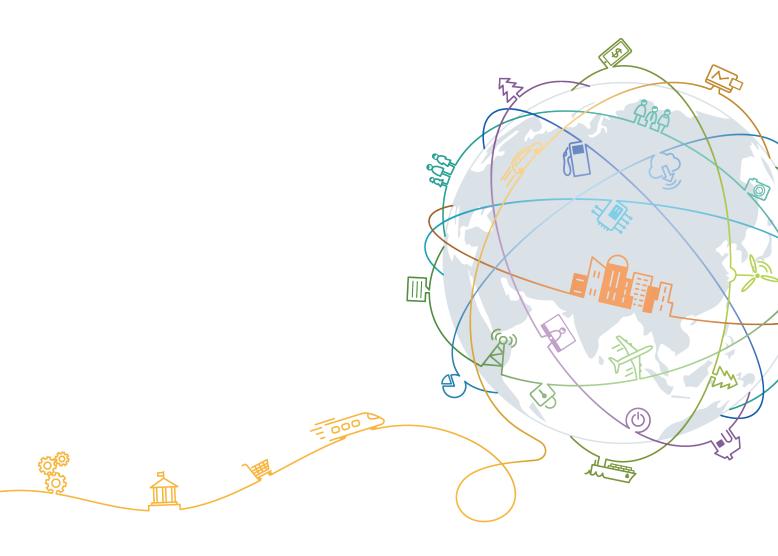
## **OpenStack Manila Driver**

## **Configuration Guide**

Issue 01

**Date** 2018-12-17





#### Copyright © Huawei Technologies Co., Ltd. 2018. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

#### **Trademarks and Permissions**

HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

#### **Notice**

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

## Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base

Bantian, Longgang Shenzhen 518129

People's Republic of China

Website: <a href="http://www.huawei.com">http://www.huawei.com</a>
Email: <a href="support@huawei.com">support@huawei.com</a>

## **Contents**

1 Overview	I
2 Version Mapping	2
3 Deployment	
3.1 Obtaining Manila Driver	4
3.2 Ubuntu Environment Deployment	
3.3 Red Hat Environment Deployment	
4 Configuring Basic Properties	7
5 Configuring Advanced Properties	11
5.1 Thin/Thick Property Configuration	11
5.2 SmartDedupe Property Configuration	12
5.3 SmartCompression Property Configuration.	12
5.4 SmartCache Property Configuration	
5.5 SmartPartition Property Configuration	13
5.6 SmartQoS Property Configuration	
5.6.1 Configuring the Maximum Control IOPS	13
5.6.2 Configuring the Minimum Control IOPS	14
5.6.3 Configuring the Maximum Control Bandwidth	14
5.6.4 Configuring the Minimum Control Bandwidth	14
5.6.5 Configuring the Control Latency	15
5.6.6 Configuring Multiple Control Policies	15
5.7 Create a share on a certain storage pool	
5.8 Create a share with a certain disk type	
5.9 SectorSize Configuration	17
5.10 Replication Configuration	
5.11 Configuring the Owning Controller of a FS	18
5.12 Configuring the NFS Client Permission.	19
6 Best Practices	20
6.1 Quick Interconnection with Huawei Storage	20

## $oldsymbol{1}$ 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
Mitaka	OceanStor V3 V300R003/V300R006/V500R007
Newton	OceanStor 2600 V3 V300R005
Ocata	OceanStor 18500/18800 V300R003/V300R006/V500R007
Pike	
Queens	
Rocky	

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

Feature	Mitaka	Newto n	Ocata	Pike	Queens	Rocky
Create Share	√	√	√	√	√	√
Delete Share	√	√	√	√	√	√
Allow access	<b>√</b>	√	√	√	√	√
Deny access	<b>√</b>	√	√	√	√	√
Create Snapshot	√	√	√	√	√	√
Delete Snapshot	√	√	√	√	√	√
Revert Snapshot	X	X	X	√	√	√

