## eSDK Enterprise Storage Plugins 2.3.RC2

## OpenStack Manila Driver Configuration Guide

Issue 01

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# Overview

This chapter describes the definition of Manila Driver.

Manila Driver is a plug-in that is deployed on the OpenStack Manila module. The plug-in can be used to provide functions such as share and snapshot for virtual machines (VMs) in OpenStack.

# **2** Version Mapping

This chapter describes versions and functions supported by Manila Driver, and its version mappings with Huawei storage systems and OpenStack.

**Table 2-1** Version mappings among the Manila Driver, Huawei storage system and OpenStack

OpenStack	Huawei storage system
Rocky/Stein/	OceanStor Dorado V6 6.1.0/6.1.2
Train/Ussuri/ Victoria/Wallaby	OceanStor Dorado V3 V300R002
VICTORIa/ Wallaby	OceanStor F V5/V5 V500R007/V500R007 Kunpeng
	OceanStor F V3/V3 V300R003/V300R006

**Table 2-2** Mappings among Manila Driver, features and the OpenStack version (√: supported, x: not supported)

Feature	Normal Share	HyperMetro Share	Remarks
OpenStack	Rocky/Stein/ Train/Ussuri/ Victoria/Wallaby	Rocky/Stein/ Train/Ussuri/ Victoria/Wallaby	NA
Create Share	√	√	NA
Delete Share	√	√	NA
Allow access	√	√	NA
Deny access	√	√	NA

Feature	Normal Share	HyperMetro Share	Remarks
Create Snapshot	✓	√	HyperMetro shares support snapshot creation only on the local end of HyperMetro.
Delete Snapshot	<b>√</b>	✓	HyperMetro shares support snapshot deletion only on the local end of HyperMetro.
Revert Snapshot	✓	√	HyperMetro shares support snapshot rollback only on the local end of HyperMetro.
Extend Share	√	√	NA
Shrink Share	√	√	NA
Create Share from Snapshot	<b>√</b>	✓	HyperMetro shares support snapshot-based share creation only on the local end of HyperMetro.
Manage/ Unmanage Share	<b>√</b>	x	The file system and sharing relationship managed by manila must be one-to-one
Manage/ Unmanage Snapshot	√	x	NA
Replication	√	х	NA
QoS	√	✓	HyperMetro shares support SmartQoS configuration only on the local end of HyperMetro.

Feature	Normal Share	HyperMetro Share	Remarks
Multi-tenancy	√	x	NA
SmartThin/ SmartThick	√	√	NA
SmartCompression	√	√	NA
SmartDedupe	√	√	NA
Ensure Share	√	√	NA
Create a share on a certain storage pool	<b>√</b>	√	NA
Create a share with a certain disk type	√	√	NA
SectorSize	√	√	NA
SmartPartition	<b>√</b>	✓	HyperMetro shares support SmartPartition configuration only on the local end of HyperMetro.
SmartCache	<b>√</b>	✓	HyperMetro shares support SmartCache configuration only on the local end of HyperMetro.

#### **<u>A</u>** CAUTION

The **Manage/Unmanage Share** function has not been delivered in OceanStor Dorado V6 6.1.0. If you need to use it, please contact Huawei engineers in time.

# 3 Specifications and Restrictions

Feature	Sub-feature	Description	Remarks
Mapping platform	Native OpenStack platform	OpenStack versions: Rocky/Stein/Train/ Ussuri/Victoria/ Wallaby	
Configur ation	XML configuration file	Ensure that the storage pool used for configuring Cinder Driver exists on Huawei storage. Otherwise, create a storage pool. In addition, the type of this storage pool must be file storage service.	
		All parameter values in the Cinder Driver configuration file cannot contain the following special characters: <>&'''	
		Set <b>Product</b> based on the actual backend storage model.	
Policy	SmartQoS	Protection policies and restriction policies are mutually exclusive. If they are configured together, shares will fail to be created.	<ul> <li>Limit policies: maxIOPS and maxBandWidth</li> <li>Protection policies: minIOPS, minBandWidth, and latency</li> </ul>

IOType is mandatory. If it is not configured in a QoS policy, shares will fail to be created.	
OceanStor Dorado V6 6.1.0 supports only restriction policies and does not support protection policies.	

# 4 Deployment

- 4.1 Obtaining Manila Driver
- 4.2 Deploying Manila Driver for the Manila Share Service

#### 4.1 Obtaining Manila Driver

Two ways to obtain OpenStack Driver:

One is through the OpenStack community warehouse. From Kilo, Huawei has contributed Huawei Storage Driver to OpenStack, users can download OpenStack Driver from OpenStack community for free. After installing the specified OpenStack, OpenStack Driver will be placed under the catalog of "../manila/manila/share/drivers/huawei". If you don't find the corresponding installation files, you can download the OpenStack Driver from OpenStack community warehouse at https://github.com/openstack/manila.

