
- Additional software A64FX: OpenFOAM 10 + 11 + v2312 ([PR #666](#)), R 4.3.2 ([PR #681](#))
- EESSI bash initialization to module file ([PR #667](#), see dedicated slide)

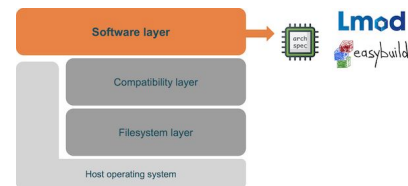
Progress update: software layer (2/3)



Recent active open PRs + issues:

- Additional software:
 - Single-cell-python-bundle 2024.02 ([PR #637](#))
 - R-bundle-CRAN 2024.06 ([PR #686](#))
- Map tests to software builds ([PR #673](#))
- Add new init scripts for new initialization module ([PR #668](#))
- List modules for which `eb --module-only` does not work [WIP] ([PR #690](#))
- Use ReFrame's CPU autodetect in test step ([PR #682](#))

Progress update: software layer (3/3)



Additional CPU targets

- **AMD Genoa (zen4)**
 - ~64% done (467 modules in place vs 731 for fully supported CPU targets)
- **Intel Sapphire Rapids**
 - New build cluster in AWS is set up incl. Sapphire Rapids partition, need to configure bot
- **Arm A64FX** (mainly for EuroHPC system Deucalion)
 - 170 modules in place (~23% done), incl. ESPResSo, OpenFOAM, R
 - Requires work in archdetect, see ([PR #608](#))

EESSI production repository

eessi.io/docs

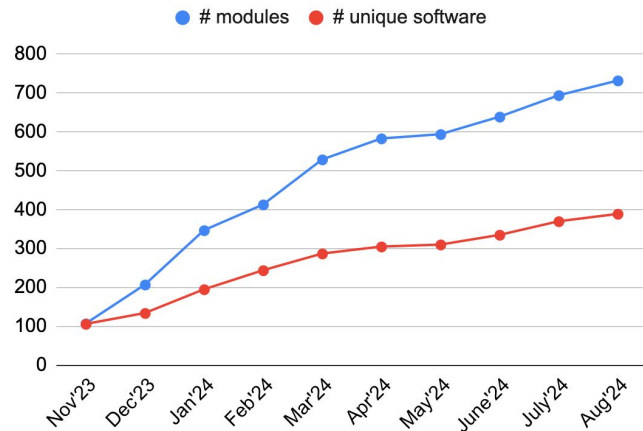


`software.eessi.io` is the **production-ready EESSI repository**

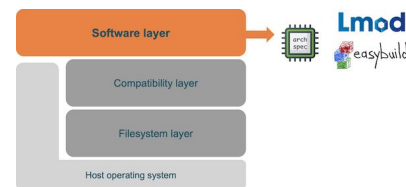
Version 2023.06 is being populated with software via [PRs to software-layer repo](#) + build-and-deploy bot

- 8 supported CPU targets: see eessi.io/docs/software_layer/cpu_targets
- 3 more CPU targets being added: zen4, a64fx, (sapphirerapids)
- Initial support for NVIDIA GPUs is in place, see eessi.io/docs/gpu
- **Currently: 731 software installations per CPU target**
(+93 in July+Aug'24)
 - 388 different software projects (+54),
6,505 software installations (across 8+2 CPU targets, +983)
- Current focus:
 - Providing optimized software installations for AMD Genoa (Zen4) + A64FX (+ Intel Sapphire Rapids)
 - Adding more software, processing incoming contributions, fixing broken builds/test suites

software installations in EESSI 2023.06 (per CPU target)



Modulefile for initializing the EESSI stack



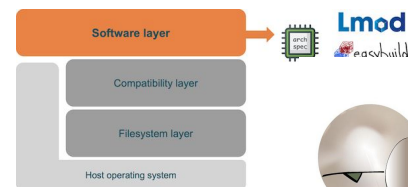
- New method for initializing the EESSI stack: Lua modulefile (see [PR #667](#) of software layer)
- They will be made available in `/cvmfs/software.eessi.io/init/modules`
- In some sense better than `init/bash` script, since it's reversible (via `module unload`)
- If you already have Lmod, you can simply do:

```
module use /cvmfs/software.eessi.io/init/modules
module load EESSI/2023.06
```

- Please give it a try, and report any issues
- Some known issues: trouble when sticky modules are used, only supports `bash` shell, ...

