



Red Hat OpenStack Platform 15

Dell Storage Center Back End Guide

A Guide to Using Dell Storage Center Storage in a Red Hat OpenStack Platform
Overcloud

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Abstract

This document describes how to deploy a single Dell Storage Center device as a back end to the Red Hat OpenStack Platform 15 Overcloud.

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CHAPTER 1. INTRODUCTION

This document describes how to configure OpenStack to use one or more Dell Storage Center back ends. The following sections assume that:

- You intend to use only Dell Storage Center devices and drivers for Block Storage back ends
- The OpenStack Overcloud has already been deployed through Director, with a properly-functional Block Storage service
- The Dell storage device has already been deployed and configured as a storage repository
- You have the necessary credentials for connecting to the Enterprise Manager and Dell Storage Center Group
- You have the username and password of an account with elevated privileges. You can use the same account that was created to deploy the Overcloud; in [Creating a Director Installation User](#), we create and use the **stack** user for this purpose.

When you deploy RHOSP with the director, you must also define and orchestrate all major overcloud settings with the director. This ensures that the settings persist through any further overcloud updates. For more information about deploying RHOSP with the director, see the [Director Installation and Usage](#) guide.

This document explains how to orchestrate your Dell Storage Center back end configuration to the Block Storage service on the overcloud. This document does not discuss the different deployment configurations that are possible with the back end. For more information about the different deployment configurations that are available, see the product documentation for your device.



NOTE

Director has the integrated components to deploy only a single instance of a Dell Storage Center back end.

Deploying multiple instances of a Dell Storage Center back end requires a custom back end configuration. For more information, see the [Custom Block Storage Back End Deployment Guide](#).

CHAPTER 2. PROCESS DESCRIPTION

To configure the Dell EMC PS Series back ends, complete the following procedures:

1. Define a single back end. To configure a single Dell device as a back end, edit the default environment file from the core heat template collection and include this file in the overcloud deployment. For more information, see [Defining a single back end](#).
2. Deploy the configured back end and invoke it through the director. For more information, see [Deploying the Dell EMC PS Series back end](#).
3. Testing the Dell EMC PS Series back end.
4. Address any volume size discrepancies with Dell EqualLogic back ends. For more information, see [Addressing volume size discrepancies with Dell EqualLogic back ends](#) in the *Dell EMC PS Series Back End Guide*.

Red Hat OpenStack Platform includes the drivers that are required for all Dell devices supported by the Block Storage service. In addition, director also has the puppet manifests, environment files, and Orchestration (heat) templates that are necessary to integrate the device as a back end to the overcloud.

CHAPTER 3. DEFINE A SINGLE BACK END



IMPORTANT

This section describes the deployment of a single back end. Deploying multiple instances of a Dell Storage Center back end requires a custom back end configuration. For more information, see the [Custom Block Storage Back End Deployment Guide](#).

With a Director deployment, the easiest way to define a **single** Dell Storage Center back end is through the integrated environment file. This file is located in the following path of the Undercloud node:

`/usr/share/openstack-tripleo-heat-templates/environments/cinder-dellsc-config.yaml`

Copy this file to a local path where you can edit and invoke it later. For example, to copy it to `~/templates/`:

```
$ cp /usr/share/openstack-tripleo-heat-templates/environments/cinder-dellsc-config.yaml ~/templates/
```

Afterwards, open the copy (`~/templates/cinder-dellsc-config.yaml`) and edit it as you see fit. The following snippet displays the default contents of this file:

```
# A Heat environment file which can be used to enable a
# a Cinder Dell Storage Center ISCSI backend, configured via puppet
resource_registry:
  OS::TripleO::Services::CinderBackendDellSc: ../puppet/services/cinder-backend-dellsc.yaml #
1

parameter_defaults: # 2
  CinderEnableDellScBackend: true # 3
  CinderDellScBackendName: 'tripleo_dellsc'
  CinderDellScSanIp: ''
  CinderDellScSanLogin: 'Admin'
  CinderDellScSanPassword: ''
  CinderDellScSsn: '64702'
  CinderDellScScsilpAddress: ''
  CinderDellScScsiPort: '3260'
  CinderDellScApiPort: '3033'
  CinderDellScServerFolder: 'dellsc_server'
  CinderDellScVolumeFolder: 'dellsc_volume'
```