Feature	Mitaka	Newto n	Ocata	Pike	Queens	Rocky
Manage/Unmanage Share	✓	√	✓	✓	✓	<b>√</b>
Extend Share	√	√	<b>√</b>	√	√	√
Shrink Share	√	√	<b>√</b>	√	√	√
SmartCompression	<b>√</b>	√	<b>√</b>	√	<b>√</b>	√
SmartDedupe	√	√	√	√	√	√
SmartCache	√	√	√	√	√	√
SmartThin/Thick	√	√	<b>√</b>	√	√	√
SmartPartition	√	√	<b>√</b>	√	√	√
SmartQoS	√	√	<b>√</b>	√	√	√
Multi-tenancy	√	√	√	√	√	✓
Ensure Share	√	√	<b>√</b>	√	√	√
Create Share from Snapshot	√	√	√	√	√	√
Manage/Unmanage Snapshot	X	<b>√</b>	1	1	√	<b>√</b>
Create a share on a certain storage pool	х	<b>√</b>	1	1	<b>√</b>	<b>√</b>
Create a share with a certain disk type	х	√	1	1	√	<b>√</b>
SectorSize	X	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
Replication	X	√	√	√	√	√

# 3 Deployment

- 3.1 Obtaining Manila Driver
- 3.2 Ubuntu Environment Deployment
- 3.3 Red Hat Environment Deployment

## 3.1 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 https://github.com/huaweistorage/OpenStack\_Driver, 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.

## 3.2 Ubuntu Environment Deployment

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

On the host, the version of Python is 2.7. If another version is used, use the correct version number.

- **Step 2** Copy OpenStack Manila Driver to the Manila Driver installation directory.
- **Step 3** Make configuration by referring to **4 Configuring Basic Properties** and **5 Configuring Advanced Properties**.
- **Step 4** After configuration, restart the Manila-Share service by running the following command: service manila-share restart
- **Step 5** Check the status of service restart by running the **manila service-list** command. If **State** is **up**, the Manila-Share service has been restarted.

```
root@u1404:~# manila service-list
| Id | Binary
               | Host
                           | Zone | Status | State |
Updated at
                 +---+-----
| 1 | manila-scheduler | u1404
                           | nova | enabled | up |
2016-03-15T01:43:48.000000 |
| 2 | manila-data | u1404
                           | nova | enabled | up
2016-03-15T01:43:50.000000 |
| 3 | manila-share | u1404@v3r3 | nova | enabled | up
2016-03-15T01:43:41.000000 |
+---+-----
+----+
```

----End

## 3.3 Red Hat Environment Deployment

The OpenStack standard deployment steps are as follows:

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

## **⚠** CAUTION

On the host, the version of Python is 2.7. If another version is used, use the correct version number.

- **Step 2** Copy OpenStack Manila Driver to the Manila Driver installation directory.
- **Step 3** Make configuration by referring to **4 Configuring Basic Properties** and **5 Configuring Advanced Properties**.
- **Step 4** After configuration, restart the Manila-Share service by running the following command: systemctl restart openstack-manila-volume.service
- Step 5 Check the status of service restart by running the manila service-list command. If State is up, the Manila-Share service has been restarted.

```
root@u1404:~# manila service-list
| Id | Binary | Host
                           | Zone | Status | State |
Updated_at
                 - 1
+---+-----
| 1 | manila-scheduler | u1404
2016-03-15T01:43:48.000000 |
                           | nova | enabled | up |
2016-03-15T01:43:48.000000 |
| 2 | manila-data | u1404
                           | nova | enabled | up
2016-03-15T01:43:50.000000 |
| 3 | manila-share | u1404@v3r3 | nova | enabled | up
2016-03-15T01:43:41.000000 |
+---+
+----+
```

## 4 Configuring Basic Properties

This chapter describes how to configure Huawei Manila Driver.

#### **NOTICE**

- In OpenStack Ocata Manila, when create a share without a share type, the default share type in "/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.

```
[DEFAULT]

default_share_type = default_share_type

If the default share type does not exist, please create it.

root@ubuntu-001:~# manila type-create default_share_type False
+------+

| Property | Value |
+-----+

required_extra_specs | driver_handles_share_servers : False |

| Name | default_share_type |

| Visibility | public |

| is_default | - |

| ID | d64575a2-e0e6-4988-8bee-8ed8edea3de9 |

| optional_extra_specs | |
+------+
```

If you want to use the snapshot feature of shared files, set **snapshot\_support** to **True** in **share type**.

root@ubuntu-001:~# manila type-key default share type set snapshot support=True

If you want to use snapshots to create shared files, set create share from snapshot support to True in share type.

root@ubuntu-001:~# manila type-key default\_share\_type set create\_share\_from\_snapshot\_support=True

#### **Procedure**

Step 1 Modify the manila.conf configuration file of Manila. Add share\_driver and manila\_huawei\_conf\_file,and modify driver\_handles\_share\_servers.

manila huawei conf.xml is used as an example.

