# OpenStack Additional Configuration

After the establishment of OpenStack environment (composed of controller nodes and compute nodes) is completed, the following configuration needs to be added. Once configured, SuperMap iManager can run on this cloud computing platform.

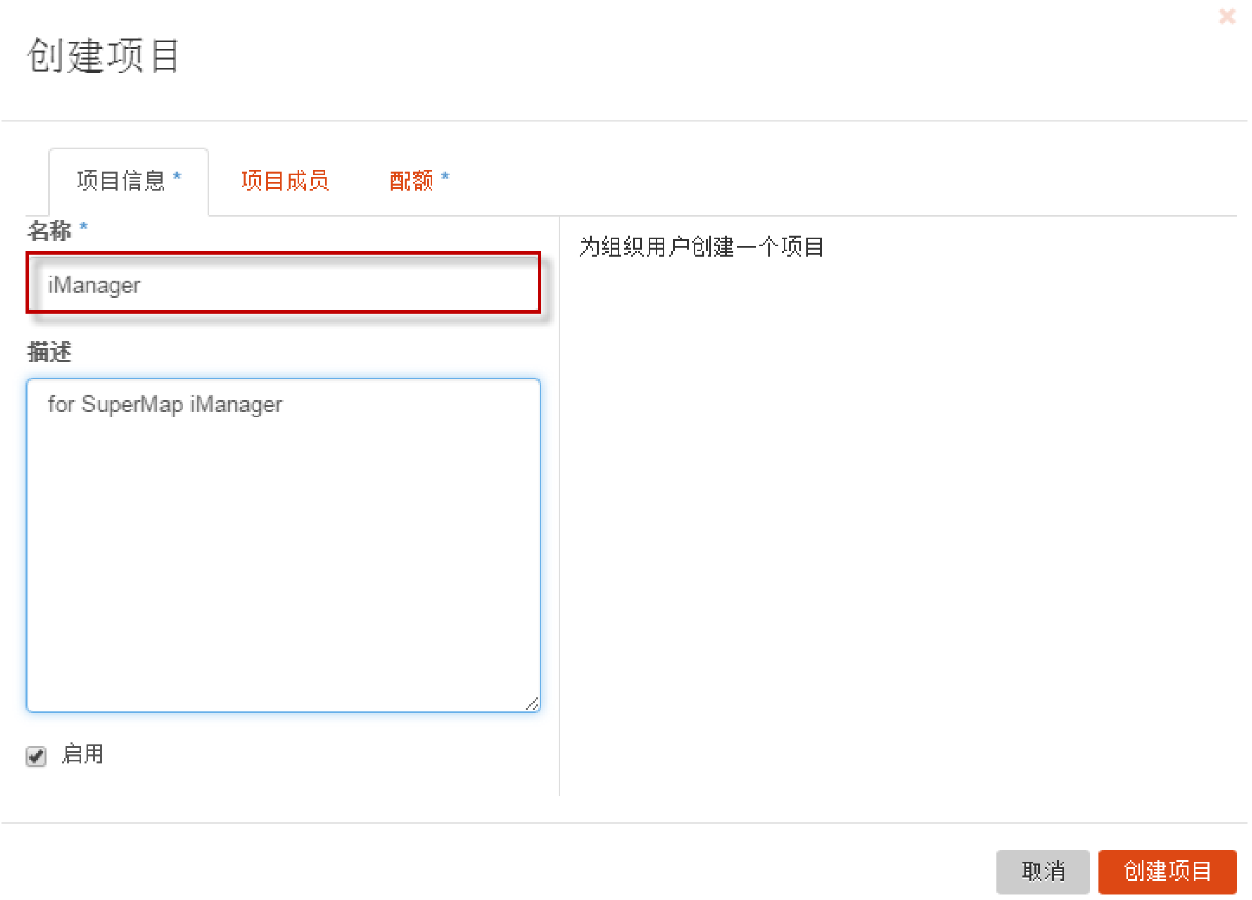
## Installing Additional Parts

If your OpenStack environment does not have Ceilometer and Nova quotas parts installed, you need to install the Ceilometer and Nova quotas components, and other required components.

## Creating Tenants and Users

Access the OpenStack Admin interface (http://<IP>/horizon/), on the Identity tab, click "Project", enter the project management page, click the "Create Project" button on the page, fill in the relevant information for the project, then you can create a tenant for SuperMap IManager and the project name is tenant name.

For example, the tenant created in the following figure for the project "iManager" under the OpenStack platform, the "Tenant Name" should be "iManager" while Creating GIS Server for example.



