



EESSI for system administrators

EESSI Community Meeting @ Amsterdam

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Getting access to EESSI



- Option 1: **Use our client container**
 - Does not require admin rights - if Singularity is available
 - OK for testing handful of single node workloads, demos
 - Multi-node possible via [CernVM-FS alien cache](#) on shared filesystem
- Option 2: **Native CernVM-FS installation** - requires admin rights
 - Requires admin rights to install + configure CernVM-FS
 - Pretty easy, but only uses local client cache
 - Production setup should also involve squid proxy (and maybe own Stratum-1)

Option 1: Using our client container



- Client container image is available on GitHub Container Registry (GHCR)
- Supports `x86_64`, `aarch64`, `ppc64le`
- Easy to use via Singularity (and Apptainer?)
- **CernVM-FS + configuration is included in container** - *no CernVM-FS needed on host*
- Bind options needed for CernVM-FS temporary directories in `/var/{lib,run}/cvmfs`
- `--fuse-mount` option needed to get EESSI CernVM-FS repository mounted in container
- Detailed info available at <https://eessi.github.io/docs/pilot>
- Script: github.com/EESSI/eessi-demo/blob/main/scripts/start_singularity_eessi_pilot.sh

Option 1: Using our client container

<https://eessi.github.io/docs/pilot>



- Commands to configure and run EESSI client container with Singularity
- Assumption: enough disk space available in `/tmp`

```
export TMP=/tmp

mkdir -p $TMP/{var-lib-cvmfs,var-run-cvmfs,home}

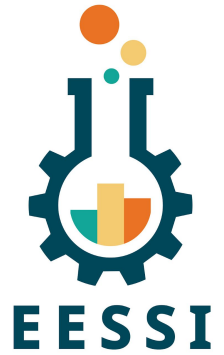
export
SINGULARITY_BIND="$TMP/var-run-cvmfs:/var/run/cvmfs,$TMP/var-lib-cvmfs:/var/lib/cvmfs"

export SINGULARITY_HOME="$TMP/home:/home/$USER"

export EESSI_PILOT="container:cvmfs2 pilot.eessi-hpc.org /cvmfs/pilot.eessi-hpc.org"

singularity shell --fusemount "$EESSI_PILOT" docker://ghcr.io/eessi/client-pilot:centos7
```

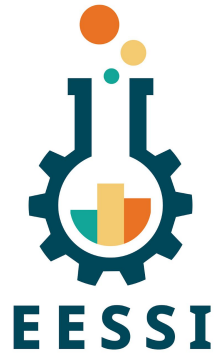
Option 2: Native CernVM-FS installation



- We need to:
 - Install CernVM-FS
 - Install EESSI CernVM-FS configuration
 - Minimal client configuration via `/etc/cvmfs/default.local`
- For production usage (especially large-scale), you should also:
 - Use a squid proxy, next to a local client cache (better start-up performance)
 - Set up your own Stratum-1 (protection against network disconnects)
 - Also recommended to “be a nice citizen” in the EESSI CernVM-FS network

Option 2: Native CernVM-FS installation

- Commands to install CernVM-FS + EESSI configuration for CernVM-FS
- Assumption: using RHEL8 as OS



```
sudo dnf install -y
https://ecsft.cern.ch/dist/cvmfs/cvmfs-release/cvmfs-release-latest.noarch.rpm

sudo dnf install -y cvmfs

sudo dnf install -y
https://github.com/EESSI/filesystem-layer/releases/download/latest/cvmfs-config-eessi-
latest.noarch.rpm

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

sudo cvmfs_config setup
ls /cvmfs/pilot.eessi-hpc.org
```

Option 2: Native CernVM-FS installation



- For a production setup, you should do some more work...
- Especially for an HPC cluster where lots of workernodes will access EESSI
- **Be a good citizen, don't hammer our Stratum-1 mirror servers!**
- Set up a squid proxy in your network (partial cache)
- Set up your own Stratum-1 mirror server (full mirror of EESSI repository)
- See CernVM-FS tutorial created by Bob & Kenneth:
<https://cvmfs-contrib.github.io/cvmfs-tutorial-2021>

Option 3: cvmfsexec

- Another option to get access without admin rights is through `cvmfsexec`
- See <https://github.com/cvmfs/cvmfsexec>
- Requires a sufficiently recent Linux kernel (to use it without containers)
 - Must support user namespaces
 - RHEL8 should work
- **Let us know if this works for you!**



Hands-on: getting access to EESSI



- We can create a throwaway VM in AWS for you to play with (incl. `sudo` rights)
- **Let if know if you want a VM, also mention your GitHub account name**
- Tasks you should do on the VM:
 - Try option 1 using our client container
 - Try option 2 using native CernVM-FS
 - Try option 3 using `cvmfsexec`
- For option 1, you will need to install Singularity first:

```
curl -OL
https://download-ib01.fedoraproject.org/pub/epel/8/Everything/$(uname
-m)/Packages/s/singularity-3.8.7-1.el8.$(uname -m).rpm

sudo dnf install -y singularity-3.8.7-1.el8.$(uname -m).rpm
```



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

Website: <https://www.eessi-hpc.org>

Join our mailing list & Slack channel

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Documentation: <https://eessi.github.io/docs>

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[YouTube channel \(brand new!\)](#)

[Monthly online meetings](#) (first Thursday, 2pm CEST)