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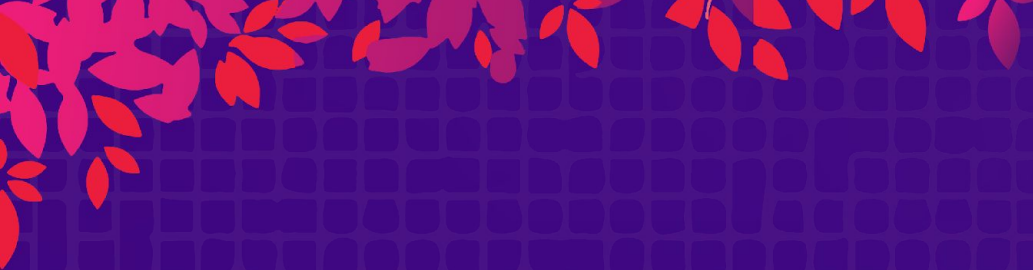


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# Local Volume Static Provisioning

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# Local Persistent Volumes



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- **What:** Local storage resources bound to a node
- **Use cases**
  - Distributed replicated systems, e.g. TiDB, etcd
  - Local caching
- **Status:** GA in Kubernetes 1.14
- **How to use local PVs:** via PVC
- **How to provision local PVs**
  - Provision static local volumes with local-volume-provisioner
  - Provision local volumes dynamically (WIP)

# local-volume-provisioner



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- **Project:**  
<https://github.com/kubernetes-sigs/sig-storage-local-static-provisioner>
- **Summary:** Discover and configure local volumes on the nodes in Kubernetes and recycle them when not being used automatically
- **How to use**
  - First, configure local volumes on the nodes
  - Second, configure and deploy local-volume-provisioner to discovery, provision PVs and manage them

# Configure local volumes



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Typical ways to configure local volumes on your machines

- **Block volumes**

- link the block devices into the discovery directory
  - *ln -s /dev/sdb /mnt/disks*

- **Filesystem volumes**

- mount the entire filesystem into the discovery directory
  - *mkdir /mnt/disks/vol1*
  - *mount /dev/sdb /mnt/disks/vol1*
- share the filesystem by multiple directories (bind is required)
  - *mount /dev/sdb /mnt/disks*
  - *mount --bind /mnt/disks/vol1 /mnt/disks/vol1*

# Configure and deployment



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- Clone the repository:
  - *git clone*  
*<https://github.com/kubernetes-sigs/sig-storage-local-static-provisioner/>*
- Generate manifest yaml files by using helm with your customized values
  - edit values file with your discovery directory and storage class
  - *helm template helm/provisioner/ --values custom-values.yaml > provisioner.yaml*
- Deploy
  - *kubectl apply -f provisioner.yaml*
- Follow this link to learn more
  - *<https://github.com/kubernetes-sigs/sig-storage-local-static-provisioner/tree/master/helm>*



# Best Practices



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- The path of the local PV is the unique identifier of local storage on the node, it's recommended to utilize the UUID of the device to generate path
- For IO isolation, a whole disk per volume is recommended
  - It's very hard to schedule IOPS in deterministic behavior compared to memory and CPU.
- For capacity isolation, separate partition per volume is recommended



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# Thank you!