INSTALLATION RUNBOOK FOR Huawei SDN controller

Product Name:	Huawei AC Controller
Driver Version:	V200R001
MOS Version:	7.0
OpenStack Version:	Kilo
Product Type:	SDN controller

Document History

Version	Revision Date	Description
1.0	09-08-2016	Initial Version
1.1	27-08-2016	Amend and change template

1. Introduction

This document serves as a detailed Deployment Guide for Mirantis Openstack with the Huawei software-defined network (SDN) controller. The Huawei SDN controller offers a SDN solution that can be used by Mirantis Openstack for implementing an Openstack networking service.

This document describes reference architecture along with detailed installation steps for integrating Huawei SDN controller with Mirantis Openstack. In addition, the document describes in detail the tests that need to be run to verify the integrated setup.

1.1 Target Audience

This guide is intended for Openstack Administrators who are deploying Mirantis Openstack using Openstack Networking (neutron) with Huawei SDN controller. The Openstack Administrator should be familiar with the Openstack compute and networking services.The administrator should also be familiar with Huawei SDN controller capabilities and configuration as documented in the Huawei SDN controller User’s guide.

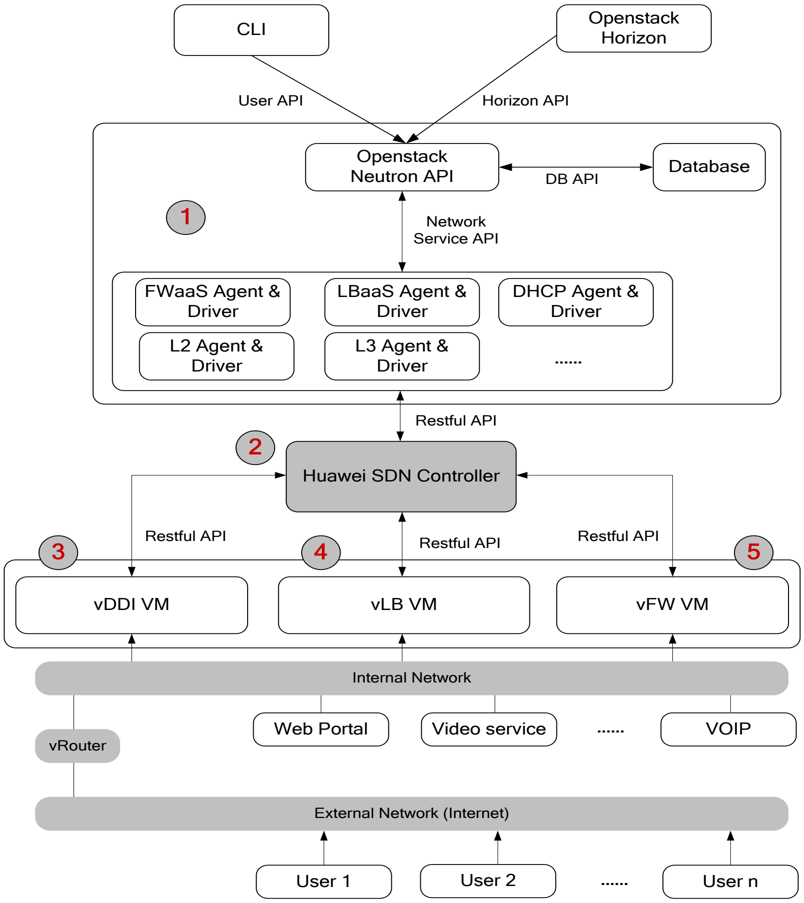
2. Product Overview

The AC-DCN system is Huawei's new-generation SDN controller oriented to enterprises and carriers' data centers. The AC-DCN functions as a control plane of networks, automatically delivering network configurations and services.

Based on Huawei main solutions such as CloudVPN and Service Chain, Huawei cooperates with top third parties to develop the innovative integration solution, meeting new requirements of customers.

3. Joint Reference Architecture

0 Modular interconnection of the OpenStack cloud platform, AC-DCN, and VNF in a basic solution



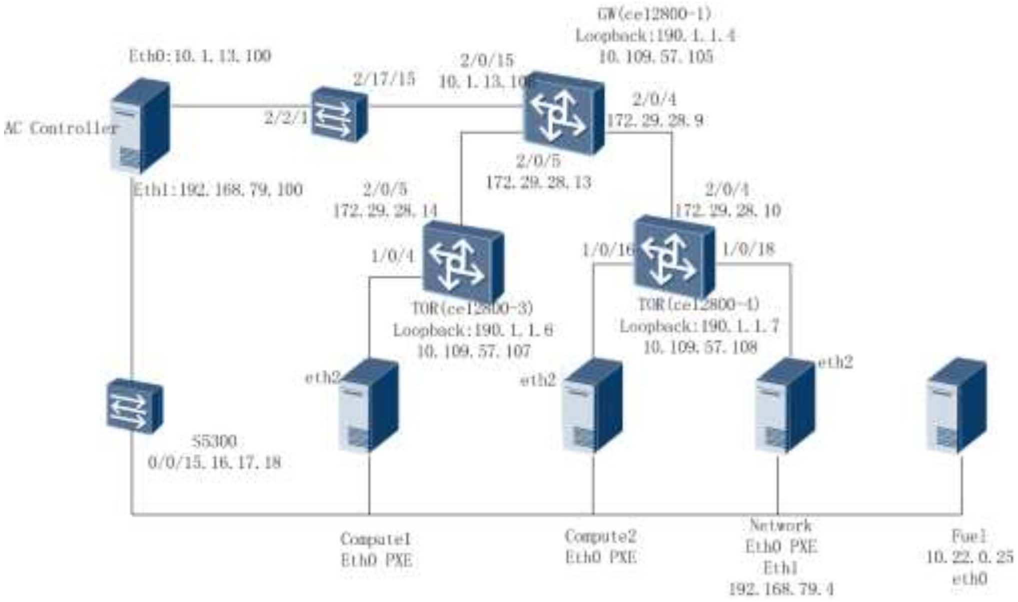
- (1) Neutron component of the OpenStack platform: The plug-ins of the Neutron component, such as firewall as a service (FWaaS), load balancer as a service (LBaaS), Dynamic Host Configuration Protocol (DHCP) Agent, and L2/L3 Agent, deliver services to the SDN controller through the southbound RESTful APIs.
- (2) Huawei SDN controller: The SDN controller communicates with the OpenStack platform through the northbound RESTful APIs and communicates with virtualized network functions (VNF), such as firewalls (FWs), load balancers (LBs), routers, and switches over the RESTful APIs, NETCONF, and OpenFlow.
- (3) VNF component DHCP, DNS, and IPAM
- (4) VNF component LB

- (5) VNF component FW

4. Physical and Logical Network Topology

0 shows the topology of the physical environment and configuration of server ports.

0 Topology of the physical environment



NOTE

- The S5300 switch bridges the management network and preboot execution environment (PXE) network. Communication between OpenStack and Agile Controller nodes is managed by the switch.
- Three CE12804 switches are used. CE12804-1 functions as a gateway (GW) switch; CE12804-3 and CE12804-4 function as Top of Rack (TOR) switches. Each TOR switch is connected to a compute node, and the controller and network nodes are connected to CE12804-4. Fuel nodes are not connected to the service network.
- The management network uses IP addresses that are on the network segment 192.168.79.0/24, the same as the floating IP address. The GW (IP address 192.168.79.1) is located on the S5300 switch. The three CE12804 switches communicate using routing protocols and they communicate with the AC-DCN at Layer 3.

5. Installation and Configuration

5.1 Environment Preparation

0 lists the physical devices required for the certification test.

Physical devices required for the certification test

Device Name	Quantity	Remark
Huawei RH1288 rack server	4	Functions as the controller node, network node, and compute nodes.
Huawei S5300 switch	1	Connects to the SDN controller, controller node, network node, and compute nodes.
Huawei CE12800 switch	3	Functions as the GW node and TOR nodes.
Huawei E9000 blade server	1	Runs the SDN controller and Mirantis cloud platform.

0 lists the software versions required for the certification test.

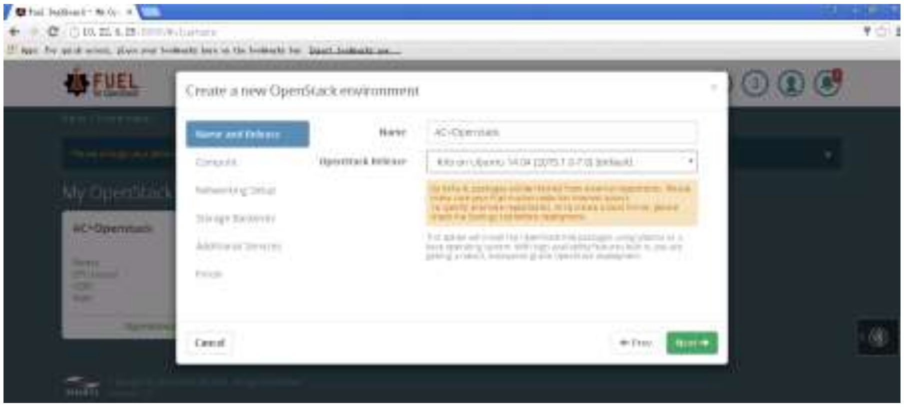
Software versions required for the certification test

Software Name	Version	Quantity	Remark
Ubuntu linux	Ubuntu14.04	1	Basic OS
Mirantis OpenStack	Mirantis OpenStack Kilo	1	Mirantis cloudplatform
AC-DCN Controller	V200R001	1	SDN controller software
AC-DCN plug-ins	B717	1	Controller plug-ins
Tempest test toolkit	OpenStack Kilo	1	Openstack test platform

5.2 MOS Installation

The cloud platform is deployed using PackStack. Since the lab environment cannot be connected to the Internet, the deployment is implemented using the installation packages provided by Mirantis engineers. The deployment procedure is completed in offline environment. All nodes in the test are located on the network 192.168.79.0/24, which is used as an external network and management network. The enp1s0f0 network adapter is bridged to the network. The enp1s0f1 network adapter is located in a VLAN (ID: 200 to 300) and used as a tenant network.

- Create a new OpenStack environment and select the default Ubuntu14.04 OS.

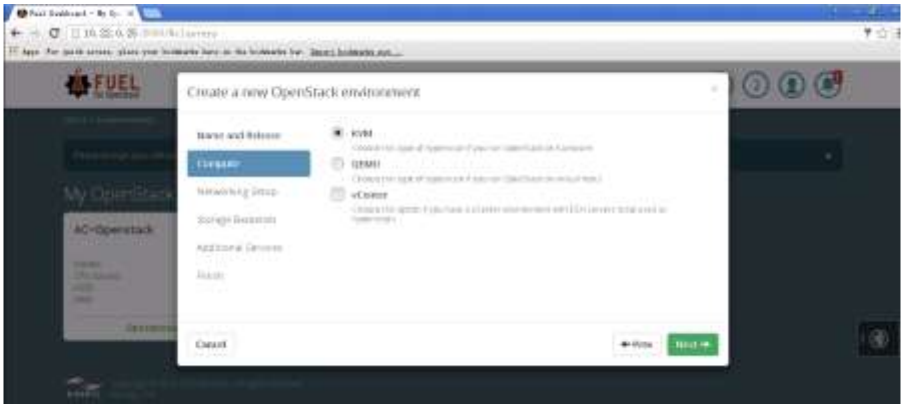


Create a new OpenStack environment

Name: AC-Openstack

OpenStack Release: Kilo on Ubuntu 14.04 (2015.1.0-7.0) (default)

- Select **KVM** since the compute nodes are physical servers.



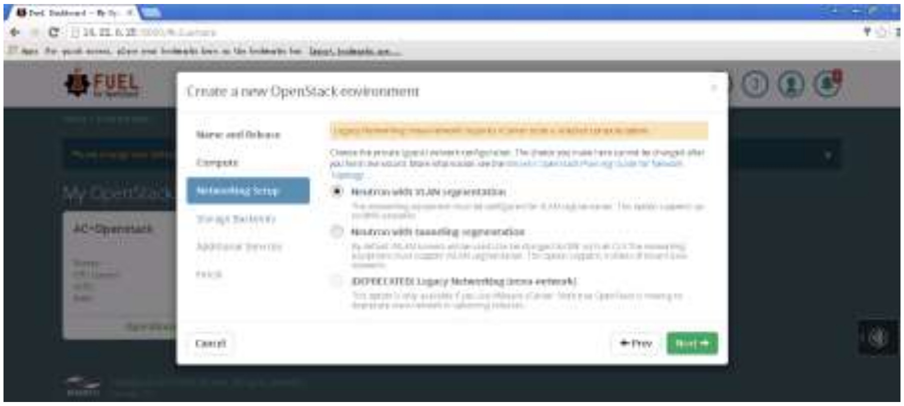
Create a new OpenStack environment

● KVM

○ QEMU

□ vCenter

- Select **Neutron with VLAN segmentation**.



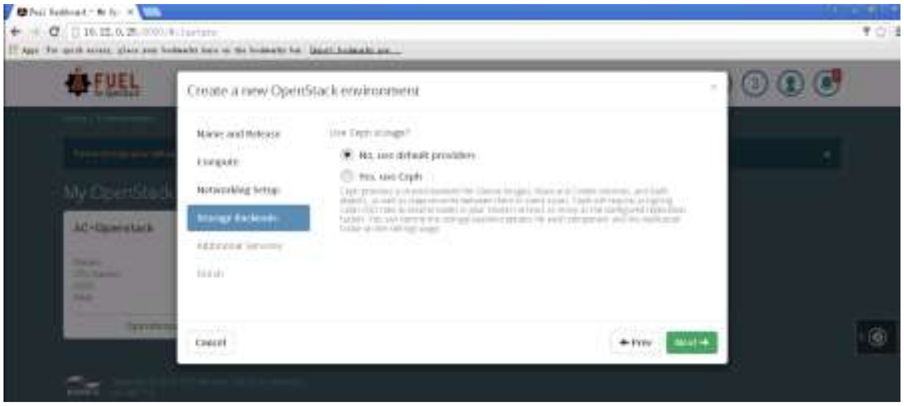
Create a new OpenStack environment

● Neutron with VLAN segmentation

○ Neutron with tunneling segmentation

○ (DEPRECATED) Legacy Networking (nova-network)

- Select **No, use default providers** since there is not a Ceph storage.