- 1** The `OS::TripleO::Services::CinderBackendDellSc` parameter in the **resource_registry** section refers to a composable service template named **cinder-backend-dellsc.yaml**. The director uses this template to load the necessary resources for configuring the back end. By default, the parameter specifies the path to **cinder-backend-dellsc.yaml** relatively. As such, update this parameter with the absolute path to the file:

```
resource_registry:
  OS::TripleO::Services::CinderBackendDellSc: /usr/share/openstack-tripleo-heat-templates/puppet/services/cinder-backend-dellsc.yaml
```

- 2** The **parameter_defaults** section contains your back end definition. Specifically, it contains the parameters that the Director should pass to the resources defined in **cinder-dellsc.yaml**.

- 3 The **CinderEnableDellScBackend: true** line instructs the Director to use the puppet manifests necessary for the default configuration of a Dell Storage Center back end. This includes defining

To define your Dell Storage Center back end, edit the settings in the **parameter_defaults** section as you see fit. The following table explains each parameter, and also lists its corresponding **/etc/cinder/cinder.conf** setting.

Table 3.1. Dell Storage Center settings

Parameter	/etc/cinder/cinder.conf setting	Description
CinderDellScBackendName	volume_backend_name	(Required) An arbitrary name to identify the volume back end.
CinderDellScSanIp	san_ip	(Optional) The IP address used to reach the Dell Enterprise Manager.
CinderDellScSanLogin	san_login	(Required) The user name to login to the Dell Enterprise Manager at the CinderDellScSanIp . The default user name is Admin .
CinderDellScSanPassword	san_password	(Optional) The corresponding password of CinderDellScSanLogin .
CinderDellScSsn	dell_sc_ssn	(Required) The Dell Storage Center serial number to use.
CinderDellScIscsiIpAddress	iscsi_ip_address	(Optional) The Dell Storage Center ISCSI IP address to be used for creating volumes and snapshots.
CinderDellScIscsiPort	iscsi_port	(Optional) The ISCSI port of the Dell Storage Center array.
CinderDellScApiPort	dell_sc_api_port	(Optional) The Dell Enterprise Manager API port.
CinderDellScServerFolder	dell_sc_server_folder	(Required) The Server folder in Dell Storage Center where the new server definitions are placed.
CinderDellScVolumeFolder	dell_sc_volume_folder	(Required) The Server folder in Dell Storage Center where the new volumes are created.

CHAPTER 4. DEPLOY THE CONFIGURED BACK END

The Director installation uses a non-root user to execute commands, which includes orchestrating the deployment of the Block Storage back end. In [Creating a Director Installation User](#), a user named **stack** is created for this purpose. This user is configured with elevated privileges.

To deploy the lone back end configured in [Chapter 3, Define a Single Back End](#), first log in as the **stack** user to the Undercloud. Then, deploy the back end (defined in the edited `~/templates/cinder-dellsc-config.yaml`) by running the following:

```
$ openstack overcloud deploy --templates -e ~/templates/cinder-dellsc-config.yaml
```



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](#) in the *Director Installation and Usage* guide.

Test the back end after director orchestration is complete.

CHAPTER 5. TEST THE CONFIGURED BACK END

After you deploy the back end, test that you can successfully create volumes on it.

Procedure

1. Log in to the undercloud node as the **stack** user.
2. Source the **overcloudrc** credentials file:

```
$ source /home/stack/overcloudrc
```

3. Create a new volume type that you can use to specify the new back end. Run the following command to create a volume type called **dellsc**, run:

```
$ cinder type-create dellsc
```

4. Map the new volume type to the new back end, **tripleo_dellsc**, as defined through the **CinderDellScBackendName** parameter in [Chapter 3, Define a Single Back End](#):

```
$ cinder type-key dellsc set volume_backend_name=tripleo_dellsc
```

5. Create a new 2GB volume on the new back end:

```
$ cinder create --volume-type dellsc 2
```



NOTE

For more information, see [Accessing the Overcloud](#) in the *Director Installation and Usage* guide.