Bot for building + deploying software layer

<https://github.com/EESSI/eessi-bot-software-layer>



- July-August'24
 - Cleanup of shared disk storage when PR has been merged [PR#271](#) or closed [PR#27](#)
 - Add setting to give all jobs a unique name [PR#273](#)
 - Add argument `accelerator:X/Y` to `bot: build` command [PR#276](#) (not used yet)
- Ongoing work
 - Test + merge PR that allows customizing Slurm submit options [PR#277](#) (community contrib)
 - Continue work on supporting GPU builds (bot code + target repo changes/additions)
 - Improve deployment (ingestion efficiency, single approval PR, flexible tasks)
- Side note: over 17,000 Slurm jobs have been submitted on AWS Slurm cluster (bot + test suite)

EESSI documentation

eessi.io/docs - GitHub repo github.com/EESSI/docs



Improvements to the EESSI documentation: ~15 merged PRs (+ 23 updates to software overview)

- Add `zen4` to software overview ([PR #185](#))
- Blog post about adding Extrae to EESSI ([PR #231](#))
- Updates for EESSI test suite ([PR #232](#)): changed scale tags + more info on ESPResSo tests
- Add note about CernVM-FS cache directory ([PR #234](#))
- Clean up the available software script and the tests ([PR #239](#))
- Use a time template in module documentation generation ([PR #256](#) + [PR #258](#))
- **Add section on [writing portable tests](#) for the EESSI test suite ([PR #262](#))**
- Update `pip install` instructions in README ([PR #263](#))
- Run workflow to update overview of available software only twice a day ([PR #267](#))

EESSI documentation



eessi.io/docs - GitHub repo github.com/EESSI/docs

Overview of available software in EESSI (`software.eessi.io`, version 2023.06)

- High-level overview available at eessi.io/docs/available_software/overview
- Separate page per supported software project with more details, see for example eessi.io/docs/available_software/detail/OpenFOAM
- Does not include CPU targets yet for which installations are very incomplete (a64fx, ...)
- Semi-automatically updated as more software gets added
 - PR is opened automatically by GitHub Actions workflow if update is needed
 - Overview in documentation is updated when PR is merged

EESSI documentation

eessi.io/docs - GitHub repo github.com/EESSI/docs

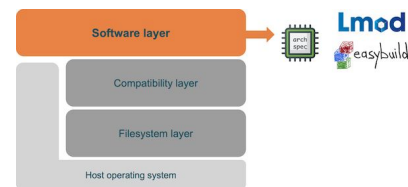


Improvements to the EESSI documentation - (recent) open PRs:

- Add a page about sites that are known to support EESSI ([PR #145](#))
- How to build on top of EESSI without EB ([PR #175](#))
- Add information on how to use EESSI in CI: GitHub Actions + GitLab CI/CD ([PR #245](#))

EESSI test suite

eessi.io/docs/test-suite - github.com/EESSI/test-suite



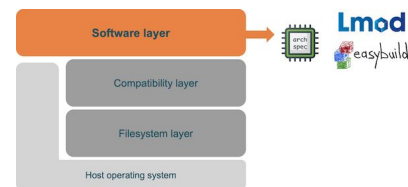
ReFrame

Merged pull requests:

- PyTorch (torchvision-based) ([PR #130](#))
- LAMMPS ([PR #131](#), [PR #169](#))
- CP2K ([PR #133](#))
- mpi4py tutorial, corresponds to tutorial in docs on writing portable tests ([PR #149](#), [PR #172](#))
- Update to various system configs ([PR #165](#), [PR #166](#), [PR #168](#), [PR #171](#), [PR #173](#))
- Report (and fail) on duplicate modules ([PR #167](#)).
 - Previously, two tests were generated, but both would use the same module (first on `$MODULEPATH`)
- Add hook for measuring memory usage in a job ([PR #174](#))
- Updates to CI config ([PR #173](#), [PR #175](#), [PR #176](#))

EESSI test suite

eessi.io/docs/test-suite - github.com/EESSI/test-suite



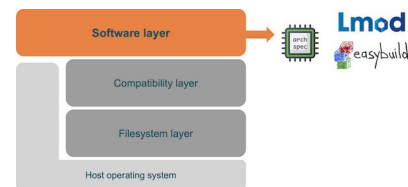
ReFrame

Open pull requests:

- MetalWalls ([PR #164](#))
- Try using `RegressionMixin` class to set default hooks ([PR #177](#), draft)
 - When writing docs, a lot of hooks turned out to be 'mandatory'. Inheriting from a `RegressionMixin` class could run all of those by default for any inheriting test
 - Allows printing informative information for test developers if their test 'misses' information (variables, etc) needed by these mandatory hooks

