



VSkyView & VSkyCube

Quick Start Guide

Version 1.02

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Chapter 1. Network Preparation before Deployment

VSky Hyperconverged Systems (HCS) Network Overview

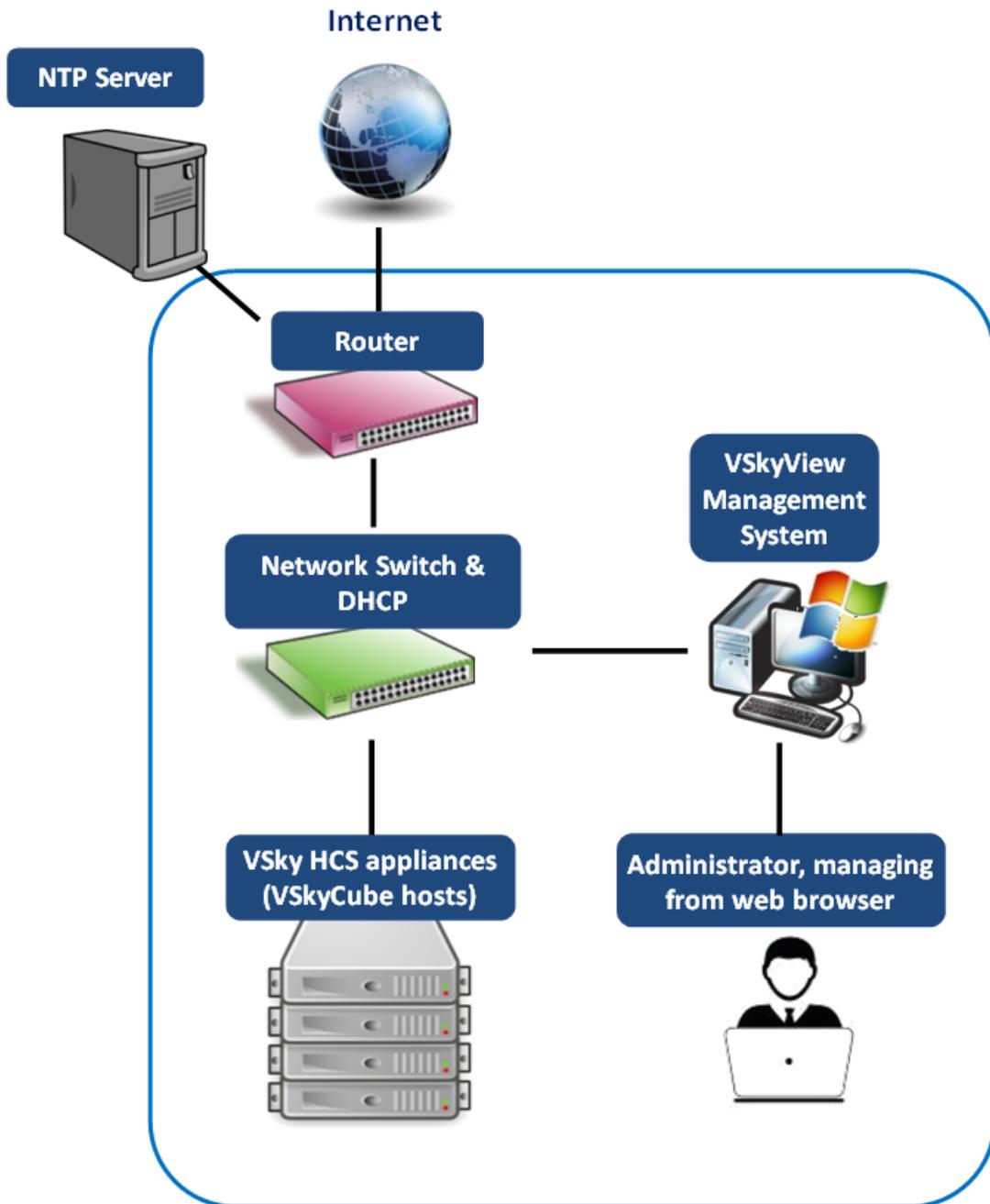
VSkyCube has three logical networks, a Management Network, a Service Network, and a Cluster Network.

- The **Management Network** is used by the VSkyView management system to manage VSkyCube clusters.
- The **Service Network** accommodates traffic from services provided by VSkyCube.
- The **Cluster Network** accommodates the VSkyCube cluster operation traffic such as VM virtual disk migration and data volume rebalancing.

These three logical networks are physically configured into the 10GbE network. For VSky HCS appliances containing both dual GbE and dual 10GbE ports, please **only connect the 10GbE port(s) to the network**. When dual 10GbE ports are connected to the network switch(es), dual ports are bound together to become a logical port.

Prepare the VSky HCS Network Environment

The following diagram illustrates the VSky HCS network environment.



VSky HCS network environment to prepare before deployment

Before deploying VSky HCS, set up the following items in the network.

- **10 GbE network switch.** Each VSkyCube host supports either two 10GBASET or two 10G SFP+ ports. One or two corresponding ports on the switch(es) are required for each VSkyCube host. A VSkyCube cluster supports up to 32 hosts/nodes. We recommend that you prepare enough 10 GbE switch ports for future expansion.
- DHCP (Dynamic Host Configuration Protocol) server. This is used for host IP assignment.
- **NTP (Network Time Protocol) server**, either in private network or on the internet. This is used for time synchronization.
- A workstation running Windows 64-bit operating system to install VSkyView, the VSky HCS management software.

Chapter 2. Install the VSkyView Management System

The information in this section will help you install the VSkyView management system in a separate Windows workstation. **A Windows workstation dedicated for the VSkyView management system is highly recommended.**

In addition to the VSkyView management system software, Oracle Java and MySQL will automatically be installed. To avoid conflicts, **please ensure that Oracle Java and MySQL are not already installed on the Windows workstation.**

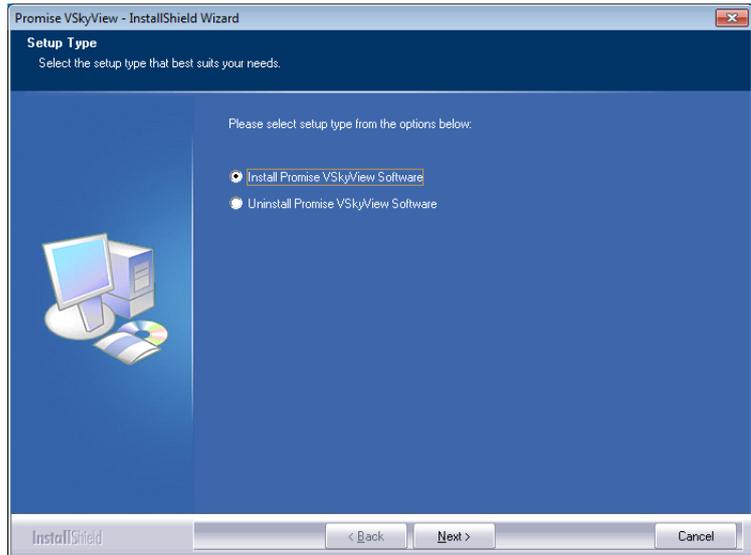
System Requirements

- Operating system: Microsoft® Windows® 7 64-Bit operating system and above.
 - .NET Framework 4.0
 - Administrator Privileges
- CPU: at least 2 cores
- Memory: at least 4 GB
- Disk Space: at least 20 GB
- Network: 100/1000 Mbps
- Network port
 - Reserved ports for VSkyView installation:
 - Port 443, 5701 for VSkyView
 - Port 3306 for MySQL
 - Make sure that VSkyView can access VSkyCube with the following ports:
 - Port 8282, 8822, 12345 for VSkyCube
 - Port 161, 162 for SNMP
 - Make sure that the user can access the VSkyView management system from a web browser with port 443

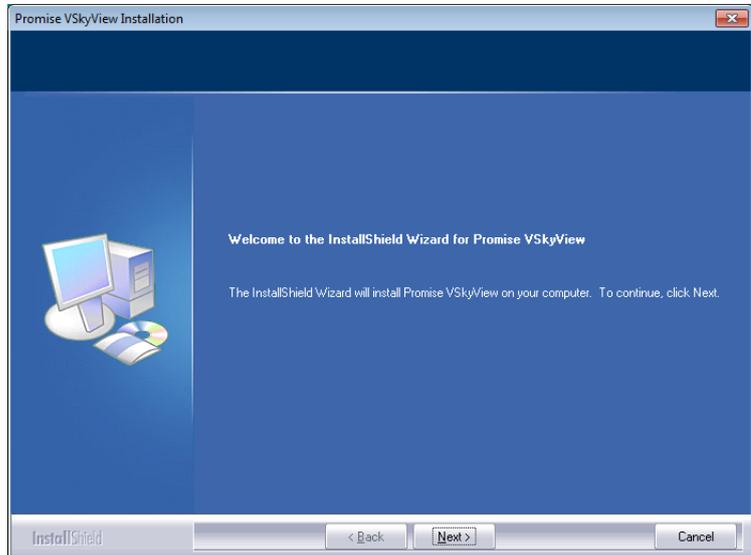
Installation

Insert the Utility CD to the CD-ROM, and find the VSkyView Installation Package file, *Promise VSkyView Installer x.xx.xxxx.xx.exe*. Then follow the steps that follow. To install the program, you need to have administrator privileges on this Windows workstation.

1. Double-click on the VSkyView Installation Package file; the **Setup Type** window appears. Select **Install Promise VSkyView Software** and click **Next**.



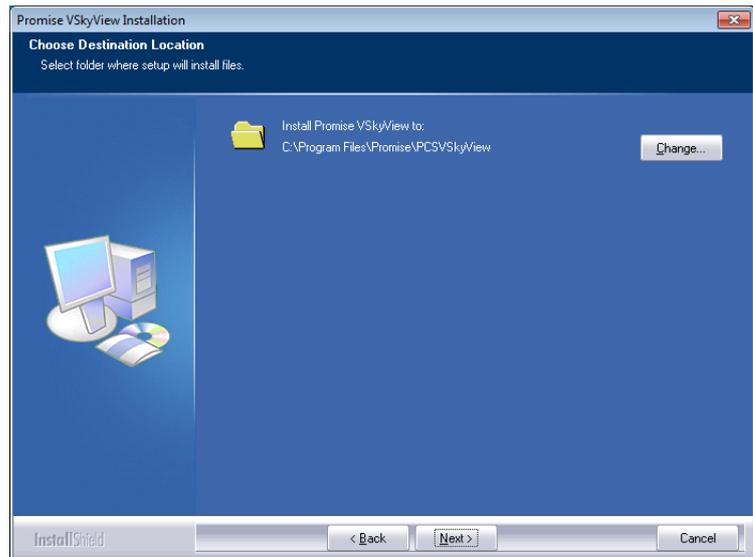
2. Click **Next** from the Welcome screen.



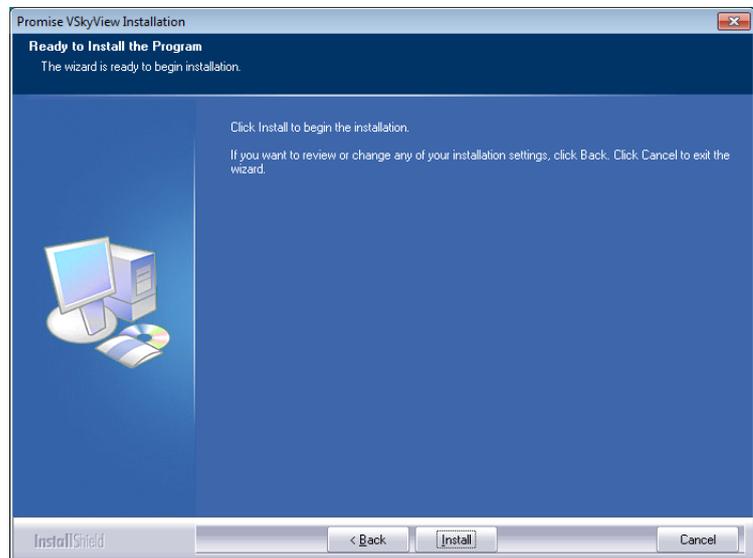
3. Select **I accept the terms of the license agreement** and click **Next**.



4. If you would like to change the destination folder, click **Change**. Click **Next**.



5. Click **Install** to start the VSKyView installation.



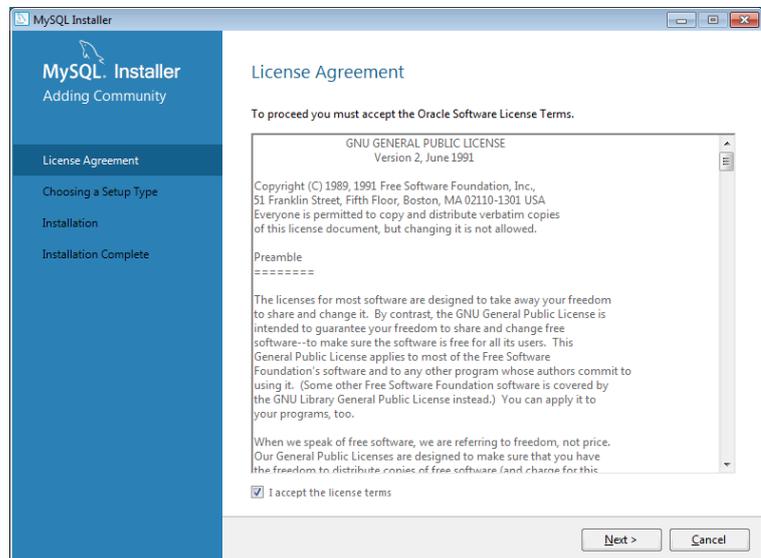
6. The VSKyView installer starts the Oracle Java installation. Click **Install** and follow the instructions to install Java.