• Example for configuring a storage system:

```
[DEFAULT]
enabled_backends = huawei_manila_backend
[huawei_manila_backend]
share_driver = manila.share.drivers.huawei.huawei_nas.HuaweiNasDriver
manila_huawei_conf_file = /etc/manila/manila_huawei_conf.xml
driver_handles_share_servers = False
```

• Example for configuring multiple storage systems:

```
[DEFAULT]
enabled_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
driver_handles_share_servers = False
[huawei_manila_2]
share_driver = manila.share.drivers.huawei.huawei_nas.HuaweiNasDriver
manila_huawei_conf_file = /etc/manila/manila_huawei_conf_2.xml
driver_handles_share_servers = False
```

#### NOTE

- The parameter value of **driver\_handles\_share\_servers** can be **True** or **False**. **True** indicates that the multi-tenant mode is supported and **False** indicates that the multi-tenant mode is not supported.
- Step 2 In /etc/manila, create a driver configuration file named manila\_huawei\_conf.xml. The driver configuration file name must be the same as value of the manila\_huawei\_conf\_file item in the manila.conf configuration file.

Details about the driver configuration file are as follows:

```
<?xml version='1.0' encoding='UTF-8'?>
  <Config>
    <St.orage>
      <Product>V3</Product>
      <LogicalPortIP>x.x.x.x</LogicalPortIP>
     <Port>abc;CTE0.A.H1</Port>
     <RestURL>https://x.x.x.x:8088/deviceManager/rest/</RestURL>
      <UserName>xxxxxxxxxx</UserName>
      <UserPassword>xxxxxxxxxx</UserPassword>
     <SnapshotSupport>True</SnapshotSupport>
      <ReplicationSupport>False</ReplicationSupport>
    </Storage>
    <Filesvstem>
      <StoragePool>xxxxxxxxxx;xxxxxxxx</StoragePool>
      <SectorSize>64</SectorSize>
      <WaitInterval>3</WaitInterval>
      <Timeout>60</Timeout>
      <NFSClient>
        <IP>x.x.x.x</IP>
      </NFSClient>
      <CIFSClient>
        <UserName>xxxxxxxxx</UserName>
        <UserPassword>xxxxxxxxxx</UserPassword>
```

```
</CIFSClient>
</Filesystem>
</Config>
```

**Table 4-1** lists all parameters in the configuration file.

Table 4-1 Parameters in the configuration file

Parameter	Defaul t	Description	Туре	
	Value			
Product	V3	Storage product model.	Mandatory.	
LogicalPortIP	-	Logical port IP address. Support multiple IPs, separate them by semicolons (;).  Mandatory w in multi-tena mode.		
Port	-	Port name list of bond port or ETH port, used to create vlan and logical port.  If <port> is a configured, to choose an or port on the a</port>		
RestURL	-	Access address of the REST interface.	Mandatory.	
UserName	-	User name of an administrator.	Mandatory.	
UserPassword	-	Password of an administrator.	Mandatory.	
StoragePool	-	Name of a storage pool to be used.	Mandatory.	
SectorSize	64	The size of the disk blocks, optional value can be "4", "8", "16", "32" or "64", and the units is KB.	Optional.	
SnapshotSupport	True	Support snapshot or not.	Optional.	
ReplicationSuppo rt	False	Support replication or not.	Optional.	
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.	
NFSClient\IP	-	Backend IP in admin network to use for mounting NFS share.  Mandatory who create a share is snapshot.		
CIFSClient \UserName	-	Backend user name in admin network to use for mounting CIFS share.  Mandatory wh create a share is snapshot.		

Parameter	Defaul t Value	Description	Туре
CIFSClient \UserPassword	-	Backend password in admin network to use for mounting CIFS share.	Mandatory when create a share from snapshot.

#### NOTE

- You can configure multiple RestURL, storage pools and ports in the configuration file and separate them using semicolons(;)
- For details about share configuration information, see the **show share** command in the specific command-line interface (CLI) document
- Snapshot and Replication can't be configured at the same time
- All of the parameter values cannot include XML special character <> & ' "

**Step 3** Restart the Manila service.

# 5 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.

- 5.1 Thin/Thick Property Configuration
- 5.2 SmartDedupe Property Configuration
- 5.3 SmartCompression Property Configuration
- 5.4 SmartCache Property Configuration
- 5.5 SmartPartition Property Configuration
- 5.6 SmartQoS Property Configuration
- 5.7 Create a share on a certain storage pool
- 5.8 Create a share with a certain disk type
- 5.9 SectorSize Configuration
- 5.10 Replication Configuration
- 5.11 Configuring the Owning Controller of a FS
- 5.12 Configuring the NFS Client Permission

## 5.1 Thin/Thick Property Configuration

**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

#### NOTE

- 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.