Another is through Huawei OpenStack Driver warehouse. By visiting <a href="https://github.com/Huawei/OpenStack\_Driver">https://github.com/Huawei/OpenStack\_Driver</a>, you can download OpenStack Driver that corresponds to OpenStack community version.

Steps to get Manila Driver are as follows:

#### □ NOTE

After Kilo, Huawei OpenStack Driver is included in OpenStack community version, ignore the subsequent steps, jump to the relevant section to configure properties.

**Step 1** Enter the above warehouse address in the browser, for example Huawei warehouse address:

https://github.com/huaweistorage/OpenStack\_Driver.

- **Step 2** Click the "Download ZIP" bottom to download Driver, and unzip it.
- **Step 3** Find "Manila" catalog in which the Diver is extracted, there are multiple OpenStack Driver for different OpenStack version, choose the corresponding Driver.

----End

## 4.2 Deploying Manila Driver for the Manila Share Service

The OpenStack standard deployment steps are as follows:

**Step 1** Before installation, delete all the installation files of Huawei OpenStack Driver. The default installation path is /usr/lib/python2.7/dist-packages/manila/share/drivers/huawei.

#### **⚠** CAUTION

The complete path may vary depending on the operating system. You can search for the Huawei Driver code directory as follows:

```
python -c "from manila.share.drivers import huawei; print (huawei.__path__)" ['/usr/lib/python2.7/site-packages/manila/share/drivers/huawei']
```

In the preceding information, the Huawei Driver code directory is /usr/lib/python2.7/site-packages/manila/share/drivers/huawei/.

**Step 2** Copy OpenStack Manila Driver to the Manila Driver installation directory. (Just overwrite)

```
# Is -l
-rw-r--r-- 1 root root 4615 Oct 21 14:55 base.py
-rw-r--r-- 1 root root 5348 Oct 21 14:55 constants.py
-rw-r--r-- 1 root root 12721 Oct 21 14:55 huawei_nas.py
-rw-r--r-- 1 root root 4302 Oct 21 14:55 huawei_utils.py
-rw-r--r-- 1 root root 0 Oct 21 14:55 __init__.py
drwxr-xr-x 2 root root 4096 Oct 30 10:24 oceanstor9000
-rw-r--r-- 1 root root 193777 Oct 21 14:55 test_huawei_nas.py
drwxr-xr-x 2 root root 4096 Oct 21 12:28 v3
```

If the distributed OceanStor 9000 NAS driver is not included:

----End

# 5 Configuring Basic Properties

This chapter describes how to configure Huawei Manila Driver.

#### **NOTICE**

- In OpenStack Ocata Manila, when you create a share without a share type, the default share type in the /etc/manila/manila.conf file will be used.
- Ensure that the storage pool used for configuring Cinder Driver exists in Huawei storage. Otherwise, create a storage pool. In addition, the type of this storage pool must be file storage service.
- All of the parameter values cannot include XML special character < > & ' "
- Snapshot and Replication can't be configured at the same time
- 5.1 Configuring Manila Driver
- 5.2 Verifying the Manila Share Service

#### 5.1 Configuring Manila Driver

#### **Procedure**

- **Step 1** In /etc/manila, create a Huawei Manila Driver configuration file in .xml format. You can customize the configuration file name, for example, manila\_huawei\_conf.xml.
- **Step 2** Edit the **manila\_huawei\_conf.xml** file and set **mandatory** parameters in the Huawei Driver configuration file.

</Filesystem> </config>

Table 5-1 Parameters in the configuration file

Parameter	Default Value	Description	Remarks
Product	V3	Storage product model. The value can be <b>V3</b> , <b>V5</b> , or <b>Dorado</b> .	
LogicalPortIP	-	Logical port IP address. You can configure multiple IP addresses separated by semicolons (;).	This parameter is mandatory when DNS is not configured. If they are both configured, the priority of the parameter is lower than that of DNS.
DNS	-	DNS domain name. You can configure multiple DNSs separated by semicolons (;).	This parameter is mandatory when LogicalPortIP is not configured. If they are both configured, the priority of the parameter is higher than that of LogicalPortIP.
RestURL	-	Access address of the REST interface.	
UserName	-	User name of an administrator.	
UserPassword	-	Password of an administrator.	
StoragePool	-	Name of a storage pool to be used.	