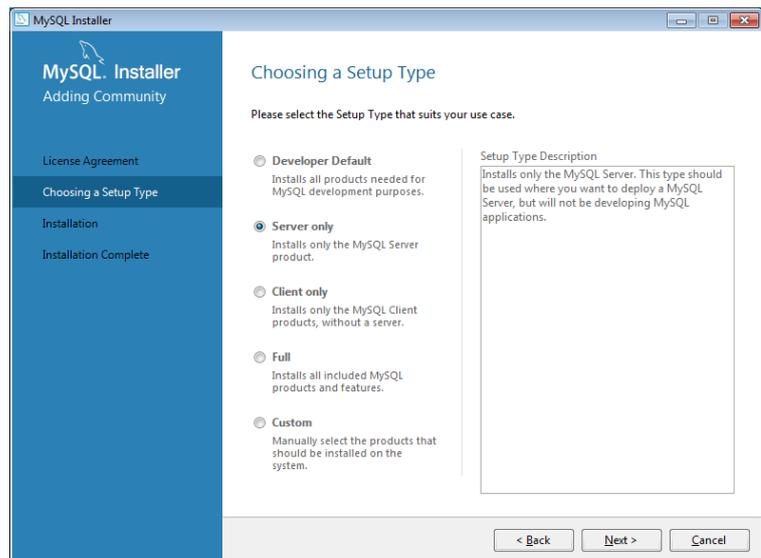
7. Click **Close** to finish the Java installation.



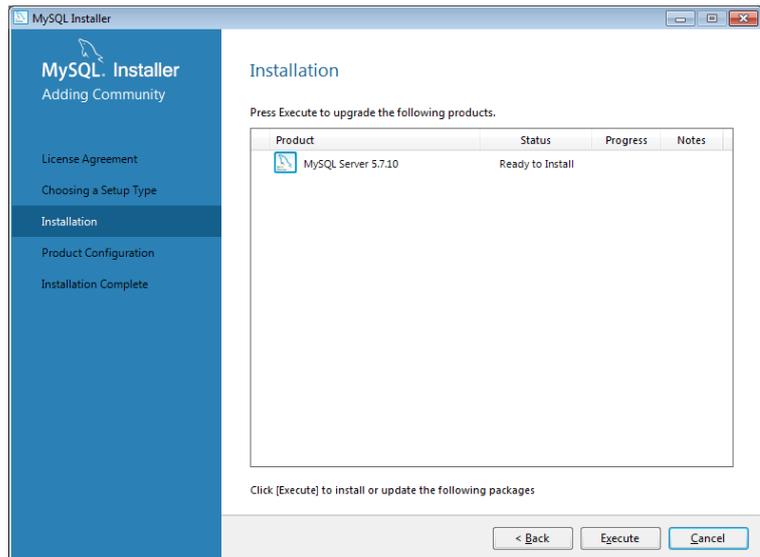
8. The VSkyView installer starts the Oracle MySQL installation. Select **I accept the license terms** and then click **Next**.



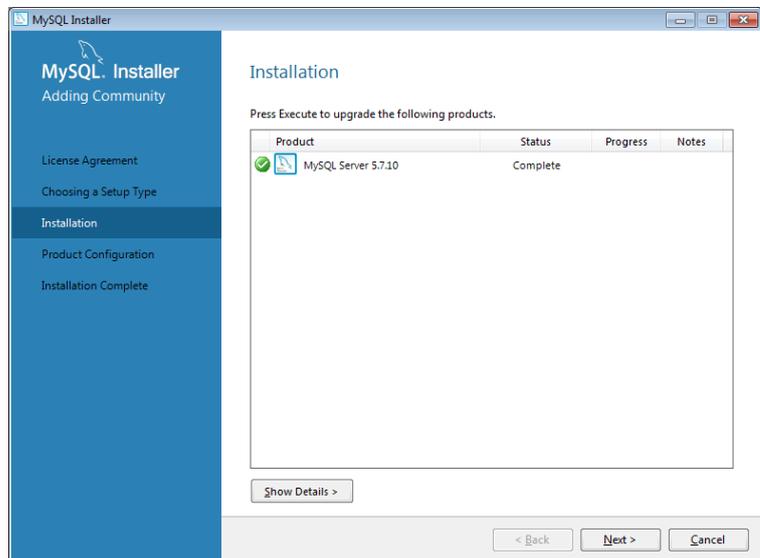
9. Select **Server only** for the Setup Type and click **Next**.



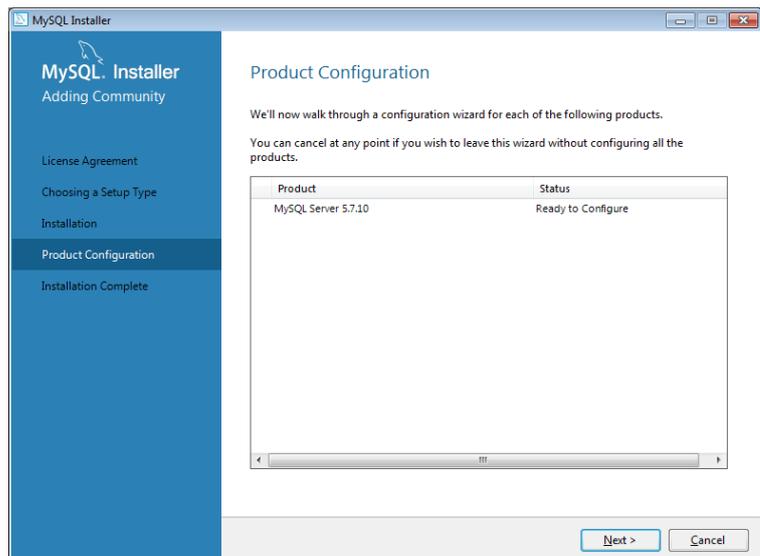
10. Click **Execute** to continue.



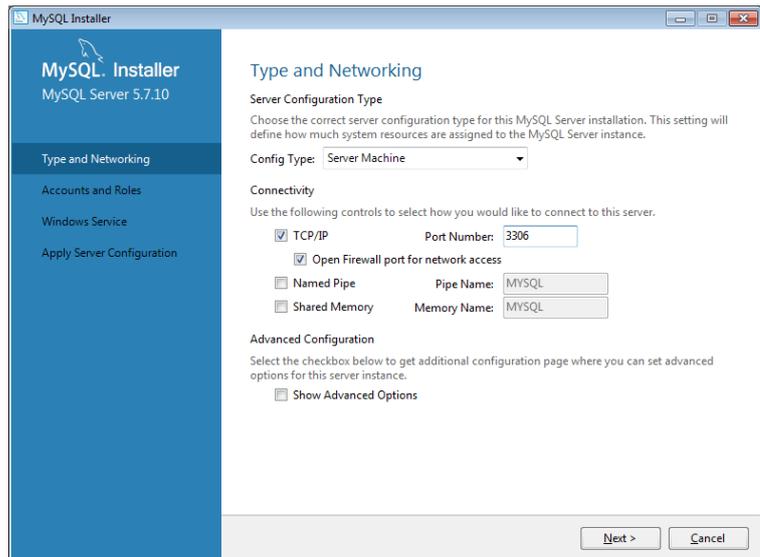
11. Click **Next** to install.



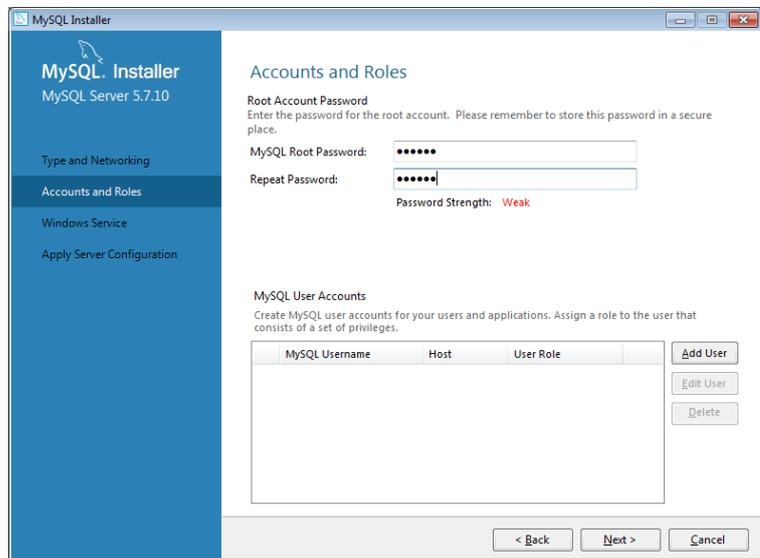
12. Click **Next** to configure.



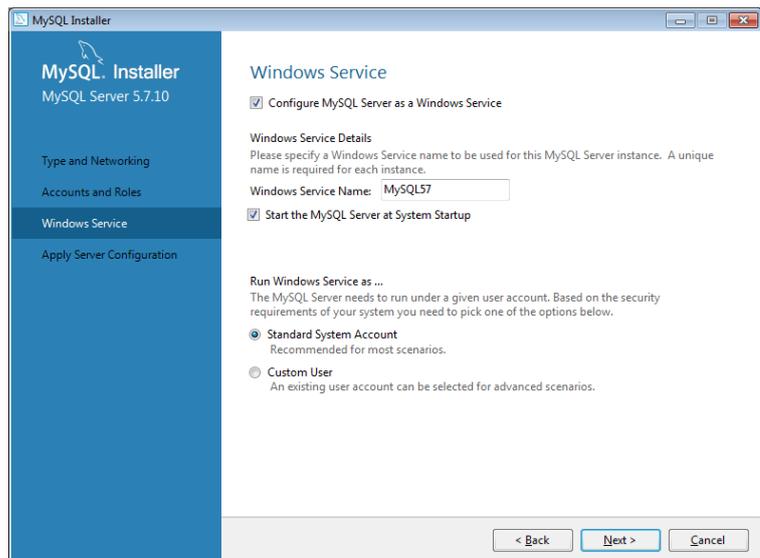
13. Do not change the default settings, and click **Next**.



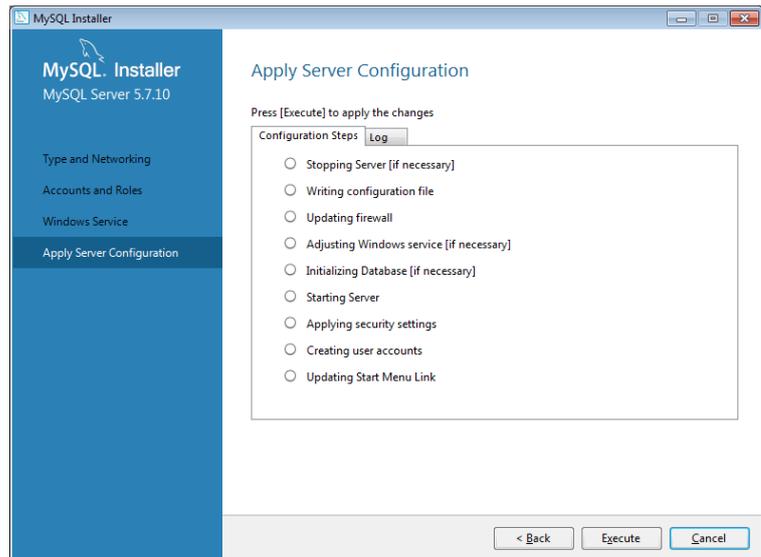
14. Enter a MySQL Root Password and save it for later use. Click **Next** to continue.



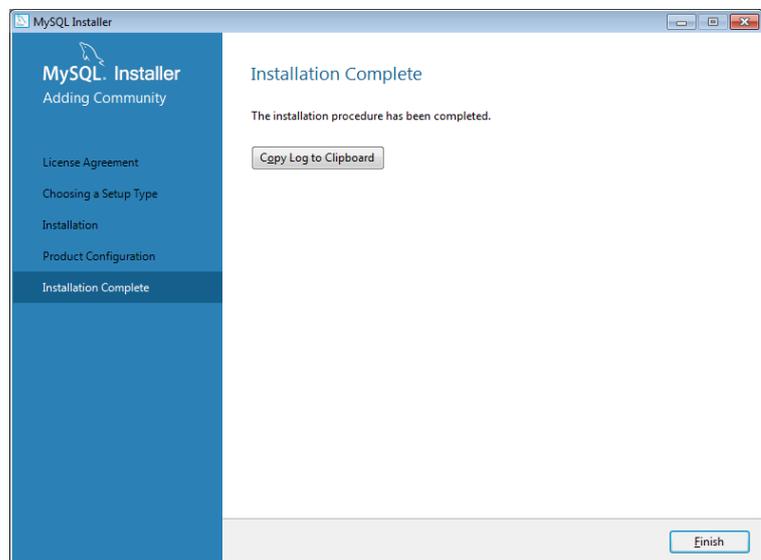
15. **Windows Service Name** is **MySQL57** by default. Please **do not change** the default name. Click **Next** to continue.