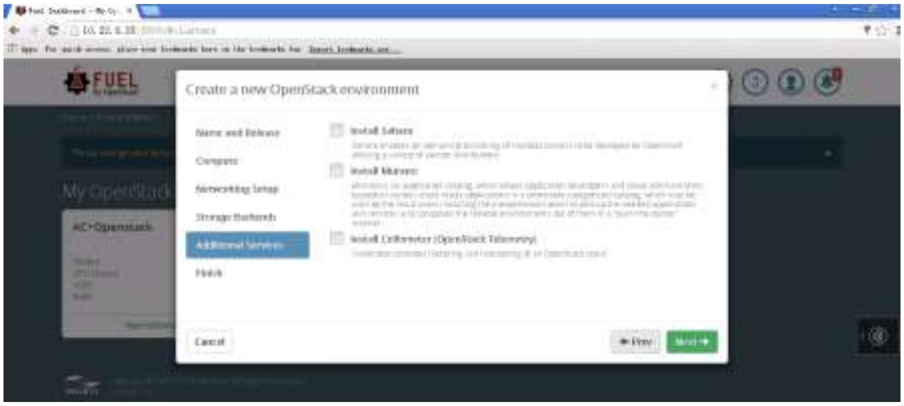
Create a new OpenStack environment

Use Ceph storage?

● No, use default providers

○ Yes, use Ceph

- Deselect additional services.



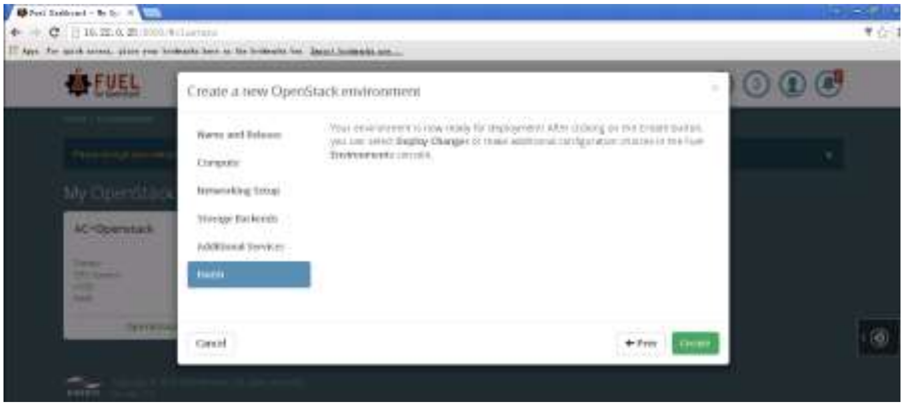
Create a new OpenStack environment

□ Install Sahara

□ Install Murano

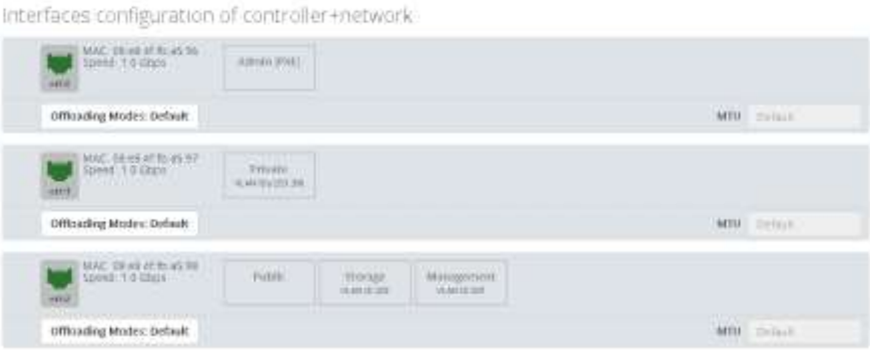
□ Install Ceilometer (OpenStack Telemetry)

- Click **Create**.



Your environment is now ready for deployment! After clicking on the Create button, you can select **Deploy Changes** or make additional configuration changes in the Fuel **Environments** console.

- Plan network adapters.



Interfaces configuration of controller+network

MAC: [illegible]
Speed: 1.0 Gbps

Admin (PXE)

Offloading Modes: Default   MTU Default

MAC: [illegible]
Speed: 1.0 Gbps

Private
VLAN IDs: [illegible]

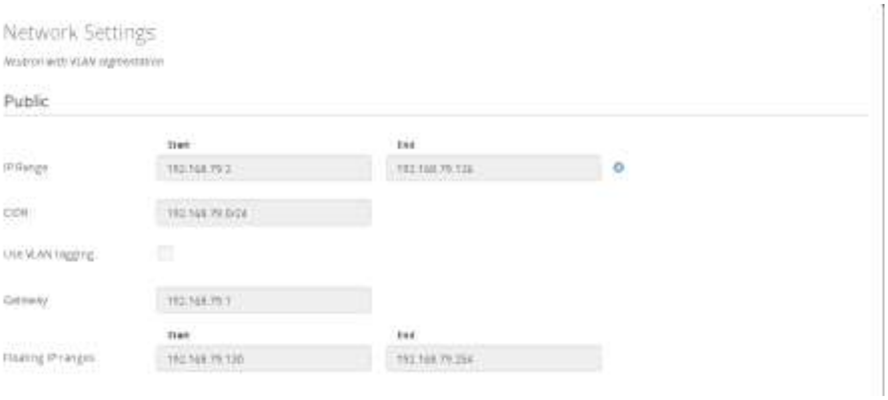
Offloading Modes: Default   MTU Default

MAC: [illegible]
Speed: 1.0 Gbps

Public   Storage [illegible]   Management [illegible]

Offloading Modes: Default   MTU Default

- Configure networks.

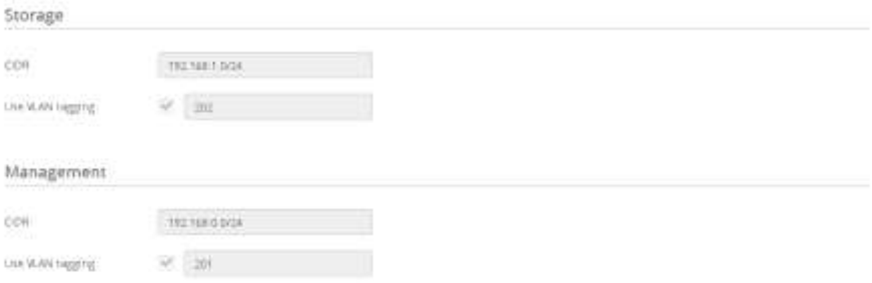


Network Settings

Neutron with VLAN segmentation

Public

	Start	End
IP Range	192.168.79.2	192.168.79.126
CIDR	192.168.79.0/24	
Use VLAN tagging	☐	
Gateway	192.168.79.1	
Floating IP ranges	192.168.79.130	192.168.79.254



Storage

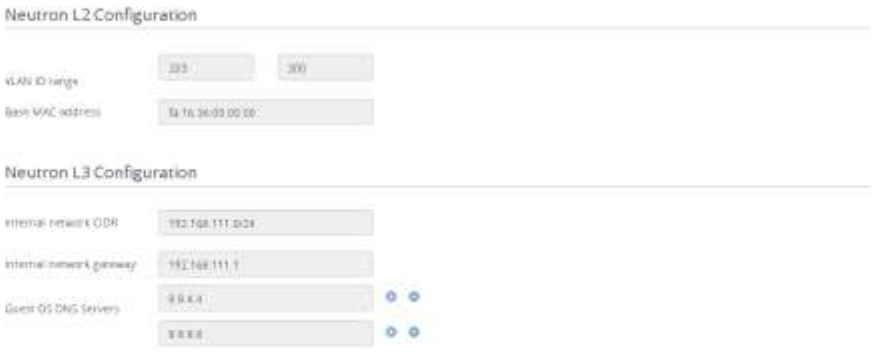
CIDR: 192.168.1.0/24

Use VLAN tagging ☑ 202

Management

CIDR: 192.168.0.0/24

Use VLAN tagging ☑ 201



Neutron L2 Configuration

VLAN ID range: 203 300

Base MAC address: fa:16:3e:00:00:00

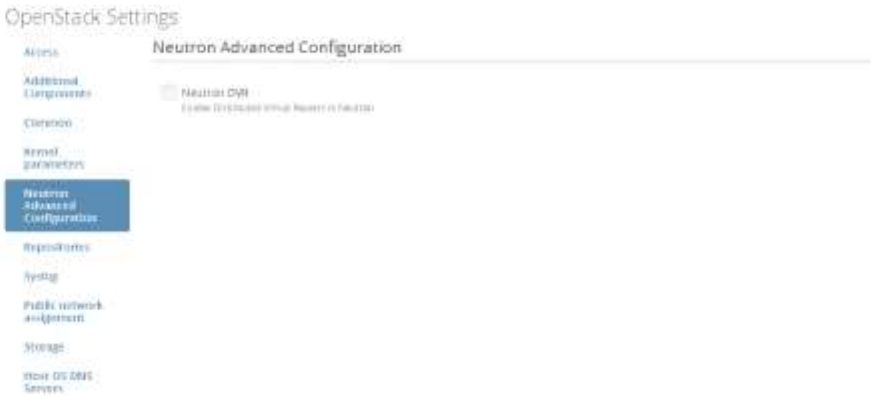
Neutron L3 Configuration

Internal network CIDR: 192.168.111.0/24

Internal network gateway: 192.168.111.1

Guest OS DNS Servers: 8.8.4.4 / 8.8.8.8

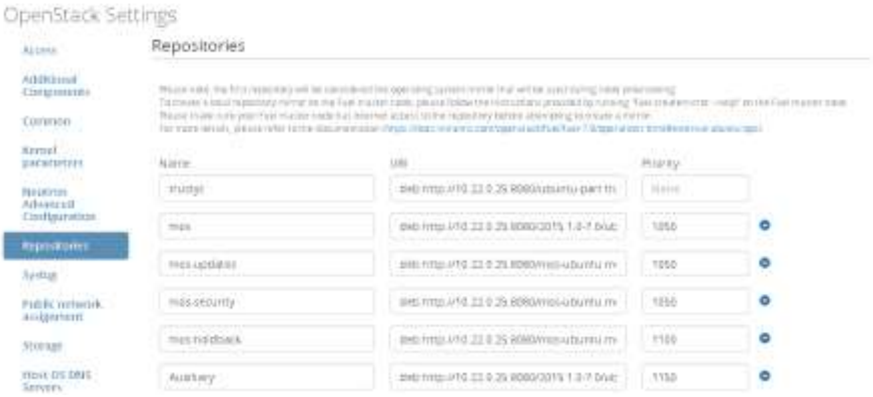
- Deselect **Neutron DVR**.



Neutron Advanced Configuration

□ Neutron DVR
Enable Distributed Virtual Routers in Neutron

- Install repositories.

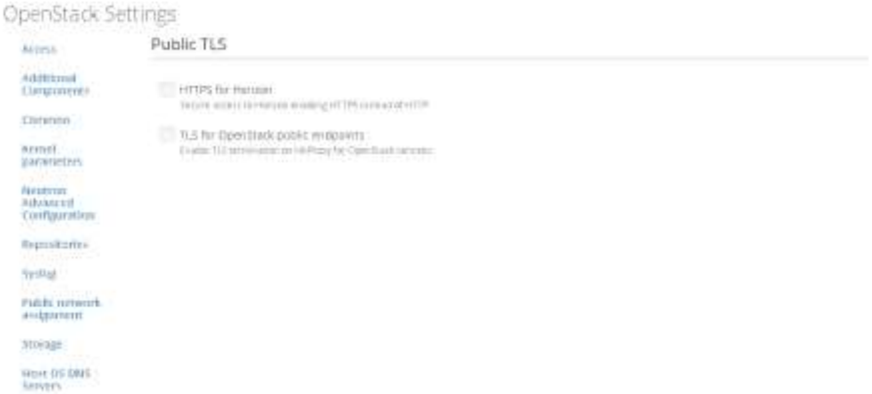


Repositories

Please note, the first repository will be considered the operating system mirror that will be used during node provisioning.
To create a local repository mirror on the Fuel master node, please follow the instructions provided by running "fuel-createmirror --help" on the Fuel master node.
Please make sure your Fuel master node has Internet access to the repository before attempting to create a mirror.
For more details, please refer to the documentation ([illegible]).

Name	URI	Priority
ubuntu	deb http://10.22.0.25:8080/ubuntu-part tr	None
mos	deb http://10.22.0.25:8080/2015.1.0-7.0/ub	1050
mos-updates	deb http://10.22.0.25:8080/mos-ubuntu m	1050
mos-security	deb http://10.22.0.25:8080/mos-ubuntu m	1050
mos-holdback	deb http://10.22.0.25:8080/mos-ubuntu m	1100
Auxiliary	deb http://10.22.0.25:8080/2015.1.0-7.0/ub	1150

- Deselect **HTTPS for Horizon and TLS for OpenStack public endpoints**.