EESSI test suite - dashboard (WIP)

eessi.io/docs/test-suite - github.com/EESSI/test-suite



ReFrame

- Test suite runs daily on Vega & Karolina (EuroHPC systems), and AWS & Azure build clusters
- Test reports pushed to ElasticSearch database daily (since late Aug 2024)



[Casper, Caspar, Paul, Maksim]

EESSI as backend in Ramble



<https://googlecloudplatform.github.io/ramble>

- Ramble is a tool developed by Google to easily run experiments for software applications
- **EESSI is now documented as a supported “package manager” backend for Ramble**, see ramble.readthedocs.io/en/latest/package_managers.html#eessi-package-manager
- Software installations available in EESSI can be used to run tests with Ramble
- See also tutorial: ramble.readthedocs.io/en/latest/tutorials/EESSI_package_manager.html

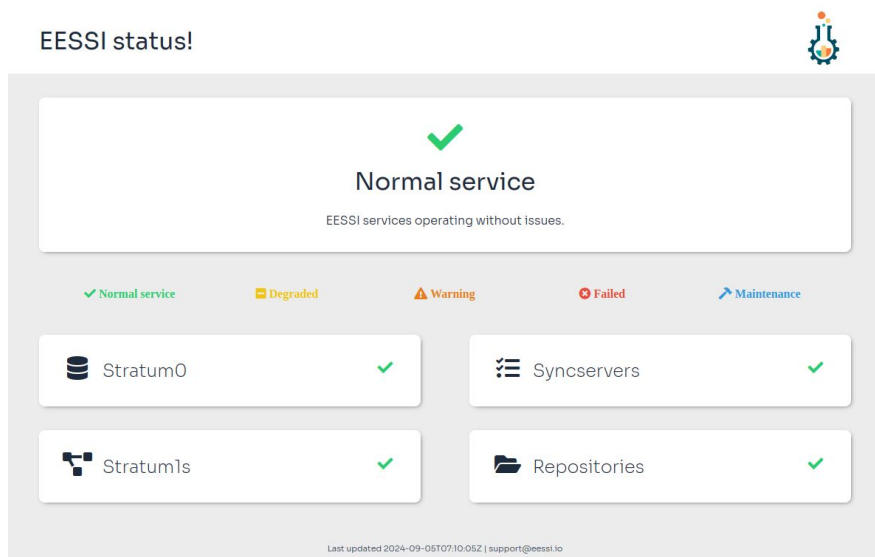
EESSI status page: <https://status.eessi.io>



- Rewritten in Rust:

<https://github.com/terjekv/cvmfs-status-page-rust>

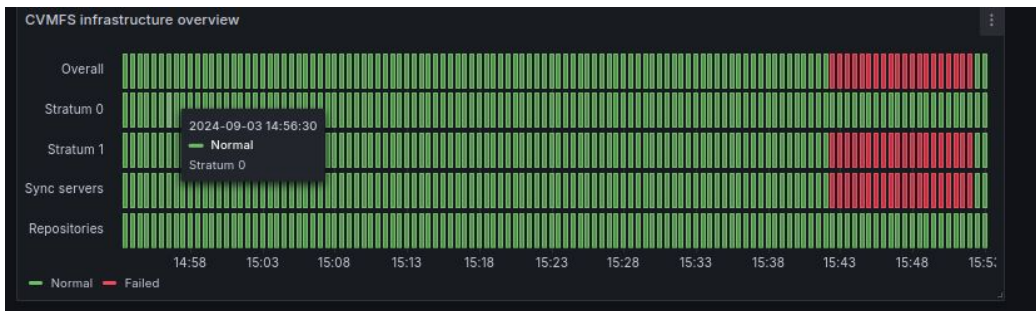
- Shows an overall status of the CernVM-FS infrastructure, and also more detailed ones
- Scrapes CVMFS information from all servers
 - New version also shows the sync server
- Exports all statuses as Prometheus metrics



Monitoring EESSI (WIP)



- Working on a setup of Grafana + Prometheus + Prometheus Alertmanager + several exporters
- Using Ansible for configuring all servers
- Except for installing some CVMFS-specific Prometheus exporters, most of the main work has been done; now it's mostly a matter of customizing things (dashboards, notifications)