16. Click **Execute** to apply the changes.



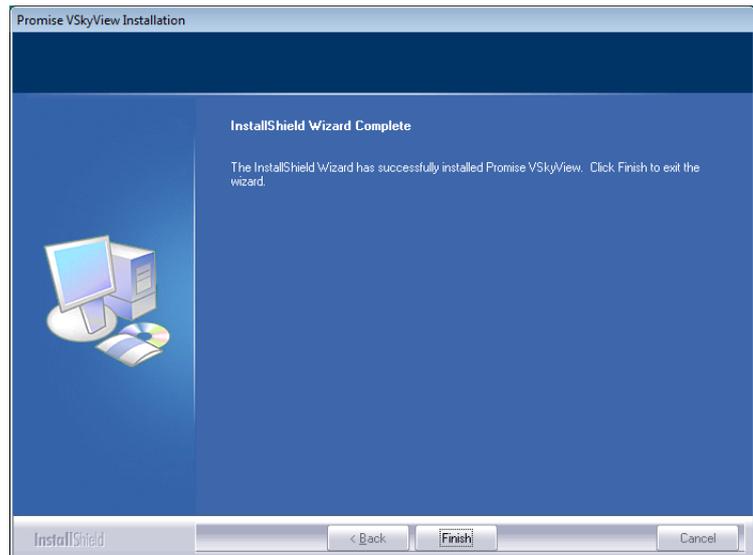
17. Click **Finish** to finish the Oracle MySQL installation.



18. Enter the MySQL Root Password from step 14 and click **Next**.



19. Click **Finish** to complete the installation.



Once VSKyView is installed on the workstation, it will run in the background and open whenever Windows is started.

Connecting the VSKyView Management System to the Network

After the installation is complete, connect the VSKyView management system to the network and memorize its IP address. You can open any web browser and type <https://<VSKyView host IP>> to connect with it. The user name and password, which are both 'admin' to start with, can be entered from the Sign In page. Then you can begin to configure, deploy, and manage VSKyCube clusters.

Chapter 3. Deploy VSkyCube

Connect VSkyCube Hosts to the Network and Turn the Power On

After the network preparation is done, connect the VSkyCube hosts to the 10GbE network (with DHCP) and turn the power on. For VSkyCube hosts containing both dual GbE and dual 10GbE ports, please **only connect the 10GbE port(s) to the network**. When dual 10GbE ports are connected to the network, dual ports are bound together to become a logical port.

Obtain the IP Address of the VSkyCube Host

Follow these steps to get the IP address of each VSkyCube host.

1. Connect a keyboard and a monitor to the VSkyCube host. The following login window appears.

```
Ubuntu 14.04.1 LTS hhbc37523c tty2
hhbc37523c login:
```

2. Log in to the VSkyCube host.

Username: *promise*

Password: *promisepromise*

```
Ubuntu 14.04.1 LTS hhe2f27608 tty1
hhe2f27608 login: promise
Password:
Last login: Wed Mar 23 16:53:21 CST 2016 on tty1
Welcome to Ubuntu 14.04.1 LTS (GNU/Linux 3.19.8-031908-generic x86_64)

* Documentation:  https://help.ubuntu.com/
promise@hhe2f27608:~$ _
```

3. After logging in, type “**ifconfig**” to list the IP address of the 10GbE LAN port.

*The IP address here is temporarily assigned by DHCP. It will be configured to a fixed IP when deploying VSkyCube.

- The IP address is shown after “**inet addr:**” In the following example, the IP address is 172.16.0.75.

```
Ubuntu 14.04.1 LTS hhe2f27608 tty1
hhe2f27608 login: promise
Password:
Last login: Wed Mar 23 16:53:21 CST 2016 on tty1
Welcome to Ubuntu 14.04.1 LTS (GNU/Linux 3.19.8-031908-generic x86_64)

* Documentation:  https://help.ubuntu.com/
promise@hhe2f27608:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:8c:fa:ef:f9:74
          inet addr:172.16.0.75  Bcast:172.16.0.255  Mask:255.255.255.0
          inet6 addr: fe80::28c:faff:feef:f974/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1163 errors:0 dropped:0 overruns:0 frame:0
          TX packets:60 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:73559 (73.5 KB)  TX bytes:10280 (10.2 KB)
          Memory:c7000000-c73fffff

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128  Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:21 errors:0 dropped:0 overruns:0 frame:0
          TX packets:21 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:1589 (1.5 KB)  TX bytes:1589 (1.5 KB)
```

- Repeat steps 2 to 4 for each VSkyCube host.
- Record the IP address of each VSkyCube host for later use.

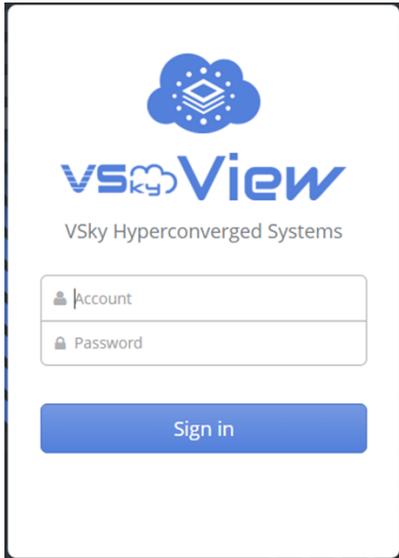
Log in to VSkyView

Open the web browser on the VSkyView management system or any other client accessible to VSkyView in the network. Enter the IP address of the VSkyView management system. Use HTTPS instead of HTTP to access. For example: <https://<VSkyView host IP>>

- Enter the following default user name and password to sign in to VSkyView.

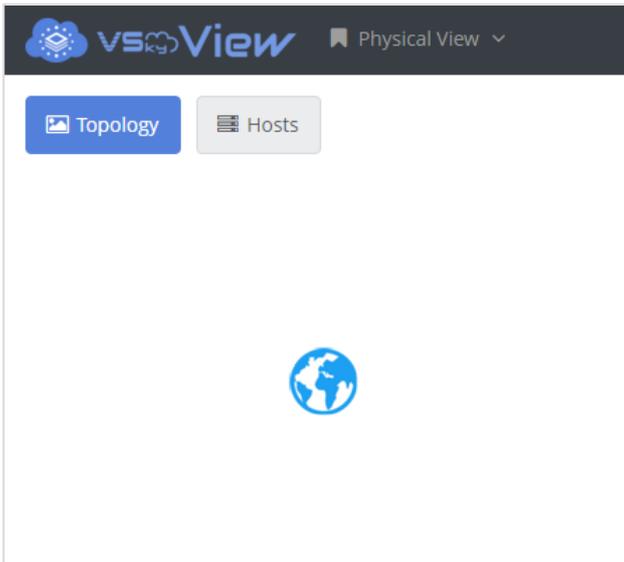
User Name: admin

Password: admin



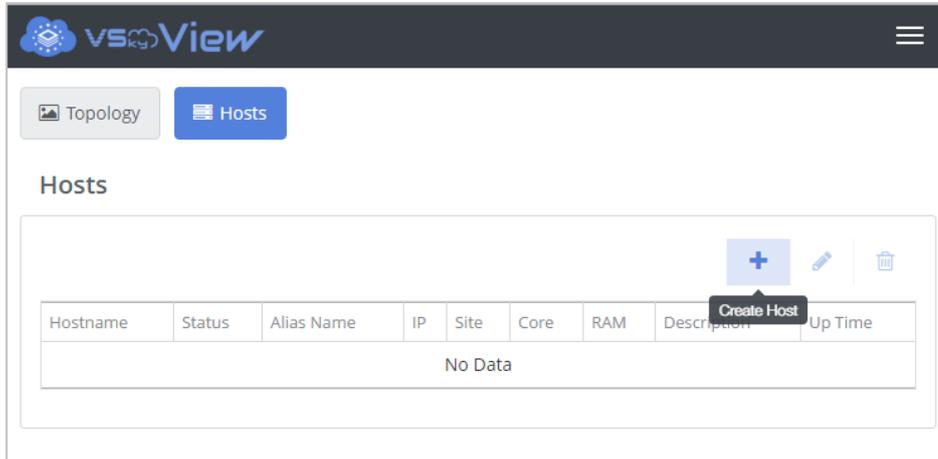
2. Click **Sign in** to enter the management portal.

By default, the portal shows the current VSkyCube host network topology. When signing in for the first time, the network topology is empty.



Add a VSkyCube Host

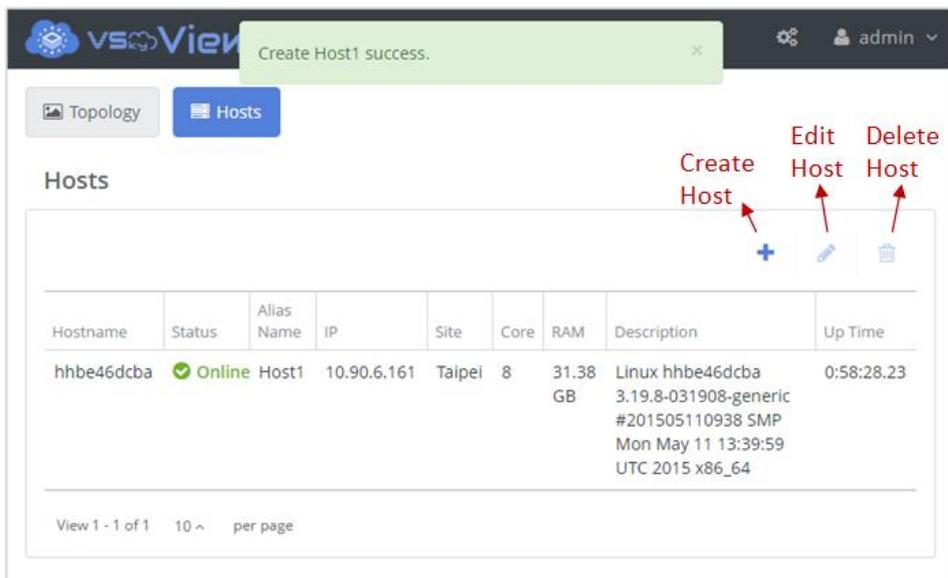
1. Switch to the **Hosts** tab. Click the **+** icon to create or add a new VSkyCube host.



2. The **Create Host** dialog box appears. Enter the following information.
 - **Alias Name:** A name for the VSkyCube host.
 - **IP address:** Enter the IP address of the VSkyCube host. This is the IP address just obtained.
 - **Site:** The location of the Host (for example, Taipei).

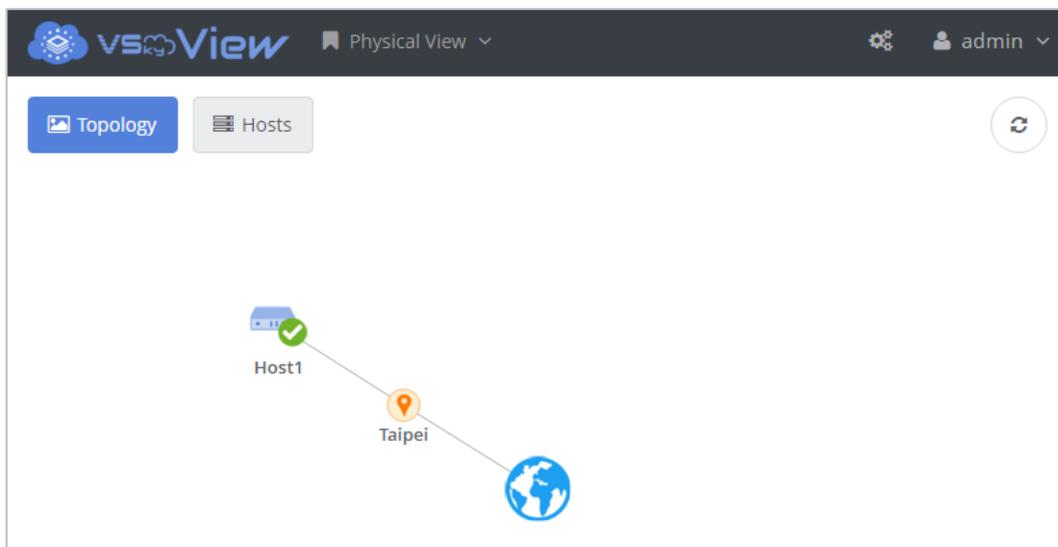
The screenshot shows the 'Create Host' dialog box. The dialog box has a title bar with the text 'Create Host' and a close button (x). The main content area contains three input fields. The first field is labeled 'Alias Name' and contains the text 'Host1'. The second field is labeled 'IP *' and contains the text '10.90.6.161'. The third field is labeled 'Site' and contains the text 'Taipei'. At the bottom right of the dialog box, there are two buttons: 'Cancel' and 'Submit'.

3. Click **Submit**; the newly added VSkyCube host appears.



- To edit the host information, click the “pencil” icon.
- To delete the host, click the “trashcan” icon.

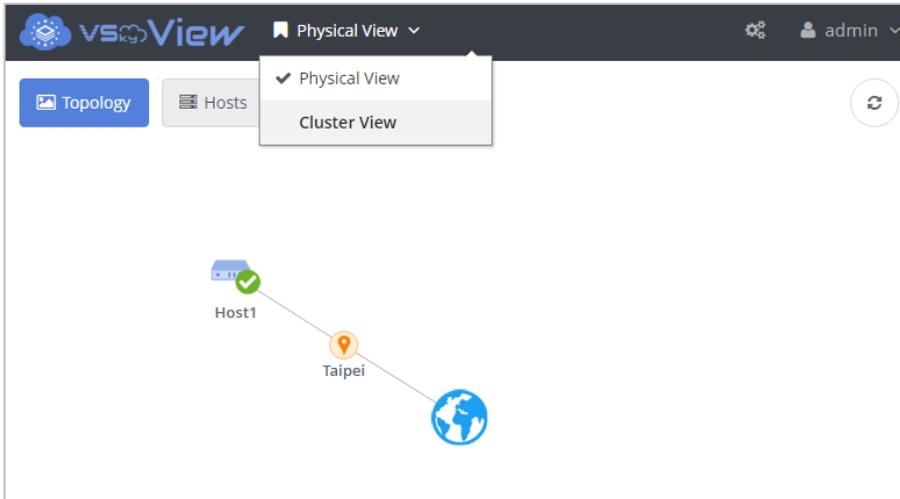
4. The newly added VSkyCube host will also appear in the **Topology** page.