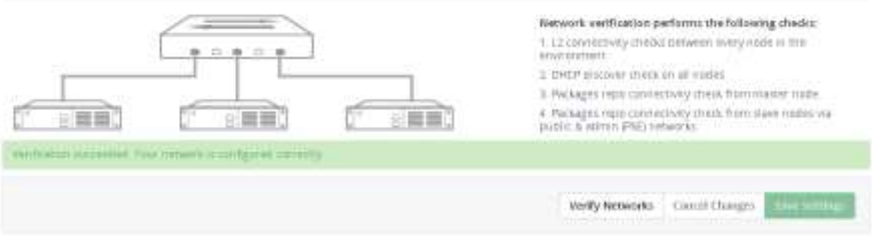


Public TLS

☐ HTTPS for Horizon
Secure access to Horizon enabling HTTPS instead of HTTP

☐ TLS for OpenStack public endpoints
Enable TLS termination on HAProxy for OpenStack services

- Perform network verification.

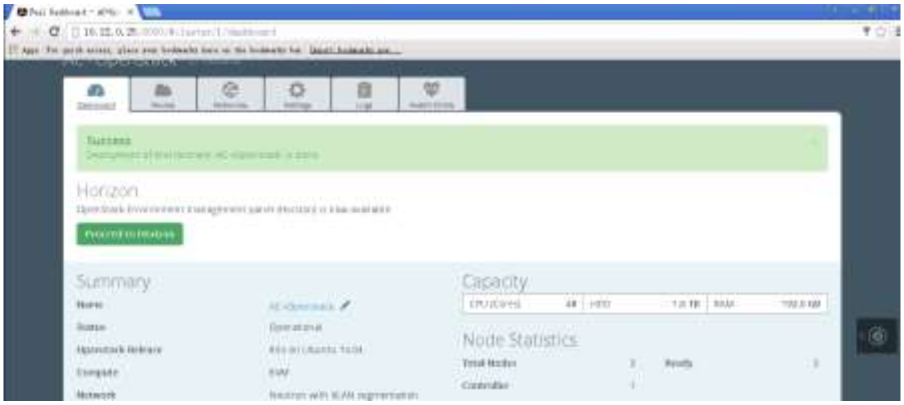


Network verification performs the following checks:

1. L2 connectivity checks between every node in the environment.
2. DHCP discover check on all nodes
3. Packages repo connectivity check from master node
4. Packages repo connectivity check from slave nodes via public & admin (PXE) networks

Verification succeeded. Your network is configured correctly.

- Go back the Dashboard page, and click **Deploy Changes** to install the OpenStack environment. After the environment is installed, the following page is displayed. Click **Proceed to Horizon** to log in to the OpenStack.



Success
Deployment of environment AC-OpenStack is done

Horizon
OpenStack Environment management panel (Horizon) is now available

Summary

Name	AC-OpenStack
Status	Operational
OpenStack Release	[illegible] on Ubuntu 14.04
Compute	KVM
Network	Neutron with VLAN segmentation

Capacity

CPU (Cores)	48	HDD	1.6 TB	RAM	[illegible] GB

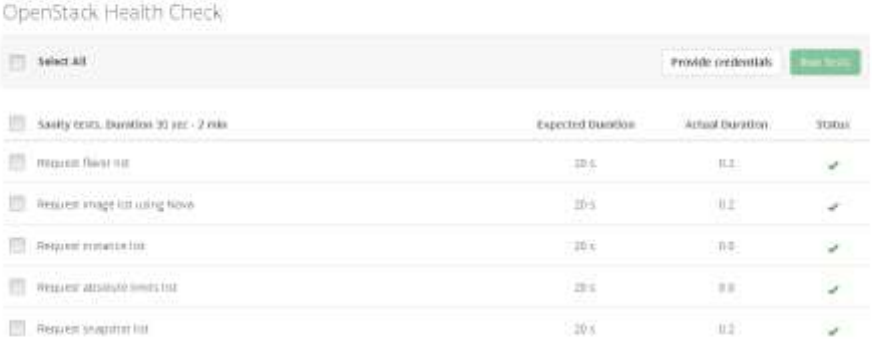
Node Statistics

Total Nodes	3	Ready	3
Controller	1		

5.2.1 Health Check Results

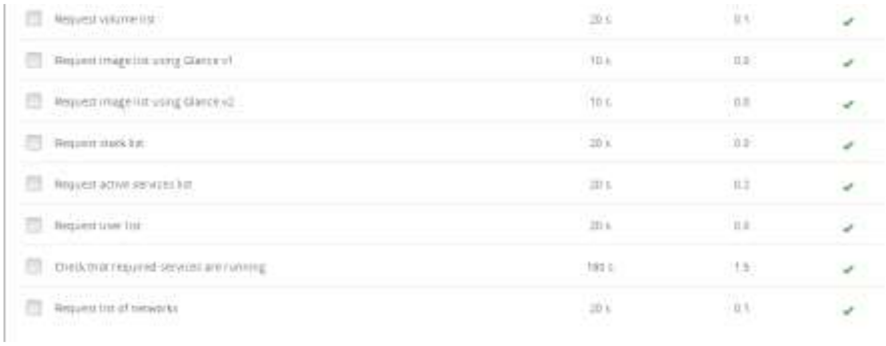
After OpenStack is deployed, perform health monitoring on the system. The monitoring result shows that all system required components function properly. Since the system is an isolated intranet lab environment without any cinder component installed, check items related to Internet test and storage test are in failure status or not performed.

OpenStack health monitoring

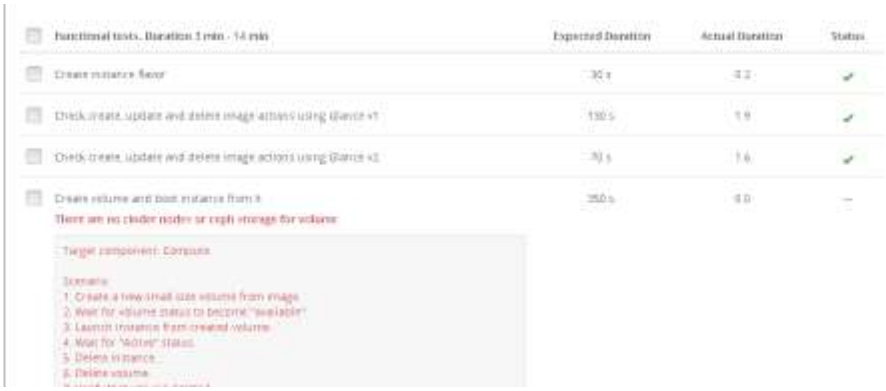

OpenStack Health Check

□ Select All

□ Sanity tests. Duration 30 sec - 2 min	Expected Duration	Actual Duration	Status
□ Request flavor list	20 s.	0.2	✓
□ Request image list using Nova	20 s.	0.2	✓
□ Request instance list	20 s.	0.0	✓
□ Request absolute limits list	20 s.	0.0	✓
□ Request snapshot list	20 s.	0.2	✓



□	Request volume list	20 s	0.1	✓
□	Request image list using Glance v1	10 s	0.3	✓
□	Request image list using Glance v2	10 s	0.8	✓
□	Request stack list	20 s	0.3	✓
□	Request active services list	20 s	0.2	✓
□	Request user list	20 s	0.8	✓
□	Check that required services are running	180 s	1.5	✓
□	Request list of networks	20 s	0.1	✓

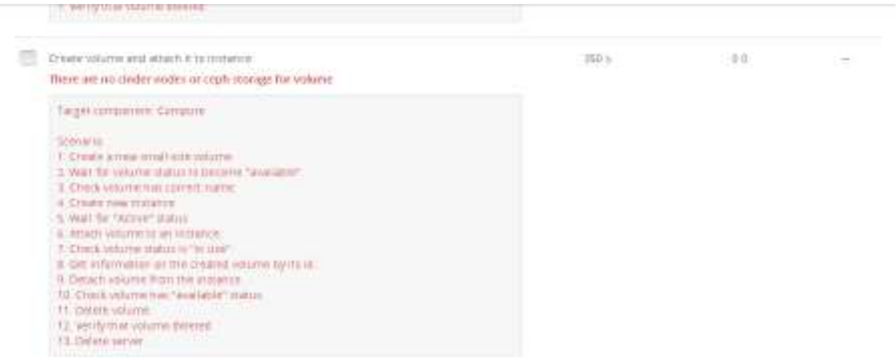


□	**Functional tests. Duration 3 min - 14 min**	Expected Duration	Actual Duration	Status
□	Create instance flavor	30 s	0.2	✓
□	Check create, update and delete image actions using Glance v1	130 s	1.9	✓
□	Check create, update and delete image actions using Glance v2	70 s	1.6	✓
□	Create volume and boot instance from it	350 s	0.0	—

There are no cinder nodes or ceph storage for volume

Target component: Compute

Scenario:
1. Create a new small size volume from image.
2. Wait for volume status to become "available".
3. Launch instance from created volume.
4. Wait for "Active" status.
5. Delete instance.
6. Delete volume.



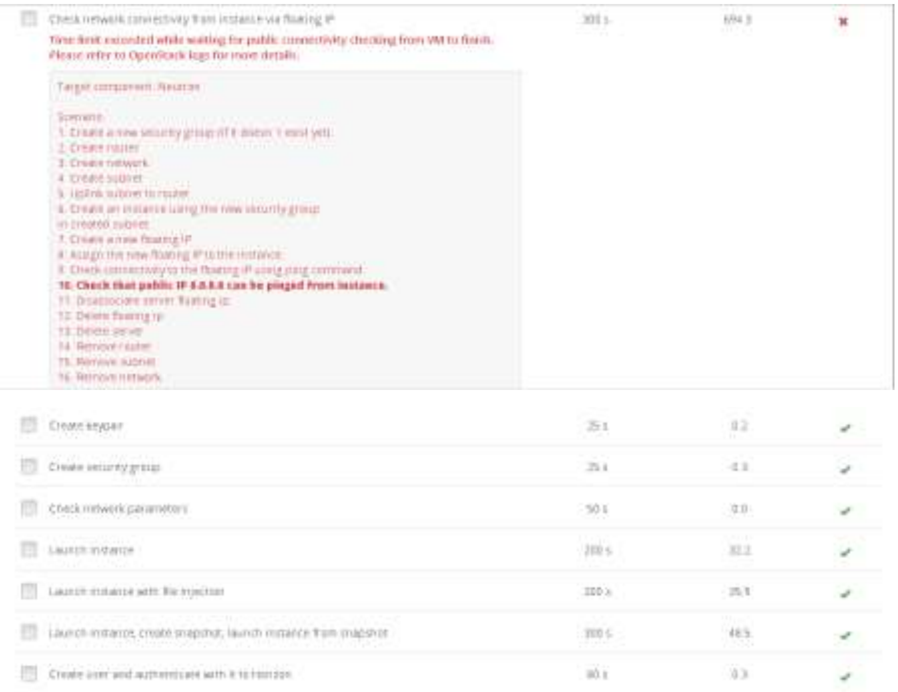
7. Verify that volume deleted

□	Create volume and attach it to instance	350 s	0.0	—

There are no cinder nodes or ceph storage for volume

Target component: Compute

Scenario:
1. Create a new small-size volume.
2. Wait for volume status to become "available".
3. Check volume has correct name.
4. Create new instance.
5. Wait for "Active" status.
6. Attach volume to an instance.
7. Check volume status is "in use".
8. Get information on the created volume by its id.
9. Detach volume from the instance.
10. Check volume has "available" status.
11. Delete volume.
12. Verify that volume deleted
13. Delete server

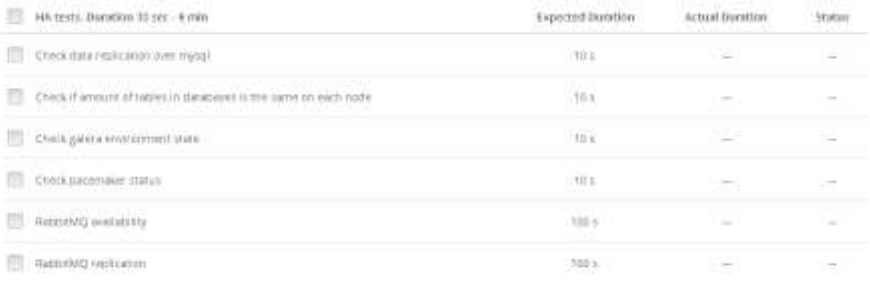


□	Check network connectivity from instance via floating IP Time limit exceeded while waiting for public connectivity checking from VM to finish. Please refer to OpenStack logs for more details.	300 s	694.3	✗

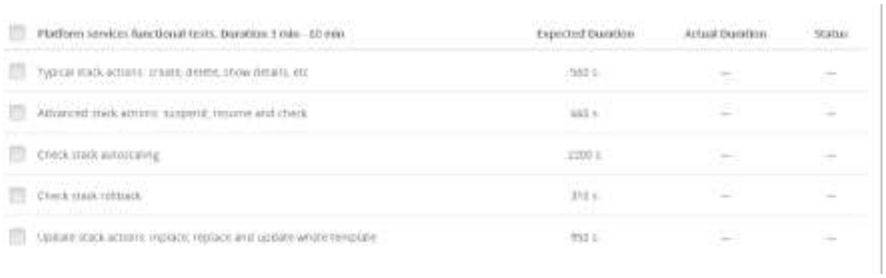
Target component: Neutron

Scenario:
1. Create a new security group (if it doesn't exist yet).
2. Create router
3. Create network
4. Create subnet
5. Uplink subnet to router.
6. Create an instance using the new security group
in created subnet.
7. Create a new floating IP
8. Assign the new floating IP to the instance.
9. Check connectivity to the floating IP using ping command.
10. Check that public IP 8.8.8.8 can be pinged from instance.
11. Disassociate server floating ip.
12. Delete floating ip
13. Delete server.
14. Remove router.
15. Remove subnet
16. Remove network.

