

CEPH STORAGE CLUSTER

The **Ceph Storage Cluster** is the foundation for all Ceph deployments. Based upon **RADOS**, Ceph Storage Clusters consist of two types of daemons: a **Ceph OSD Daemon** (OSD) stores data as objects on a storage node; and a **Ceph Monitor** (MON) maintains a master copy of the cluster map. A Ceph Storage Cluster may contain thousands of storage nodes. A minimal system will have at least one Ceph Monitor and two Ceph OSD Daemons for data replication.

The Ceph Filesystem, Ceph Object Storage and Ceph Block Devices read data from and write data to the Ceph Storage Cluster.

CONFIG AND DEPLOY

Ceph Storage Clusters have a few required settings, but most configuration settings have default values. A typical deployment uses a deployment tool to define a cluster and bootstrap a monitor. See **Deployment** for details on ceph-deploy.

- **Configuration**
 - Storage devices
 - Configuring Ceph
 - Common Settings
 - Networks
 - Monitors
 - Authentication
 - OSDs
 - Heartbeats
 - Logs / Debugging
 - Example ceph.conf
 - Running Multiple Clusters
 - Network Settings
 - Auth Settings
 - Monitor Settings
 - Looking up Monitors through DNS
 - Heartbeat Settings
 - OSD Settings
 - BlueStore Settings
 - FileStore Settings
 - Journal Settings
 - Pool, PG & CRUSH Settings
 - Messaging Settings
 - General Settings
- **Deployment**
 - Preflight Checklist
 - Install Ceph
 - Create a Cluster
 - Add/Remove Monitor(s)
 - Key Management
 - Add/Remove OSD(s)
 - Add/Remove MDS(s)
 - Purge Hosts
 - Admin Tasks

OPERATIONS

Once you have a deployed a Ceph Storage Cluster, you may begin operating your cluster.

- **Operations**
 - Operating a Cluster
 - Health checks
 - Monitoring a Cluster
 - Monitoring OSDs and PGs
 - User Management
 - Repairing PG inconsistencies
 - Data Placement Overview
 - Pools
 - Erasure code
 - Cache Tiering
 - Placement Groups
 - Using the pg-upmap
 - CRUSH Maps
 - Manually editing a CRUSH Map
 - Placing Different Pools on Different OSDs:
 - Adding/Removing OSDs
 - Adding/Removing Monitors
 - BlueStore Migration
 - Command Reference
 - The Ceph Community
 - Troubleshooting Monitors
 - Troubleshooting OSDs
 - Troubleshooting PGs
 - Logging and Debugging
 - CPU Profiling
 - Memory Profiling
- **Man Pages**

APIS

Most Ceph deployments use **Ceph Block Devices**, **Ceph Object Storage** and/or the **Ceph Filesystem**. You may also develop applications that talk directly to the Ceph Storage Cluster.

- **APIs**
 - Introduction to librados
 - librados (C)
 - librados (C++)
 - librados (Python)
 - object class