名称 * iManager

描述 for SuperMap iManager

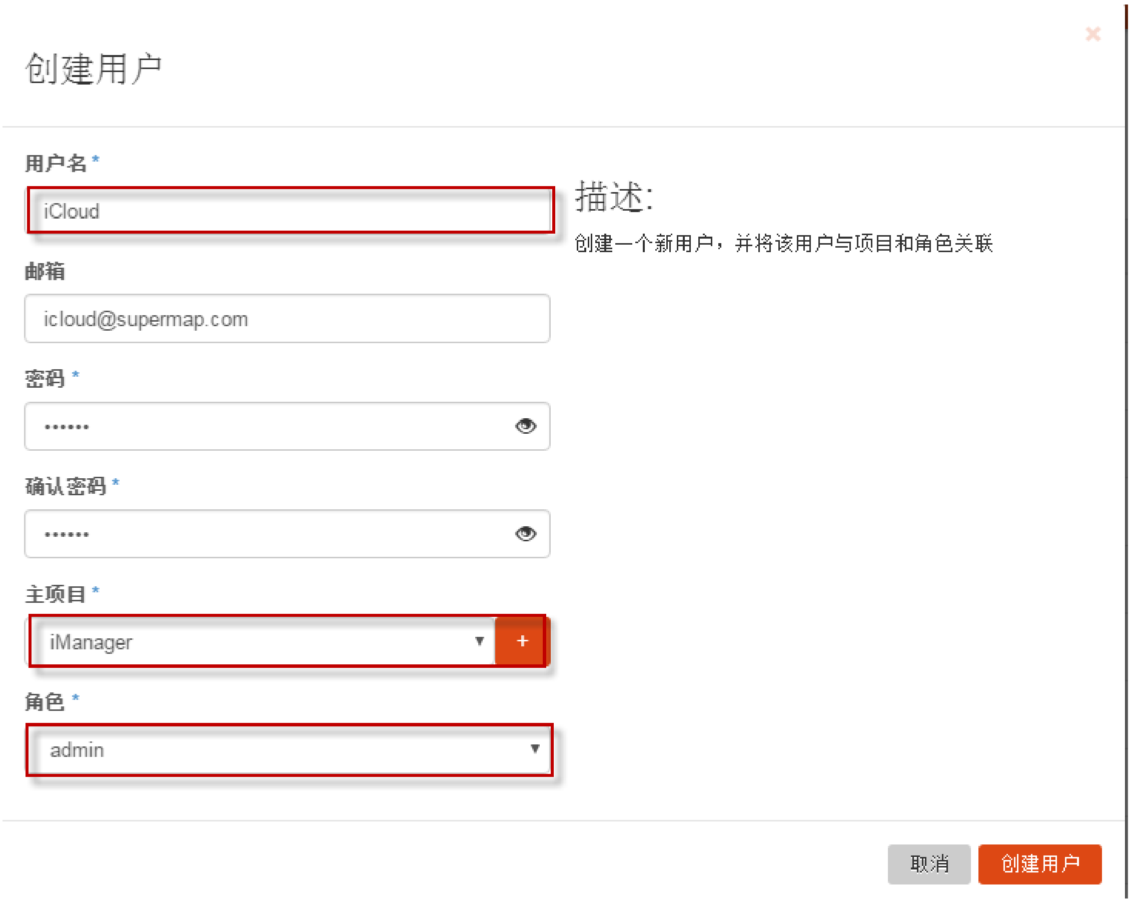
☑ 启用

为组织用户创建一个项目

On the Identity tab, select Users, enter the User Management page, click on the "Create User" button on the page, fill in the user's information, then you can create a login account for SuperMap iManager for the cloud computing platform. In the Create User dialog box, you need to fill in the user name, e-mail, and password, and the primary project should be set to the tenant that you created.

Set Role to admin.

For example, the user created under the OpenStack platform, the "Login User" and "Login Password" should be the corresponding "Username" and "Password" in the figure, and the login account to login into http://<server>/horizon/ should also be the "Username" and "Password". Note that here you need to select the primary project. By default is unspecified. If not specified, there may be errors such as not being able to get network information in iManager.



创建用户

用户名 *

iCloud

邮箱

icloud@supermap.com

密码 *

••••••

确认密码 *

••••••

主项目 *

iManager

角色 *

admin

描述:

创建一个新用户，并将该用户与项目和角色关联

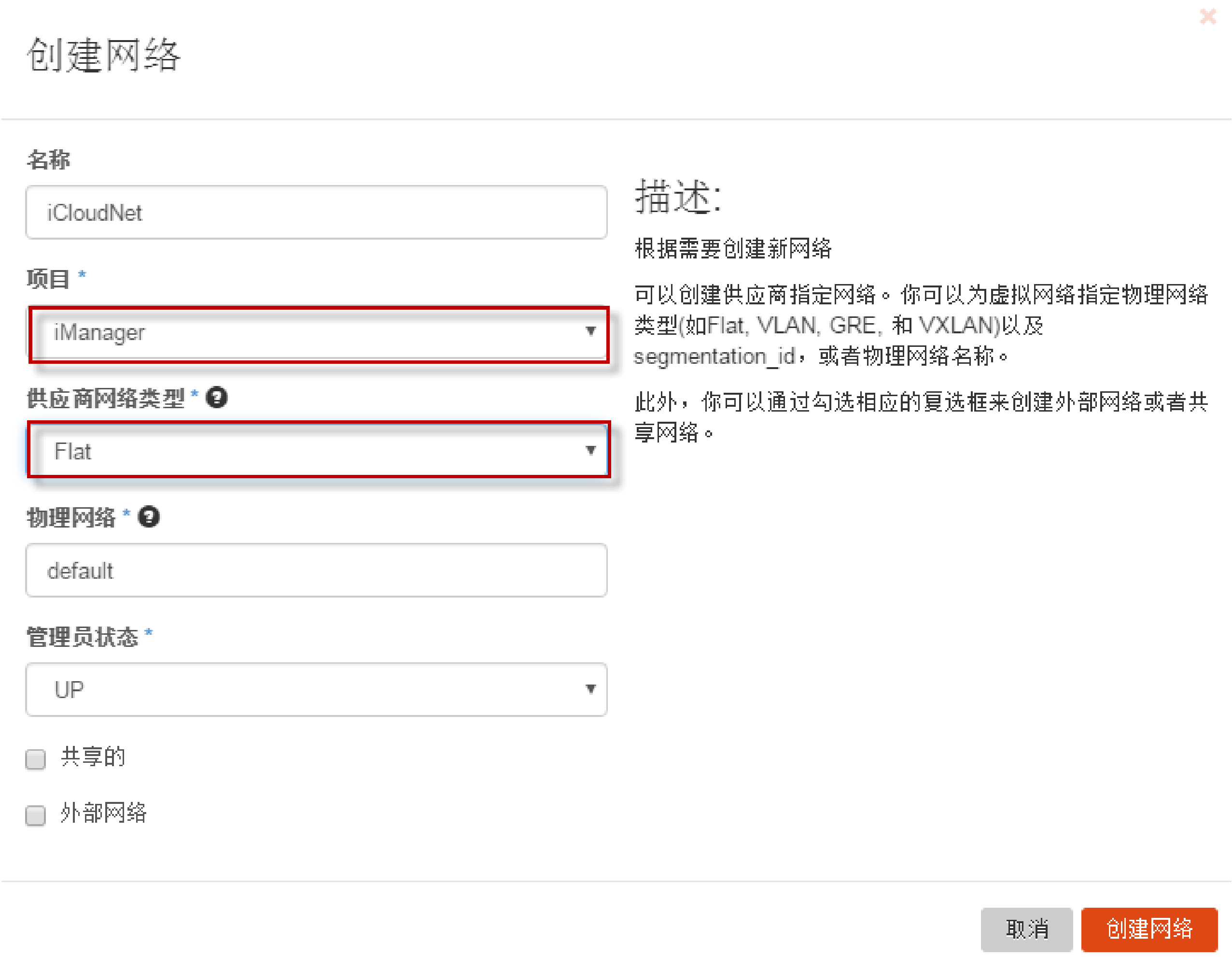
## Configuring Network

OpenStack offers a wide range of network types, including Vlans, GRE, Flat, and so on. Here we take Flat is an example. First, we create a new Flat type and enable DHCP network. If you have a OpenStack environment with such a network, you do not need to create a new network. You only need to perform the second step, that is, creating subnets.

### Creating Network

Click Manager>System>Network>Create Network, and input the network information.

While SuperMap iManager is managing virtual platform, you need to set Network Name as the network name you input. As shown in the following figure, you should choose iCloudNet.



创建网络

名称

iCloudNet

项目 *

iManager

供应商网络类型 *

Flat

物理网络 *

default

管理员状态 *

UP

□ 共享的

□ 外部网络

描述:

根据需要创建新网络

可以创建供应商指定网络。你可以为虚拟网络指定物理网络类型(如Flat, VLAN, GRE, 和 VXLAN)以及segmentation_id，或者物理网络名称。

此外，你可以通过勾选相应的复选框来创建外部网络或者共享网络。

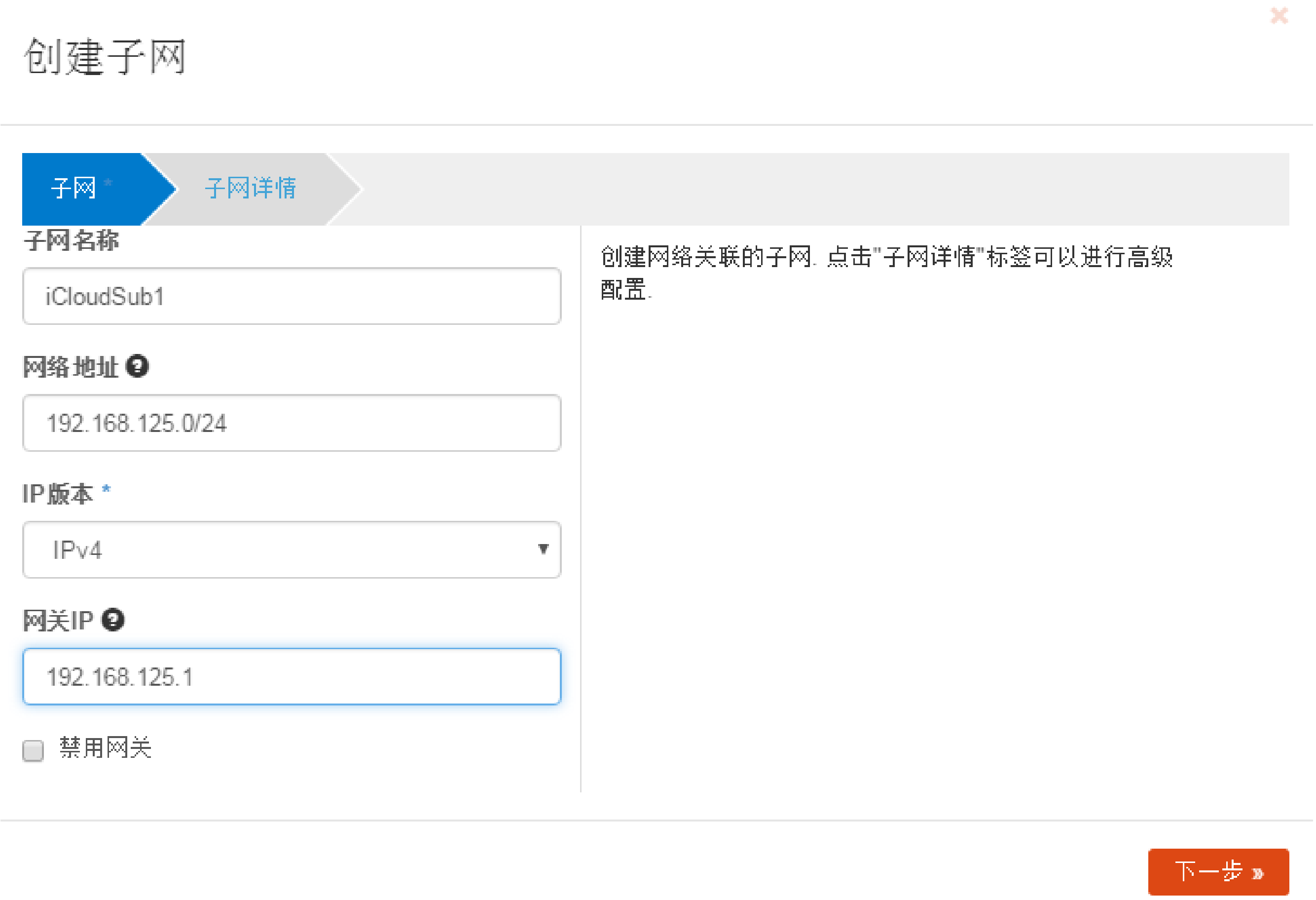
Where them, the project should be selected as the project you created above, the network management type should be selected as selection Flat. Keep the physical network by default. If your physical network name is not the default name, you need to input according to demand.

**Creating Subnets**

Enter the detailed information page of your created network, and create subnets for the network. IP network segments need to be set up according to network plan, DHCP should be enabled, and IP segments used by SuperMap iManager need to be set.

Here we take creating the 192.168.125.0/24 segment as an example.

Click Create Subnets, input the name, IP segment, gateway for subnets.