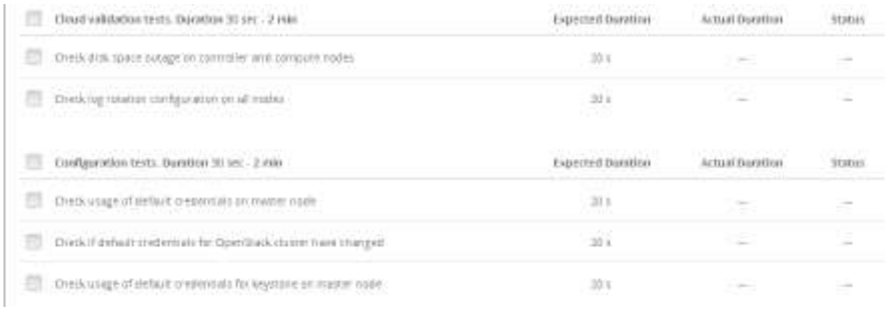
□	Create keypair	25 s	0.2	✓
□	Create security group	25 s	0.3	✓
□	Check network parameters	50 s	0.0	✓
□	Launch instance	200 s	32.2	✓
□	Launch instance with file injection	200 s	35.5	✓
□	Launch instance, create snapshot, launch instance from snapshot	300 s	48.5	✓
□	Create user and authenticate with it to Horizon	80 s	0.3	✓



□	HA tests. Duration 30 sec - 8 min	Expected Duration	Actual Duration	Status
□	Check data replication over mysql	10 s	—	—
□	Check if amount of tables in databases is the same on each node	10 s	—	—
□	Check galera environment state	10 s	—	—
□	Check pacemaker status	10 s	—	—
□	RabbitMQ availability	100 s	—	—
□	RabbitMQ replication	100 s	—	—



□	Platform services functional tests. Duration 3 min - 60 min	Expected Duration	Actual Duration	Status
□	Typical stack actions: create, delete, show details, etc	560 s	—	—
□	Advanced stack actions: suspend, resume and check	660 s	—	—
□	Check stack autoscaling	2200 s	—	—
□	Check stack rollback	370 s	—	—
□	Update stack actions: inplace, replace and update whole template	950 s	—	—



□ Cloud validation tests. Duration 30 sec - 2 min	Expected Duration	Actual Duration	Status
□ Check disk space outage on controller and compute nodes	30 s	—	—
□ Check log rotation configuration on all nodes	30 s	—	—

□ Configuration tests. Duration 30 sec - 2 min	Expected Duration	Actual Duration	Status
□ Check usage of default credentials on master node	30 s	—	—
□ Check if default credentials for OpenStack cluster have changed	30 s	—	—
□ Check usage of default credentials for keystone on master node	30 s	—	—

5.3 Huawei AC controller driver and plug-ins Installation Procedure

The AC-DCN system is Huawei's new-generation SDN controller oriented to enterprises and carriers' data centers. The AC-DCN functions as a control plane of networks, automatically delivering network configurations and services.

Obtaining Software Packages

0 lists the software packages that are required for the Agile Controller installation. You can get these packages from Huawei support engineers.

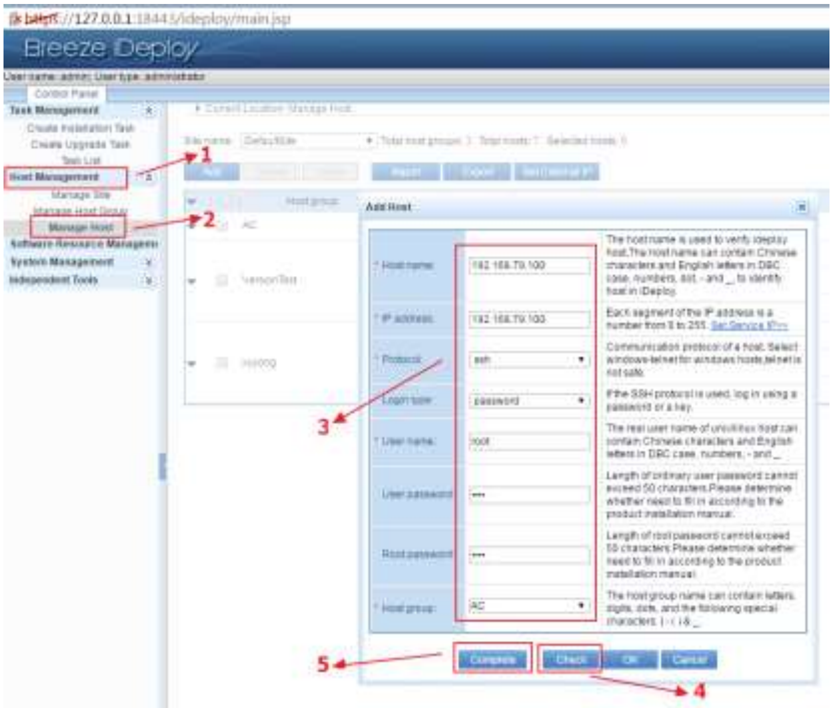
Plug-in software packages

Software Name	Description	Download Path
hw_plugin_ac.zip	Plug-in packages include: ● Plug-in platform package: provides a plug-in management platform. ● Plug-in for OpenStack and AC-DCN interconnection: provides REST APIs. ● Local API: This API can be used by third-party applications to invoke the AC API.	The plug-in packages are obtained from the **Software** folder of the AC-DCN's test version on the VMP.

hw_plugin_openstack.zip	- **tools** folder: OpenStack plug-in package - **neutron_fwaas** folder: firewall plug-in - **neutron_vpnaas** folder: VPN plug-in - **etc** folder - **neutron** folder	

Uploading Software Packages

Start the iDeploy installation tool of the AC-DCN, and add the server where the AC-DCN will be installed to the host management list of iDeploy. You can get iDeploy from this url: http://support.huawei.com/carrier/navi#col=tool/3rdtool&path=CONTOOL-29-8/CONTOOL-00009664/CONTOOL-00028294/CONTOOL-00029249/CONTOOL-0002458132



Add Host

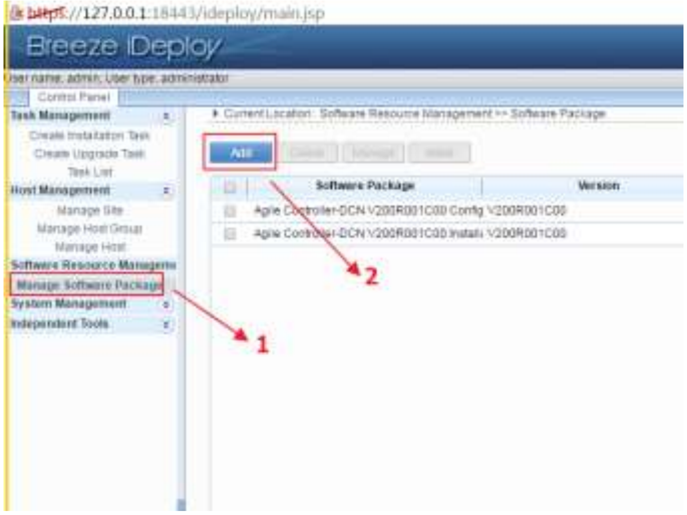
* Host name:	192.168.79.100	The host name is used to verify ideploy host.The host name can contain Chinese characters and English letters in DBC case, numbers, dot, - and _ to identify host in iDeploy.
* IP address:	192.168.79.100	Each segment of the IP address is a number from 0 to 255. Set Service IP>>
* Protocol:	ssh	Communication protocol of a host. Select windows-telnet for windows hosts,telnet is not safe.
Logon type:	password	If the SSH protocol is used, log in using a password or a key.
* User name:	root	The real user name of unix/linux host can contain Chinese characters and English letters in DBC case, numbers, - and _
User password:	****	Length of ordinary user password cannot exceed 50 characters.Please determine whether need to fill in according to the product installation manual.
Root password:	****	Length of root password cannot exceed 50 characters.Please determine whether need to fill in according to the product installation manual.
* Host group:	AC	The host group name can contain letters, digits, dots, and the following special characters: ( ) - { } & _

Before using iDeploy to install the plug-ins of the AC-DCN, load the software packages to iDeploy.

- Prerequisites

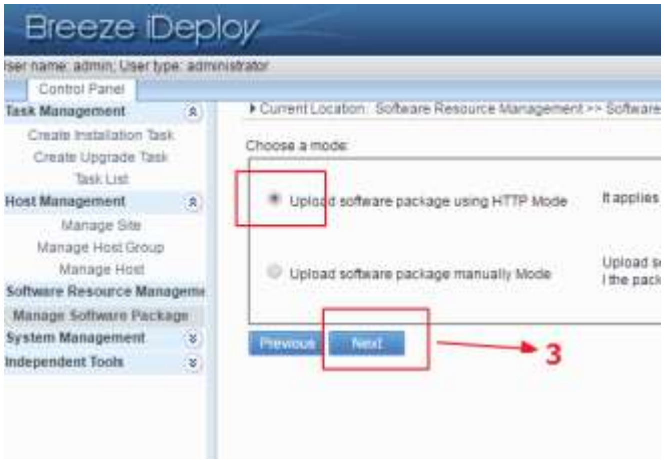
  - iDeploy has been installed.
  - The plug-in packages of the AC-DCN have been obtained.
    - The software package is named **hw_plugin_ac.zip**.
    - For details about how to obtain the software packages, see section 0.
    - The software package is stored in **Software\hw_plugin_ac.zip**.
- Procedure

  Open the IE browser, enter the iDeploy URL http://***IP***:***Port***/ideploy in the address box, enter the user name and password, and press **Enter** to log in to the iDeploy system.
- Precautions
  - IP: Set this parameter to the host IP address that the iDeploy server uses to provide services externally. For a local PC, enter http://**localhost:*Port***/ideploy.
  - Port: Set this parameter to the port number that the iDeploy server uses to provide web access services. By default, this port is set to **18080**.
  - The default user name of the iDeploy system is **admin** and the default password is **Admin123**. Log in to a client to change the password.
    - Choose **Control Panel > Software Resource Management > Manage Software Package**.

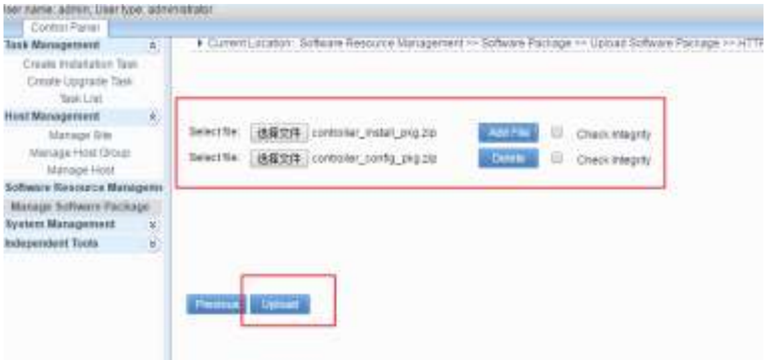


Software Package	Version
Agile Controller-DCN V200R001C00 Config	V200R001C00
Agile Controller-DCN V200R001C00 Install	V200R001C00

    - Click **Add**.
    - On the displayed page, select **Upload software package using HTTP Mode**.



- Click **Next** to upload the software packages.

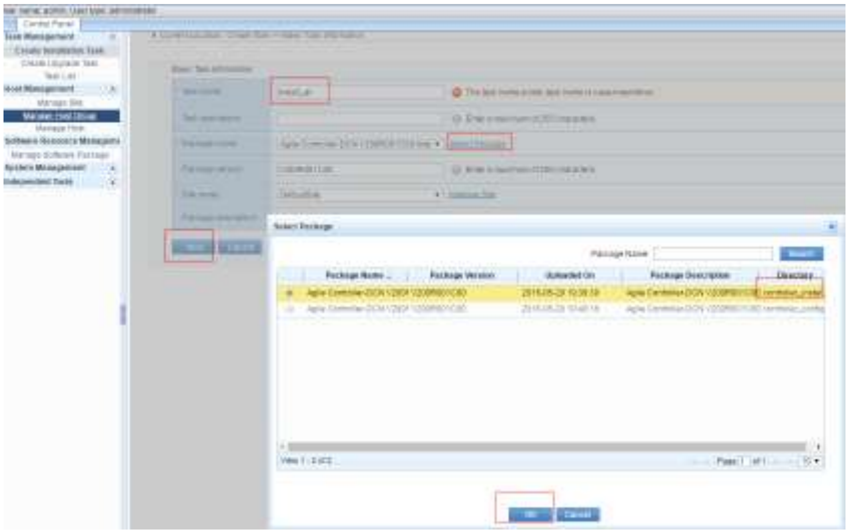

Iser name: admin; User type: administrator
Control Panel
Task Management
Create Installation Task
Create Upgrade Task
Task List
Host Management
Manage Site
Manage Host Group
Manage Host
Software Resource Managem
Manage Software Package
System Management
Independent Tools
Current Location: Software Resource Management >> Software Package >> Upload Software Package >> HTTP
Select file: 选择文件 controller_install_pkg.zip
Add File
□ Check integrity
Select file: 选择文件 controller_config_pkg.zip
Delete
□ Check integrity
Previous
Upload

- The **Select file** dialog box is displayed.
- Select the packages and click **Open**.
- Click **Add File** to add a file.
- Click **Upload**. The upload result is displayed.
- Click **finish**.

