



Red Hat Enterprise Linux OpenStack Platform 7 Fujitsu ETERNUS Back End Guide

A Guide to Using a Fujitsu ETERNUS Back End in a RHEL OpenStack
Platform 7 Environment

OpenStack Team

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Abstract

This document describes how to configure Red Hat Enterprise Linux OpenStack Platform 7 to use a Fujitsu ETERNUS Disk Storage System as a back end.

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CHAPTER 1. INTRODUCTION

This document describes how to manually configure OpenStack to use a Fujitsu ETERNUS Disk Storage System as a back end for the Block Storage service. The following sections assume that:

- ✦ OpenStack has already been deployed with a properly-configured Block Storage service.
- ✦ You intend to use only Fujitsu ETERNUS Disk Storage System devices and drivers for Block Storage back ends.
- ✦ You have the username and password of an admin account for the OpenStack deployment (see [User and Role Management](#) in the [Users and Identity Management Guide](#), or [Creating additional OpenStack admin users](#) for more information).
- ✦ The driver configuration file for the Fujitsu ETERNUS back end is available from the Block Storage service host (typically, in `/etc/cinder/cinder_fujitsu_eternus_dx.xml`).

You can use either Fibre Channel or iSCSI interfaces with a Fujitsu ETERNUS device. Each interface has its own settings and driver: Red Hat supports the use of both interfaces (and their respective drivers) with OpenStack.

CHAPTER 2. DEFINE AN ISCSI OR FIBRE CHANNEL BACK END

Before downloading and installing the required Fujitsu ETERNUS volume driver, create a new **driver installation file** for the ETERNUS back end. This file will define which back ends need to be enabled, along with the settings used by each back end.

The following snippet is a complete configuration file. The **[FJFC]** section is a sample definition for a Fibre Channel back end, while **[FJISCSI]** is for iSCSI:

```
[DEFAULT]
enabled_backends=FJFC,FJISCSI # 1

[FJFC]
fujitsu_volume_driver=true # 2
protocol=fc # 3
driver_config_file=/etc/cinder/fjfc.xml # 4
ip=10.11.12.13 # 5
port=5988 # 6
user=osvd2 # 7
password=osvd2 # 8
poolname=3JB2B4K,pool1,pool2 # 9
snappoolname=3JB2B4K # 10
volume_backend_name=FJFC # 11

[FJISCSI]
fujitsu_volume_driver=true # 12
protocol=iscsi # 13
driver_config_file=/etc/cinder/fjiscsi.xml # 14
ip=10.11.12.13 # 15
port=5988 # 16
user=osvd2 # 17
password=osvd2 # 18
poolname=3JB2B4K,pool1,pool2 # 19
snappoolname=3JB2B4K # 20
iscsiip=192.168.0.1, 192.168.0.2, 192.168.0.3, 192.168.0.4 # 21
volume_backend_name=FJISCSI # 22
```

1

enabled_backends: a comma-separated list of volume back end names for all enabled Fujitsu ETERNUS back ends.

2 12

fujitsu_volume_driver: specifies whether to apply the driver settings to the Block Storage service configuration file (by default, `/etc/cinder/cinder.conf`). Set this to **true**.

3 13

protocol: sets what type of connection protocol the back end should use. Specify **fc** for Fibre Channel or **iscsi** for iSCSI.

4 14

driver_config_file: the absolute path to the **driver configuration file**. Specifically, this refers to the file where the back end's settings will be defined.

5 15

ip: the IP address of the back end's [SMI-S server](#).

6 16

port: the port of the back end's SMI-S server.

7 17

user: the username that the Block Storage service should use to access the SMI-S server.

8 18

password: the corresponding password of **user**.

9 19

poolname: the names of the storage pools (RAID group or Thin Provisioning Pool) in which volumes should be created

10 20

snappoolname (optional): the names of the storage pools where volume snapshots should be created. If this is not specified, then the driver will use the same pools listed in **poolname**.

11 22

volume_backend_name: the name of the volume back end. To enable the back end, list this settings value in `cinder.conf` (under the `[DEFAULT]` section).

this setting's value in **enabled_backend** (under the **[DEFAULT]** section).

21

iscsiip: the IP address used to connect to the iSCSI back end. You can specify a comma-delimited list of multiple IP addresses.

