Velero Kubernetes backup

START HERE

`velero install --provider <p> --bucket <b> --plugins <img>`
Install server

`velero backup create <name>`
Back up the cluster

`velero backup get`
List backups

`velero backup describe <name> --details`
Inspect a backup

`velero restore create --from-backup <name>`
Restore it

`velero schedule create <name> --schedule="0 3 * * *"`
Back up daily

`velero backup logs <name>`
Read backup logs

`velero backup-location get`
Is storage Available?

velero CLI creates CRs → `Backup CR` **Velero server** deployment in velero ns → `upload` **Object store** BackupStorageLocation → `snapshot` **Volumes** VolumeSnapshotLocation

CONCEPTS

Velero stores backups as object-store tarballs; the CLI just creates Backup, Restore and Schedule objects the in-cluster server acts on.

Backups are namespaced to the velero namespace; use -n <ns> if you installed elsewhere.

A restore never overwrites existing objects by default; they are skipped with a warning.

INSTALL

`velero install --provider <provider> --bucket <bucket> --secret-file <file> --plugins <image>`
Install server components
The --plugins image is required, e.g. the AWS plugin; add --backup-location-config region=<r> for S3-style stores.

`velero install --no-secret`
Install using workload identity

`velero install --use-node-agent`
Enable file system backup

`velero install --default-volumes-to-fs-backup`
Use fs backup for all volumes

`velero install --no-default-backup-location`
Install without storage

`velero install --features=EnableCSI`
Turn on server feature flags

`velero install --dry-run -o yaml`
Render install manifests only

`velero uninstall`
Remove what install created

`velero version`
Show client and server version

BACKUPS

`velero backup create <name>`
Back up all namespaces

`velero backup create <name> --include-namespaces <ns>`
Back up chosen namespaces

`velero backup create <name> --exclude-namespaces <ns>`
Skip namespaces

BACKUPS (cont.)

`velero backup create <name> --selector <k>=<v>`
Back up by label

`velero backup create <name> --ttl <duration>`
Set retention (default 720h)

`velero backup create <name> --wait`
Block until finished

`velero backup create <name> --snapshot-volumes=false`
Skip volume snapshots

`velero backup create <name> --default-volumes-to-fs-backup`
Copy volume data with fs backup

`velero backup create --from-schedule <schedule>`
Run a schedule's backup now

`velero backup create <name> --storage-location <bsl>`
Pick a storage location

`velero backup get`
List backups and status

`velero backup describe <name> --details`
Show contents and volume results

`velero backup logs <name>`
Show backup log

`velero backup delete <name>`
Delete backup and its data
kubectl delete backup only removes the CR, not the stored data.

RESTORES

`velero restore create --from-backup <name>`
Restore a backup

`velero restore create --from-schedule <schedule>`
Restore latest scheduled backup

`velero restore create <name> --from-backup <backup>`
Restore with a chosen name

`velero restore create --from-backup <name> --include-namespaces <ns>`
Restore only some namespaces

`velero restore create --from-backup <name> --include-resources <res>`
Restore only some kinds

RESTORES (cont.)

`velero restore create --from-backup <name> --namespace-mappings <old>:<new>`
Restore into another namespace

`velero restore create --from-backup <name> --existing-resource-policy update`
Update objects that already exist

`velero restore get`
List restores

`velero restore describe <name> --details`
Show warnings and errors

`velero restore logs <name>`
Show restore log

SCHEDULES

`velero schedule create <name> --schedule="<cron>"`
Create a recurring backup
Standard 5-field cron; prefix CRON_TZ=<zone> for a time zone.

`velero schedule create <name> --schedule="@every 6h" --ttl <duration>`
Schedule with retention

`velero schedule create <name> --schedule="<cron>" --include-namespaces <ns>`
Schedule a subset

`velero schedule get`
List schedules

`velero schedule describe <name>`
Show schedule and last run

`velero schedule pause <name>`
Pause a schedule

`velero schedule unpause <name>`
Resume a schedule

STORAGE LOCATIONS

`velero backup-location get`
List locations and phase

`velero backup-location create <name> --provider <p> --bucket <b>`
Add a storage location

`velero backup-location set <name> --default`
Make it the default

STORAGE LOCATIONS (cont.)

`velero snapshot-location create <name> --provider <p> --config region=<r>`
Add a snapshot location

HOOKS AND VOLUMES

pre.hook.backup.velero.io/command
Command run before backing up a pod
Not run in a shell; invoke /bin/sh -c explicitly. Set the command as a JSON array.

post.hook.backup.velero.io/command
Command run after backing up a pod

backup.velero.io/backup-volumes=<vol1>,<vol2>
Opt a pod's volumes into fs backup

velero.io/exclude-from-backup=true
Label that keeps an object out of backups

Annotate with: kubectl -n <ns> annotate pod/<pod> <annotation>=<value>

TROUBLESHOOTING

`kubectl logs deployment/velero -n velero`
Read server logs

A backup that is PartiallyFailed still restores; read describe --details for the failed items.

RECIPES

Install on S3-compatible storage

```
velero install \
  --provider aws --plugins
velero/velero-plugin-for-
aws:<tag> \
  --bucket <bucket> --secret-
file ./credentials \
  --backup-location-config
region=<r>,s3Url=<url> \
  --use-node-agent --default-
volumes-to-fs-backup
```

Nightly backup, kept 30 days

```
velero schedule create nightly
\
  --schedule="0 3 * * *" --ttl
720h \
  --exclude-namespaces kube-
system
velero backup create --from-
schedule nightly
```