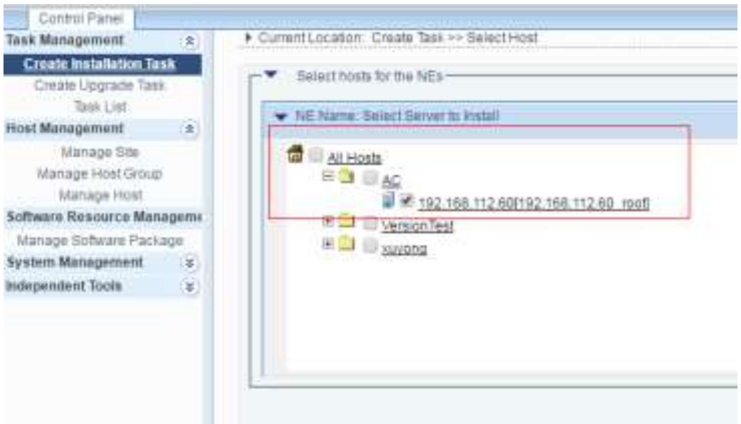
Creating Installation Tasks of the AC-DCN

Choose **Task Management** > **Create Installation Task**, and enter basic information of tasks, as shown in the following figure.

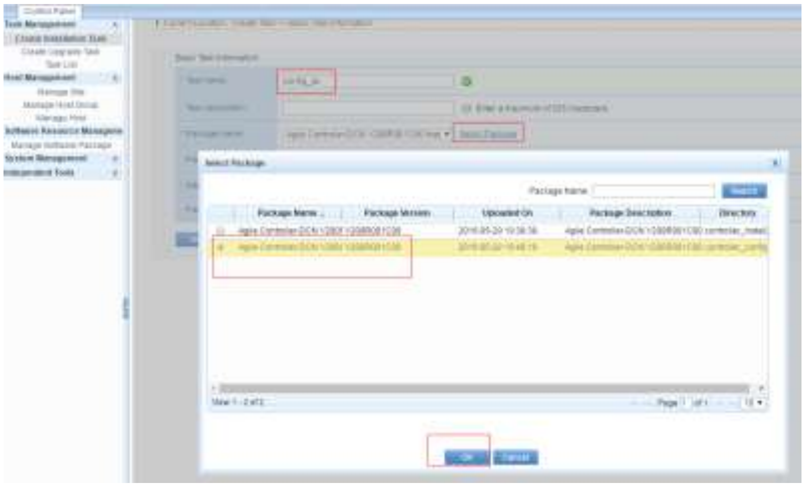
- Create a task to install **controller_install_pkg.zip**.



- Select a server to deploy the AC-DCN.



- Click **Next** on the subsequent pages and click **Finish** on the last page.
- Create a task to install **controller_config_pkg.zip**.



Current Location: Create Task >> Basic Task Information

Basic Task Information

Task name: config_ac

Task description: Enter a maximum of 255 characters

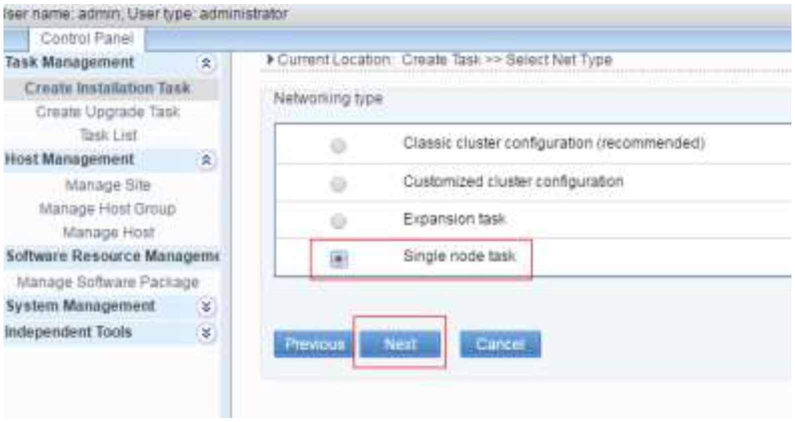
Package name: Agile Controller-DCN V200R001C00 Inst ▾ Select Package

Select Package

Package name: [ ] Search

	Package Name	Package Version	Uploaded On	Package Description	Directory
○	Agile Controller-DCN V200R001C00	[illegible]	2016-05-20 10:38:36	Agile Controller-DCN V200R001C00	controller_instal
●	Agile Controller-DCN V200R001C00	[illegible]	2016-05-22 10:48:15	Agile Controller-DCN V200R001C00	controller_confi

View 1 - 2 of 2 Page 1 of 1 10 ▾



User name: admin; User type: administrator

Current Location: Create Task >> Select Net Type

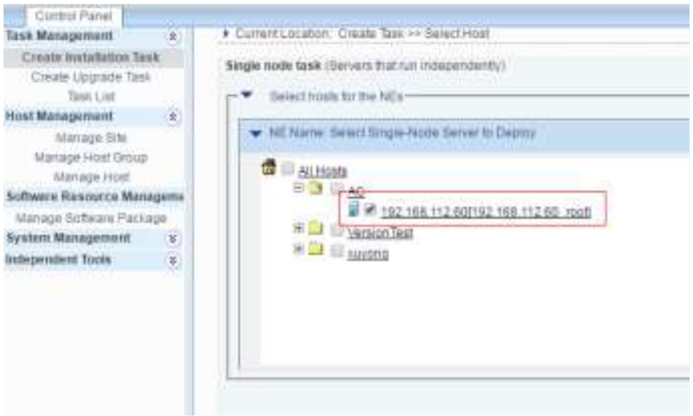
Networking type

○ Classic cluster configuration (recommended)

○ Customized cluster configuration

○ Expansion task

● Single node task



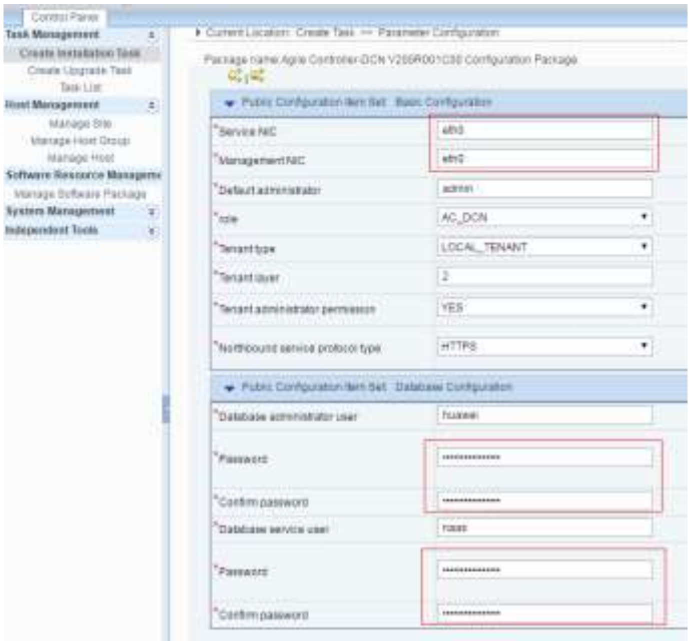
Current Location: Create Task >> Select Host

Single node task (Servers that run independently)

Select hosts for the NEs

NE Name: Select Single-Node Server to Deploy

□ All Hosts
- □ AC
  - ☑ 192.168.112.60[192.168.112.60_root]
- □ Version Test
- □ suyong



Current Location: Create Task >> Parameter Configuration

Package name:Agile Controller-DCN V200R001C00 Configuration Package

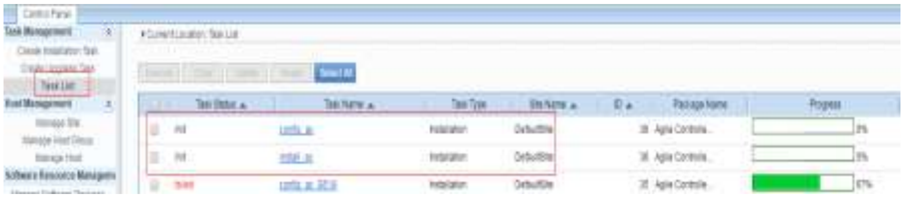
Public Configuration Item Set Basic Configuration

*Service NIC	eth0
*Management NIC	eth0
*Default administrator	admin
*role	AC_DCN
*Tenant type	LOCAL_TENANT
*Tenant layer	2
*Tenant administrator permission	YES
*Northbound service protocol type	HTTPS

Public Configuration Item Set Database Configuration

*Database administrator user	huawei
*Password	**************
*Confirm password	**************
*Database service user	rcaas
*Password	**************
*Confirm password	**************

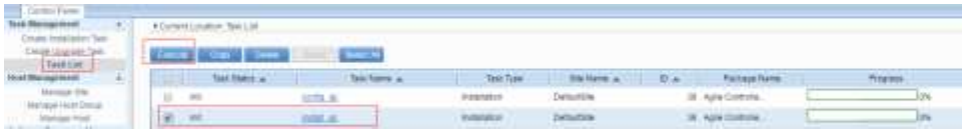
- Click **Next** on the subsequent pages and click **Finish** on the last page. The two tasks are shown in the following figure.



Current Location: Task List

	Task Status	Task Name	Task Type	Site Name	ID	Package Name	Progress
□	Init	config_ac	Installation	DefaultSite	38	Agile Controlle...	0%
□	Init	install_ac	Installation	DefaultSite	36	Agile Controlle...	0%
□	failed	config_ac_SP..	Installation	DefaultSite	35	Agile Controlle...	67%

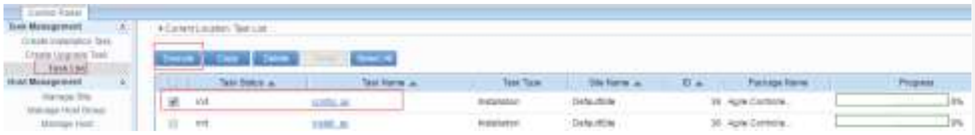
Executing Installation Tasks of the AC-DCN



Current Location: Task List

	Task Status	Task Name	Task Type	Site Name	ID	Package Name	Progress
□	Init	config_ac	Installation	DefaultSite	38	Agile Controlle...	0%
☑	Init	install_ac	Installation	DefaultSite	36	Agile Controlle...	0%

The **controller_install_pkg.zip** task is executed before the **controller_config_pkg.zip** task.



	Task Status	Task Name	Task Type	Site Name	ID	Package Name	Progress
☑	[illegible]	[illegible]	Installation	DefaultSite	[illegible]	Agile Controlle...	0%
□	[illegible]	[illegible]	Installation	DefaultSite	[illegible]	Agile Controlle...	0%

Changing the Web Password

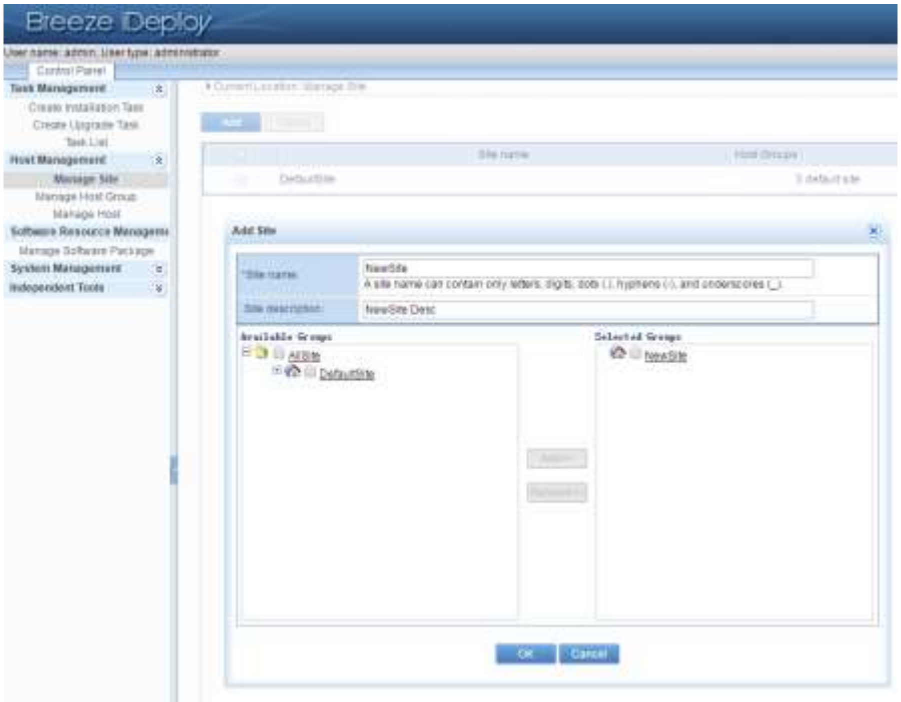
After the AC-DCN is installed, access https://ip:18002/index.html and enter the default user name **admin** and default password **Changeme123** to log in to the AC-DCN and change the password. The IP address indicates the IP address of the server where the AC-DCN is deployed.

Adding Host Information

Before installing plug-ins of the AC-DCN, create host information on the iDeploy system.

- Prerequisites
  - iDeploy has been installed.
  - A user has logged in to iDeploy.
- Procedure
  - Add site information.
    - Choose **Control Panel** > **Host Management** > **Management Site**.
    - On the **Management Site** page, click **Add**. The **Add Site** dialog box is displayed, as shown in the following figure.