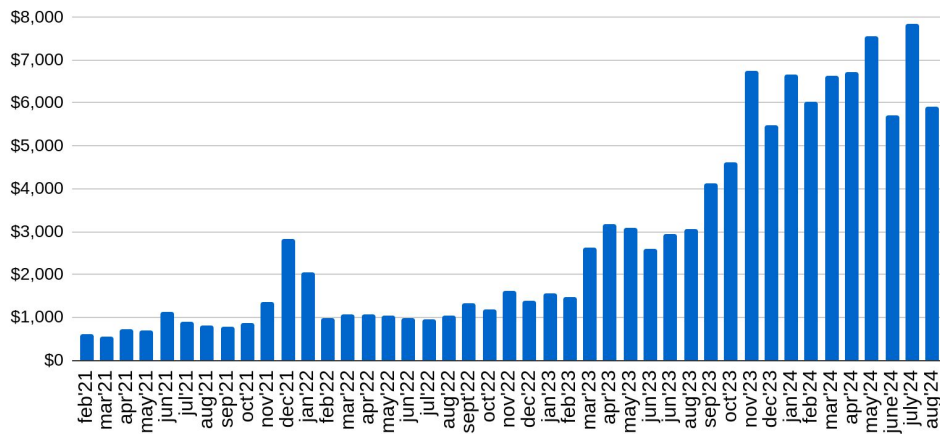


Sponsored AWS credits

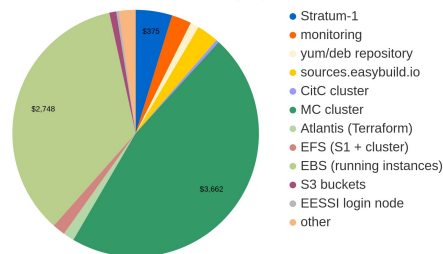


- Ask in #aws-resources Slack channel to get access!
- ~\$7,850 + \$5,924 “spent” in July + Aug’24 on Stratum-1 servers, monitoring, sources.easybuild.io, debugging (build) issues, demos, **Slurm clusters (build bot)**, testing on Sapphire Rapids, ...
- **Bulk of consumed credits due to EESSI build-and-deploy bot**
- ~Bi-monthly sync meetings with AWS

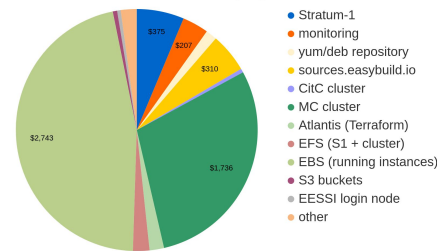
EESSI AWS credits spent (per month)



EESSI AWS credits (July'24 - \$7,850)



EESSI AWS credits (Aug'24 - \$5,924)

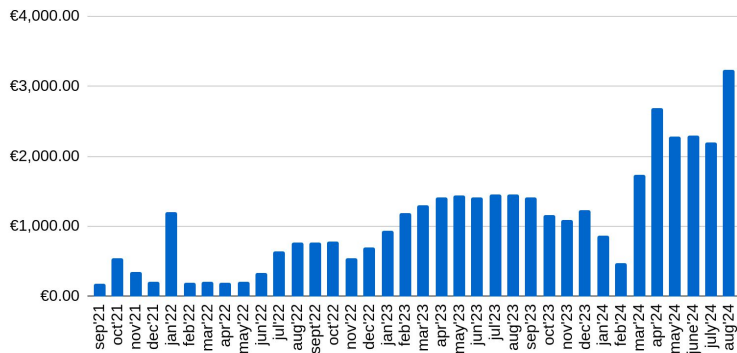


Sponsored Azure credits



- Ask in #azure-resources Slack channel to get access!
- In June: ~€2,288 worth of credits spent
- Used for: **Slurm cluster for bot (Zen4)**, Stratum-1 mirror servers, GitHub Runners
- Slurm cluster with Magic Castle in place for EESSI build-deploy bot

EESSI Azure credits spent (per month)



Resource group name ▼



July'24

Resource group name ▼



Aug'24

[Bob, Kenneth]

Upcoming events

- **CernVM Workshop 2024:** 16-18 Sept 2024 @ CERN (Geneva)
<https://indico.cern.ch/event/1347727/overview>
 - Talk on EESSI will be presented by Thomas
- **EuroHPC User Day 2024:** 22+23 Oct 2024 in Amsterdam,
https://eurohpc-ju.europa.eu/news-events/events/eurohpc-user-day-2024-2024-10-22_en
 - We plan to have a strong presence at this event...
 - Kenneth & Lara & Richard & Thomas will be attending, anyone else?
- **Proposal for EESSI Birds-of-a-Feather session at SC'24 accepted**

Frequency of EESSI update meeting

- Monthly or every two months?
- Proposal: **bi-monthly** meeting from now on.

Next meetings:

- Thu 7 Nov 2024 14:00 CET
- Thu **9** Jan 2025 14:00 CET
- Thu 9 Mar 2025 14:00 CET
- Thu 1 May 2025 14:00 CEST