



Red Hat OpenStack Platform 14

NetApp Back End Guide for the Shared File System Service

Deploying Multiple NetApp Back Ends for the Shared File System Service in a Red Hat OpenStack Platform Overcloud

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Abstract

This document describes how to configure and deploy the OpenStack Shared File System Service using a NetApp storage controller (running Data ONTAP) as a back end. The scenario described herein uses the ``manila.share.drivers.netapp.common.NetAppDriver`` in a custom environment file to enable the NetApp back end and allow it to provision and manage shared file system storage.

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CHAPTER 1. INTRODUCTION

The OpenStack Shared File Systems service (manila) enables users to provision shared file systems that can be consumed by multiple compute instances.

This release supports the use of the NetApp unified driver (**manila.share.drivers.netapp.common.NetAppDriver**). This driver allows the Shared File System service to use NetApp storage controllers (running Data ONTAP) as a back end.

The recommended method for configuring a Shared File System back end is through the director. Doing so involves writing a *custom environment file*.

With this release, the director can now deploy the Shared File System with a NetApp back end on the overcloud. This document explains how to do so.

CHAPTER 2. REQUIREMENTS

The following sections assume that:

- A NetApp storage controller is deployed and ready to be used as a back end.
- You intend to use only one NetApp storage controller as a back end for your Shared File System service.
- You can use the director installation user account, which is created as part of the overcloud deployment. See [Preparing for director installation](#) (from [Director Installation and Usage](#)) for more information.
- The Shared File System service will still be installed on the Controller nodes, as is the default behavior.

This document will not discuss the different deployment configurations possible for your NetApp back end. Rather, to learn more about possible NetApp storage deployment configurations suitable for the Shared File System service, consult the upstream [NetApp documentation](#) (in particular, see [Theory of Operation and Deployment Choices](#)).

After mapping your target configuration (the settings you want for each NetApp back end), you can translate your configuration to a custom environment file. The director uses this file to orchestrate the configuration of your back ends and makes them persistent across overcloud updates.

CHAPTER 3. CREATE THE ENVIRONMENT FILE

The director already includes Heat templates to configure most of the necessary settings to integrate a NetApp back end. An *environment file* allows you to define settings specific to your deployment.

To start, log in as the **stack** user on the undercloud and create an environment file with the following contents:

/home/stack/templates/netapp-config.yaml

```
parameter_defaults:
  ManilaNetappLogin: 'NETAPP_USER' # 1
  ManilaNetappPassword: 'NETAPP_USER_PASSWORD'
  ManilaNetappServerHostname: 'HOSTNAME' # 2
  ManilaNetappVserver: 'SVM' # 3
  ManilaNetappRootVolumeAggr: 'ROOTVAGGR' # 4
  ManilaNetappTraceFlags: 'TRFLAGS' # 5
  ManilaNetappDriverHandlesShareServers: 'false' # 6
```

- 1 Replace `NETAPP_USER` and `NETAPP_USER_PASSWORD` with the credentials of the administrative account used to access the storage system (specifically, `HOSTNAME`).
- 2 Replace `HOSTNAME` with the storage system or proxy server. The value of this option should be the IP address or hostname of either the cluster management logical interface (LIF) or Storage Virtual Machine (SVM) LIF.
- 3 `SVM` specifies the storage virtual machine (previously called a *vserver*) name on the storage cluster on which provisioning of shared file systems should occur. This parameter is required if the driver should operate without managing share servers (that is, be limited to the scope of a single SVM).
- 4 `ROOTVAGGR` specifies the name of the aggregate upon which the root volume should be placed when a new storage virtual machine (SVM) is created to correspond to a manila share server. This parameter is required if the value of `ManilaNetappDriverHandlesShareServers` is set to **true**, which means the driver manages the life cycle of share servers. *This value is not required if the value of `ManilaNetappDriverHandlesShareServers` is `false`.*
- 5 Replace `TRFLAGS` with a comma-separated list of options that control which trace info is written to the Shared File System service logs when the debug level is set to **True**. Supported values include **method** and **api**.
- 6 The `ManilaNetappDriverHandlesShareServers` parameter sets whether the driver should handle the lifecycle of the share server (**false** means it should not).

For example:

/home/stack/templates/netapp-config.yaml

```
parameter_defaults:
  ManilaNetappLogin: 'netapp_user'
  ManilaNetappPassword: 'netapp_user_password'
  ManilaNetappServerHostname: '10.8.18.108'
  ManilaNetappVserver: 'vserver_1'
```

```
ManilaNetappRootVolumeAggr: 'aggr1_n1'  
ManilaNetappTraceFlags: 'method,api'  
ManilaNetappDriverHandlesShareServers: 'false'
```

The next section describes how to use the `/home/stack/templates/netapp-config.yaml` environment file to orchestrate the configuration of your NetApp back end.

CHAPTER 4. DEPLOY THE SHARED FILE SYSTEM SERVICE WITH NETAPP BACK ENDS

After you create `/home/stack/templates/netapp-config.yaml`, log in as the `stack` user on the undercloud and deploy the configured back end by running:

```
$ source ~/stackrc
$ openstack overcloud deploy --templates -e /usr/share/openstack-tripleo-heat-templates/environments/manila-netapp-config.yaml -e /home/stack/templates/netapp-config.yaml
```

The `/usr/share/openstack-tripleo-heat-templates/environments/manila-netapp-config.yaml` used here is the environment file provided with the director for deploying NetApp back ends for the Shared File System service. The `/home/stack/templates/netapp-config.yaml` file created in the previous section allows you to override the default settings to suit your deployment.



IMPORTANT

If you passed any extra environment files when you created the overcloud, pass them again here using the `-e` option to avoid making undesired changes to the overcloud. For more information, see [Modifying the Overcloud Environment](#) (from [Director Installation and Usage](#)).

CHAPTER 5. CREATE A BASIC SHARE TYPE

Whenever you create a new share, you must specify a *share type*. If you don't specify one, the share creation will fail.

Director does not support automatically configuring or creating the **default** share type during installation. However, director does set the **manila.conf** configuration option **default_share_type** to **default**. Deployers must create the **default** share type after the overcloud has been deployed.

To create a basic share type named **default**, run the following as the **stack** user on the undercloud:

```
$ source ~/overcloudrc
$ manila type-create default false
```

In the example, **manila type-create default** is **false** because there is no need for the NetApp driver to handle the life cycle of share servers. This is because we set **ManilaNetappDriverHandlesShareServers** to **false** in [Chapter 3, Create the Environment File](#). Otherwise, if **ManilaNetappDriverHandlesShareServers** is set to **true** you can match the default share type to this. For more information about share types, see [Creating and Managing Share Types](#) (from the [Red Hat OpenStack Platform Storage Guide](#)).