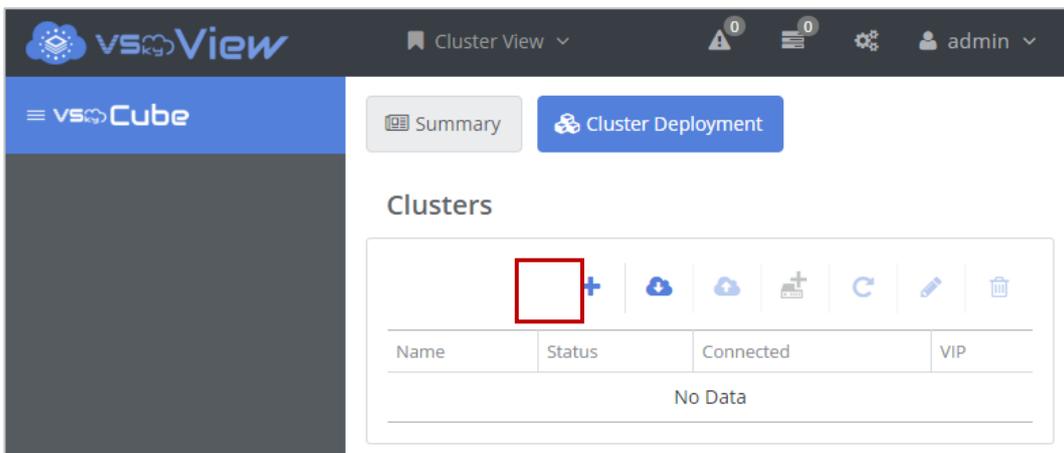
5. Repeat steps 1 to 4 to add other VSkyCube hosts.

Create a VSkyCube Cluster

1. Switch to Cluster View.



2. The **Cluster View** window shows all clusters deployed. When signing in for the first time, this page is empty.
3. Switch to the **Cluster Deployment** tab and click the + icon to deploy a new cluster.



Step 1: Cluster Settings

Enter the following information in the **Create Cluster-Cluster Settings** window.

- **Cluster Name:** A name for the cluster. In this example, it is “demoCluster”.
- **Virtual IP:** Assign an IP to this cluster. This VIP represents the cluster and all nodes in the cluster. It will be used for HA (High Availability) settings in the future.
- **Time Zone:** The region and city the cluster is located (for example, Region: Asia; City: Taipei).
- **Default Gateway:** The IP address of the gateway in the physical network.
- **NTP Address:** The IP address of the NTP server. This is used for time synchronization.
- **DNS Servers:** The IP address of the DNS server in the physical network.

The screenshot shows a web-based configuration window titled "Create Cluster - Cluster Settings". At the top, there is a progress bar with three steps: "Step 1 Cluster Settings" (active), "Step 2 Select Hosts", and "Step 3 Preview". Below the progress bar, the form contains the following fields:

- Cluster Name ***: Text input field containing "demoCluster".
- Virtual IP ***: Text input field containing "10.90.6.170".
- Time Zone**: A section containing two dropdown menus: **Region *** set to "Asia" and **City *** set to "Taipei".
- Default Gateway ***: Text input field containing "10.90.6.254".
- NTP Address ***: Text input field containing "10.90.0.93" with a small "IP address or domain name" label to its right.
- DNS Servers ***: Text input field containing "8.8.8.8" with a plus sign (+) button to its right.

At the bottom right of the form, there are two buttons: "Cancel" and "Next >".

Step 2: Select Hosts

1. Select the hosts to be added to the cluster from the drop-down menu. Hosts added in previous steps will be shown here. You can select one host, multiple hosts, or **Select All** hosts from different sites.

Create Cluster - Select Hosts

Step 1 Cluster Settings Step 2 Select Hosts Step 3 Preview

Site Taipei Host --- Select Host ---

Format disks for all hosts ?

#	Name	Network Interfaces	IP	Mask
1	Host1 (10.90.6.161)	Management Network Interface *	10.90.6.161	255.255.255.0

Cancel < Previous Next >

2. After selecting the hosts, enter the following information for each host, and click **Next** to continue.
 - **Management Network Interface:** The IP address shown here is the one originally auto-assigned by DHCP. In this step, VSkyCube will automatically turn it into a static IP. It's highly recommended to change it to a different static IP that is not within the dynamic IP range defined by the DHCP server to the node, otherwise you can modify the dynamic IP range on the DHCP server to avoid IP conflicts.

Step 3: Preview and Start Deploying the Cluster

Click **Previous** to go back to edit or **Submit** to start deploying the cluster.

Create Cluster - Preview

Step 1 Step 2 Step 3

Cluster Settings Select Hosts Preview

Cluster Settings

Name	Virtual IP	Default Gateway	Time Zone	NTP Address	DNS Servers
demoCluster	10.90.6.170	10.90.6.254	Asia / Taipei	10.90.0.93	["8.8.8.8"]

Selected hosts

#	Network	IP	Mask	Format Disks
1	Management Network Interface	10.90.6.161	255.255.255.0	True

Cancel < Previous Submit

After clicking **Submit**, it will take approximately 30 minutes to 1 hour to deploy the new cluster. After the deployment is complete, the newly deployed cluster will appear in the sidebar. In our example, it is called **demoCluster**.

vsView Cluster View

vsCube demoCluster

demoCluster

Hardware Summary

- 1 Nodes
- 2 Disks

Instance Summary

- 0 Instances

vCPU Summary

0 Reserved Total: 40

0%

Hypervisor Summary

Hostname	IP	State	Status	Instance	Used vCPUs
hhbe46dcba	10.90.6.161	Up	Enabled	0	0

View 1 - 1 of 1 10 ^ per page

Chapter 4. Launch an Instance on VSkyCube

An instance is a Virtual Machine (VM).

Steps for Launching an Instance

Once a cluster is created, follow the 10 steps below to launch an instance on VSkyCube.

Step 1: Create an Application in the Cluster

Step 2: Configure External Network for the Cluster

Step 3: Create Internal Network for the Application

Step 4: Create Router and Interface to connect External and Internal Network

Step 5: Upload an Image for Instance

Step 6: (Optional) Create Key Pair

Step 7: Add Rules to Security Group

Step 8: Launch an Instance

Step 9: Associate a Floating IP to the Instance

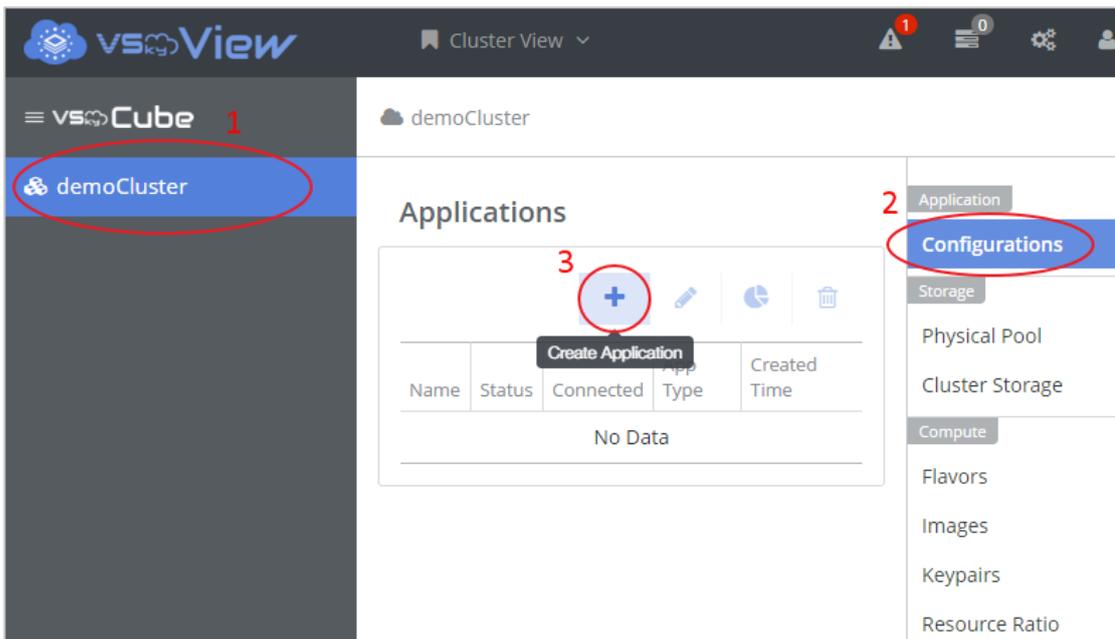
Step10: Access the Instance with the Floating IP via SSH

Step 1: Create an Application in the Cluster

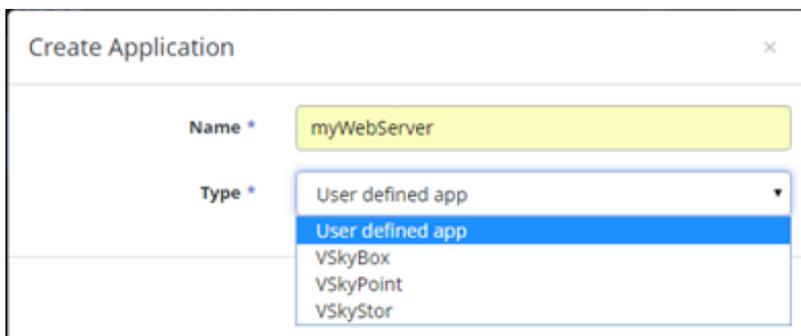
An application is a service project, for example, a file sharing application or a mail server application. Each application has a given quota of resources in the VSkyCube cluster. This is how VSkyCube allocates resources for different services.

As an example, we will create an application for **demoCluster**, the cluster just created.

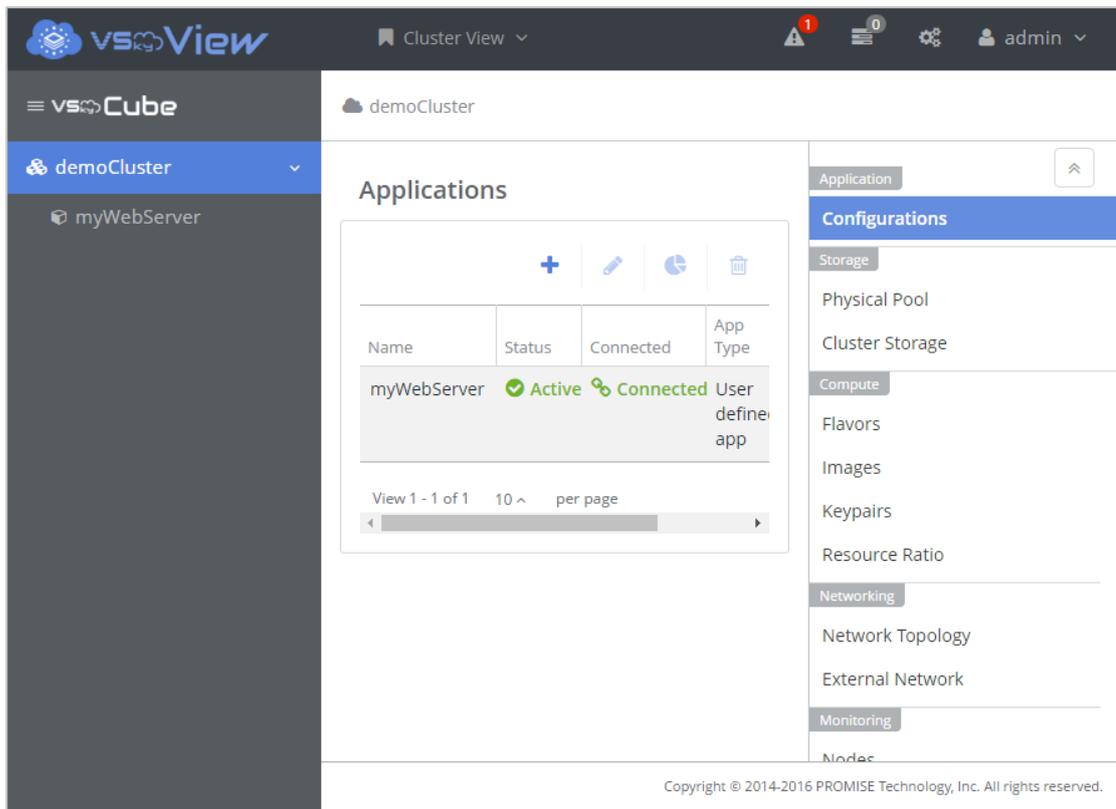
1. To create an application, select a cluster, and under **Application** in the right menu, click **Configuration**. Click the + icon in the main window.



