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RedHat Certified Specialist in Ceph Storage Administration exam

Study points for the course & exam

To help you prepare, these exam objectives highlight the task areas you can expect to see covered in the exam. Red Hat reserves the right to add, modify, and remove exam objectives. Such changes will be made public in advance.

You should be able to perform these tasks:

- **Install Red Hat Ceph Storage Server**
 - Install Red Hat Ceph Storage Server on both physical and virtual systems
 - Be familiar with the Ansible installation files for Ceph
 - Be able to install a Ceph Storage Server using Ansible
- **Work with existing Red Hat Ceph Storage Server appliances**
 - Be able to change a Ceph Storage Server configuration
 - Add monitor (MON) nodes and object storage device (OSD) nodes
- **Configure Red Hat Ceph Storage Server**
 - Configure a replicated storage pool
 - Store objects in storage pool
 - Store objects within a namespace within a storage pool
 - Create and configure erasure-coded pools
 - Create an erasure-coded pool profile with specified parameters
 - Upload a file to an erasure-coded pool
 - Change default settings in the Ceph configuration files
 - Manage Ceph authentication
 - Create a Ceph client with restricted read or write access to MONs, OSDs, pools, and namespaces



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- **Provide block storage with RBD**

- Create a RADOS block device image
- Obtain information about a RADOS block device image
- Map a RADOS block device image on a server
- Use a RADOS block device image
- Create an RBD snapshot
- Create an RBD clone
- Configure RBD mirrors
- Deploy a RBD mirror agent
- Configure one-way RBD mirroring in pool mode
- Configure one-way RBD mirroring in image mode
- Check the status of the mirroring process
- Import and export RBD images
- Export a RADOS block device to an image file
- Create an incremental RBD image file
- Import a full RBD image file
- Import a full RBD image file updated with an incremental RBD image file

- **Provide object storage with RADOSGW**

- Deploy a RADOS gateway
- Deploy a multisite RADOS gateway
- Provide object storage using the Amazon S3 API
- Be able to create a RADOSGW user that will use the S3 client's commands
- Be able to upload and download objects to a RADOSGW using the S3 client commands
- Export S3 objects using NFS
- Provide object storage for Swift
- Be able to create a RADOSGW user that will use the Swift interface
- Be able to upload or download objects to a RADOSGW using Swift commands

- **Provide file storage with CephFS**

- Create a Ceph file system
- Mount a Ceph file system on a client node, persistently
- Configure CephFS quotas
- Create a CephFS snapshot



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- **Configure a CRUSH map**
 - Be able to create a bucket hierarchy in a CRUSH map that can be used in an erasure profile or a replicant rule
 - Be able to remap a PG
 - Be able to remap all PGs in a pool for an optimal redistribution
- **Manage and update cluster maps**
 - Manage MON and OSD maps
 - Be able to monitor and change OSD storage limits for monitoring available space on an OSD
- **Manage a Red Hat Ceph Storage cluster**
 - Determine the general status of a Ceph cluster
 - Troubleshoot problems with OSDs and MONs
- **Tune Red Hat Ceph Storage**
 - Specify and tune key network tuning parameters for a Ceph cluster
 - Control and manage scrubbing and deep scrubbing
 - Control and manage recovery and rebalancing processes
 - Control and manage RAM utilization against I/O performance
- **Troubleshoot Red Hat Ceph Storage server problems**
 - Troubleshoot client issues
 - Enable debugging mode on RADOS gateway
 - Optimize RBD client access using key tuning parameters
- **Integrate Red Hat Ceph Storage with Red Hat OpenStack**
 - Integrate Ceph using both Glance and Cinder
 - Identify key Glance configuration files
 - Configure Glance to use Ceph as a backend to store images in the Ceph cluster
 - Identify key Cinder configuration files
 - Configure Cinder to use Ceph RBDs for block storage backing volumes

As with all Red Hat performance-based exams, configurations must persist after reboot without intervention.