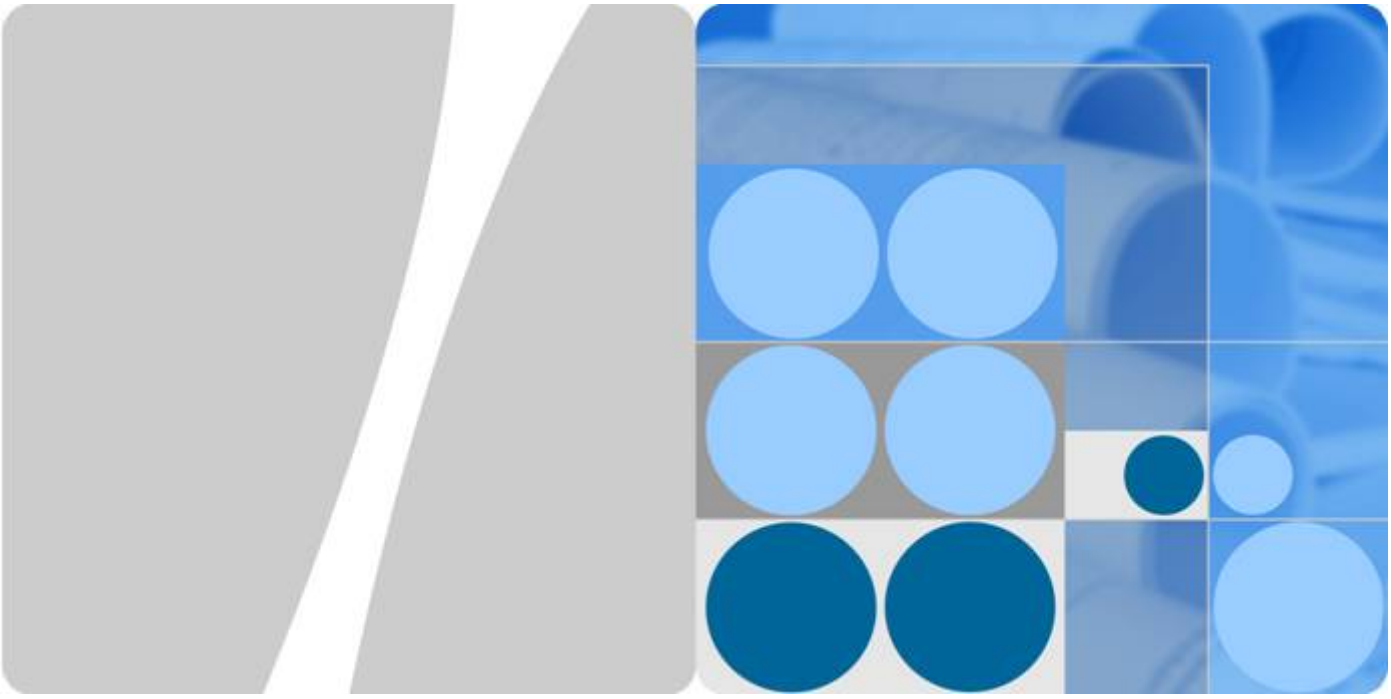

OpenStack Manila Driver

Configuration Guide

Issue 01

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Contents

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. (√：support，x：unsupport)

Huawei storage system	Kilo	Liberty	Mitaka	Newton	Ocata	Pike
OceanStor V3 V300R002C10	√	√	√	√	√	√
OceanStor V3 V300R003C00/C10/C20	√	√	√	√	√	√
OceanStor 2200 V3 V300R005C00	x	x	x	x	x	x
OceanStor 2600 V3 V300R005C00	√	√	√	√	√	√
OceanStor 18500/18800 V300R003C00	√	√	√	√	√	√
OceanStor V3 V300R006C00/C01/C10	√	√	√	√	√	√
OceanStor 2200 V3 V300R006C00/C01/C10	x	x	x	x	x	x

Huawei storage system	Kilo	Liberty	Mitaka	Newton	Ocata	Pike
OceanStor 2600 V3 V300R006C00/C01/C10	√	√	√	√	√	√
OceanStor 18500/18800 V300R006C00/C01/C10	√	√	√	√	√	√
OceanStor V500R007C00	√	√	√	√	√	√

Table 2-2 Version mappings among the Manila Driver, Features and OpenStack. (√：support，x：unsupport)

特性	Kilo	Liberty	Mitaka	Newton	Ocata	Pike
Create Share	√	√	√	√	√	√
Delete Share	√	√	√	√	√	√
Allow access	√	√	√	√	√	√
Deny access	√	√	√	√	√	√
Create Snapshot	√	√	√	√	√	√
Delete Snapshot	√	√	√	√	√	√
Manage/Unmanage Share	x	√	√	√	√	√
Extend Share	x	√	√	√	√	√
Shrink Share	x	√	√	√	√	√
SmartCompression	x	√	√	√	√	√
SmartDedupe	x	√	√	√	√	√
SmartCache	x	√	√	√	√	√
SmartThin/Thick	x	√	√	√	√	√
SmartPartition	x	√	√	√	√	√
SmartQoS	x	x	√	√	√	√
Multi-tenancy	x	x	√	√	√	√
Ensure Share	x	x	√	√	√	√