Comment [j1]:



*Site name: NewSite

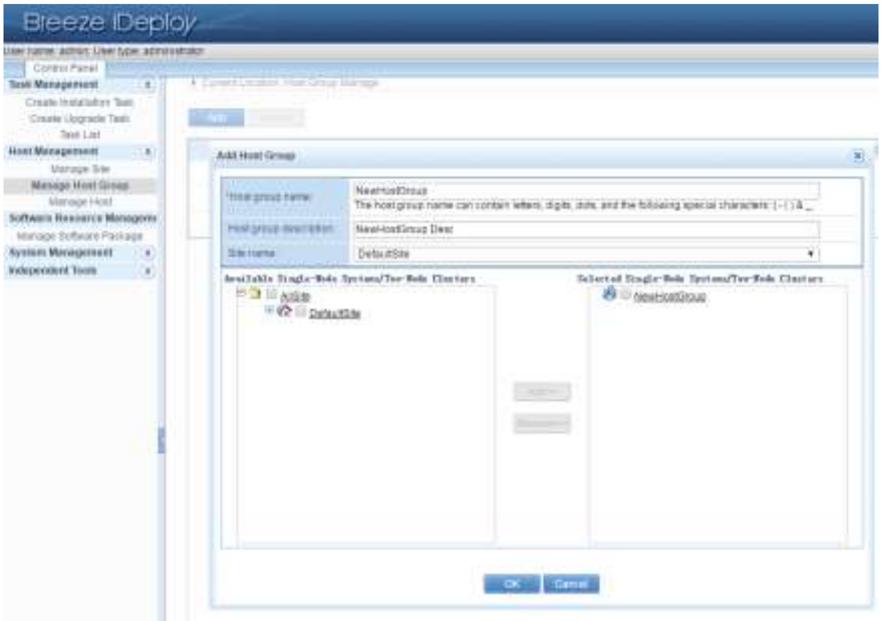
A site name can contain only letters, digits, dots (.), hyphens (-), and underscores (_).

Site description: NewSite Desc

- In the **Add Site** dialog box, enter the site information.
- Click **OK**.

– Add host group information.

  - Choose **Control Panel** > **Host Management** > **Management Host Group**.
  - On the **Management Host Group** page, click **Add**. The **Add Host Group** dialog box is displayed, as shown in the following figure.



User name: admin; User type: administrator

Current Location: Host Group Manage

Add Host Group

*Host group name	NewHostGroup The host group name can contain letters, digits, dots, and the following special characters: [- ( ) & _
Host group description	NewHostGroup Desc
Site name	DefaultSite

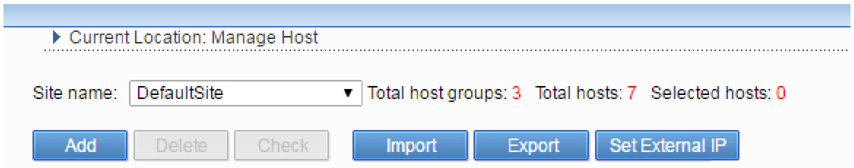
Available Single-Node Systems/Two-Node Clusters
- AllSite
  - DefaultSite

Selected Single-Node Systems/Two-Node Clusters
- NewHostGroup

- In the **Add Host Group** dialog box, enter the host group information.
- Click **OK**.

– Add host information.

- Choose **Control Panel** > **Host Management** > **Host Management**.



Current Location: Manage Host

Site name: DefaultSite Total host groups: 3 Total hosts: 7 Selected hosts: 0

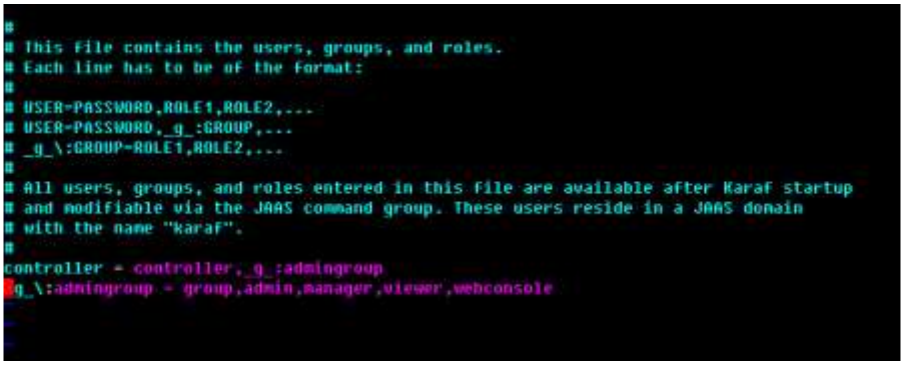
- Select a site, for example, OpenStack, from the drop-down list box of **Site name**.
- Click **Add**.
- In the **Add Host** dialog box, enter the host information of the server. For the information to be entered, see the following table.
- Click **check**. If the entered information is correct.
- Click **OK**.
- Add information of other hosts. In **Host Management**, added hosts are shown.
- If a standalone host is installed, ignore this step.
- Add host information.

Parameter Name	Description
Host name	Indicates a host name. Enter a correct host name. Otherwise, the installation will fail. Log in to a card as the **root** user, and run the **hostname** command to query the host name of the card.
IP address	Indicates the IP address of the server.
Services IP address	This parameter can be left empty.
Protocol	Indicates the protocol used for iDeploy and server connection. Select the SSH protocol.
Login mode	Indicates a server login mode. Select the password login mode.
User name	Indicates the user name used to log in to the server. Enter **root**.
Password	Indicates the password used to log in to the server. Enter the password of the **root** user.
Root password	Indicates the login password of the **root** user.
Host group	Set this parameter according to planning. In this test, set this parameter to **Host_Group**.

Installing AC Plug-ins

Modifying Configurations

- After the AC-DCN is installed, modify its configuration file.
  - Modify the **users.properties** file under the AC server directory **/opt/controller/naas/naas-karaf-1.0.1-SNAPSHOT/etc/**.

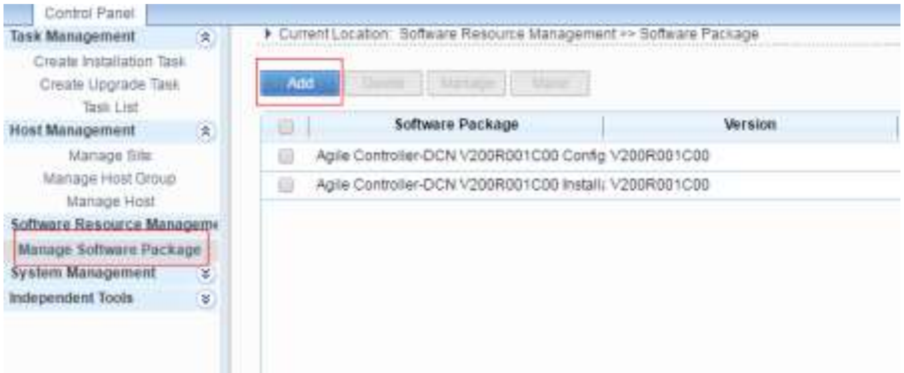


```
#
# This file contains the users, groups, and roles.
# Each line has to be of the format:
#
# USER=PASSWORD,ROLE1,ROLE2,...
# USER=PASSWORD,_g_:GROUP,...
# _g_\:GROUP=ROLE1,ROLE2,...
#
# All users, groups, and roles entered in this file are available after Karaf startup
# and modifiable via the JAAS command group. These users reside in a JAAS domain
# with the name "karaf".
#
controller = controller,_g_:admingroup
_g_\:admingroup = group,admin,manager,viewer,webconsole
```

  - Remove the comment sign # before the following two lines and save the modification as shown in the preceding screen:

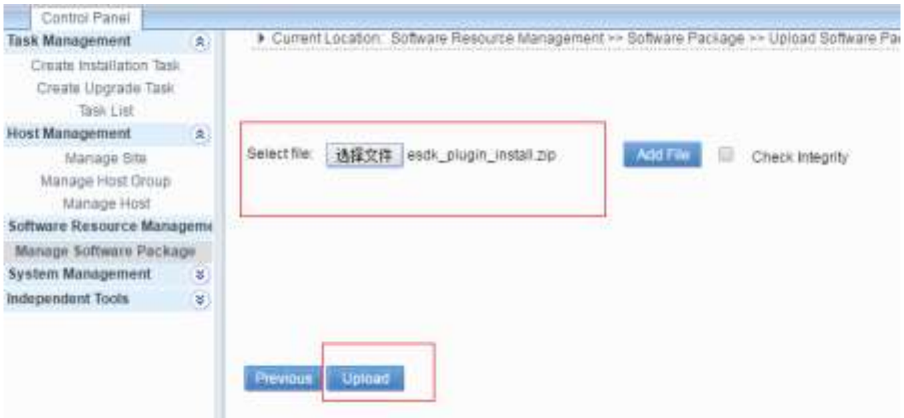
```
controller = controller,_g_:admingroup
_g_\:admingroup = group,admin,manager,viewer,webconsole
```

Uploading the Software Packages of the AC Plug-ins



Current Location: Software Resource Management >> Software Package

☐	Software Package	Version
☐	Agile Controller-DCN V200R001C00 Config	V200R001C00
☐	Agile Controller-DCN V200R001C00 Install	V200R001C00

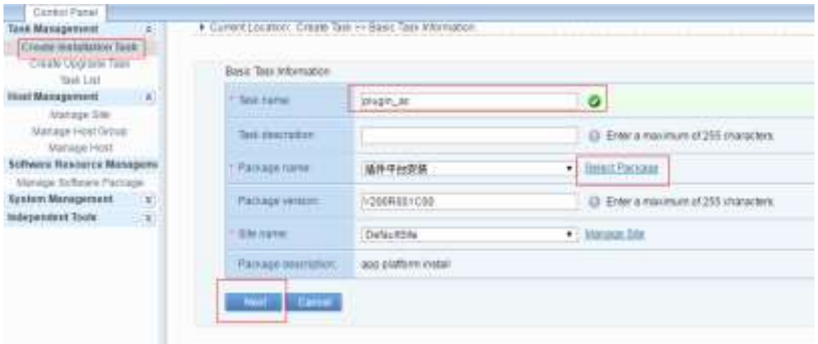


Current Location: Software Resource Management >> Software Package >> Upload Software Pa

Select file: esdk_plugin_install.zip

☐ Check Integrity

Creating an Installation Task of the AC Plug-ins

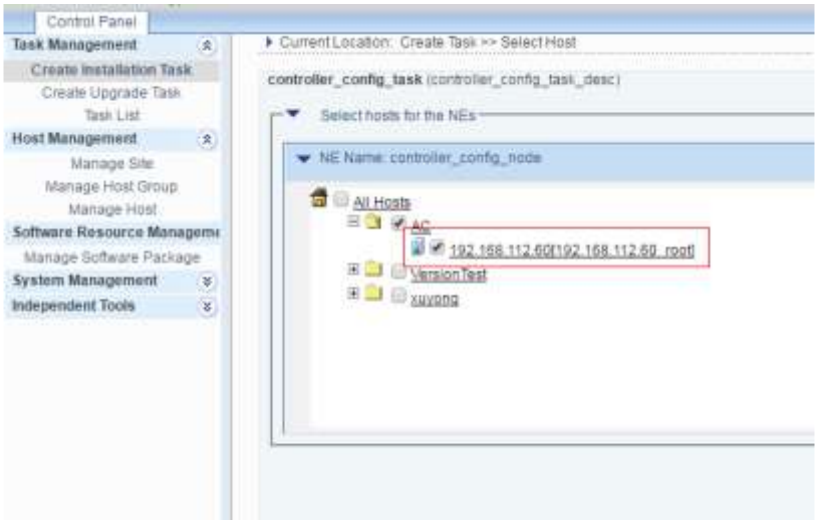


Current Location: Create Task >> Basic Task Information

Basic Task Information

* Task name:	plugin_ac
Task description:	Enter a maximum of 255 characters.
* Package name:	插件平台安装
Package version:	V200R001C00 — Enter a maximum of 255 characters.
* Site name:	DefaultSite
Package description:	app platform install

- Select a server to deploy the AC-DCN.



Current Location: Create Task >> Select Host

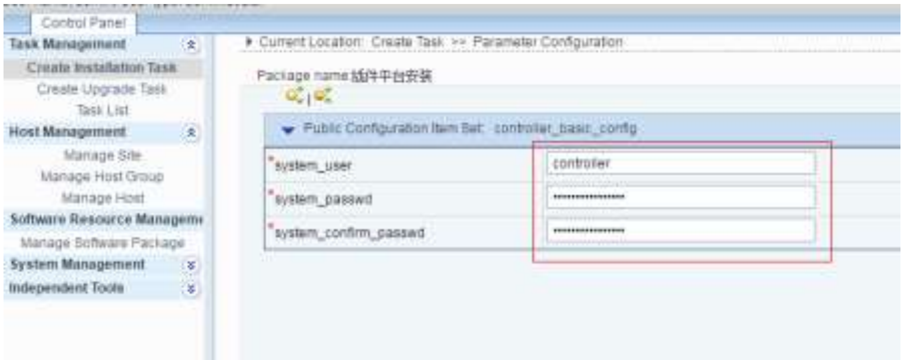
controller_config_task (controller_config_task_desc)

Select hosts for the NEs

NE Name: controller_config_node

□ All Hosts
☑ AC
☑ 192.168.112.60[192.168.112.60_root]
□ VersionTest
□ xuyong

- Enter the user name and password of the system. By default, the user name and password are **controller**.



Current Location: Create Task >> Parameter Configuration

Package name:插件平台安装

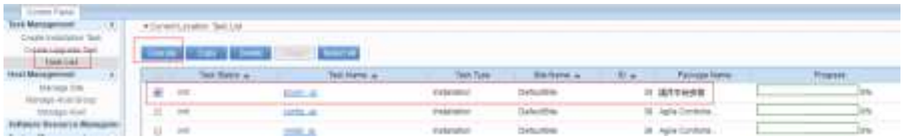
Public Configuration Item Set: controller_basic_config

*system_user	controller
*system_passwd	••••••••••••••••
*system_confirm_passwd	••••••••••••••••

- Click **Next** on the subsequent pages and click **Finish** on the last page.