创建子网

子网名称

iCloudSub1

网络地址

192.168.125.0/24

IP版本 *

IPv4

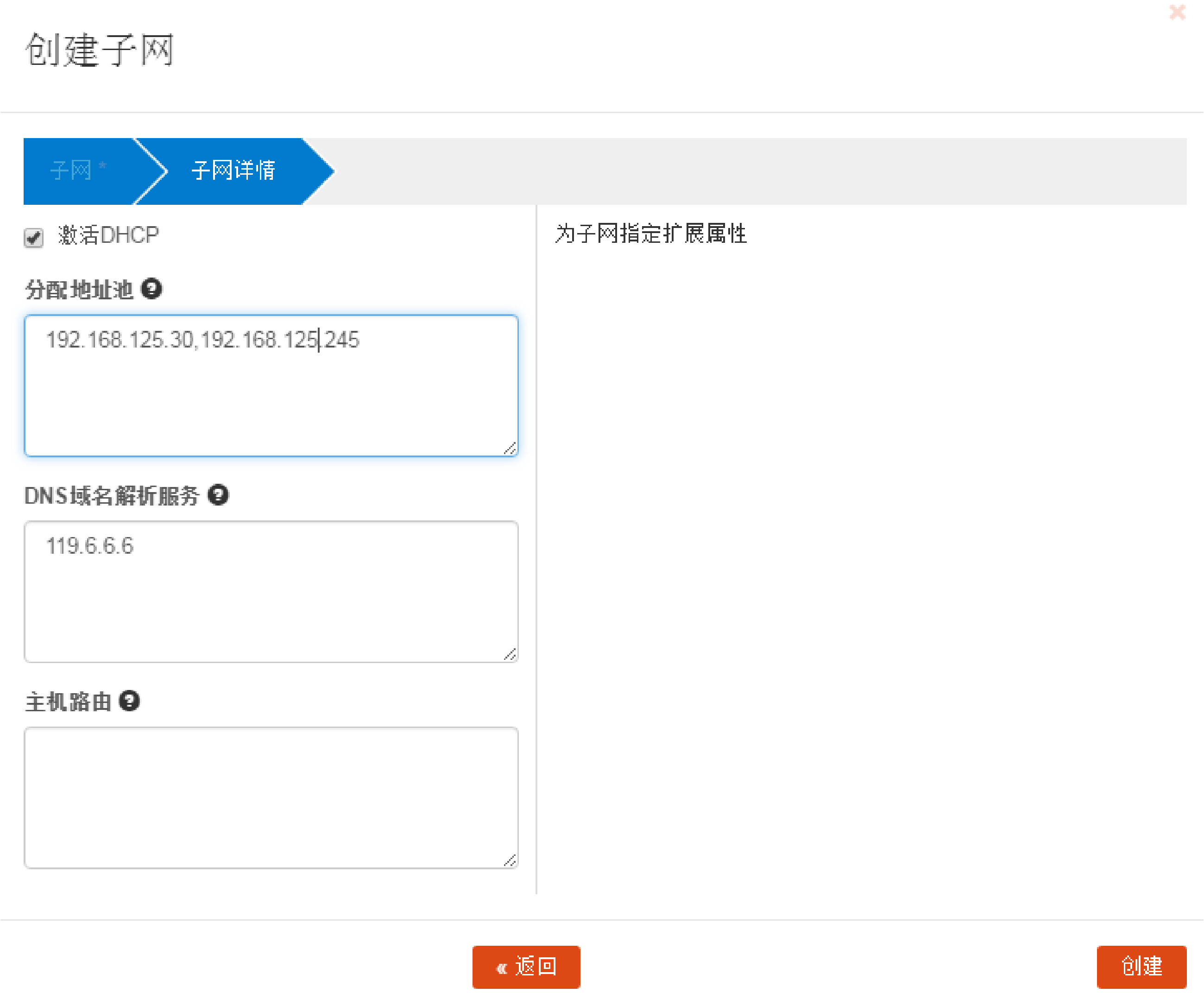
网关IP

192.168.125.1

□ 禁用网关

创建网络关联的子网。点击"子网详情"标签可以进行高级配置。

When finished inputting "Subnet" information, click "Next" to input "Subnet Details" information, such as IP segment, DNS server.



创建子网

子网 * 子网详情

☑ 激活DHCP

分配地址池

192.168.125.30,192.168.125.245

DNS域名解析服务

119.6.6.6

主机路由

为子网指定扩展属性

Check Enable DHCP to enable DHCP.

IP segment specified here will be used for virtual machine creation of SuperMap iManager.

While performing IP configuration in SuperMap iManager, the configured IP resources should be included in the IP segment input here.