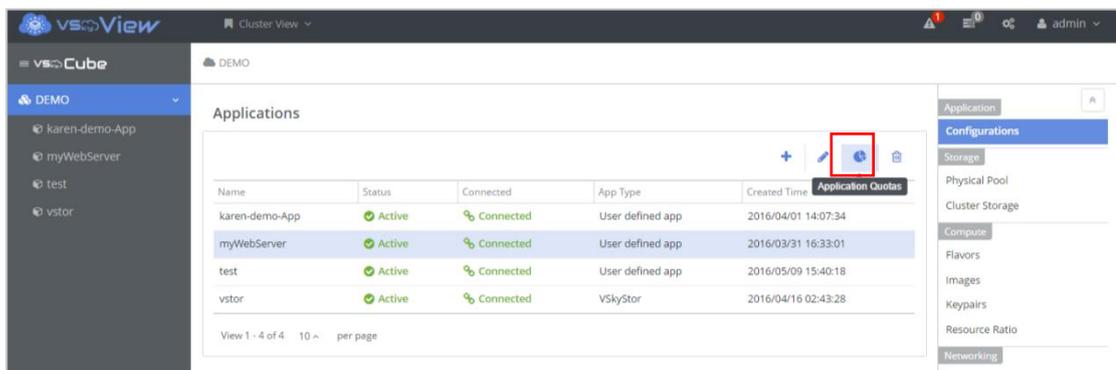
2. The **Create Application** dialog box will open. Enter an application **Name** and select the application **Type**. Application **Type** names starting with VSky, such as **VSkyStor**, **VSkyBox**, and **VSkyPoint**, are provided, designed, and optimized by Promise Technology especially for VSkyCube. For other applications, please select **User defined app**.



3. Click **Submit**. The new application will appear under the cluster on the left sidebar.



4. VSKyCube will allocate default resource quotas to this application. To check or edit the quotas, select the application and click the "pie chart" icon.



Application Quotas ×

myWebServer

From here you can update the default quotas (max limits) of application.

Instances	Number of Instances *	<input type="text" value="10"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 10 used
	Number of vCPUs *	<input type="text" value="4"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 4 used , 22 free
	RAM (MB) *	<input type="text" value="16000"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 16000 MB used , 0 MB free
<hr/>				
Floating IPs	Number of Floating IPs *	<input type="text" value="50"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 50 used
<hr/>				
Volumes	Number of Volumes *	<input type="text" value="10"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 10 used
	Number of Snapshots *	<input type="text" value="10"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 10 used
	Volumes and Snapshots Capacity (GB) *	<input type="text" value="1000"/>	<div style="width: 100%;"><div style="width: 0%;"></div></div>	0 of 1000 GB used

[Show Advanced Settings ...](#)

Step 2: Configure an External Network for the Cluster

An external network is a set of configurations for a cluster. It is used to connect the cluster to the network switch. “External” means the physical network outside of VSkyCube. It can be a private office network or the public network. Only one external network can be created for each cluster. An external network can contain only one subnet.

1. To create an external network for the cluster, select the cluster on the left sidebar, and then select **External Network** under **Networking** on the menu at the right. Click the + icon to create an external network.

In our example, **demoCluster** is the new cluster, and we will create an external network called **ext-net** along with a subnet called **ext-sub**.

The screenshot shows the VSkyCube management interface. On the left sidebar, the cluster 'demoCluster' is selected and highlighted with a red circle and the number '1'. The main panel displays the 'External Network' configuration for 'demoCluster'. At the top, there is a '+ Create' button highlighted with a red circle and the number '3'. Below this is a table with the following data:

Name	Status	Subnet	Admin State
ext-net	Active	Yes	Up

Below the table, it says 'View 1 - 1 of 1' and '10 per page'. Underneath, there is a section for 'Subnets of ext-net' with a '+ Create' button highlighted with a red circle and the number '2'. Below this is another table with the following data:

Name	CIDR	IP Version	Gateway IP
ext-sub	172.16.0.0/24	IPv4	172.16.0.1

On the right sidebar, the 'Networking' menu is expanded, and 'External Network' is highlighted with a red circle.

2. Enter the following information in the “Create External Network→Network” window.
 - **Name:** A name for this external network.
 - **Provider Network Type:** The physical mechanism for the virtual network is implemented. Please do not change the default setting.
 - **Admin State:** The state of this external network. Please do not change the default setting.

The screenshot shows the 'Create External Network' dialog box with the 'Network' tab selected. The 'Name' field contains 'ext_net'. The 'Provider Network Type' dropdown is set to 'VXLAN'. The 'Admin State' dropdown is set to 'UP'. There are 'Cancel' and 'Submit' buttons at the bottom right.

3. Switch to the **Subnet** tab on the top menu to configure the subnet. Enter the following information.

- **Name:** A name for the subnet.
- **Network address:** Network address assigned to this subnet in CIDR format. (Classless Inter-Domain Routing)
- **IP version:** The Internet Protocol version.
- **Gateway IP:** IP address of the gateway in the physical network.
- **Disable Gateway:** If there is no gateway in the physical network, check this checkbox to disable the gateway.

The screenshot shows the 'Create External Network' dialog box with the 'Subnet' tab selected. A blue informational message reads: 'Create a subnet associated with the network. Advanced configuration is available by clicking on the 'Subnet Detail' tab.' The 'Name' field contains 'ext-sub'. The 'Network Address' field contains '172.16.0.0/24'. The 'IP Version' dropdown is set to 'IPv4'. The 'Gateway IP' field contains '172.16.0.1'. There is an unchecked checkbox for 'Disable Gateway'. There are 'Cancel' and 'Submit' buttons at the bottom right.

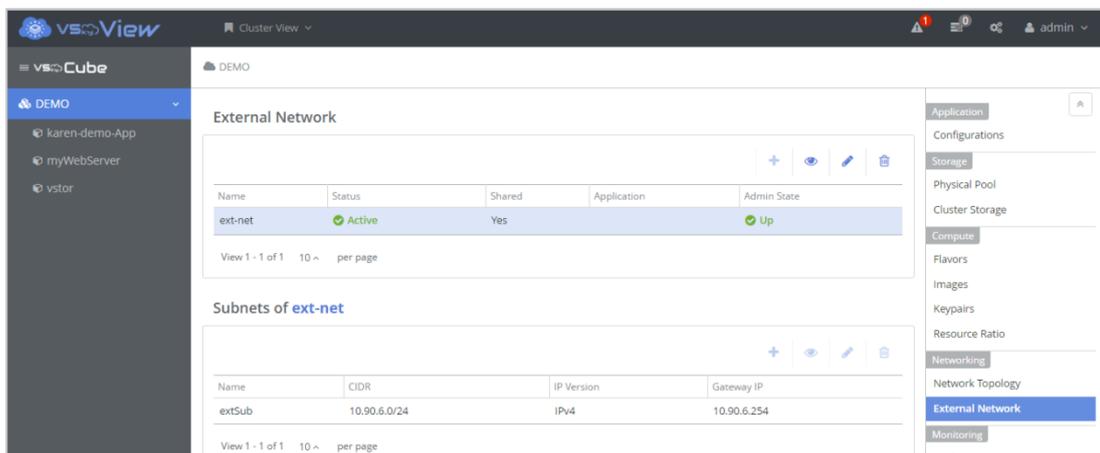
4. (Optional) Switch to the **Subnet Detail** tab for advanced subnet settings. Enter the following information.
 - **Allocation Pools:** VSkyCube automatically allocates the IP to the virtual device in the virtual network. If you want to limit your IP to a specific range, assign it in Allocation Pools.
 - **DNS Name servers:** IP address of the DNS or FQDN (Fully Qualified Domain Name) server in the physical network.
 - **Static Routes:** Static routes allow users to manually configure the routing entry.

The screenshot shows a 'Create External Network' dialog box with the following fields:

- Allocation Pools:** 172.16.0.180 ~ 172.16.0.189
- DNS Name Servers:** 8.8.8.8
- Static Routes:** (Empty field)

Buttons: Cancel, Submit

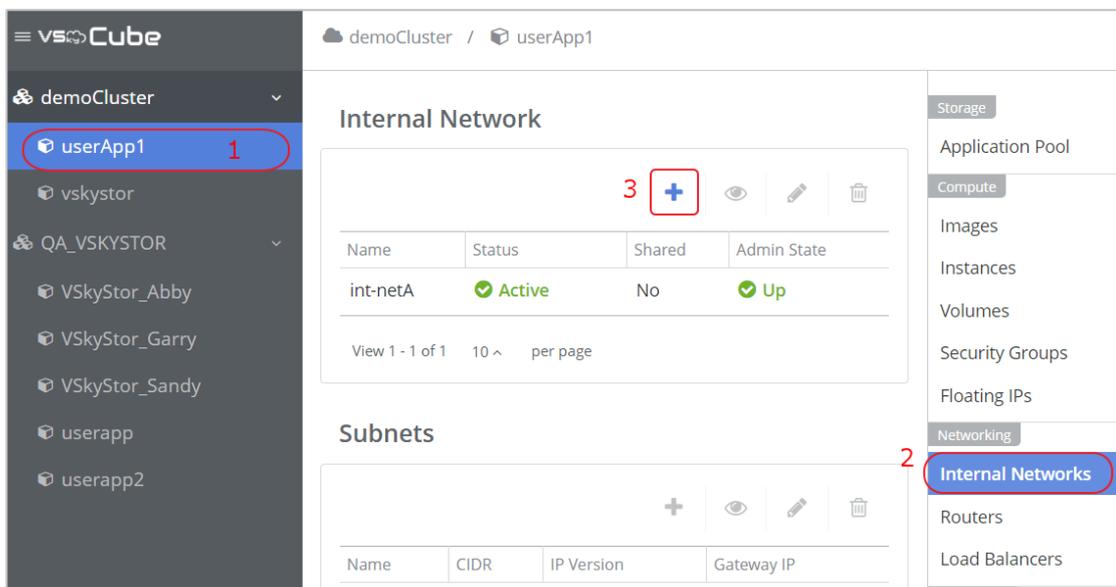
5. After clicking **Submit**, the newly created external network, (ours was called **ext-net**), will be displayed in the main window.



Step 3: Create an Internal Network for the Application

An internal network is a set of private configurations of a cluster. A cluster can contain several applications, and each application has its own internal network. Internal networks are isolated from each other by default. An internal network may contain one or more subnets.

1. To create an internal network for the application, select the application on the left sidebar, click **Internal Networks** under **Networking** on the right menu, and click the **+** icon.

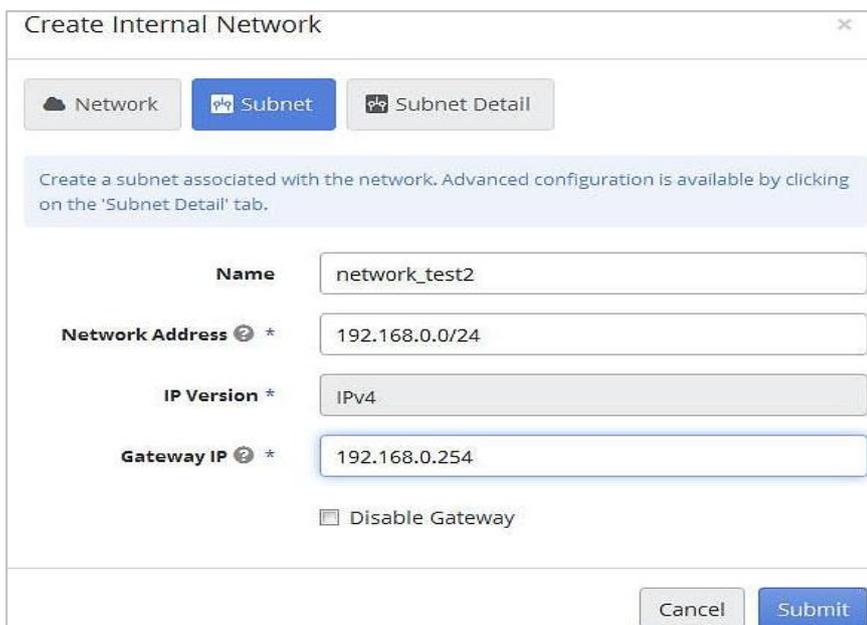


2. The **Create Internal Network** dialog box appears. Enter the following information.
 - **Name:** A name for the internal network.
 - **Admin state:** The state of the network.
 - **Shared:** Enable the **Shared** option if you want to share this network with other applications.

The screenshot shows the 'Create Internal Network' dialog box. It has three tabs: 'Network' (selected), 'Subnet', and 'Subnet Detail'. The 'Name' field contains 'network_test'. The 'Admin State' dropdown menu is set to 'UP'. There is a 'Shared' checkbox which is currently unchecked. At the bottom, there are 'Cancel' and 'Submit' buttons.

3. Switch to the **Subnet** tab. Enter the following information.

- **Name:** A name for the subnet of the internal network
- **Network Address:** This is the network address assigned to this subnet in CIDR format. (Classless Inter-Domain Routing). Different from the external network subnet, you have to assign the network address of the internal network yourself.
- **IP Version:** Specify the Internet Protocol version.
- **Gateway IP:** Specify the default gateway IP address of the subnet.
- **Disable Gateway:** Mark the checkbox **Disable Gateway** to disable the default gateway.



The screenshot shows a 'Create Internal Network' dialog box with three tabs: 'Network', 'Subnet', and 'Subnet Detail'. The 'Subnet' tab is active. A blue informational message states: 'Create a subnet associated with the network. Advanced configuration is available by clicking on the 'Subnet Detail' tab.' Below this, there are four input fields: 'Name' with the value 'network_test2', 'Network Address' with '192.168.0.0/24', 'IP Version' with 'IPv4', and 'Gateway IP' with '192.168.0.254'. There is also a 'Disable Gateway' checkbox which is currently unchecked. At the bottom right, there are 'Cancel' and 'Submit' buttons.

4. (Optional) Switch to the **Subnet Detail** tab on the top menu for advanced subnet settings. Enter the following information.