## **Step 3** Edit the **manila\_huawei\_conf.xml** file and configure **optional** parameters in the Huawei Driver configuration file.

```
<?xml version='1.0' encoding='UTF-8'?>
```

- <Config>
- <Storage>
- <Port>abc;CTE0.A.H1</Port>
- <SnapshotSupport>True</SnapshotSupport>
- <ReplicationSupport>False</ReplicationSupport>
- </Storage>
- <Filesystem>
  - <SectorSize>64</SectorSize>
- <WaitInterval>3</WaitInterval>
- <Timeout>60</Timeout>
- <SnapshotReserve>20</SnapshotReserve>

```
<NFSClient>
<|P>x.x.x.x</|P>
</NFSClient>
<CIFSClient>
<UserName>xxx</UserName>
<UserPassword>xxx</UserPassword>
</CIFSClient>
</CIFSClient>
</Config>
```

Table 5-2 Parameters in the configuration file

Parameter	Defau lt Value	Description	Туре
Port	-	Port name list of bond port or ETH port, used to create vlan and logical port.	If <port> is not configured, then will choose an online port on the array.</port>
SectorSize	64	The size of the disk blocks, optional value can be "4", "8", "16", "32" or "64", and the units is KB.	Optional.
SnapshotSuppor t	True	Support snapshot or not.	This parameter cannot be enabled together with ReplicationSuppor t.
ReplicationSupp ort	False	Support replication or not.	This parameter cannot be enabled together with SnapshotSupport.
WaitInterval	3	Interval for querying file system status. The unit is second.	Optional.
Timeout	60	Timeout interval for waiting command execution of a storage device to complete. The unit is second.	Optional.
SnapshotReserv e	20	The ratio of the snapshot size to the file system size(%). The range is (0~50).	Optional.
NFSClient\IP	-	Backend IP in admin network to use for mounting NFS share.	Mandatory when create a share from snapshot.

Parameter	Defau lt Value	Description	Туре
CIFSClient \UserName	-	Backend user name in admin network to use for mounting CIFS share.	Mandatory when create a share from snapshot. If OceanStor Dorado V6 is used, the user name must be added to a local authentication user group with administrator rights.
CIFSClient \UserPassword	-	Backend password in admin network to use for mounting CIFS share.	Mandatory when create a share from snapshot.

### **Step 4** Configure the /etc/manila/manila.conf file. Add the following backend configuration to the end of the file:

[huawei\_backend] share\_driver = manila.share.drivers.huawei.huawei\_nas.HuaweiNasDriver manila\_huawei\_conf\_file = /etc/manila/manila\_huawei\_conf.xml share\_backend\_name = huawei\_backend driver\_handles\_share\_servers = False

#### 

- Backend name huawei backend can be customized.
- **share\_driver** indicates the type of the driver to be used. Set this parameter to **manila.share.drivers.huawei.huawei\_nas.HuaweiNasDriver**.
- manila\_huawei\_conf\_file indicates the path of the Manila Driver configuration file.
- driver\_handles\_share\_servers indicates whether to enable multi-tenant.

In the **DEFAULT** area, add **huawei\_backend** to **enabled\_share\_backends** item.

## [DEFAULT] ... enabled share backends=xxx,huawei backend

### **Step 5** Change the permission on the /etc/manila/manila\_huawei\_conf.xml file to be the same as that on /etc/manila/manila.conf.

```
# ls /etc/manila/
...
-rw-r----- 1 manila manila 82179 Jan 20 14:34 manila.conf
-rw-r----- 1 manila manila 1005 Jan 20 10:55 manila_huawei_conf.xml
...
```

#### **Step 6** Restart the Manila Share service.

systemctl restart openstack-manila-share.service

----End

#### 5.2 Verifying the Manila Share Service

#### **Procedure**

**Step 1** Create a common share type. **general** indicates the name of the share type, which is specified by users. **False** indicates that multi-tenancy is not supported. To configure multi-tenancy, set this parameter to **True**.

# manila type-create general False

Step 2 Set the backend of the share type. huawei\_backend indicates the backend name of the share, which is the value of share\_backend\_name in step 4 in 5.1 Configuring Manila Driver.

# manila type-key general set share\_backend\_name=huawei\_backend

**Step 3** Set snapshot properties.

# manila type-key general set snapshot\_support=True

**Step 4** Set snapshot rollback properties.

# manila type-key general set revert\_to\_snapshot\_support=True

**Step 5** Sets the properties for creating a share using a snapshot.

# manila type-key general set create\_share\_from\_snapshot\_support=True

**Step 6** Run the **manila create --name test001 NFS 2 --share-type general** command to create a share that supports the preceding properties.

