

CheatSheet: Kubernetes Backup

CLOUD

- PDF Link: [cheatsheet-k8s-backup-A4.pdf](#), Category: Cloud
- Blog URL: <https://cheatsheet.dennyzhang.com/cheatsheet-k8s-backup-A4>
- Related posts: [Kubectl CheatSheet](#), [Kubernetes Yaml Templates](#), [#denny-cheatsheets](#)

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1.1 Backup Scenarios

| Name | Summary |
|------------------------------------|---|
| Backup and restore at infra level | Data and configuration of SDN, SDS and virtualization |
| Backup and restore at db level | Full etcd backup and restore |
| Backup and restore per label | k8s resource matching label will be copied, including PV and PVC. |
| Backup and restore namespace level | k8s resource for a given namespace. Not including global resource |

1.2 heptio ark

| Name | Summary |
|----------------------|--|
| ark | Kubernetes backup and recovery. Initiated by heptio |
| heptio backup volume | Backup is done at PV layer(e.g, snapshot EBS block), instead of PVC(Posix filesystem). |
| Reference | YouTube: 15 minutes with Heptio Ark, Link: How Ark Works |
| Reference | Link: ark supported storage providers |

<https://raw.githubusercontent.com/dennyzhang/cheatsheet.dennyzhang.com/master/cheatsheet-k8s-backup-A4/ark-backup.png>

1.3 heptio ark cli

| Name | Command |
|-------------------------|---|
| Create backup by labels | <code>ark backup create \$BACKUP_NAME --selector app=nginx</code> |
| Check backupset info | <code>ark backup describe \$BACKUP_NAME</code> |
| Restore from backupset | <code>ark restore create --from-backup \$BACKUP_NAME</code> |
| Check restore status | <code>ark restore get</code> |
| Delete backupset | <code>ark backup delete \$BACKUP_NAME</code> |

1.4 heptio ark CRD

| Name | Summary |
|---|---------|
| <code>backups.ark.heptio.com</code> | |
| <code>backupstoragelocations.ark.heptio.com</code> | |
| <code>deletebackuprequests.ark.heptio.com</code> | |
| <code>downloadrequests.ark.heptio.com</code> | |
| <code>podvolumebackups.ark.heptio.com</code> | |
| <code>podvolumerestores.ark.heptio.com</code> | |
| <code>resticrepositories.ark.heptio.com</code> | |
| <code>restores.ark.heptio.com</code> | |
| <code>schedules.ark.heptio.com</code> | |
| <code>volumesnapshotlocations.ark.heptio.com</code> | |

1.5 Sample output of ark backup

```
> ark backup describe nginx-backup
Name:      nginx-backup
Namespace: heptio-ark
Labels:    <none>
Annotations: <none>
```

Phase: New

Namespaces:

Included: *
Excluded: <none>

Resources:

Included: *
Excluded: <none>
Cluster-scoped: auto

Label selector: app=nginx

Storage Location:

Snapshot PVs: auto

TTL: 720h0m0s

Hooks: <none>

Backup Format Version: 0

Started: <n/a>

Completed: <n/a>

Expiration: 0001-01-01 00:00:00 +0000 UTC

Validation errors: <none>

Persistent Volumes: <none included>

1.6 ark CLI Online Help

```
> ./ark --help
```

Heptio Ark is a tool for managing disaster recovery, specifically for Kubernetes cluster resources. It provides a simple, configurable, and operationally robust way to back up your application state and associated data.

If you're familiar with `kubectl`, Ark supports a similar model, allowing you to execute commands such as `'ark get backup'` and `'ark create schedule'`. The same operations can also be performed as `'ark backup get'` and `'ark schedule create'`.

Usage:

```
ark [command]
```

Available Commands:

| | |
|-----------------|--|
| backup | Work with backups |
| backup-location | Work with backup storage locations |
| bug | Report an Ark bug |
| client | Ark client related commands |
| completion | Output shell completion code for the specified shell (bash or zsh) |
| create | Create ark resources |
| delete | Delete ark resources |
| describe | Describe ark resources |
| get | Get ark resources |
| help | Help about any command |
| plugin | Work with plugins |
| restic | Work with restic |
| restore | Work with restores |
| schedule | Work with schedules |

| | |
|-------------------|--|
| server | Run the ark server |
| snapshot-location | Work with snapshot locations |
| version | Print the ark version and associated image |

Flags:

| | |
|----------------------------------|--|
| --alsologtostderr | log to standard error as well as files |
| -h, --help | help for ark |
| --kubeconfig string | Path to the kubeconfig file to use to talk to the Kubernetes apiserv |
| --kubecore string | The context to use to talk to the Kubernetes apiserver. If unset def |
| --log_backtrace_at traceLocation | when logging hits line file:N, emit a stack trace (default :0) |
| --log_dir string | If non-empty, write log files in this directory |
| --logtostderr | log to standard error instead of files |
| -n, --namespace string | The namespace in which Ark should operate (default "heptio-ark") |
| --stderrthreshold severity | logs at or above this threshold go to stderr (default 2) |
| -v, --v Level | log level for V logs |
| --vmodule moduleSpec | comma-separated list of pattern=N settings for file-filtered logging |

Use "ark [command] --help" for more information about a command.

1.7 More Resources

<https://kubedex.com/resource/ark/>

<https://blog.heptio.com/announcing-ark-v0-10-with-greater-support-for-hybrid-and-multi-cloud-deployments->
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