### Floating IP

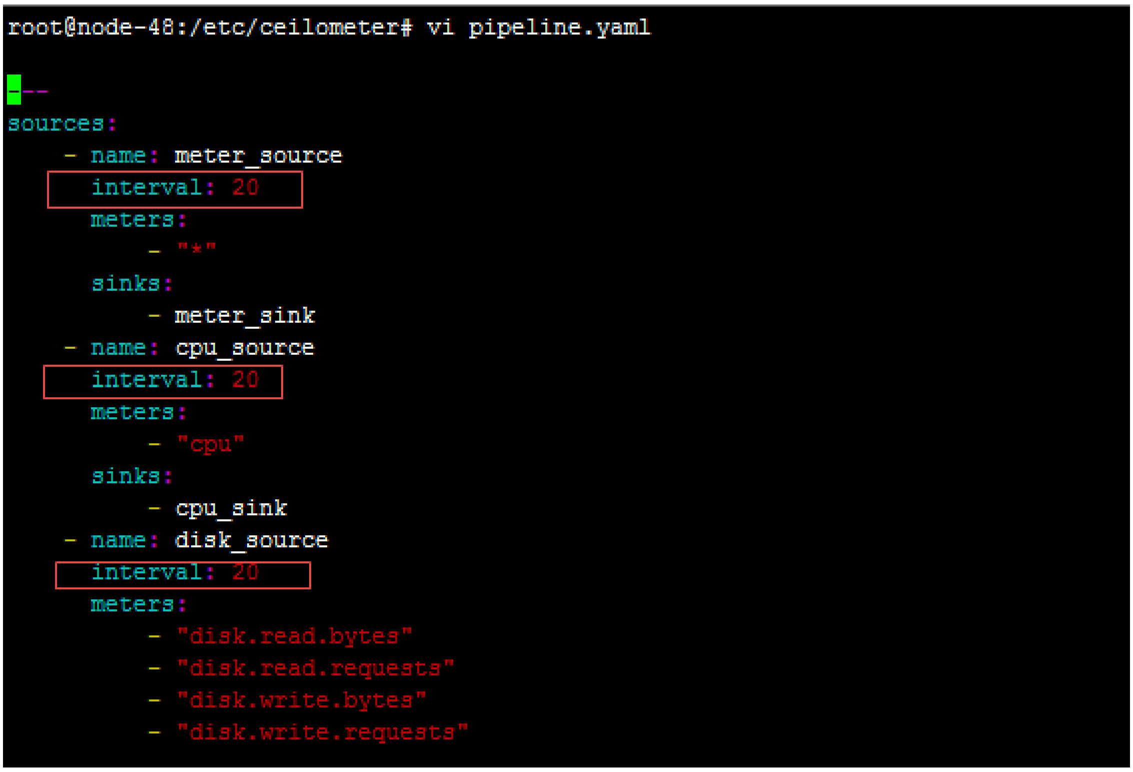
OpenStack has fixed IPs and floating IPs. The fixed IPs will be distributed to created instances and will no longer change, floating IPs are IP addresses that can be dynamically bound to instances and released. While initializing SuperMap iManager, choose whether to use floating IP. After initialization, you can modify whether to use the floating IP under virtual platform management.

Note: If you want to use floating IP in SuperMap iManager, deploy network modules in the Self-service networks method while installing OpenStack.

## Configuring Load Latency and Dynamic Scaling

### Modify Monitoring Interval

Modify the /etc/ceilometer/pipeline.yaml file for all OpenStack nodes (all Controller and Compute nodes) and modify the interval (interval value) of all monitoring items to 20.



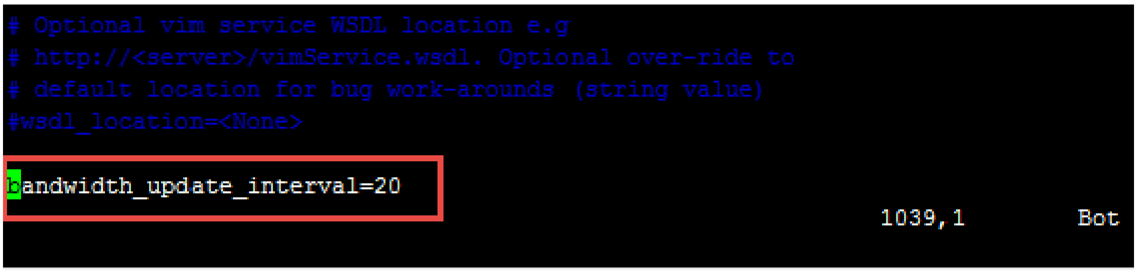
```
root@node-48:/etc/ceilometer# vi pipeline.yaml

---
sources:
    - name: meter_source
      interval: 20
      meters:
          - "*"
      sinks:
          - meter_sink
    - name: cpu_source
      interval: 20
      meters:
          - "cpu"
      sinks:
          - cpu_sink
    - name: disk_source
      interval: 20
      meters:
          - "disk.read.bytes"
          - "disk.read.requests"
          - "disk.write.bytes"
          - "disk.write.requests"
```

Note: All nodes in the OpenStack environment need to be modified, and all interval values in the pipeline.yaml file must be modified to 20.

### Add Parameters

Modify the /etc/ceilometer/pipeline.yaml file for all OpenStack nodes (all Controller and Compute nodes), and add parameter bandwidth_update_interval = 20.



```
# Optional vim service WSDL location e.g
# http://<server>/vimService.wsdl. Optional over-ride to
# default location for bug work-arounds (string value)
#wsdl_location=<None>

bandwidth_update_interval=20
                                                              1039,1        Bot
```

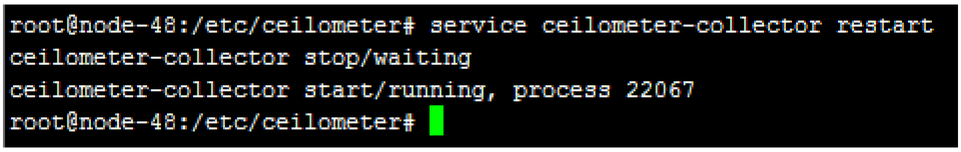
### Enable Services

All Controller nodes need to restart the following services:

```
service ceilometer-api restart
service ceilometer-agent-central restart
service ceilometer-collector restart
```

All Computer nodes need to restart the following services:

```
service ceilometer-agent-compute restart
```



```
root@node-48:/etc/ceilometer# service ceilometer-collector restart
ceilometer-collector stop/waiting
ceilometer-collector start/running, process 22067
root@node-48:/etc/ceilometer#
```

Note: When restarting the services, there will be a prompt as shown in the figure. If not, it indicates that some configurations are not configured properly yet, and you need to configure according to error prompts.