----End

Snapshot properties: This feature is mutually exclusive with remote replication and they cannot be configured at the same time (excluding OceanStor Dorado V6 NAS).

# 6 Configuring Advanced Properties

This chapter describes how to configure advanced storage properties.

Huawei storage supports advanced properties, such as Smartx. By associating with specified share types, these properties can be used in OpenStack.

- 6.1 Configuring Thin/Thick
- 6.2 Configuring SmartDedupe
- 6.3 Configuring SmartCompression
- 6.4 Configuring SmartCache
- 6.5 Configuring SmartPartition
- 6.6 Configuring SmartQoS
- 6.7 Creating a Share on a Specified Storage Pool
- 6.8 Creating a Share with a Specified Disk Type
- 6.9 Configuring SectorSize
- 6.10 Configuring Replication
- 6.11 Configuring the Owning Controller of an FS
- 6.12 Configuring the NFS Client Permission
- 6.13 Configuring HyperMetro
- 6.14 Configuring filesystem:mode

#### **6.1 Configuring Thin/Thick**

**Step 1** Configure Thin property: Run the following command to configure the key-value pair whose Thin property is **true**:

root@ubuntu:~manila type-key test\_share\_type set capabilities:thin\_provisioning='<is> true'

Configure Thick property: Run the following command to configure the key-value pair whose Thin property is **false**:

root@ubuntu:~manila type-key test\_share\_type set capabilities:thin\_provisioning='<is> false'

**Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

- If capabilities:thin\_provisioning is set in the share type extra-specs, it will be used (thin share will be created if capabilities:thin\_provisioning=<is> true, thick share will be created if capabilities: thin provisioning=<is> false).
- If capabilities:thin\_provisioning is not set in the share type extra-specs, thin share will be created.

#### 6.2 Configuring SmartDedupe

**Step 1** Run the following command to configure the key-value pair whose SmartDedupe property is **true**:

root@ubuntu:~#manila type-key test\_share\_type set capabilities:dedupe='<is> true'

**Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

**□** NOTE

Only **Thin** share supports SmartDedupe.

Refer to section 4.1 to configure thin property.

#### **6.3 Configuring SmartCompression**

**Step 1** Run the following command to configure the key-value pair whose SmartCompression is **true**:

root@ubuntu:~#manila type-key test\_share\_type set capabilities:compression='<is> true'

**Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

**◯** NOTE

Only **Thin** share supports SmartCompression.

Refer to section 4.1 to configure thin property.

#### 6.4 Configuring SmartCache

**Step 1** Run the following command to configure the key-value pair whose SmartCache property is **true**:

root@ubuntu:~#manila type-key test\_share\_type set capabilities:huawei\_smartcache='<is> true'

Configure a name for the SmartCache existing on the storage device.

root@ubuntu:~#manila type-key test\_share\_type set huawei\_smartcache:cachename='test\_name'

**Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.5 Configuring SmartPartition

**Step 1** Run the following command to configure the key-value pair whose SmartPartition property is **true**:

root@ubuntu:~#manila type-key test\_share\_type set capabilities:huawei\_smartpartition='<is> true'

Configure a name for the SmartPartition existing on the storage device.

root@ubuntu:~#manila type-key test\_share\_type set huawei\_smartpartition:partitionname='test\_name'

**Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### **6.6 Configuring SmartQoS**

#### **About This Chapter**

Huawei supports the following QoS properties. One or multiple properties in the same class can be configured in one QoS property simultaneously.

Protection policies: latency, minIOPS, minBandWidth

Restriction policies: maxIOPS, maxBandWidth

#### **A** CAUTION

- Protection policies and restriction policies are mutually exclusive. If they are configured together, shares will fail to be created.
- OceanStor Dorado V6 6.1.0 supports only restriction policies and does not support protection policies.
- **IOType** is mandatory. If it is not configured in a QoS policy, shares will fail to be created.

#### 6.6.1 Configuring the Maximum Control IOPS

This section describes how to configure the maximum Control IOPS.

#### Procedure

**Step 1** Run the following command to configure the key-value pair whose QoS property is **true**.

root@ubuntu:~# manila type-key test\_share\_type set capabilities:qos='<is> true'

Run the following command to configure QoS control property parameters.

root@ubuntu:~# manila type-key test\_share\_type set qos:IOType=0 qos:maxIOPS=50

- maxIOPS: indicates the maximum IOPS. The value is an integer larger than 0.
- **IOType** (mandatory): indicates the read and write type.**0** indicates the control read I/Os, **1** indicates the control write I/Os, **2** indicates the control read and write I/Os.
- **Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.6.2 Configuring the Minimum Control IOPS

This section describes how to configure the minimum Control IOPS.