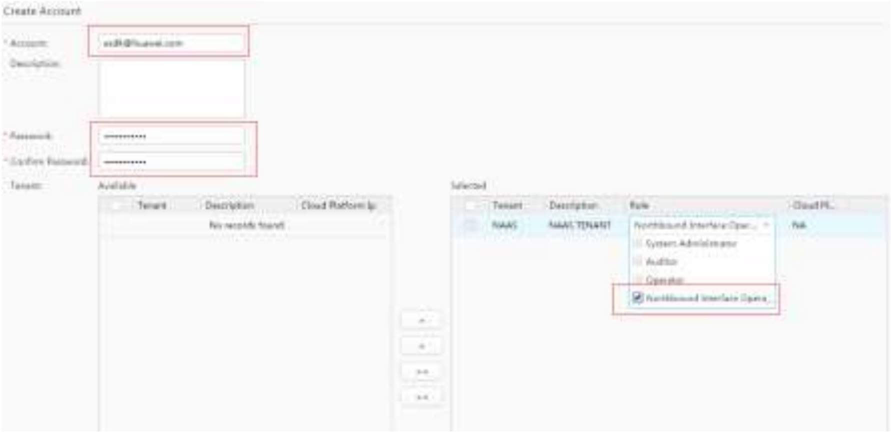
Executing an Installation Task of the AC Plug-ins

- If progress is 100%, the AC plug-ins are successfully installed.



Adding Northbound Interface Users

- Prerequisite
  - The AC-DCN and AC plug-ins have been installed.
- Procedure
  - Log in to the AC-DCN using the **admin** account.
  - Choose **System** > **Administrator** from the navigation tree to access the user management page. Create a northbound interface user.


Create Account

* Account: xxdh@huawei.com

Description:

* Password: ••••••••••••

* Confirm Password: ••••••••••••

Tenant: Available

Tenant	Description	Cloud Platform Ip
No records found		

Selected

Tenant	Description	Role	Cloud Pl...
NAAS	NAAS TENANT	Northbound Interface Oper...	NA

□ System Administrator
□ Auditor
□ Operator
☑ Northbound Interface Opera...

  - Log out of the current account and log in using the new account. Follow system prompt to change the password.

Installing OpenStack Plug-ins

Installing OpenStack Plug-ins Using the Shell Command

- Prerequisite
  - The host OS and native OpenStack environment have been installed.
- Procedure
  - The procedure of installing OpenStack plug-ins on the controller node is as follows:
    - Upload and decompress the **hw_plugin_openstack.zip** package to a directory (for example, **/upload**) of the controller node using the **root** account.
    - Install the OpenStack plug-ins.
      - ✓ Run the **Shell** command to access the **tools** folder.

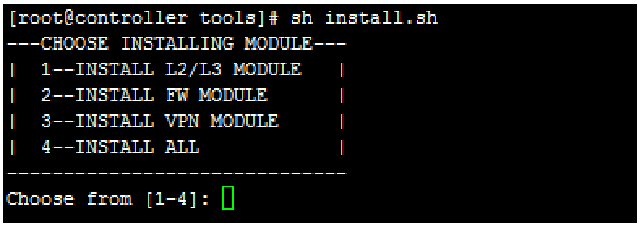
✓ Execute **dos2unix install.sh** to convert the shell script to Unix.

✓ Run the **chmod u+x install.sh** command to add execution rights to the file.

✓ Run the **./ install.sh** command to install the plug-ins.

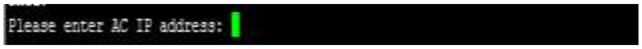
✓ Install modules according to system prompt.

- Install the L2/L3 Agent.
- Install the firewall.
- Install the VPN.
- Install the previous components.
- During installation, the system will instruct users to enter **Y** to confirm the installation content. Enter **Y** for confirmation, as shown in the following figure.



```
[root@controller tools]# sh install.sh
---CHOOSE INSTALLING MODULE---
|  1--INSTALL L2/L3 MODULE   |
|  2--INSTALL FW MODULE      |
|  3--INSTALL VPN MODULE     |
|  4--INSTALL ALL            |
------------------------------
Choose from [1-4]:
```

- During installation, the system will instruct users to enter the IP address of the AC-DCN to complete the installation.



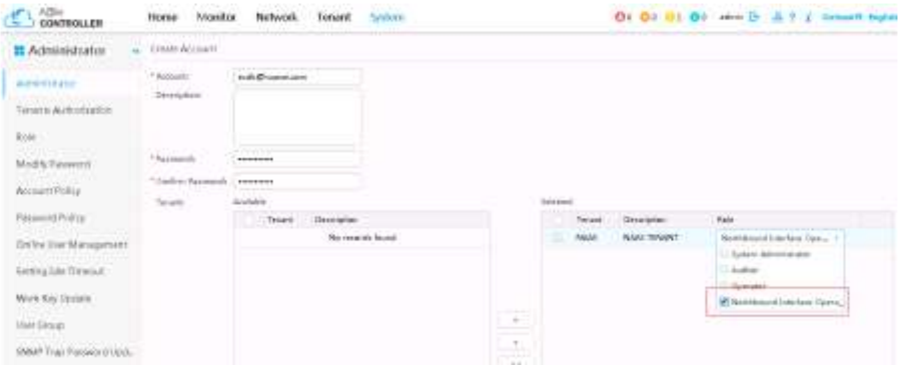
```
Please enter AC IP address:
```

- Run the **cd /etc/neutron/plugins/ml2** command to access the **ml2** directory. Open the **ml2_conf.ini** file in the directory, and add **huawei** before **openvswitch** in **mechanism_drivers = openvswitch**.
- Run the **service neutron-server restart** command to restart neutron services.

Configuring the AC-DCN

Adding Northbound Users

Log in to the AC-DCN using the **admin** account, choose **System** > **Administrator** from the navigation tree to access the user management page, and create a northbound interface user. By default, the user name is esdk@huawei.com.



Create Account

* Account: esdk@huawei.com

Description:

* Password: ••••••••

* Confirm Password: ••••••••

Tenant: Available

	Tenant	Description
No records found		

Selected

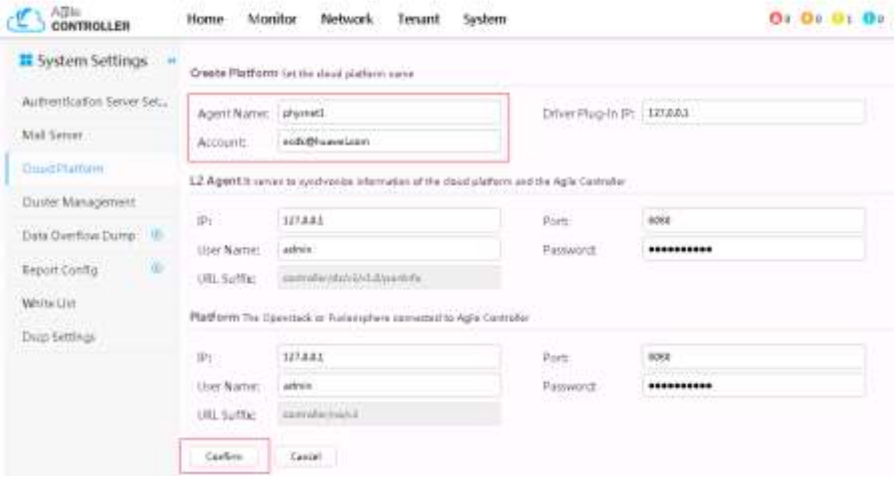
	Tenant	Description	Role
□	NAAI	NAAI TENANT	Northbound Interface Ope...

□ System Administrator
□ Auditor
□ Operator
☑ Northbound Interface Opera...

Log out of the current account and log in using the new account. Follow system prompt to change the password.

Creating a Cloud Platform

Choose **System** > **Cloud Platform** from the navigation tree to access the cloud platform management page and create a cloud platform. Set the agent name to **physnet1** and set the account to esdk@huawei.com. Other options can be set at random, provided that the verification can be successful.



Create Platform Set the cloud platform name

Agent Name: physnet1

Account: esdk@huawei.com

Driver Plug-In IP: 127.0.0.1

L2 Agent It serves to synchronize information of the cloud platform and the Agile Controller

IP: 127.0.0.1

Port: 8080

User Name: admin

Password: •••••••••••

URL Suffix: controller/dc/v2/v1.0/ports

Platform The Openstack or Fusionsphere connected to Agile Controller

IP: 127.0.0.1

Port: 8080

User Name: admin

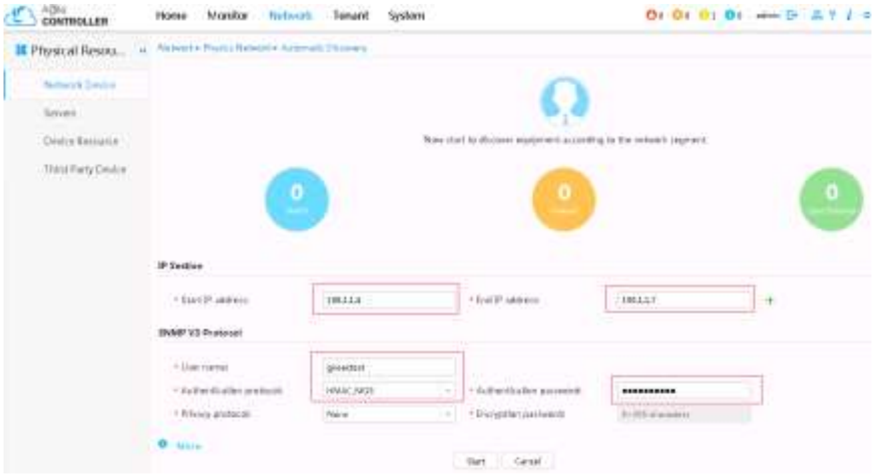
Password: •••••••••••

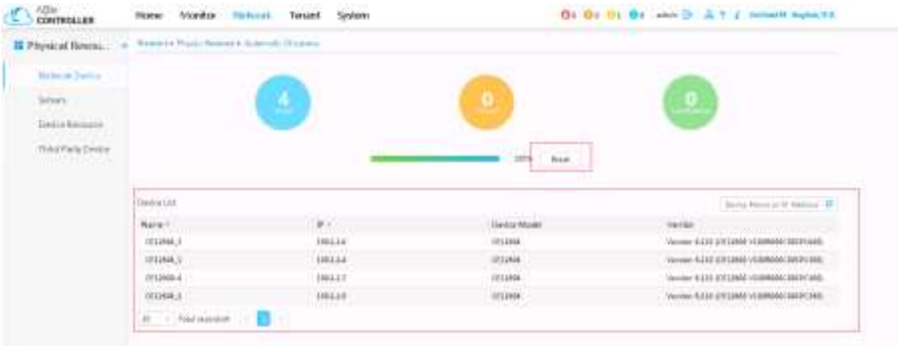
URL Suffix: controller/dc/v2

Confirm Cancel

Adding Devices

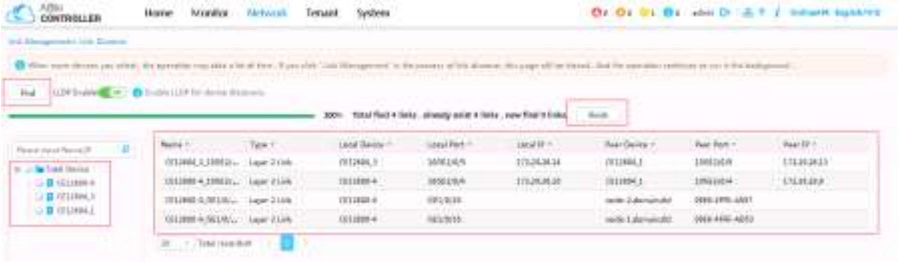
Choose **Network** > **Network Device** from the navigation tree to access the network device management page. Click **Automatic Discovery**, set the start IP address and end IP address in **IP Section**, set the user name, certification password and certification protocol in **SNMP V3 Protocol**, and click **Start**.





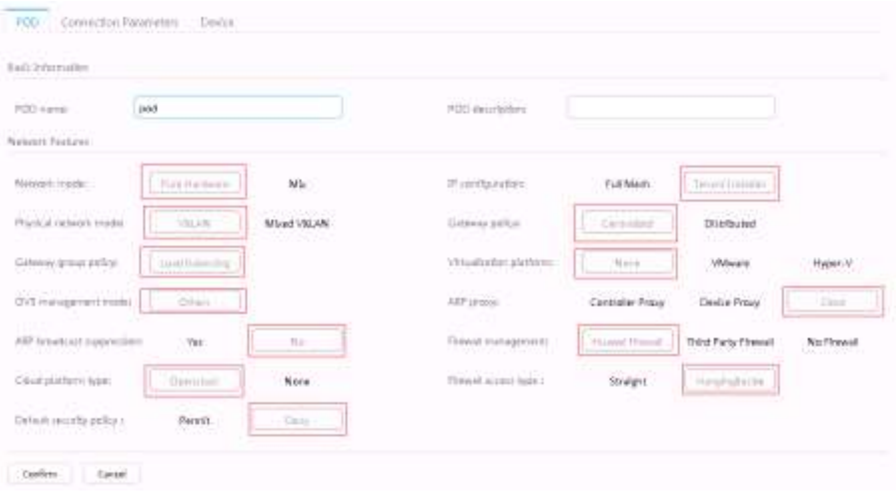
Discovering Links

Choose **Network** > **Link** from the navigation tree to access the link management page. Click **Link Discover**, select required devices on the refreshed page, and click **Find** to discover links.



Creating and Configuring a POD

- Choose **Network** > **POD** to access the POD management page, click **+**, and set the POD parameters as follows. Click **Confirm** to create a POD.



