Note

Red Hat recommends changing the default `StorageClass` to `ocs-storagecluster-ceph-rbd` backed by OpenShift Data Foundation.

- **Binding to a `PersistentVolumeClaim`.** The PVC request specifies the storage amount, access mode, and an optional storage class. If an existing unbound PV's attributes match the PVC, then the PV binds to the PVC. If no PV matches the PVC request, then a new PV is created. PVCs can remain unbound indefinitely if a matching PV does not exist or cannot be created. Claims are bound as matching volumes become available.
- **Using volumes.** A pod sees a `PersistentVolume` resource as a volume plug-in. When scheduling a pod, define the `PersistentVolumeClaim` in the volumes block. The cluster then looks for the `PersistentVolume` that is bound to that claim and mounts that volume. It is not recommended to use a `PersistentVolume` directly, because a different `PersistentVolumeClaim` volume might be bound at a later time.
- **Releasing a `PersistentVolume`.** To release a volume, delete the associated `PersistentVolumeClaim` object. Depending on the release policy of the `PersistentVolume` resource, the volume can be deleted or retained. The reclaim policy can be changed at any time.

Describing PersistentVolume Access Modes

A `PersistentVolume` can have different read-write access options depending on the provider capabilities. Storage providers can support different access modes for a volume, but a volume can have only one access mode at a time. Access modes are listed in this table.

Access Mode	Short Name	Description
ReadWriteOnce	`RWO`	The volume can be mounted as read-write by a single node.
ReadOnlyMany	`ROX`	The volume can be mounted as read-only by many nodes.
ReadWriteMany	`RWX`	The volume can be mounted as read-write by many nodes.

Volumes are matched to `PersistentVolumeClaims` resources with similar access modes. An exact match with access modes is preferred and is attempted first; however, the volume can have a wider access mode than the PVC requests. Similarly, a volume can be of the exact requested size or larger. In any case, the provided volume will have at least the required characteristics, but never less.

Important

Access modes are a description of the volume's access capabilities. The cluster does not enforce the claim's requested access, but permits access according to the volume's capabilities.

Introducing Rook-Ceph Toolbox

The Rook-Ceph Toolbox is a container that provides an interface to connect to the underlying Ceph Storage cluster of the OpenShift Container Storage operator. The toolbox is useful to run Ceph commands to view the cluster status, maps, and the devices that the cluster uses. The toolbox requires an existing, running Rook-Ceph cluster.