#### **Procedure**

**Step 1** Run the following command to configure the key-value pair whose QoS property is **true**.

root@ubuntu:~# manila type-key test\_share\_type set capabilities:qos='<is> true'

Run the following command to configure QoS control property parameters.

root@ubuntu:~# manila type-key test\_share\_type set qos:IOType=0 qos:minIOPS=50

- minIOPS: indicates the minimum IOPS. The value is an integer larger than 0.
- **IOType** (mandatory): indicates the read and write type.**0** indicates the control read I/Os, **1** indicates the control write I/Os, **2** indicates the control read and write I/Os.
- **Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.6.3 Configuring the Maximum Control Bandwidth

This section describes how to configure the maximum control bandwidth.

#### **Procedure**

**Step 1** Run the following command to configure the key-value pair whose QoS property is **true** 

root@ubuntu:~# manila type-key test\_share\_type set capabilities:qos='<is> true'

Run the following command to configure QoS control property parameters.

root@ubuntu:~# manila type-key test\_share\_type set qos:IOType=0 qos:maxBandWidth=50

- maxBandWidth: indicates the maximum BANDWIDTH. The value is an integer larger than **0** and expressed in MB/s.
- **IOType** (mandatory): indicates the read and write type.**0** indicates the control read I/Os, **1** indicates the control write I/Os, **2** indicates the control read and write I/Os.

**Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.6.4 Configuring the Minimum Control Bandwidth

This section describes how to configure the minimum control bandwidth.

#### **Procedure**

**Step 1** Run the following command to configure the key-value pair whose QoS property is **true**.

root@ubuntu:~# manila type-key test\_share\_type set capabilities:qos='<is> true'

Run the following command to configure QoS control property parameters.

root@ubuntu:~# manila type-key test\_share\_type set qos:IOType=0 qos:minBandWidth=50

- **minBandWidth**: indicates the minimum BANDWIDTH. The value is an integer larger than **0** and expressed in MB/s.
- **IOType** (mandatory): indicates the read and write type.0 indicates the control read I/Os, 1 indicates the control write I/Os, 2 indicates the control read and write I/Os.
- **Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.6.5 Configuring the Control Latency

This section describes how to configure the minimum control latency.

#### Procedure

**Step 1** Run the following command to configure the key-value pair whose QoS property is **true**.

root@ubuntu:~# manila type-key test\_share\_type set capabilities:qos='<is> true'

Run the following command to configure QoS control property parameters.

root@ubuntu:~# manila type-key test\_share\_type set qos:IOType=0 qos:latency=50

- **minBandWidth**: indicates the minimum bandwidth. The value is an integer larger than **0** and expressed in MB/s.
- **IOType** (mandatory): indicates the read and write type.0 indicates the control read I/Os, 1 indicates the control write I/Os, 2 indicates the control read and write I/Os.
- **Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.6.6 Configuring Multiple Control Policies

This section describes how to configure multiple control policies.

#### Procedure

**Step 1** Run the following command to configure the key-value pair whose QoS property is **true**.

root@ubuntu:~# manila type-key test\_share\_type set capabilities:qos='<is> true'

Run the following command to configure QoS control property parameters.

root@ubuntu:~# manila type-key test\_share\_type set qos:IOType=0 qos:latency=50

- latency: indicates the latency. The value is an integer larger than **0**.
- minIOPS: indicates the minimum IOPS. The value is an integer larger than **0**.
- **minBandWidth**: indicates the minimum bandwidth. The value is an integer larger than **0**.
- **IOType** (mandatory): indicates the read and write type.0 indicates the control read I/Os, 1 indicates the control write I/Os, 2 indicates the control read and write I/Os.
- **Step 2** Run manila create --name test001 NFS 2 --share-type test\_share\_type to create a share that supports the preceding properties.

----End

#### 6.7 Creating a Share on a Specified Storage Pool

This section describes how to create a share on a certain storage pool.

#### **Procedure**

- **Step 1** Run the manila type-create target\_pool\_type False command to create a share type. "target\_pool\_type"indicates the name of a share type. "False"indicates that the multi-tenant mode is not supported, when configured to "True" means that the multi-tenant mode is supported.
- **Step 2** Run the following command to configure the target storage pool.
  - Configure a single target storage pool.
    root@ubuntu:~# manila type-key target\_pool\_type set pool\_name=StoragePool001
- Step 3 Run manila create --name test001 NFS 2 --share-type target\_pool\_type to create a share that supports the preceding properties.

