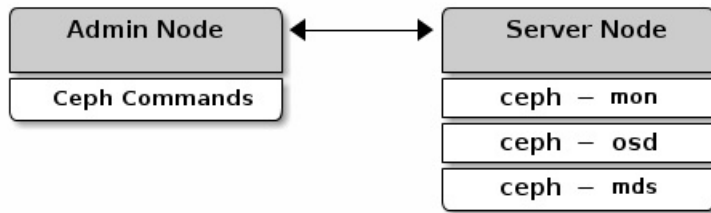


STORE CLUSTER QUICK START

If you haven't completed your [Preflight Checklist](#), do that first. This **Quick Start** sets up a two-node demo cluster so you can explore some of the [Ceph Storage Cluster](#) functionality. This **Quick Start** will help you install a minimal Ceph Storage Cluster on a server node from your admin node using `ceph-deploy`.



For best results, create a directory on your admin node for maintaining the configuration of your cluster.

```
mkdir my-cluster
cd my-cluster
```

Tip: The `ceph-deploy` utility will output files to the current directory. Ensure you are in this directory when executing `ceph-deploy`.

Disable requiretty

On some distributions (e.g., CentOS), you may receive an error while trying to execute `ceph-deploy` commands. If `requiretty` is set by default, disable it by executing `sudo visudo` and locate the `Default` `requiretty` setting. Change it to `Default:ceph !requiretty` to ensure that `ceph-deploy` can connect using the `ceph` user and execute commands with `sudo`.

CREATE A CLUSTER

To create your Ceph Storage Cluster, declare its initial monitors, generate a filesystem ID (`fsid`) and generate monitor keys by entering the following command on a commandline prompt:

```
ceph-deploy new {node-name}
ceph-deploy new ceph-node
```

Check the output of `ceph-deploy` with `ls` and `cat` in the current directory. You should see a Ceph configuration file, a keyring, and a log file for the new cluster. See [ceph-deploy new -h](#) for additional details.

Single Node Quick Start

Assuming only one node for your Ceph Storage Cluster, you will need to modify the default `osd crush chooseleaf type` setting (it defaults to 1 for node) to 0 for device so that it will peer with OSDs on the local node. Add the following line to your Ceph configuration file:

```
osd crush chooseleaf type = 0
```

Tip: If you deploy without executing foregoing step on a single node cluster, your Ceph Storage Cluster will not achieve an active + clean state. To remedy this situation, you must modify your [CRUSH Map](#).

INSTALL CEPH

To install Ceph on your server node, open a command line on your admin node and type the following:

```
ceph-deploy install {node-name}[, {node-name}]
ceph-deploy install --stable cuttlefish ceph-node
```

Without additional arguments, ceph-deploy will install the most recent stable Ceph package to the server node. See [ceph-deploy install -h](#) for additional details.

Tip: When ceph-deploy completes installation successfully, it should echo OK.

ADD A MONITOR

To run a Ceph cluster, you need at least one Ceph Monitor. When using ceph-deploy, the tool enforces a single Ceph Monitor per node. Execute the following to create a Ceph Monitor:

```
ceph-deploy mon create {node-name}
ceph-deploy mon create ceph-node
```

Tip: In production environments, we recommend running Ceph Monitors on nodes that do not run OSDs.

When you have added a monitor successfully, directories under `/var/lib/ceph` on your server node should have subdirectories `bootstrap-mds` and `bootstrap-osd` that contain keyrings. If these directories do not contain keyrings, execute `ceph-deploy mon create` again on the admin node.

GATHER KEYS

To deploy additional daemons and provision them with monitor authentication keys from your admin node, you must first gather keys from a monitor node. Execute the following to gather keys:

```
ceph-deploy gatherkeys {mon-node-name}
ceph-deploy gatherkeys ceph-node
```

Once you have gathered keys, your local directory should have the following keyrings:

- `{cluster-name}.client.admin.keyring`
- `{cluster-name}.bootstrap-osd.keyring`
- `{cluster-name}.bootstrap-mds.keyring`

If you don't have these keyrings, you may not have created a monitor successfully, or you may have a problem with your network connection. Ensure that you complete this step such that you have the foregoing keyrings before proceeding further.