## Import GIS Mirror

In order to successfully create a GIS environment, the image file of the GIS environment needs to be imported into the cloud computing platform. The Mirror Type should be consistent with the file type of the imported mirrored file while importing the mirrori type. Specific import process is as follows:

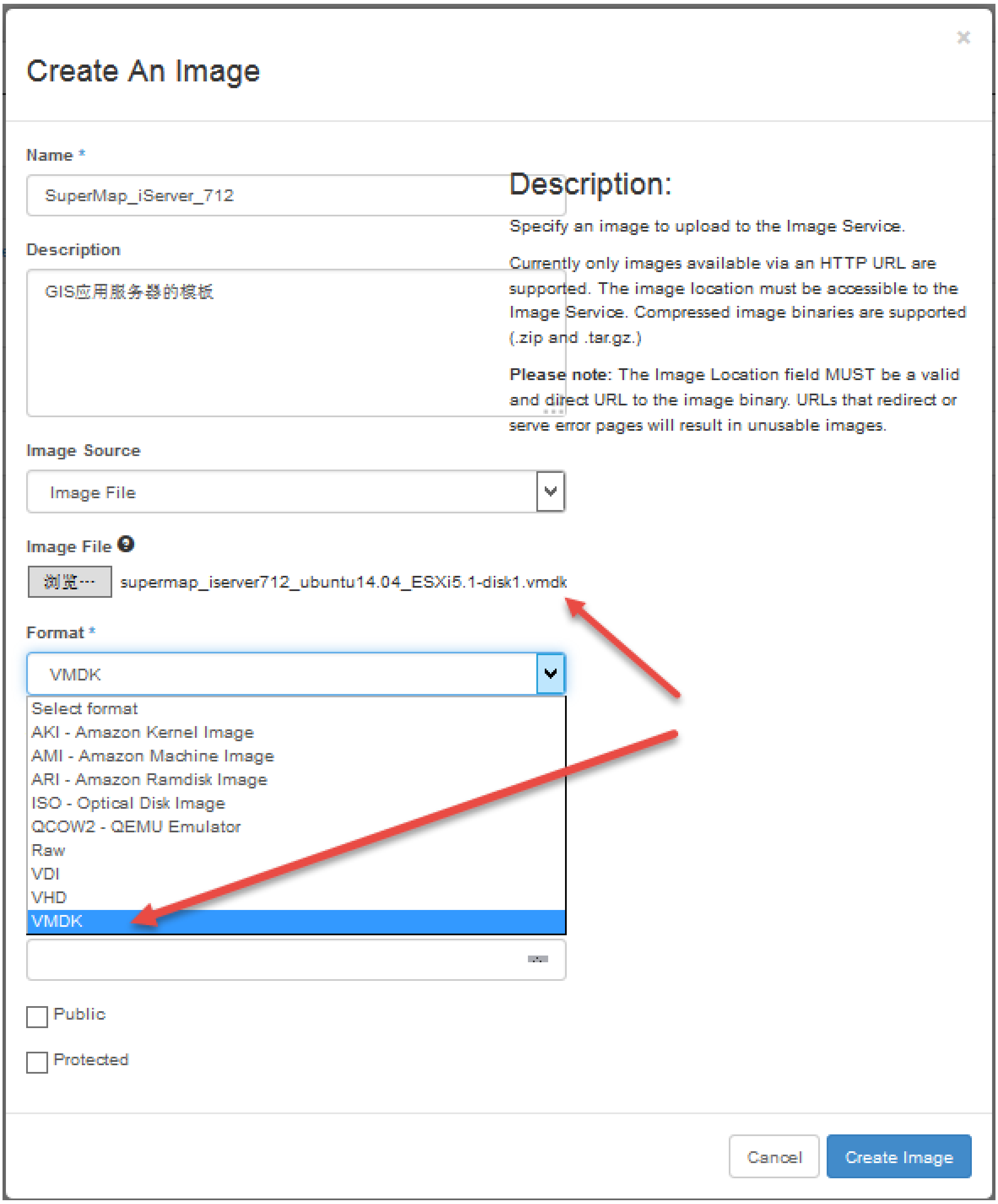
- Access OpenStack Admin Interface (http://<IP>/horizon/), on the Admin tab, click "System", click "Images", enter the image management page, click the "Create Image" button to enter the page for adding the mirror.

- In the Create An Image dialog box, input the related information for the mirror. Name is required. While associating the template in iManager, the Name value input here will be selected for Associated Template Name. Description is optional. While managing the templates in iManager, the Description value input here will be selected for Template Description in Template List.

- If the mirror file is local, select the local file in image Source. If the mirror file is non-local file, fill in the address and file name of the remote access in Image Location, such as "http://example.com/image.vmdk."

- When you select Format, the type that you choose should be consistent with the type of the mirrored file. For example, in the following figure, the file type of the mirrored file for the imported GIS application server (SuperMapiServer) is .vmdk, then you should choose VMDK for SelectFomat. If the type of "Setectfomat" is not consistent with the imported mirrored file, it will cause error while iManager is creating the GIS environment.

- You can leave Architecture empty. "Minimum Disk" and "Minimum RAM" should be input according to actual needs, or left empty. "Public" and "Protected" should be selected according to the actual situation, or left not selected.



Create An Image

Name *

SuperMap_iServer_712

Description

GIS应用服务器的模板

Image Source

Image File

Image File

浏览… supermap_iserver712_ubuntu14.04_ESXi5.1-disk1.vmdk

Format *

VMDK

Select format
AKI - Amazon Kernel Image
AMI - Amazon Machine Image
ARI - Amazon Ramdisk Image
ISO - Optical Disk Image
QCOW2 - QEMU Emulator
Raw
VDI
VHD
VMDK

□ Public

□ Protected

Description:

Specify an image to upload to the Image Service.

Currently only images available via an HTTP URL are supported. The image location must be accessible to the Image Service. Compressed image binaries are supported (.zip and .tar.gz.)

**Please note:** The Image Location field MUST be a valid and direct URL to the image binary. URLs that redirect or serve error pages will result in unusable images.

## Setting Security & Access

In order to enable us to access the virtual machines created in the OpenStack platform, we need to set up Security & Access, that is, to add TCP rules and ICMP rules to both the import and export networks, with a total of four rules.