----End

#### 6.8 Creating a Share with a Specified Disk Type

This section describes how to create a share with a certain disk type.

#### Procedure

**Step 1** Run the **manila type-create disk\_type False** command to create a share type. "disk\_type"indicates the name of a share type. "False"indicates that the multi-

tenant mode is not supported, when configured to "True" means that the multitenant mode is supported.

- **Step 2** Run the following command to configure the assign disk type.
  - Configure one type of disk type.
    root@ubuntu:~# manila type-key disk\_type set huawei\_disk\_type=sas
  - Configure multiple types of disk type.
     root@ubuntu:~# manila type-key disk\_type set huawei\_disk\_type="<or> sas <or> ssd"

Optional values of disk type can be "ssd", "sas", "nl\_sas" or "mix", and the "mix" is a mixture of two or more in "ssd", "sas", "nl\_sas".

**Step 3** Run manila create --name test001 NFS 2 --share-type disk\_type to create a share that supports the preceding properties.

----End

#### 6.9 Configuring SectorSize

This section describes how to configure the size of blocks of filesystem.

#### **Procedure**

- **Step 1** Run the manila type-create sectorsize\_type False command to create a share type. "sectorsize\_type"indicates the name of a share type. "False"indicates that the multi-tenant mode is not supported, when configured to "True" means that the multi-tenant mode is supported.
- **Step 2** Run the following command to configure the key-value pair whose SectorSize property is **true**:

root@ubuntu:~# manila type-key sectorsize\_type set capabilities:huawei\_sectorsize='<is> true'

Configure the value of sectorsize:

root@ubuntu:~# manila type-key sectorsize\_type set huawei\_sectorsize:sectorsize=4

■ NOTE

`SectorSize` is the size of the disk blocks, optional value can be "4", "8", "16", "32" or "64", and the units is KB.

**Step 3** Run manila create --name test001 NFS 2 --share-type sectorsize\_type to create a share that supports the above attributes.

----End

#### 

- If "sectorsize" is configured in both share\_type and xml file, the value of sectorsize in the share\_type will be used.
- If there is no value available in share-type and SectorSize is configured in the xml file at the same time. Take the SectorSize value in the xml file.
- If "sectorsize" is configured in neither share\_type nor xml file, huawei storage backends will provide a default value(64) when creating a share.
- Rocky version and later versions do not support SectorSize

#### 6.10 Configuring Replication

This section describes how to configure replication.

#### **Prerequisites**

**Step 1** In file /etc/manila/manila.conf, configure two back ends with the remote replication relationship.

```
[DEFAULT]
enabled_share_backends = huawei_manila_1, huawei_manila_2
[huawei manila 1]
share_driver = manila.share.drivers.huawei.huawei_nas.HuaweiNasDriver
manila huawei conf file = /etc/manila/manila huawei conf 1.xml
share_backend_name = huawei_manila_1
driver_handles_share_servers = False
replication_domain = huawei_domain
local_replication = False
replica_backend = host@huawei_manila_2
[huawei_manila_2]
share driver = manila.share.drivers.huawei.huawei nas.HuaweiNasDriver
manila_huawei_conf_file = /etc/manila/manila_huawei_conf_2.xml
share_backend_name = huawei_manila_2
driver_handles_share_servers = False
replication_domain = huawei_domain
local_replication = False
replica_backend = host@huawei_manila_1
```

#### ■ NOTE

- The replication\_domain option is a backend specific option to be used within manila.conf. The value can be any ASCII string. Two backends that can replicate between each other would have the same replication\_domain.
- The replica\_backend option is set when the remote replication function is required. The value is a user-defined character string. The backends of the remote replication relationship are replica\_backend.
- manila\_huawei\_conf\_1.xml and manila\_huawei\_conf\_2.xml are user-defined configuration files of the driver. For details, see 5 Configuring Basic Properties.
- The 'local\_replication' option should set to 'True' when using replication within array, and configure using the same array in 'manila\_huawei\_conf\_1.xml' and 'manila\_huawei\_conf\_2.xml'. If 'local\_replication' option is not configured or its value is False, it means replication between arrays.

#### **Step 2** Restart the Manila services.

----End

#### **Procedure**

**Step 1** Run the manila type-create replication\_type False command to create a share type. "replication\_type" indicates the name of a share type. "False" indicates that the multi-tenant mode is not supported, when configured to "True" means that the multi-tenant mode is supported.