- **Allocation Pools:** VSkyCube automatically allocates an IP to the virtual device in the virtual network. If you want to limit your IP to a specific range, assign it here.
- **DNS Name Servers:** IP address of the DNS server in the physical network. If the subnet needs to connect to the external network, specify the DNS server.
- **Static Routes:** This box allows you to manually configure the routing entry.
- **Enable DHCP:** Enable DHCP service for the subnet. If you want to configure IP addresses for instances manually, disable it.

Create Internal Network
✕

Network

Subnet

Subnet Detail

Allocation Pools ? ~ +

DNS Name Servers ? +

Static Routes ? : +

Enable DHCP

Cancel
Submit

Step 4: Create a Router and Interface to connect the External and Internal Networks

This router is a virtual router connecting the external and internal networks.

- To create the router, select the application on the left sidebar, click **Routers** under **Networking** on the right menu, and click the **+** icon in the **Routers** section.

vsCube
demoCluster / userApp1

demoCluster

userApp1 1

vskystor

QA_VSKYSTOR

VskyStor_Abby

VskyStor_Garry

VskyStor_Sandy

userapp

userapp2

Routers

3
+
👁️ ✎️ ↔️ 🗑️

Name	Status	Gateway to External Network	Admin State
View 1 - 1 of 1 10 ^ per page			

Interfaces

+
👁️
🗑️

Fixed IP	Subnet	Network	Status	Type
No Data				

Storage

Application Pool

Compute

Images

Instances

Volumes

Security Groups

Floating IPs

Networking

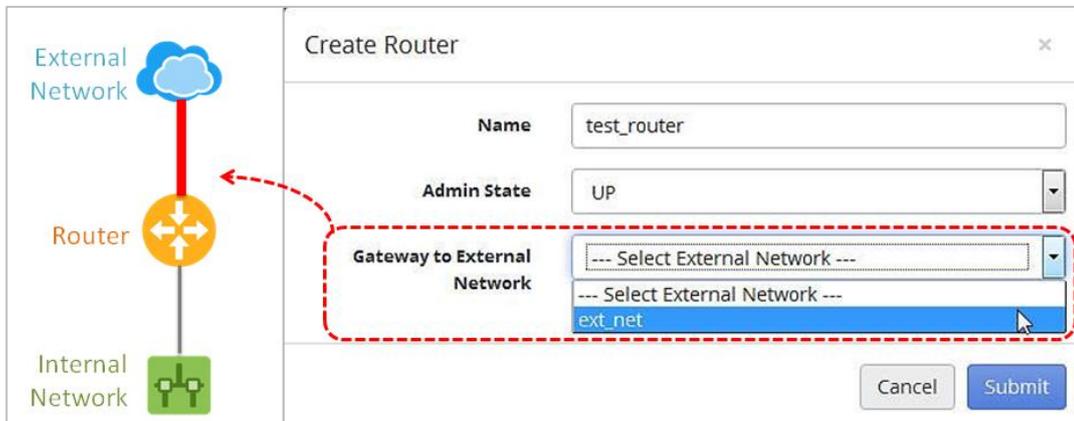
Internal Networks

Routers 2

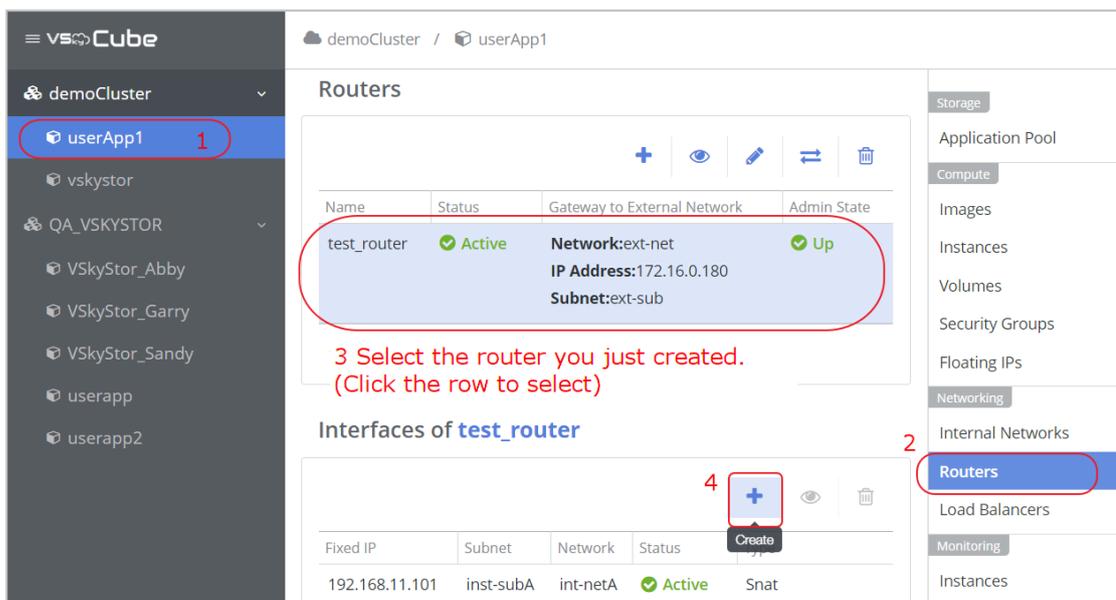
Load Balancers

32

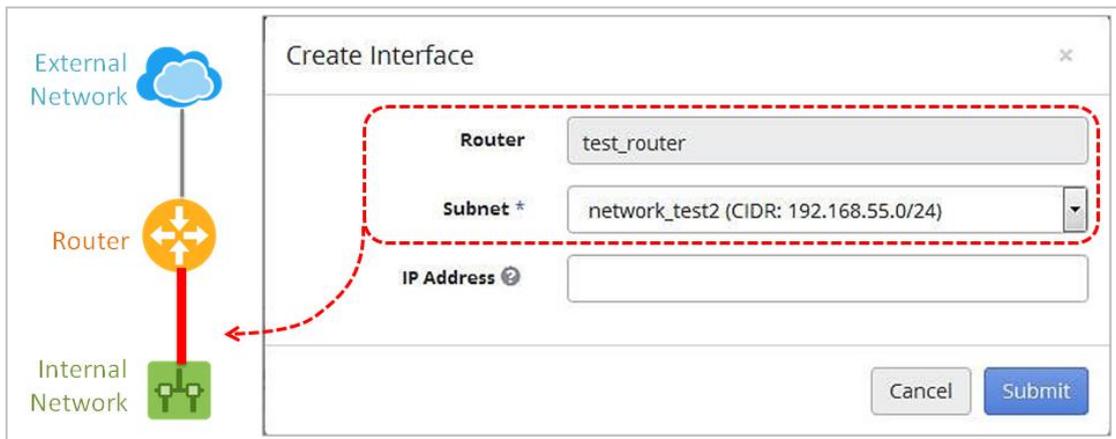
- When the **Create Router** dialog box opens, enter the following information.
 - Name:** A name for the router.
 - Admin State:** State of the router. Please do not change the default setting.
 - Gateway to external network:** Select the external network just created.



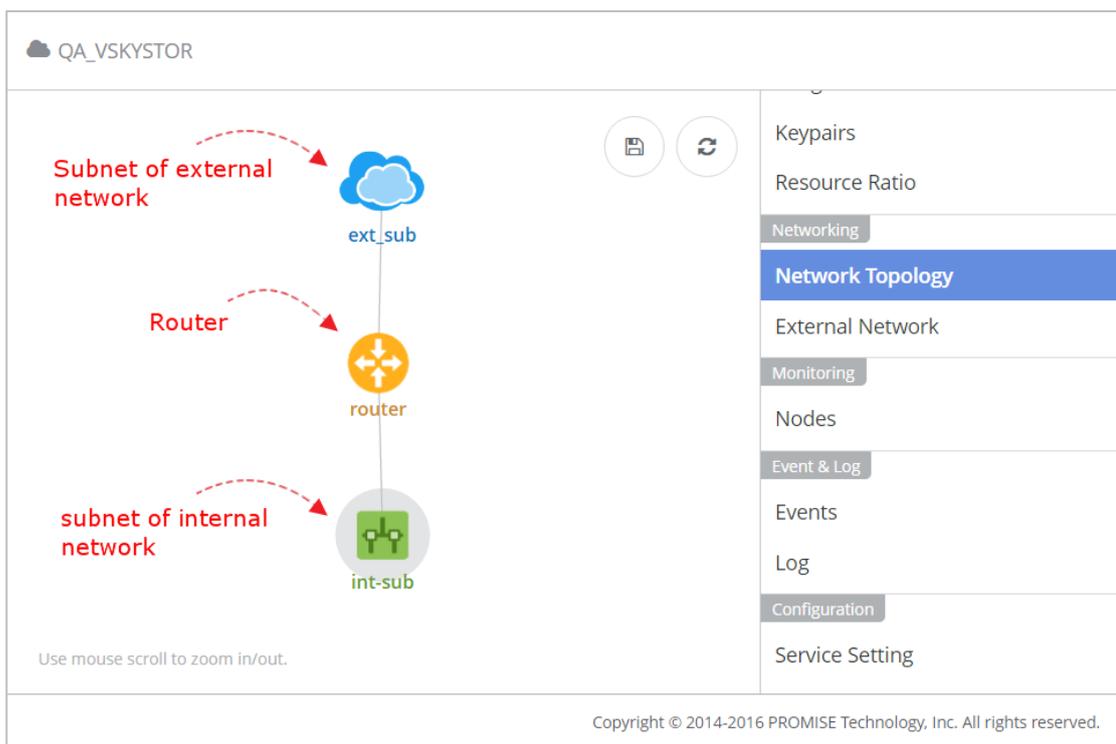
- Click **Submit**. The new router appears in the **Routers** section. Select it and click the **+** icon in the **Interfaces** section.



4. The **Create Interface** dialog box appears. Enter the following information, and then click **Submit**.
- **Subnet:** Select the subnet of the internal network to connect it to the router.
 - **IP Address:** Assign an IP address to the interface or leave it empty for auto assigning by VSkyCube.

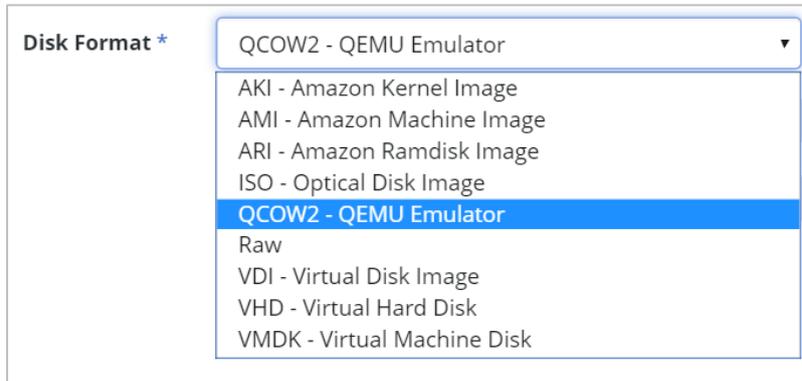


5. The newly created interface appears in the **Interfaces** section. Now the internal network is able to access the external network. You can go to **Network Topology** under **Networking** on the right to make sure the devices are connected.



Step 5: Upload an Image for an Instance

An image is a single file which contains a virtual disk that has a bootable operating system installed on it. Images come in different formats. Below are disk formats supported by VSkyCube.

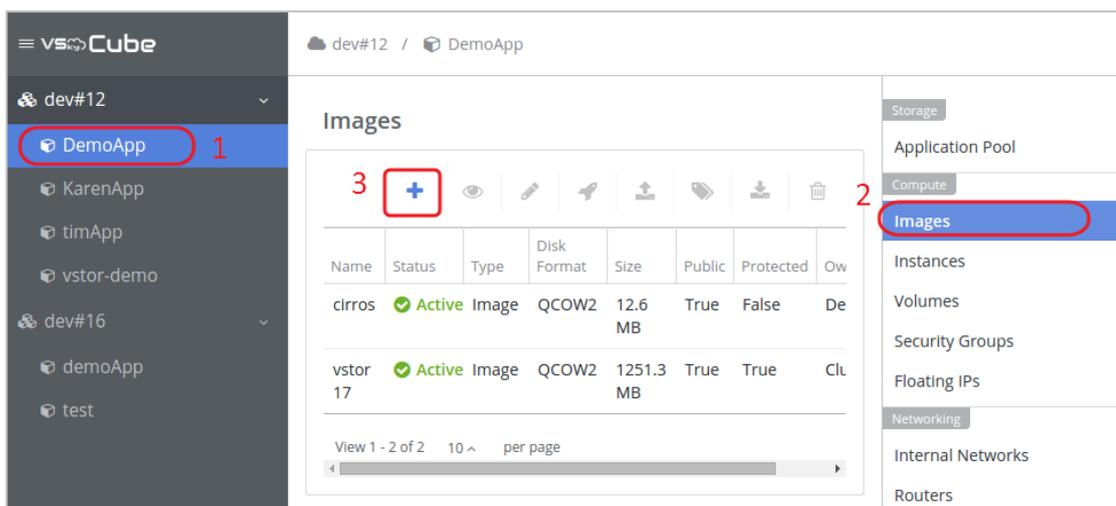


Here we use “QCOW2” as example. Images with VDI, VHD or VMDK formats follow the same steps. Images with Amazon or ISO formats have different steps. Please refer to the user guide for more details.

Some images contain a cloud-init package to support SSH key pairs, while some images use SSH password authentication. If the image supports SSH key pair, go to the next step to create key pairs after the image is uploaded.

Prepare the image to be uploaded and then follow these steps.