## 5.2 SmartDedupe Property Configuration

**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.

## 5.3 SmartCompression Property Configuration

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

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 SmartComprssion.

Refer to section 4.1 to configure thin property.

## 5.4 SmartCache Property Configuration

**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

## 5.5 SmartPartition Property Configuration

**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

## 5.6 SmartQoS Property Configuration

#### **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

## **⚠** CAUTION

Protection policies and Restriction policies are mutually exclusive. If they are configured together, shares will fail to be created.

"IOType" is mandatory. If it isn't configured in qos, shares will fail to be created.

## 5.6.1 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

## 5.6.2 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

## 5.6.3 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

## 5.6.4 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

## 5.6.5 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

- **latency**: indicates the maximum LATENCY. The value is an integer larger than **0** and expressed in ms.
- 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

## **5.6.6 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 maxinum 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

## 5.7 Create a share on a certain 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 assign storagepool.
  - Configure a single assign pool root@ubuntu:~# manila type-key target pool type set pool name=StoragePool001
  - Configure multiple assign pools.
    root@ubuntu:~# manila type-key target\_pool\_type set pool\_name="<or>
    StoragePool001 <or> StoragePool002"
- Step 3 Run manila create --name test001 NFS 2 --share-type target\_pool\_type to create a share that supports the preceding properties.

----End

## 5.8 Create a share with a certain 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 multi-tenant 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

## 5.9 SectorSize Configuration

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. If "sectorsize" is configured in both share\_type and xml file, the value of sectorsize in the share\_type will be used. If "sectorsize" is configured in neither share\_type nor xml file, huawei storage backends will provide a default value(64) when creating a new share.

----End

## 5.10 Replication Configuration

This section describes how to configure Replication.

#### **Prerequisites**

**Step 1** Configure two back-ends in "/etc/manila/manila.conf" file for replication.

```
[DEFAULT]
...
enabled_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
driver_handles_share_servers = False
replication_domain = huawei_domain
local_replication = False

[huawei_manila_2]
share_driver = manila.share.drivers.huawei.huawei_nas.HuaweiNasDriver
manila_huawei_conf_file = /etc/manila/manila_huawei_conf_2.xml
driver_handles_share_servers = False
replication_domain = huawei_domain
local_replication = False
```

#### NOTE

- The replication\_domain option is a backend specific StrOpt 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.
- For more details about "manila\_huawei\_conf\_1.xml" and "manila\_huawei\_conf\_2.xml" please refer to chapter 4 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.

NOTE

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">http://docs.openstack.org/developer/manila/devref/share</a> replication.html.

----End

## 5.11 Configuring the Owning Controller of a FS

This section describeds f s how to configure the owning controller of a 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='CTEO.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

## 5.12 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 5-1

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

## 6 Best Practices

6.1 Quick Interconnection with Huawei Storage

## 6.1 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).
  - 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. Check the owner and owning group of the file.

Ensure that the owner and owning group of file /etc/manila/manila\_huawei\_conf.xml is the same as those of file /etc/manila/manila.conf.

```
-rw-r--r-- 1 manila manila 2662 Jul 29 02:13 manila.conf
-rw-r--r-- 1 manila manila 778 Jul 30 02:56 manila_huawei_conf.xml
```

#### 4. 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
driver_handles_share_servers = False
```

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

```
[DEFAULT]
...
enabled backends=huawei
```

#### **Step 4** Restart the Manila service.

#### **Step 5** Check the service status.

```
root@u1404:~# manila service-list
+---+
| Id | Binary | Host
                          | Zone | Status | State |
               1
Updated at
+----+
| 1 | manila-scheduler | u1404
                          | nova | enabled | up
2016-03-15T01:43:48.000000 |
| 2 | manila-data | u1404
                          | nova | enabled | up
2016-03-15T01:43:50.000000 |
| 3 | manila-share | u1404@v3r3 | nova | enabled | up
2016-03-15T01:43:41.000000 |
```

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