Within the Security group under the Security & Access option, modify the default security group, that is, add TCP rules and ICMP rules to the default security group. Steps are as follows:

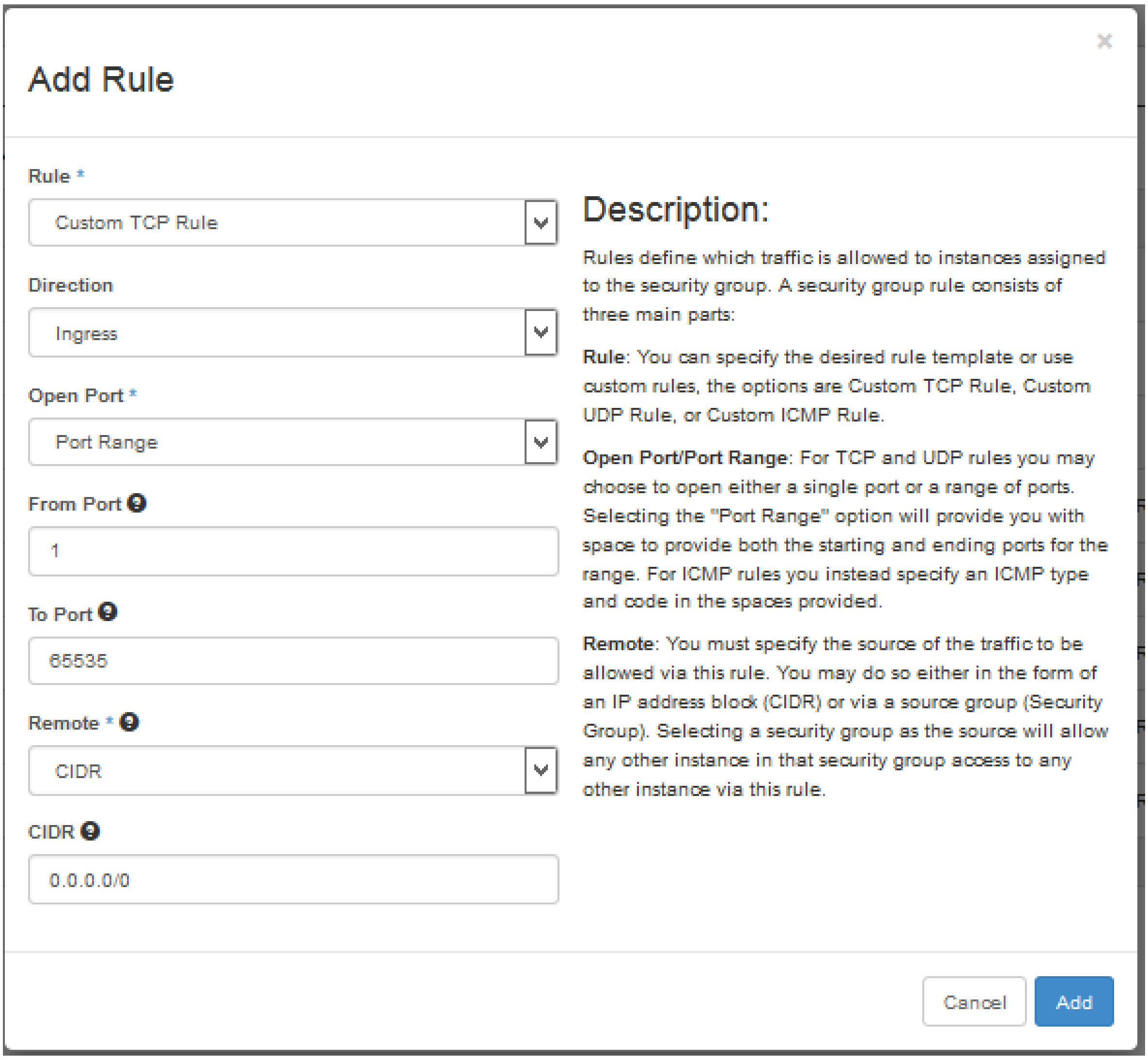
Project->Compute->Access&Security->Security Groups->default->Manager Rules->Add Rule. Rules are added in the Add Rule dialog box.

Two rules are explained separately below:

**Add TCP Rules**

The rules for adding the entry direction for the TCP protocol are configured as follows:

In the Add Rule dialog box, select Custom TCP Rule for Rule, Ingress for Direction, Port Range for Open Port. Please fill in the minimum port number for From Port, such as" 1 "; fill in the maximum port number for To Port, such as" 65535 ". Keep default values for Remote and CIDR. After filling out all the options, click the Add button, as shown in the following figure.



Add Rule

Rule *: Custom TCP Rule

Direction: Ingress

Open Port *: Port Range

From Port: 1

To Port: 65535

Remote *: CIDR

CIDR: 0.0.0.0/0

Description:

Rules define which traffic is allowed to instances assigned to the security group. A security group rule consists of three main parts:

**Rule**: You can specify the desired rule template or use custom rules, the options are Custom TCP Rule, Custom UDP Rule, or Custom ICMP Rule.

**Open Port/Port Range**: For TCP and UDP rules you may choose to open either a single port or a range of ports. Selecting the "Port Range" option will provide you with space to provide both the starting and ending ports for the range. For ICMP rules you instead specify an ICMP type and code in the spaces provided.

**Remote**: You must specify the source of the traffic to be allowed via this rule. You may do so either in the form of an IP address block (CIDR) or via a source group (Security Group). Selecting a security group as the source will allow any other instance in that security group access to any other instance via this rule.

