



www.multixscale.eu

EESSI Happy Hour

*Topic Series: Expanding the reach of EESSI: K8s
and Android*

Mondays at 14:00 CE(S)T

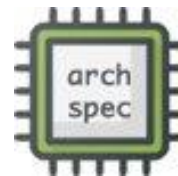
<https://www.eessi.io/docs/training/2025/happy-hours-sessions>

Current session: EESSI in Kubernetes: the CVMFS-CSI plugin

<https://www.eessi.io/docs/training/2025/happy-hours-sessions>



CernVM-FS



Website: eessi.io

EESSI support portal:

gitlab.com/eessi/support

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CernVM-FS



Session Highlights:

- Possible ways to use EESSI in a K8s cluster
- The Container Storage Interface (CSI)
- The CVMFS-CSI plugin
- Live demo: Running EESSI's demo examples in a minikube K8s cluster
 - CVMFS-CSi plugin: a peek under the hood
 - Provisioning a `software.eessi.io` Persistent Volume Claim (PVC)
 - Running demos from [EESSI-demo](https://www.eessi.io/docs/training/2025/happy-hours-sessions) inside a POD
- What's next?

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Possible ways to use EESSI in a K8s cluster:

- Option 1
 - Install CVMFS + EESSI on all the nodes
 - Configure CVMFS for EESSI
 - hostPath-mount ``/cvmfs/software.eessi.io`` to PODs
- Option 2: EESSI exported via NFS
- Option 3
 - Install CVMFS + EESSI in the PODs (either at runtime or in the image)
 - Run the PODs with access to the system ``/dev/fuse`` and `SYS_ADMIN` capabilities
- Option 4
 - Install the CVMFS-CSI plugin in your K8s cluster configured to mount EESSI



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The Container Storage Interface (CSI):

The Container Storage Interface (CSI)

- Standard for exposing storage systems to containerized workloads
- CSI spec: <https://github.com/container-storage-interface/spec/blob/master/spec.md>
 - FOSDEM-2019 <https://www.youtube.com/watch?v=MokXcWewixk>
- CSI + Kubernetes
 - BLOG: <https://kubernetes.io/blog/2019/01/15/container-storage-interface-ga/>
 - DOCS: <https://kubernetes.io/docs/concepts/storage/volumes/#csi>



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The CVMFS-CSI plugin:

- Controller plugin
 - provisioner: <https://github.com/kubernetes-csi/external-provisioner>
 - controllerplugin
- Node plugin
 - registrar: <https://github.com/kubernetes-csi/node-driver-registrar>
 - nodeplugin
 - automount
 - automount-reconciler
 - singlemount

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Live demo:

- CVMFS-CSi plugin: a peek under the hood
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What's next?

- Integrate alien-cache (eg SQUID proxy) and/or Stratum 1 server
- Explore setups in scenario where EESSI is already installed on the nodes
 - Re-use the mounts?
 - Re-use the CVMFS cache?
- K8s + inter-node fabrics
 - How to deal with host_injections
- Test in the real world



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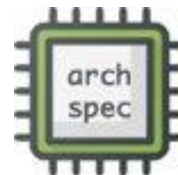
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Next topic series: EESSI-Christmas

<https://www.eessi.io/docs/training/2025/happy-hours-sessions>



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