Tip: You may repeat this procedure. If it fails, check to see if the `/var/lib/ceph/bootstrap-{osd}|{mds}` directories on the server node have keyrings. If they do not have keyrings, try adding the monitor again; then, return to this step.

ADD CEPH OSD DAEMONS

For a cluster's object placement groups to reach an active + clean state, you must have at least two instances of a [Ceph OSD Daemon](#) running and at least two copies of an object (`osd pool default size` is 2 by default).

Adding Ceph OSD Daemons is slightly more involved than other ceph-deploy commands, because a Ceph OSD Daemon involves both a data store and a journal. The ceph-deploy tool has the ability to invoke `ceph-disk-prepare` to prepare the disk and activate the Ceph OSD Daemon for you.

MULTIPLE OSDS ON THE OS DISK (DEMO ONLY)

For demonstration purposes, you may wish to add multiple OSDs to the OS disk (not recommended for production systems). To use Ceph OSDs daemons on the OS disk, you must use `prepare` and `activate` as separate steps. First, define a directory for the Ceph OSD daemon(s).

```
mkdir /tmp/osd0
mkdir /tmp/osd1
```

Then, use prepare to prepare the directory(ies) for use with a Ceph OSD Daemon.

```
ceph-deploy osd prepare {osd-node-name}:/tmp/osd0
ceph-deploy osd prepare {osd-node-name}:/tmp/osd1
```

Finally, use activate to activate the Ceph OSD Daemons.

```
ceph-deploy osd activate {osd-node-name}:/tmp/osd0
ceph-deploy osd activate {osd-node-name}:/tmp/osd1
```

Tip: You need two OSDs to reach an active + clean state. You can add one OSD at a time, but OSDs need to communicate with each other for Ceph to run properly. Always use more than one OSD per cluster.

LIST DISKS

To list the available disk drives on a prospective **Ceph Node**, execute the following:

```
ceph-deploy disk list {osd-node-name}
ceph-deploy disk list ceph-node
```

ZAP A DISK

To zap a disk (delete its partition table) in preparation for use with Ceph, execute the following:

```
ceph-deploy disk zap {osd-node-name}:{disk}
ceph-deploy disk zap ceph-node:sdb ceph-node:sdb2
```

Important: This will delete all data on the disk.

ADD OSDS ON STANDALONE DISKS

You can add OSDs using prepare and activate in two discrete steps. To prepare a disk for use with a Ceph OSD Daemon, execute the following:

```
ceph-deploy osd prepare {osd-node-name}:{osd-disk-name}[:/path/to/journal]
ceph-deploy osd prepare ceph-node:sdb
```

To activate the Ceph OSD Daemon, execute the following:

```
ceph-deploy osd activate {osd-node-name}:{osd-partition-name}
ceph-deploy osd activate ceph-node:sdb1
```

To prepare an OSD disk and activate it in one step, execute the following:

```
ceph-deploy osd create {osd-node-name}:{osd-disk-name}[:/path/to/journal] [{osd-node-name}:{osd-partition-name}]
ceph-deploy osd create ceph-node:sdb:/dev/ssd1 ceph-node:sdg:/dev/ssd2
```

Note: The journal example assumes you will use a partition on a separate solid state drive (SSD). If you omit a journal drive or partition, ceph-deploy will use create a separate partition for the journal on the same drive. If you have already

formatted your disks and created partitions, you may also use partition syntax for your OSD disk.

You must add a minimum of two Ceph OSD Daemons for the placement groups in a cluster to achieve an active + clean state.

ADD A MDS

To use CephFS, you need at least one metadata node. Execute the following to create a metadata node:

```
ceph-deploy mds create {node-name}  
ceph-deploy mds create ceph-node
```

Note: Currently Ceph runs in production with one metadata node only. You may use more, but there is currently no commercial support for a cluster with multiple metadata nodes.

SUMMARY

Deploying a Ceph cluster with `ceph-deploy` automatically starts the cluster. To operate the cluster daemons, see [Running Ceph with Upstart](#).

Once you deploy a Ceph cluster, you can try out some of the administration functionality, the object store command line, and then proceed to Quick Start guides for RBD, CephFS, and the Ceph Gateway.

Other ceph-deploy Commands

To view other `ceph-deploy` commands, execute:

```
ceph-deploy -h
```

See [Ceph Deploy](#) for additional details.