1. Select the cluster or the application just created on the left sidebar. If uploading an image to a cluster, then all applications in this cluster can utilize the image.
2. Click **Images** under **Compute** on the right menu, and click the **+** icon.



3. The **Create Image** dialog box appears. Enter the following information and then click **Submit** to upload the image.

- **Name:** A name for the image.
- **Image Source:** Select the image location, **Image File** for local files and **Image Location** for files on the Internet.
- **Image File:** Select the local image file or enter the HTTP URL.
- **Disk Format:** Choose the disk format of the image. Here we use “QCOW2-QEMU Emulator” as our example.
- **Minimum Disk (GB):** The minimum disk size required to boot the image.
- **Minimum RAM (MB):** The minimum memory size required to boot the image.

Create Image

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.

Name *

Description

Image Source Image File Image Location

Image File * 未選擇任何檔案

Disk Format *

Minimum Disk (GB)

Minimum RAM (MB)

Public True False

Protected

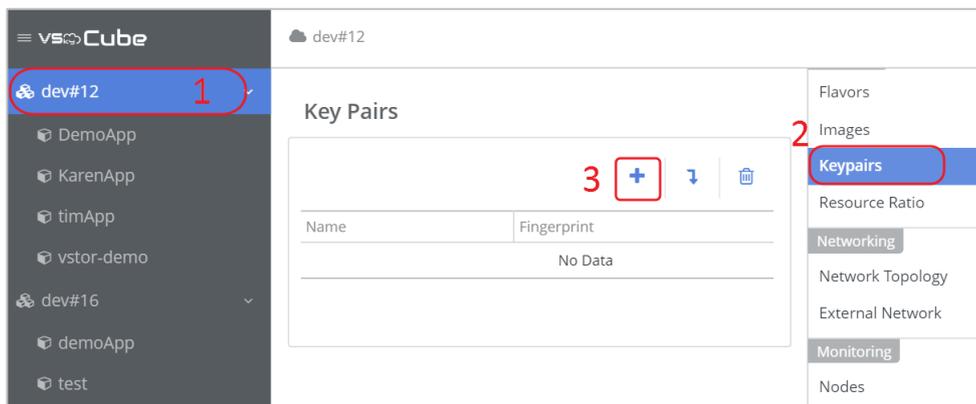
Step 6: (Optional) Create Key Pair

This is an optional step. A key pair is an SSH certificate. If the uploaded image contains a cloud-init package that supports SSH key pairs, create the key pair in this section.

You can either generate a key pair or import an existing public key.

1. To generate a key pair, follow these steps.

- Select the cluster just created on the left sidebar, click **Key Pairs** under **Compute** on the right menu, and click the **+** icon.



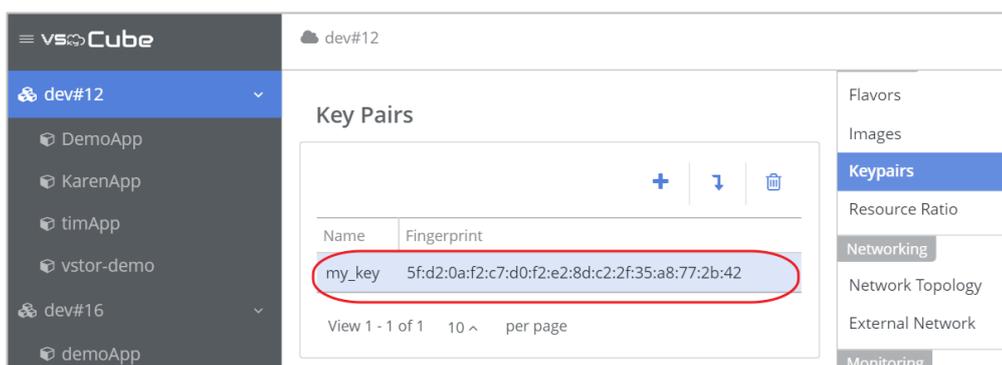
- The **Create Key Pair** dialog box appears. Enter a **name** for the key pair and click **Submit**.

Create Key Pair ×

Name *

Key pair names may only contain letters, numbers, underscores and hyphens.

- The newly created key pair will be displayed in the main window, and the private key of the key pair will be downloaded automatically by the browser.



- Find the private key named “<KEY_NAME>.pem” in the local folder. In this example, the file name is “my_key.pem”. Keep the private key safe. If you lose the private key, you will not be able to regenerate it and cannot log in to the instance.
- Run the following command with the “my_key.pem” file. This is to set permissions to this private key and to ensure only you can read and write to it.

```
chmod 600 my_key.pem
```

```
karen Downloads $ ls
my_key.pem
karen Downloads $ chmod 600 my_key.pem
karen Downloads $
```

2. To import a key pair, follow these steps.

If you have already generated a key pair and the public key is located at ~/.ssh/id_rsa.pub, use the following steps to upload the public key.

- Select the cluster on the left sidebar, click **Key Pairs** under **Compute** on the right menu, and click the “arrow” icon.



- The **Import Key Pair** dialog box appears. Specify a name for the key pair, paste the full content of your public key in the **Public Key** box, and click **Submit**.

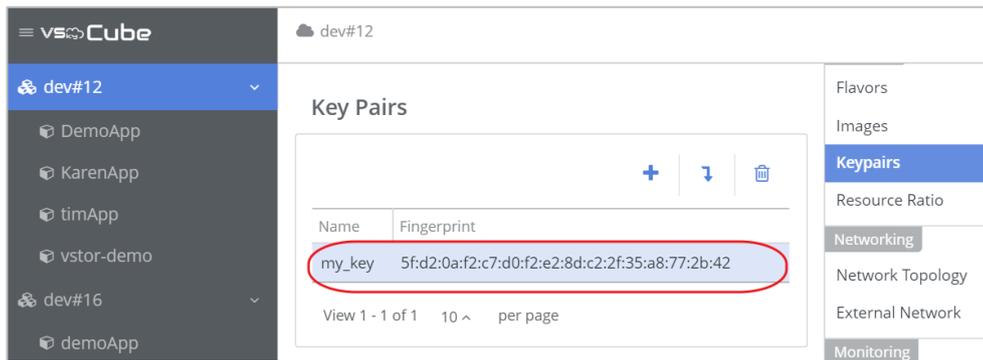
Import Key Pair
✕

Name *

Key pair names may only contain letters, numbers, underscores and hyphens.

Public Key *

- The newly created key pair will be displayed in the main window.

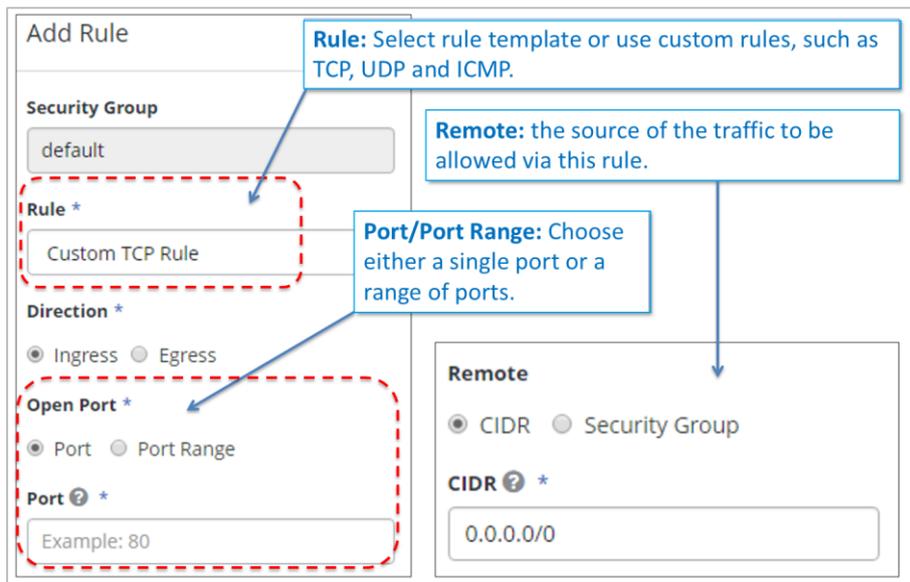


Step 7: Add Rules to Security Group

A Security Group is a set of firewall policies. All applications have a default Security Group which denies all incoming traffic unless you make some rules. Security Group Rules define the traffic that is allowed access to your instances.

A Security Group Rule consists of three main parts.

- **Rule:** You can select from the rule templates such as SSH, HTTP, or MYSQL, or use custom rules such as TCP, UDP, and ICMP.
- **Open Port/Port Range:** Choose either a single port or a range of ports.
- **Remote:** Specify the source of the traffic to be allowed via this rule. Select either **CIDR** or **Security Group**. Selecting **Security Group** as the source will allow any instance in that security group to access any other instance with this rule.



To allow incoming network traffic to instances, we need to add at least 2 rules.

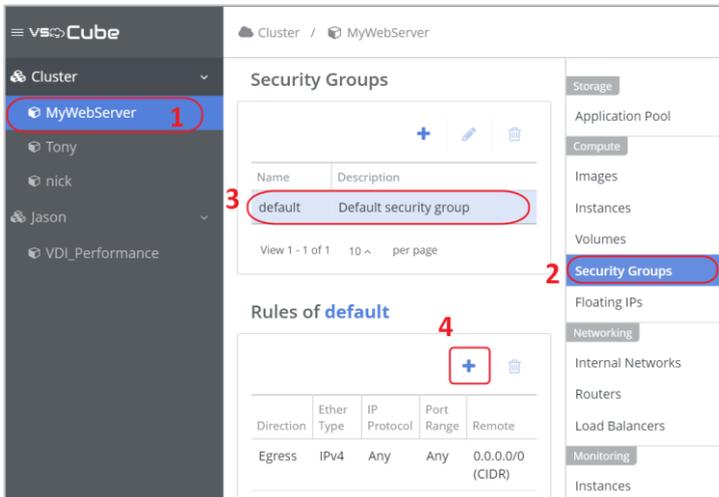
- **Rule-for-SSH:** To access an instance by SSH, you need to create a rule to allow SSH packages into the instance.

- **Rule-for-PING:** If you want to use the **ping** command to reach the instance IP, you need to create a rule to allow ICMP packages to access the instance.

Rule-for-SSH:		Rule-for-PING:	
Allow SSH port 22 to open for requests from any IP address.		Allow instances to receive all incoming ICMP packets.	
Rule	SSH	Rule	All ICMP
Direction	N/A	Direction	Ingress
Remote	CIDR	Remote	CIDR
CIDR	0.0.0.0/0	CIDR	0.0.0.0/0

Follow these steps to add a rule to the Security Group.

1. Select the application on the left sidebar.
2. Select **Security Groups** under **Compute** on the right menu.
3. Select **Default security group** in the main window.
4. Click the **+** icon in the **Rules of default** section to open the **Create Rule** panel.



5. Under **Rule**- choose **SSH** in the form, and click **Submit**.

The screenshot shows the 'Add Rule' dialog box. The 'Security Group' field is set to 'default'. The 'Rule' dropdown menu is set to 'SSH'. The 'Remote' section has 'CIDR' selected. The 'CIDR' field contains '0.0.0.0/0'. A blue informational box on the right explains that rules define traffic allowed to instances and lists options like Custom TCP, UDP, and ICMP rules. At the bottom, there are 'Cancel' and 'Submit' buttons.

6. Choose **All ICMP** in the **Rule** box, and then click **Submit**.

The screenshot shows the 'Add Rule' dialog box. The 'Security Group' field is set to 'default'. The 'Rule' dropdown menu is set to 'ALL ICMP'. The 'Direction' section has 'Ingress' selected. The 'Remote' section has 'CIDR' selected. The 'CIDR' field contains '0.0.0.0/0'. A blue informational box on the right explains that rules define traffic allowed to instances and lists options like Custom TCP, UDP, and ICMP rules. At the bottom, there are 'Cancel' and 'Submit' buttons.

- The two newly added rules will be displayed in the **Rules of default** section.

The screenshot shows the AWS Management Console interface for a cluster named 'MyWebServer'. The left-hand navigation pane has 'MyWebServer' selected (1). The main content area is divided into two sections: 'Security Groups' and 'Rules of default'. In the 'Security Groups' section, the 'default' security group is highlighted (3). In the 'Rules of default' section, two ingress rules are highlighted (4): one for ICMP and one for TCP on port 22 (SSH). The right-hand navigation pane has 'Security Groups' selected (2).

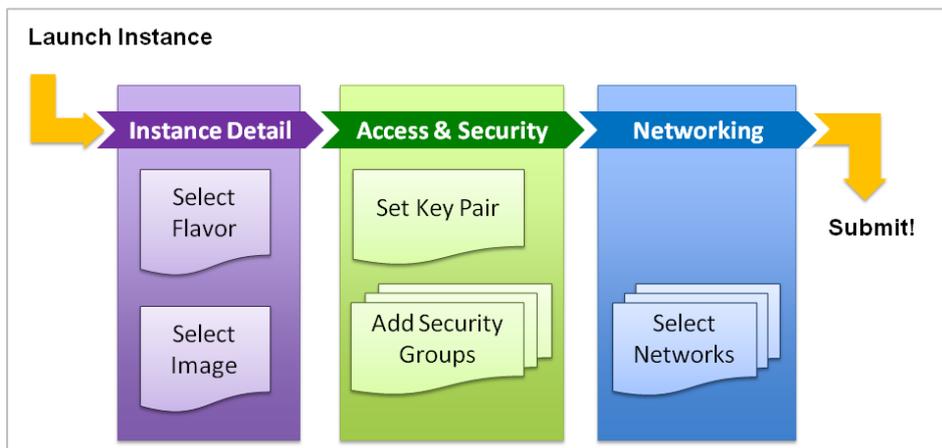
Name	Description
default	Default security group

Direction	Ether Type	IP Protocol	Port Range	Remote
Egress	IPv4	Any	Any	0.0.0.0/0 (CIDR)
Egress	IPv6	Any	Any	:::0 (CIDR)
Ingress	IPv4	Any	Any	default
Ingress	IPv6	Any	Any	default
Ingress	IPv4	ICMP	Any	0.0.0.0/0 (CIDR)
Ingress	IPv4	TCP	22 (SSH)	0.0.0.0/0 (CIDR)

Step 8: Launch an Instance

After completing network settings in the previous steps, we can launch an instance.