- **Step 2** Run the following command to configure the type of replication. root@ubuntu:~# manila type-key replication\_type set replication\_type=dr
- **Step 3** Run manila create --name test001 NFS 2 --share-type replication\_type to create a share that supports the preceding properties.
- **Step 4** Run manila share-replica-create test001 to create replication for share test001.

Now Huawei Manila Driver only supports **dr** style replication. For more details about **dr**, please refer to <a href="http://docs.openstack.org/developer/manila/devref/share\_replication.html">http://docs.openstack.org/developer/manila/devref/share\_replication.html</a>.

----End

#### 6.11 Configuring the Owning Controller of an FS

This section describes how to configure the owning controller of an FS.

#### **Procedure**

- **Step 1** In this command, **controller\_type** indicates the type of the shared controller, which is specified by the user. **False** indicates that multi-tenant is not supported. If you want to enable multi-tenant, change this value to **True**.
  - root@ubuntu:~# manila type-create controller\_type\_A False
- **Step 2** Run the following command to configure the key-value pair whose **Huawei\_controller** attribute is **true**.
  - root@ubuntu:~# manila type-key controller\_type\_A set capabilities:huawei\_controller='<is> true'
- **Step 3** Configure **controllername** that exists on the storage device and associate **controller\_type\_A** to the share type.
  - root@ubuntu:~# manila type-key controller\_type\_A set huawei\_controller:controllername='CTE0.A'
- **Step 4** Run the manila create --name test001 NFS 2 --share-type controller\_type\_A command to create a share with the owning controller attribute specified.

----End

#### 6.12 Configuring the NFS Client Permission

This section describes how to configure the NFS client permission.

#### **Procedure**

- **Step 1** In this command, **share\_privilege\_type** indicates the name of the share type, which is specified by the user. **False** indicates that multi-tenant is not supported. If you want to enable multi-tenant, change this value to **True**.
  - root@ubuntu:~# manila type-create share\_privilege\_type False
- **Step 2** Run the following command to configure the key-value pair whose **huawei\_share\_privilege** attribute is **true**.

root@ubuntu:~# manila type-key share\_privilege\_type set capabilities:huawei\_share\_privilege='<is> true'

**Step 3** Configure the attribute name that exists on the storage device and associate to the share type.

Table 6-1

Name	Description	Value
sync	Write mode	0: synchronous 1: asynchronous
allsquash	Permission restriction	0: all_squash 1: no_all_squash
rootsquash	Root permission restriction	0: root_squash 1: no_root_squash
secure	Source Port Verification	0: secure 1: insecure

root@ubuntu:~# manila type-key share\_privilege\_type set huawei\_share\_privilege:sync=0 root@ubuntu:~# manila type-key share\_privilege\_type set huawei\_share\_privilege:allsquash=0 root@ubuntu:~# manila type-key share\_privilege\_type set huawei\_share\_privilege:rootsquash=0 root@ubuntu:~# manila type-key share\_privilege\_type set huawei\_share\_privilege:secure=0

**Step 4** Run the manila create --name test001 NFS 2 --share-type share\_privilege\_type command to create a share with the owning controller attribute specified.

----End

----End

#### 6.13 Configuring HyperMetro

This section describes how to configure HyperMetro.

#### **Prerequisites**

You have configured HyperMetro domains, vStores, vStore pairs, and logical ports available to vStores on the local and remote storage arrays.

#### **Procedure**

**Step 1** In file /etc/manila/manila.conf, configure two backends with the NAS HyperMetro relationship.

```
[DEFAULT]
...
enabled_share_backends = huawei_manila_1, huawei_manila_2
...
[huawei_manila_1]
share_driver = manila.share.drivers.huawei.huawei_nas.HuaweiNasDriver
manila_huawei_conf_file = /etc/manila/manila_huawei_conf_1.xml
share_backend_name = huawei_manila_1
```

```
driver handles share servers = False
metro_info =
  metro_domain: huawei_domain,
  local_vStore_name: local_vstore,
  remote_vStore_name: remote_vstore,
  remote_backend: host@huawei_manila_2,
  metro_logic_ip: metro_logic_ip
[huawei_manila_2]
share_driver = manila.share.drivers.huawei.huawei_nas.HuaweiNasDriver
manila_huawei_conf_file = /etc/manila/manila_huawei_conf_2.xml
share_backend_name = huawei_manila_2
driver_handles_share_servers = False
metro_info =
  metro_domain: huawei_domain,
  local_vStore_name: local_vstore,
  remote_vStore_name: remote_vstore,
  remote_backend: host@huawei_manila_1,
  metro_logic_ip: metro_logic_ip
```

#### ₩ NOTE

- metro\_info is set when the NAS HyperMetro function is required. Its value is a user-defined list composed of multiple elements. Each element contains the metro\_domain, local\_vStore\_name, remote\_vStore\_name, remote\_backend, and metro\_logic\_ip fields, which are separated by commas (,). For details, see Table 6-2.
- manila\_huawei\_conf\_1.xml and manila\_huawei\_conf\_2.xml are user-defined configuration files of the driver. For details, see 5 Configuring Basic Properties.
- Currently, shares cannot be created from the snapshots of HyperMetro shares.

