

# OpenStack: How to use GPFS with Bright Openstack 7.3 and higher.

*How can Bright OpenStack be connected with GPFS?*

This article explains how GPFS can be set up as a storage backend for Bright OpenStack (Cinder, Nova, Glance)

This article does not discuss how to migrate your data to GPFS. Support should be contacted for that for that, and the database will need to be edited to change the paths of the volumes and the images.

These steps can be applied to all of the components or to one of them only.

The best thing to do is to use GPFS as a unified storage for all of the cluster. There will be CoW benefits which will save time and storage space.

The following KB article describes how to create a GPFS cluster in Bright:

<http://kb.brightcomputing.com/faq/index.php?action=artikel&cat=18&id=327>

## Configuring Cinder :

These commands can be followed to configure Cinder:

```
[root@ib-dev ~]# cmsh
```

```
[ib-dev]% configurationoverlay
```

```
[ib-dev->configurationoverlay]% use openstackcontrollers
```

```
[ib-dev->configurationoverlay[OpenStackControllers]]% roles
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles]% use openstack::volume
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::Volume]]%  
volumebackends
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::Volume]->volumeback  
ends]% add ?
```

Name:

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add - Create a new openstackvolumebackend of the given type with specified name

## Usage:

```
add <type> <name>
```

## Arguments:

type

3par, ceph, dellstoragecenter, gpfs, nfs, netapp, solidfire

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::Volume]->volumebackends]%
```

As the help text suggests, there are multiple storage backends supported for Cinder in Bright Openstack. It is gpfs that should be chosen here:

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::Volume]->volumebackends]% add gpfs gpfs
```

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::Volume*]->volumebackends*[gpfs*]]% show
```

Parameter	Value
-----------	-------

Name	gpfs
------	------

Revision

Type	OpenStackVolumeBackendGPFS
------	----------------------------

Volume driver

Images directory

Images share mode	Copy On Write
-------------------	---------------

Max clone depth	0
-----------------	---

Mount point base

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Sparse volumes            yes

Storage pool                system

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::Volume*]->volumebackends*[gpfs*]]%
```

There are many options that can be set. The most important are :

- Images Directory -> this is the path of glance images. It should only be set if GPFS is used for Glance as well.
- Mount point base -> This is the mountpoint on GPFS intended to be used for Cinder
- Storage pool -> This is the storage pool name assigned for the GPFS NSD that will be used for Cinder.

Example :

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::Volume*]->volumebackends*[gpfs*]]% show
```

Parameter	Value
-----------	-------

-----

Name	gpfs
------	------

Revision

Type	OpenStackVolumeBackendGPFS
------	----------------------------

Volume driver

Images directory

Images share mode	Copy On Write
-------------------	---------------

Max clone depth	0
-----------------	---

Mount point base

Sparse volumes	yes
----------------	-----

Storage pool	system
--------------	--------

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::Volume*]->volumebackends*[gpfs*]]%
```

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```
ackends*[gpfs*]]% set imagesdirectory /gpfs1/glance
```

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::Volume*]->volumebackends*[gpfs*]]% set mountpointbase /gpfs/cinder
```

Before committing, the other backend must be removed. Otherwise, if it is intended that multiple backends are to be used, then this KB article can be followed:

<http://kb.brightcomputing.com/faq/index.php?action=artikel&cat=24&id=324>

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::Volume]->volumebackends[gpfs]]% ..
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::Volume]->volumebackends]% remove nfs
```

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::Volume*]->volumebackends*]]% commit
```

Cinder should now be configured to use GPFS.

## Configuring Glance

The following procedure can be followed for Glance:

```
[root@ib-dev ~]# cmsh
```

```
use[ib-dev]% configurationoverlay
```

```
[ib-dev->configurationoverlay]% use openstackcontrollers
```

```
[ib-dev->configurationoverlay[OpenStackControllers]]% roles
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles]% use openstack::imageapi
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::ImageApi]]% imagebackends
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::ImageApi]->imageback
```

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```
ends]% add ?
```

Name:

```
add - Create a new openstackimagebackend of the given type with specified name
```

Usage:

```
add <type> <name>
```

Arguments:

```
type
```

```
ceph, filesystem
```

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::ImageApi]->imagebackends]%
```

What needs to be added is a filesystem. There are no special properties for Glance on GPFS:

```
[ib-dev->configurationoverlay[OpenStackControllers]->roles[OpenStack::ImageApi]->imagebackends]% add filesystem gpfs
```

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::ImageApi*]->imagebackends*[gpfs*]]% show
```

Parameter	Value
-----------	-------

-----

Default Store

Filesystem mounts	<0 in submode>
-------------------	----------------

Name	gpfs
------	------

Revision

Show Image Direct URL	yes
-----------------------	-----

Type	OpenStackImageBackendFS
------	-------------------------

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```
Filesystem backend storage path /cm/shared/apps/openstack/glance-images
```

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::ImageApi*]->imagebackends*[gpfs*]]%
```

The filesystembackendstoragepath needs to be set to the mount point of the GPFS that is to be used for Glance :

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::ImageApi*]->imagebackends*[gpfs*]]% set filesystembackendstoragepath /gpfs1/glance
```

```
[ib-dev->configurationoverlay*[OpenStackControllers*]->roles*[OpenStack::ImageApi*]->imagebackends*[gpfs*]]% show
```

The other backend should be removed, and the changes committed.

## Configuring Nova

The configuration for Nova can be carried out as follows:

```
[ib-dev->configurationoverlay[OpenStackHypervisors]->roles[OpenStack::Compute]->imagebackends[gpfs]]%remove cow_over_nfs_cmshared
```

```
[ib-dev->configurationoverlay[OpenStackHypervisors]->roles[OpenStack::Compute]->imagebackends[gpfs]]%add cow gpfs
```

```
[ib-dev->configurationoverlay[OpenStackHypervisors]->roles[OpenStack::Compute]->imagebackends[gpfs]]%commit
```

```
[ib-dev->configurationoverlay[OpenStackHypervisors]->roles[OpenStack::Compute]->imagebackends[gpfs]]%..
```

```
[ib-dev->configurationoverlay[OpenStackHypervisors]->roles[OpenStack::Compute]->imagebackends[gpfs]]%..
```

```
[ib-dev->configurationoverlay[OpenStackHypervisors]->roles[OpenStack::Compute]->imagebackends[gpfs]]%set novastatepath /gpfs1/nova
```

novastatepath has been set in the preceding to /gpfs1/nova as this is the mount point dedicated

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to Nova.

The Cinder and Glance components on the controllers node should now be restarted. One way to do this is to use foreach on the controllers. For example:

```
#cmsh
```

```
%device
```

```
%foreach -n controller1..controller3 ( services ; restart openstack-cinder-* ; restart openstack-glance-*)
```

openstack-nova-compute should now be restarted on all of the hypervisors:

```
#cmsh
```

```
%device
```

```
%foreach -n hyper1..hyper20 ( services ; restart openstack-nova-compute )
```

The procedure should now be complete. Starting instances and uploading images on the GPFS backend should now be possible.

Unique solution ID: #1365

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