CHAPTER 3. DOWNLOAD AND INSTALL THE DEVICE DRIVERS

After creating the driver installation file (in [Chapter 2, Define an iSCSI or Fibre Channel Back End](#)), download and install the **ETERNUS OpenStack VolumeDriver** software package. The following procedure describes how to do so in a non-interactive manner:

1. First, go to the following link:

[http://www.fujitsu.com/global/support/products/computing/storage/download/openstack-
vd.html](http://www.fujitsu.com/global/support/products/computing/storage/download/openstack-
vd.html)

Read the **Conditions of use** for important information about the software.

2. Click **I AGREE**. Doing so will take you to the [ETERNUS OpenStack VolumeDriver Download](#) page.
3. From there, download the package appropriate for your Red Hat OpenStack version. For Red Hat Enterprise Linux OpenStack Platform version 7, this is [Kilo](#).
4. Either package is available in ***.tar.gz** format. After downloading the package, copy it to the Controller node of your OpenStack deployment.
5. Copy the driver installation file (in [Chapter 2, Define an iSCSI or Fibre Channel Back End](#)) to the Controller node as well.
6. Log in to Controller node with the same account used to install OpenStack.
7. Extract the **ETERNUS OpenStack VolumeDriver** package. For example, to extract the [Kilo](#) version:

```
# tar -xvf osvd130_kilo.tar.gz
```

Doing so will extract all the contents of the package to a local **osvd130_kilo** subdirectory.

8. Enter the extracted subdirectory:

```
# cd osvd130_kilo/
```

9. From there, install the ETERNUS driver for OpenStack while also applying your required driver settings:

```
# ./osvd_install.sh install INSTALLFILE
```

Replace *INSTALLFILE* with the absolute path to the driver installation file you created as part of [Chapter 2, Define an iSCSI or Fibre Channel Back End](#) (for example, */root/osvd130_kilo/eternus.xml*).

The **osvd_install.sh** script will then create the **driver configuration file** of each back end declared in the *INSTALLFILE*. Each back end's driver configuration file is configured through the **driver_config_file** setting.

Afterwards, the **osvd_install.sh** script will add an entry for each back end in the Block Storage service configuration file (by default, */etc/cinder/cinder.conf*). Each entry contain the back end's name, driver, and a reference to the **back end configuration file**. The **osvd_install.sh** script will also enable each back end by name through the **enabled_backends** setting.

To apply the new settings, reboot the Block Storage service to apply the new settings:

```
# openstack-service restart openstack-cinder-volume
```

CHAPTER 4. LOAD THE NECESSARY ADMINISTRATOR CREDENTIALS

As you will be performing administrative functions from this point onwards, you need to load the necessary environment variables to facilitate authentication. To do so, run the following commands:

```
# export OS_USERNAME=ADMIN_USER

# export OS_TENANT_NAME=admin

# export OS_PASSWORD=ADMIN_PW

# export OS_AUTH_URL=http://KEYSTONE_IP:35357/v2.0/

# export PS1='[\u@\h \W(keystone_admin)]\$'
```

Where:

- ✧ *ADMIN_USER* and *ADMIN_PW* are the username/password of a user account with administrative rights within the OpenStack environment.
- ✧ *KEYSTONE_IP* is the IP address or hostname of the Identity service.

For more information about OpenStack admin accounts, see [Creating additional OpenStack admin users](#).

CHAPTER 5. CONFIGURE THE BLOCK STORAGE SERVICE

After configuring the Block Storage service to use the new Fujitsu ETERNUS back ends, declare a *volume type* for each one. Volume types allow you to specify which back end to use when creating new volumes. The following commands create two volume types: **FJFC** (for the fibre channel back end) and **FJISCSI** (for the iSCSI back end):

```
# cinder type-create FJFC
# cinder type-create FJISCSI
```

Next, map these volume types to their respective back ends (as defined in [Chapter 2, Define an iSCSI or Fibre Channel Back End](#)):

```
# cinder type-key FJFC set volume_backend_name=FJFC
# cinder type-key FJISCSI volume_backend_name=FJISCSI
```

CHAPTER 6. TEST YOUR CONFIGURATION

Verify your configuration by creating a 1GB iSCSI volume named **test_iscsi**:

```
# cinder create --volume_type FJISCSI --display_name test_iscsi 1
```

To test the fibre channel back end:

```
# cinder create --volume_type FJFC --display_name test_fc 1
```