Table 6-2 Parameter description

Parameter	Description
metro_domain	HyperMetro domain name. You must use the same value for backends with the HyperMetro relationship.
local_vStore_name	Local tenant name of HyperMetro.
remote_vStore_name	Remote tenant name of HyperMetro.
remote_backend	Name of the remote backend which belongs to the Manila backends composing a HyperMetro pair. Two backends with the NAS HyperMetro relationship are remote backends for each other.
metro_logic_ip	Logical IP address of the vStore configured for NAS HyperMetro. Two backends with the NAS HyperMetro relationship must be configured with the same IP address. You can configure multiple IP addresses separated by semicolons (;).

- **Step 2** Run the following command to restart the Manila service: systemctl restart openstack-manila-volume.service
- **Step 3** Run the **manila type-create HyperMetro False** command to create the share type. **HyperMetro** indicates the name of the share type, which is specified by the user. **False** indicates that multi-tenant is not supported. If you want to enable multi-tenant, change this value to **True**.

**Step 4** Run the following command to configure the key-value pair for the HyperMetro type:

root@ubuntu:~# manila type-key HyperMetro set capabilities:hypermetro='<is> true'

**Step 5** Run the manila create --name metro001 NFS 2 --share-type HyperMetro command to create a share.

----End

#### 6.14 Configuring filesystem:mode

This section describes how to configure the distribution algorithm for a shared source file system. Only OceanStor Dorado v6 supports the configuration.

#### **Procedure**

- **Step 1** Run the manila type-create filesystem\_mode\_type False command to create a share type. filesystem\_mode\_type indicates the name of the share type, which is specified by users. False indicates that multi-tenant is not supported. To configure multi-tenant, change it to **True**.
- **Step 2** Run the following command to set the value of **filesystem:mode**:

root@ubuntu:~# manila type-key filesystem\_mode\_type set filesystem:mode=0

**filesystem:mode=0** indicates the performance mode, and **filesystem:mode=2** indicates the directory balance mode.

Step 3 Run the manila create --name test001 NFS 2 --share-type filesystem\_mode\_type command to create a share that supports the filesystem:mode attribute.

----End

# **7** Best Practices

#### 7.1 Quick Interconnection with Huawei Storage

#### 7.1 Quick Interconnection with Huawei Storage

#### **Configuration Process**

This section demonstrates how to configure Huawei Manila Driver on OpenStack to interconnect with Huawei Storage.

- **Step 1** Obtain Manila Driver (see chapter 3.1 for details).
- **Step 2** Create or query the file storage pool which will be used in Huawei storage.
- **Step 3** Configure file **manila.conf** and Huawei-defined configuration file of Driver. (For details, see chapter 4).
  - 1. In /etc/manila, create a Huawei-defined Driver configuration file in .xml format. In this example, manila\_huawei\_conf.xml is used as the file name that can be changed based on actual conditions.
  - 2. Set parameters for the created file.

3. Configure file manila.conf.

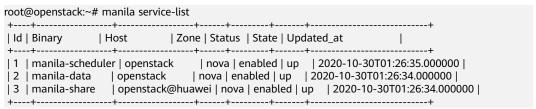
At the end of file /etc/manila/manila.conf, add the following configuration item. In this configuration item, volume\_driver indicates the loaded Driver file, and manila\_huawei\_conf\_file indicates the Huawei-defined configuration file.

[huawei]
share\_driver = manila.share.drivers.huawei.huawei\_nas.HuaweiNasDriver
manila\_huawei\_conf\_file = /etc/manila/manila\_huawei\_conf.xml
share\_backend\_name = huawei
driver\_handles\_share\_servers = False

In the **[DEFAULT]** area, modify the configuration as follows to enable the huawei back-end:

```
[DEFAULT]
...
enabled_share_backends=huawei
```

- **Step 4** Restart the Manila service.
- **Step 5** Check the service status.



In this example, the service status is **up**, indicating that the service is started correctly.

----End