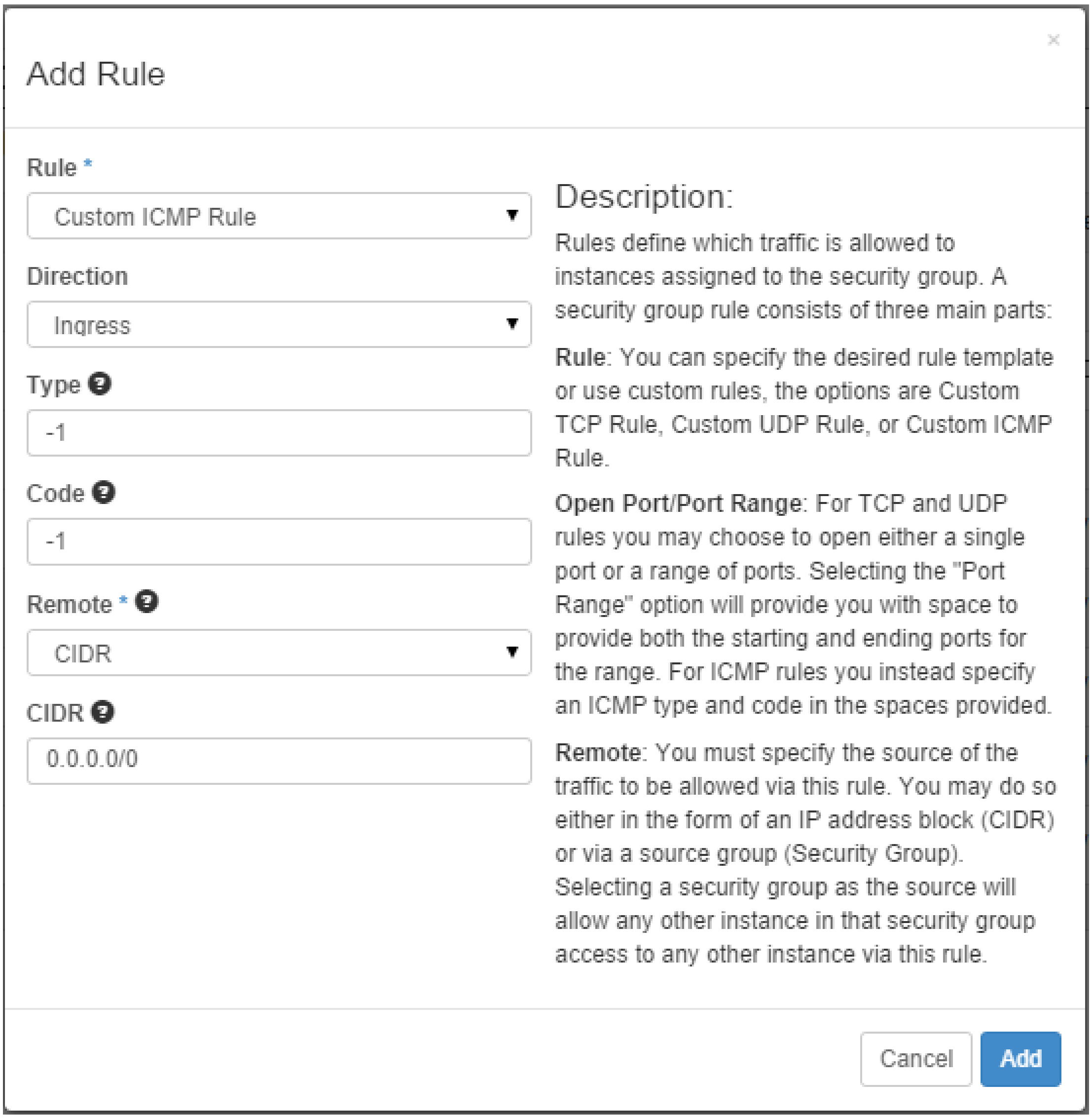
Similarly, when you add a rule for the export direction for the TCP protocol, please select Egress for Direction, keeping the rest of the options the same as the Ingress.

### Add ICMP Rules

The rules for adding the entry direction for the ICMP protocol are configured as follows:

In the Add Rule dialog box, select Custom TCP Rule for Rule, Ingress for Direction, -1 for Type, -1 for Code. Keep default values for Remote and CIDR.

After filling out all the options, click the Add button, as shown in the following figure.



Add Rule

Rule *: Custom ICMP Rule

Direction: Ingress

Type: -1

Code: -1

Remote *: CIDR

CIDR: 0.0.0.0/0

Description:

Rules define which traffic is allowed to instances assigned to the security group. A security group rule consists of three main parts:

**Rule**: You can specify the desired rule template or use custom rules, the options are Custom TCP Rule, Custom UDP Rule, or Custom ICMP Rule.

**Open Port/Port Range**: For TCP and UDP rules you may choose to open either a single port or a range of ports. Selecting the "Port Range" option will provide you with space to provide both the starting and ending ports for the range. For ICMP rules you instead specify an ICMP type and code in the spaces provided.

**Remote**: You must specify the source of the traffic to be allowed via this rule. You may do so either in the form of an IP address block (CIDR) or via a source group (Security Group). Selecting a security group as the source will allow any other instance in that security group access to any other instance via this rule.

Similarly, when you add a rule for the export direction for the ICMP protocol, please select Egress for Direction, keeping the rest of the options the same as the Ingress.

## Problems & Solutions

1. What if no valid host was found error occurs during instance creation?

   A: You can check the following three steps:

- You should check whether there are too many instances that causes lack of space.
- Check the system information in the Nova-compute state in the OpenStack environment, if it is down, it might be because the network is different. You need to perform cold start for Compute node (If it is in shutdown state, press the power key to start).
- Check the network added in the network configuration, check the whether status of compute:dhcp and admin status are down. If the admin status is down, you can edit the port and set it to up. After a period of time, if the status is still down, You can delete and rebuild network. If the admin status is up and status of compute:dhcp is down, you can rebuild the network.

2. In the process of GIS environment creation, if the failure of the execution appears in Task Management page, and the "IP * * * * * * * is not available. Please check the network configuration information and retry" prompt display. How to handle this problem?

   A: The first possibility of such an error is that the network configuration information is incorrect. Secondly, it might be because it is impossible to get an IP address from DNSmasq. The simplest way is to turn off all the DNSmasq processes on the machine and reboot nova-work.

   Specific steps are as follows:

   - Step 1: Check the network configuration information and the configuration information of the virtual platform. When you confirm the network is available, click the "Retry" button for the task. After retry, if the task is successful, you do not need the following steps.
   - Step 2: If the same prompt still exist after checking the network configuration information and retrying, you need to configure the OpenStack Controller node (DNSMASQ host machine). The configuration method is to perform "killall dnsmasq" and "service neutron-dhcp-agent restart" at the Controller node (the DNSMASQ machine).
   - Step 3: After restarting the Controller node, on the iManager Task Management page, click the "Retry" button for the task.