特性	Kilo	Liberty	Mitaka	Newton	Ocata	Pike
Create Share from Snapshot	x	x	√	√	√	√
Manage/Unmanage Snapshot	x	x	x	√	√	√
Create a share on a certain storage pool	x	x	√	√	√	√
Create a share with a certain disk type	x	x	√	√	√	√
SectorSize	x	x	√	√	√	√
Replication	x	x	x	√	√	√

Table 2-3 Version mappings among the Manila Driver, Features and Huawei storage system. (√：support，x：unsupport)

特性	OceanStor V3		OceanStor 18500/18800	OceanStor V5
	V3R2	V3R3/V3R6	V3R3/V3R6	V5R7
Create Share	√	√	√	√
Delete Share	√	√	√	√
Allow access	√	√	√	√
Deny access	√	√	√	√
Create Snapshot	√	√	√	√
Delete Snapshot	√	√	√	√
Manage Share	√	√	√	√
Extend Share	√	√	√	√
Shrink Share	√	√	√	√
SmartCompression	√	√	√	√
SmartDedupe	√	√	√	√
SmartCache	√	√	√	√
SmartThin/Thick	√	√	√	√
SmartPartition	√	√	√	√
SmartQoS	x	√	√	√

特性	OceanStor V3		OceanStor 18500/18800	OceanStor V5
Multi-tenancy	√	√	√	√
Ensure Share	√	√	√	√
Create Share from Snapshot	√	√	√	√
Manage/Unmanage Snapshot	√	√	√	√
Create a share on a certain storage pool	√	√	√	√
Create a share with a certain disk type	√	√	√	√
SectorSize	√	√	√	√
Replication	√	√	√	√

3 Manila Driver Installation&deployment

3.1 Obtain 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.

----End

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 Drver, the default path is /usr/lib/python2.7/dist-packages/manila/share/drivers/huawei.

CAUTION

On my host, the version of Python is 2.7, if other version is used, make corresponding changes to the Driver path.

Step 2 Copy OpenStack Manila Driver to Manila Driver installation directory, the default directory refer to step 1.

Step 3 Refer to chapter 4 and 5 to do the configuration.

Step 4 After configuration, restart Manila-Share service:

```
service manila-share restart
```

Step 5 Check the status of services by inputting manila service-list, if the "State" status of Manila-Share is up, that means Manila-Share is OK.

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

Except the above method, check /var/log/manila/manila-share.log to confirm whether Manila-Share is OK.

----End

3.3 RedHat 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 my host, the version of Python is 2.7, if other version is used, make corresponding changes to the Driver path.

Step 2 Copy OpenStack Manila Driver to Manila Driver installation directory, the default directory refer to step 1.

Step 3 Refer to chapter 4 and 5 to do the configuration.

Step 4 After configuration, restart Manila-Share service:

```
systemctl restart openstack-manila-volume.service
```

Step 5 Check the status of services by inputting manila service-list, if the "State" status of Manila-Share is up, that means Manila-Share is OK.

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

Except the above method, check /var/log/manila/manila-share.log to confirm whether Manila-Share is OK.

----End

4 Manila Driver Basis Properties Configuration

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.
- The storage pool that driver will use, must make sure that it already exists in Huawei storage, otherwise please create it manually, and the usage 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>
    <Storage>
      <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>xxxxxxxxx</UserName>
      <UserPassword>xxxxxxxxx</UserPassword>
      <SnapshotSupport>True</SnapshotSupport>
      <ReplicationSupport>False</ReplicationSupport>
    </Storage>
    <Filesystem>
      <StoragePool>xxxxxxxxx;xxxxxxxxx</StoragePool>
      <SectorSize>64</SectorSize>
      <WaitInterval>3</WaitInterval>
      <Timeout>60</Timeout>
```

```
    <NFSClient>
      <IP>x.x.x.x</IP>
    </NFSClient>
    <CIFSClient>
      <UserName>xxxxxxxxx</UserName>
      <UserPassword>xxxxxxxxx</UserPassword>
    </CIFSClient>
  </Filesystem>
</Config>
```

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

Table 4-1 Parameters in the configuration file

Parameter	Default Value	Description	Type
Product	V3	Storage product model.	Mandatory.
LogicalPortIP	-	Logical port IP address.	Mandatory when not in multi-tenancy mode.
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.
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.
ReplicationSupport	False	Support replication or not.	Optional.
WaitInterval	3	Interval for querying file system status. The unit is second.	Optional.

Parameter	Default Value	Description	Type
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 when create a share from snapshot.
CIFSClient \UserName	-	Backend user name in admin network to use for mounting CIFS share.	Mandatory when create a share from snapshot.
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.

----End

5 Manila Driver Advanced Properties Configuration

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

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 **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 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 maxinum 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

[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
```

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 .

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 **http://docs.openstack.org/developer/manila/devref/share_replication.html**.

----End

5.11 Configuring the Owning Controller of a LUN

This section describedsf s how to configure the owning controller of a LUN.

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

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

----End

6 Best Practices

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).

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.

```
<?xml version='1.0' encoding='UTF-8'?>
<Config>
  <Storage>
    <Product>V3</Product>
    <LogicalPortIP>x.x.x.x</LogicalPortIP>
    <RestURL>https://x.x.x.x:8088/deviceManager/rest/</RestURL>
    <UserName>xxx</UserName>
    <UserPassword>xxx</UserPassword>
    <SnapshotSupport>True</SnapshotSupport>
  </Storage>
  <Filesystem>
    <StoragePool>xxx</StoragePool>
  </Filesystem>
</Config>
```

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 back-end:

   ```
   [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 |
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.

----End