Basic Information

POD name: pod

POD description:

Network Features

Network mode: [✓ Pure Hardware] Mix

Physical network model: [✓ VXLAN] Mixed VXLAN

Gateway group policy: [✓ Load Balancing]

OVS management model: [✓ Others]

ARP broadcast suppression: Yes [✓ No]

Cloud platform type: [✓ OpenStack] None

Default security policy: Permit [✓ Deny]

IP configuration: Full Mesh [✓ Tenant Isolation]

Gateway policy: [✓ Centralized] Distributed

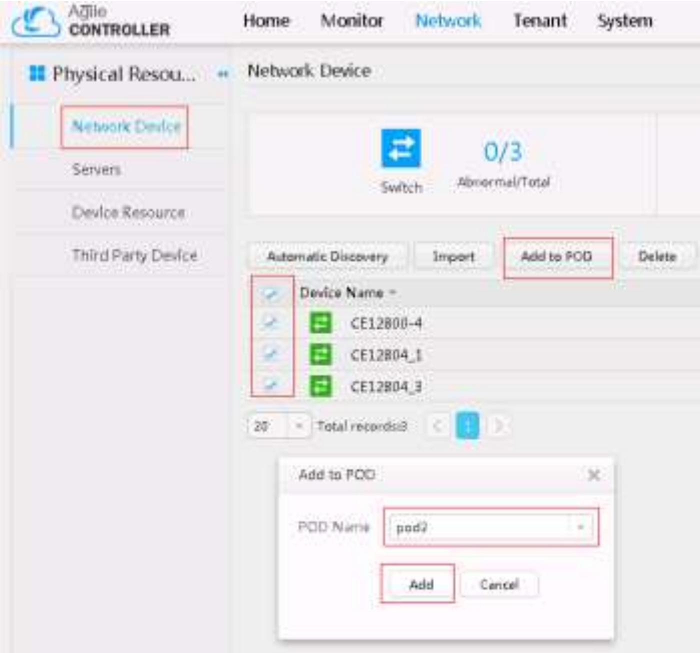
Virtualization platform: [✓ None] VMware Hyper-V

ARP proxy: Controller Proxy Device Proxy [✓ Close]

Firewall management: [✓ Huawei Firewall] Third Party Firewall No Firewall

Firewall access mode: Straight [✓ Hang by the side]

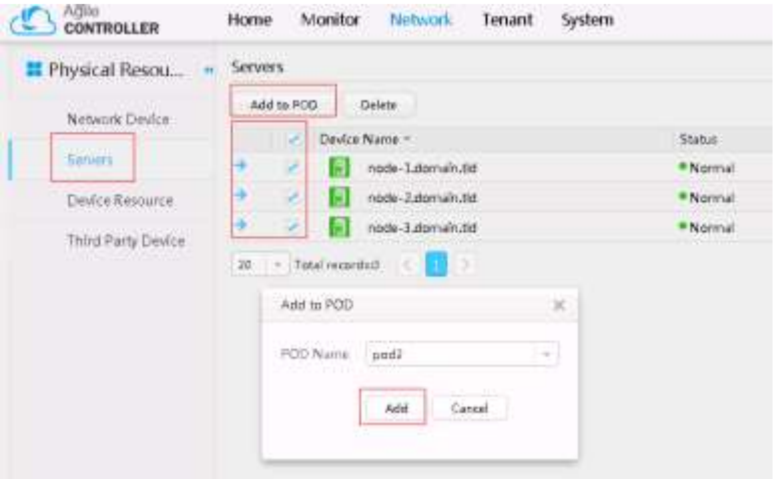
- Add devices to the POD. Choose **Network** > **Network Device** from the navigation tree to access the network device management page. Select devices to be added to the POD, and click **Add to POD**. In the dialog box that is displayed, select a POD name and click **Add**.



☑	Device Name
☑	CE12800-4
☑	CE12804_1
☑	CE12804_3

POD Name: pod2

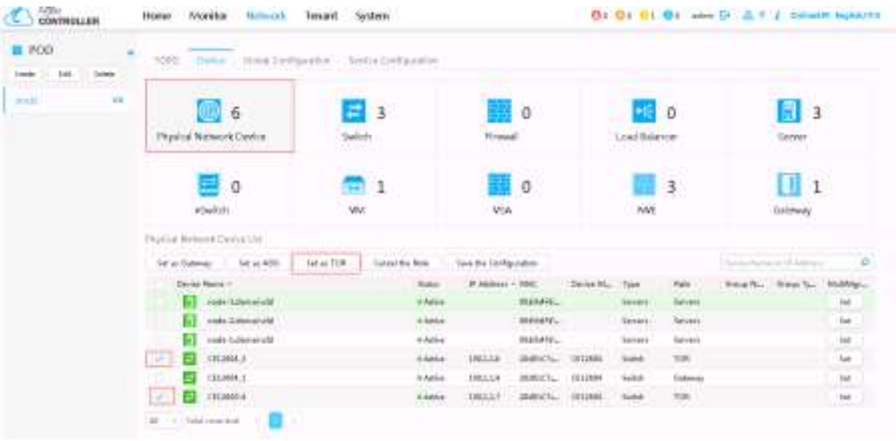
- Add servers to the POD. Choose **Network** > **Servers** from the navigation tree to access the server management page. Select servers to be added to the POD, and click **Add to POD**. In the dialog box that is displayed, select a POD name and click **Add**.



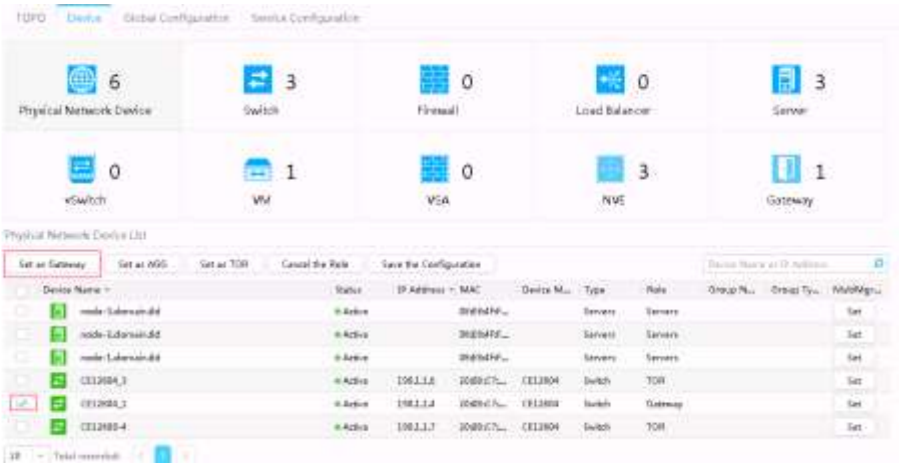
	☑	Device Name	Status
→	☑	node-1.domain.tld	● Normal
→	☑	node-2.domain.tld	● Normal
→	☑	node-3.domain.tld	● Normal

POD Name: pod2

- Configure the POD. Choose **Network** > **POD** from the navigation tree to access the POD management page. Click the **Device** tab page and set switch roles.

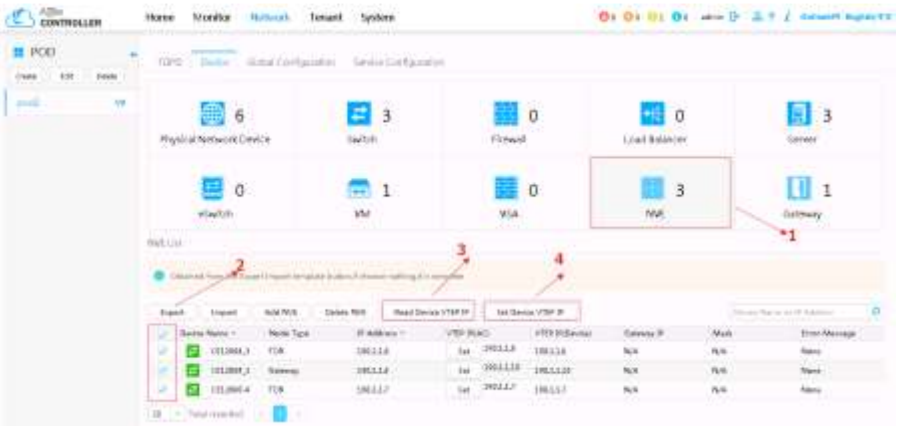


	Device Name	Status	IP Address	MAC	Device M...	Type	Role	Group N...	Group Ty...	MultiMgr...
□	node-1.domain.tld	● Active		[illegible]		Servers	Servers			Set
□	node-1.domain.tld	● Active		[illegible]		Servers	Servers			Set
□	node-1.domain.tld	● Active		[illegible]		Servers	Servers			Set
☑	CE12804_3	● Active	198.1.1.8	20:0B:C7...	CE12804	Switch	TOR			Set
□	CE12804_1	● Active	198.1.1.4	20:0B:C7...	CE12804	Switch	Gateway			Set
☑	CE12804-4	● Active	198.1.1.7	20:0B:C7...	CE12804	Switch	TOR			Set

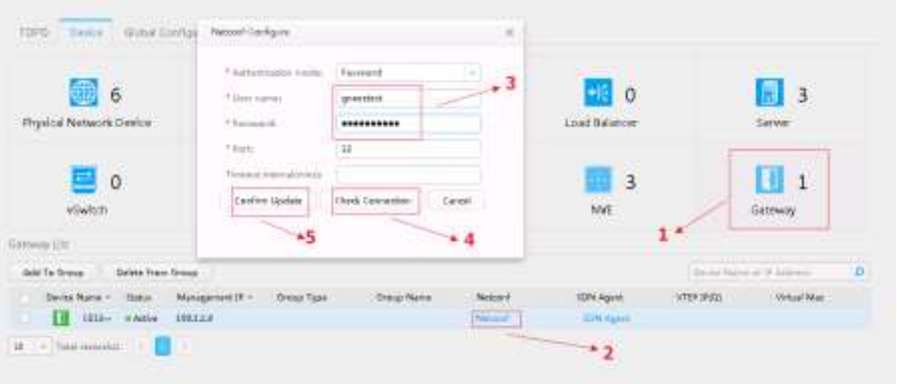


	Device Name	Status	IP Address	MAC	Device M...	Type	Role	Group N...	Group Ty...	MultiMgr...
□	node-1.domain.tld	● Active		[illegible]		Servers	Servers			Set
□	node-1.domain.tld	● Active		[illegible]		Servers	Servers			Set
□	node-1.domain.tld	● Active		[illegible]		Servers	Servers			Set
□	CE12804_3	● Active	198.1.1.8	20:0B:C7...	CE12804	Switch	TOR			Set
☑	CE12804_1	● Active	198.1.1.4	20:0B:C7...	CE12804	Switch	Gateway			Set
□	CE12804-4	● Active	198.1.1.7	20:0B:C7...	CE12804	Switch	TOR			Set

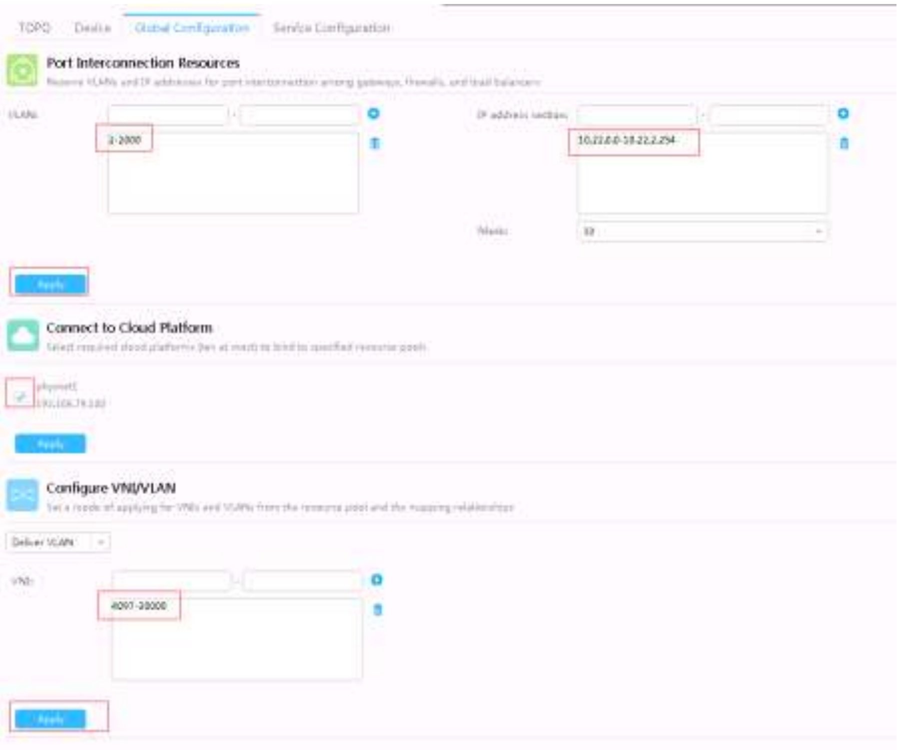
Click **NVE** and set the VTEP information.



Click **Gateway** and set the NETCONF information.



Click the **Global Configuration** tab page, set the parameters framed in red, and click **Apply**.



Port Interconnection Resources

Reserve VLANs and IP addresses for port interconnection among gateways, firewalls, and load balancers

VLANs: 1-2000

IP address section: 10.22.0.0-10.22.2.254

Mask: 32

Connect to Cloud Platform

Select required cloud platforms (ten at most) to bind to specified resource pools

☑ physnet1 [illegible]

Configure VNI/VLAN

Set a mode of applying for VNIs and VLANs from the resource pool and the mapping relationships

Deliver VLAN

VNI: 4097-20000

The AC-DCN configuration is completed.

5.4 Limitations

Please check user guide of Huawei AC controller. You can get this document from Huawei support engineers.

5.5 Trouble shooting

Please check user guide of Huawei AC controller. You can get this document from Huawei support engineers.