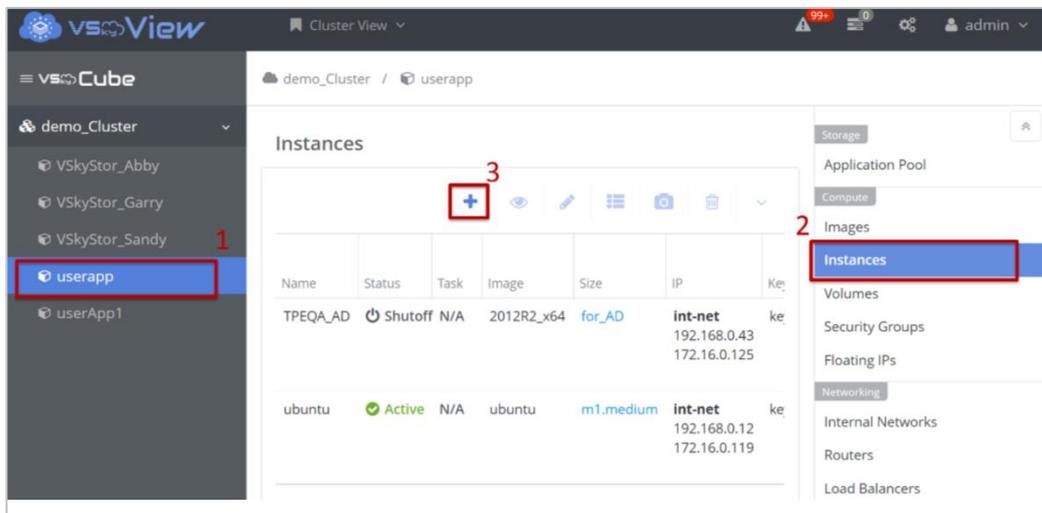
Pictured below are steps to launch an instance.



- Instance Detail:** Define basic specs, including name, CPU, and memory, for the instance.
- Access & Security:** Specify the SSH key pair to access the instance, and select Security Group, the firewall settings of the instance.
- Networking:** Specify the internal network subnet to the instance.

Follow these steps to launch an instance.

1. To create an instance, select the application on the left sidebar, click **Instances** under **Compute** on the right menu, and click the **+** icon in the main window.



2. The **Launch Instance** dialog box appears. Enter the following **information**.
 - **Instance Name:** A name for the instance, in this example, myUbuntu.
 - **Flavor:** A “Flavor” is an instance template with predefined virtual resources. There are five default flavor templates: tiny, small, medium, large, and xlarge. Select one from the drop-down menu, and the Flavor details will be shown on the right side, the **Flavor Detail** section.
 - **Instance Count:** The number of instances to create.
 - **Launch Instance on node:** if you want to create the instance on a specific node in the cluster, select the node from the drop-down menu, otherwise use the default setting, **Any available node**.
 - **Instance Boot Source:** Select where to boot the instance. There are five options provided for users to launch instances. **Boot from image** is the option most often used.
 - **Image Name:** Select the image just uploaded.

Launch Instance

Detail Access & Security Networking Post-Creation Advanced Options

Instance Name *
myUbuntu

Flavor *
m1.small

Instance Count *
1

Launch instance on node
(Any available node)

Instance Boot Source *
Boot from image

Image Name *
ubuntu-need-key

Specify the details for launching an instance. The chart below shows the resources used by this application in relation to the application's quotas.

Flavor Detail

Name	m1.small
vCPUs	1
RAM	2048 MB
Total Disk	20 GB
Root Disk	20 GB
Ephemeral Disk	0

Application Limits

Number of Instances 2 of 10 used
2 1

Number of vCPUs 2 of 4 used
2 1

Total RAM 1024 of 16000 MB used
1024 2048

Cancel Submit

3. **Switch to the Access & Security tab.** Open the drop-down menu and select the key pair just created, (in this example, “my_key”), or select **none** to disable key pair if the image does not support it. Select **default** under **Security Groups**.

Launch Instance

Detail Access & Security Networking Post-Creation Advanced Options

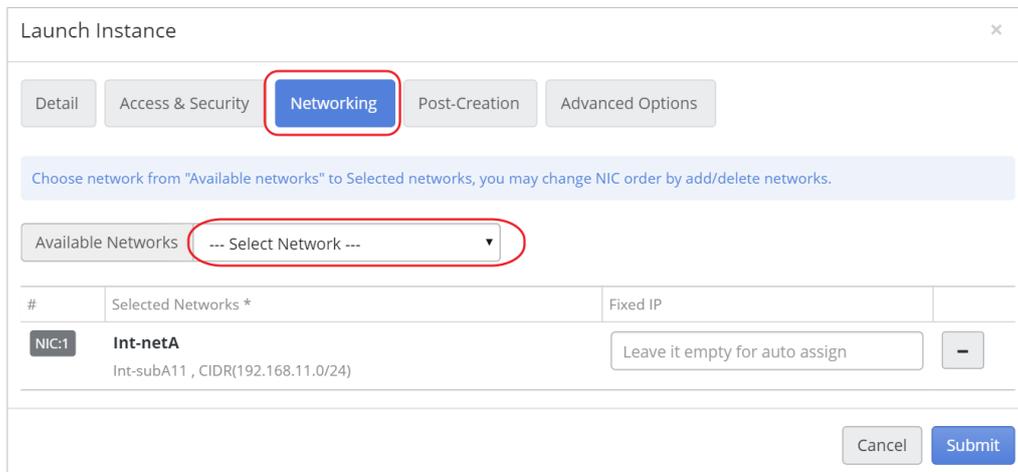
Control access to your instance via key pairs, security groups, and other mechanisms.

Key Pair ?
my_key

Security Groups ? *
 default

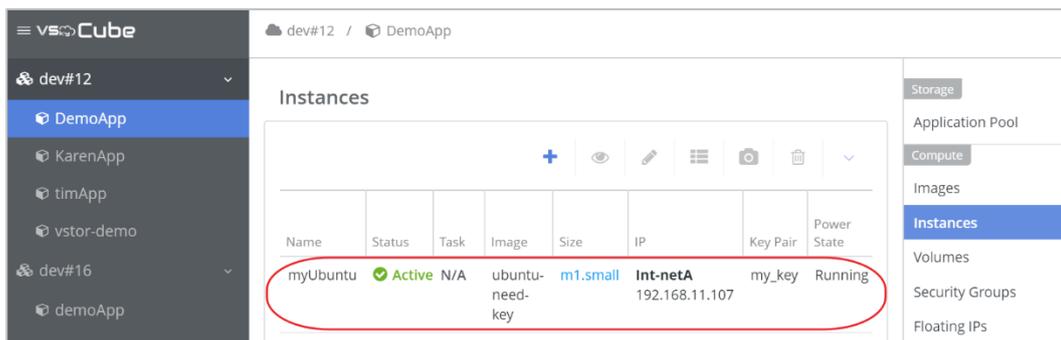
Cancel Submit

4. Switch to the **Networking** tab. Pull down the **Available Networks** menu and select the subnet of the internal network just created.



5. Skip the advanced settings in the next two tabs **Post-Creation** and **Advanced Options**. Click **Submit**.

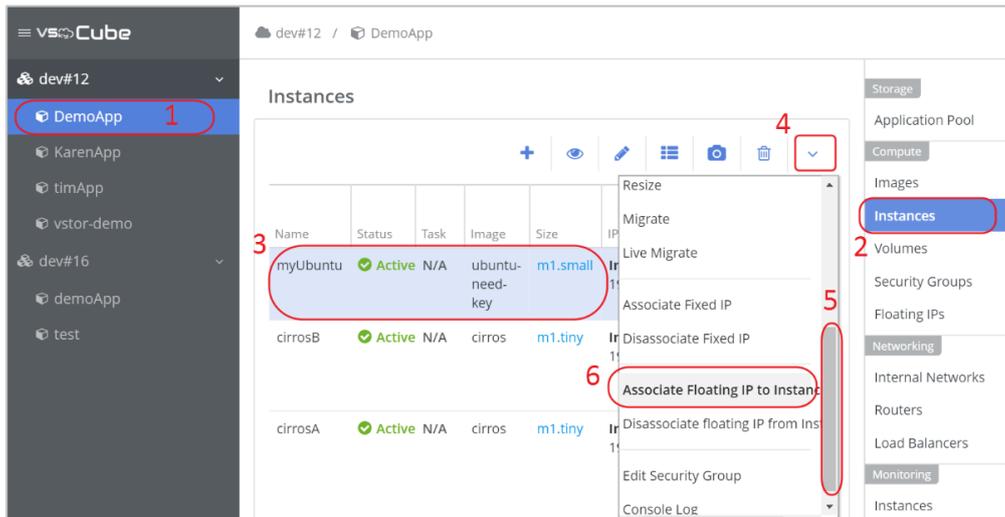
The system will take a few minutes to create the instance. When the instance is ready for use, it will be displayed in the main window with a **Status of Active**.



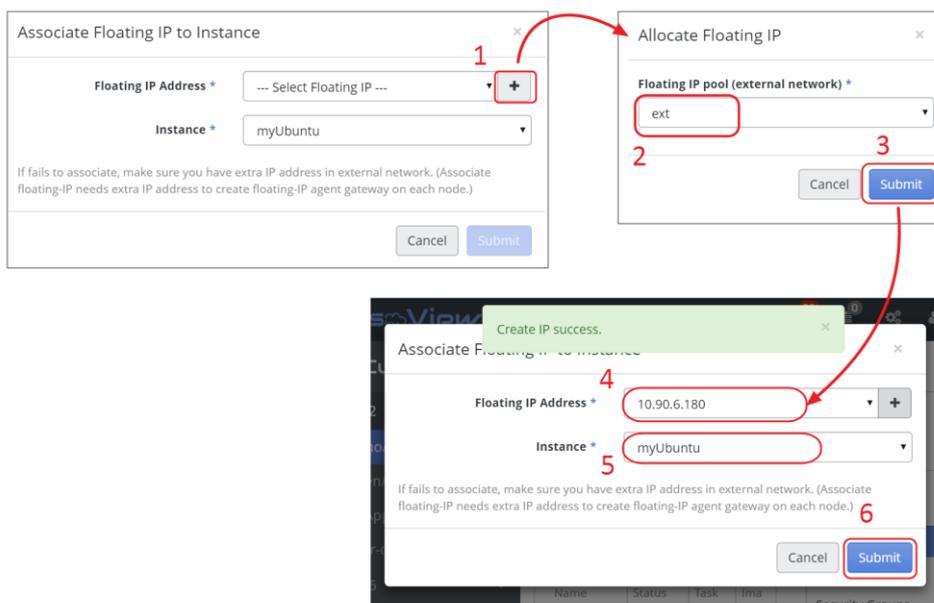
Step 9: Associate a Floating IP to an Instance

To gain access from an external network, and then follow these steps to associate a floating IP to an instance.

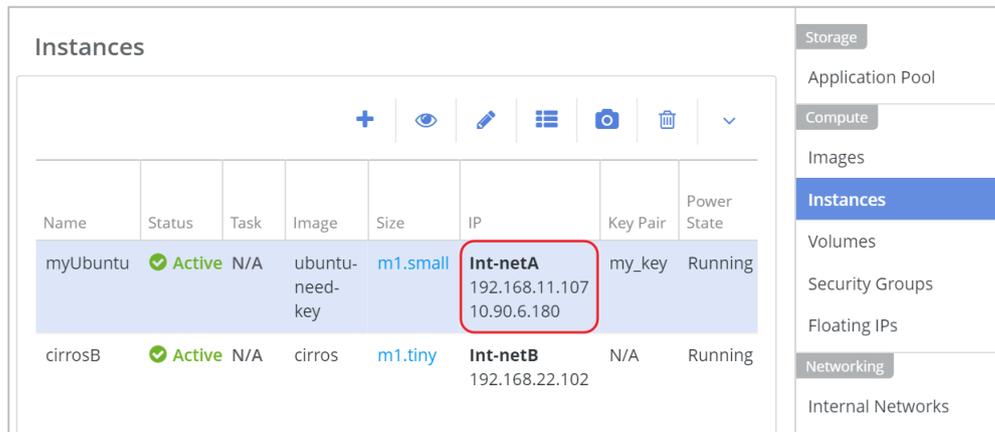
1. Select the application on the left sidebar.
2. Click **Instances** under **Compute** in the right menu.
3. Select the instance just launched, in this example, myUbuntu, and make sure the **Status** of the instance is **Active**.
4. Click the **▼** icon to open the drop-down menu and select **Associate Floating IP to Instance**.



5. The **Associate Floating IP to Instance** dialog box will open. Click the **+** icon.
6. The **Allocate Floating IP** dialog box appears. From the **Floating IP pool**, select the external network just created.
7. Click **Submit** to allocate a floating IP.
8. Go back to the **Associate Floating IP to Instance** dialog box. In the **Instance** field, select “myUbuntu”, the instance just created. Click **Submit**.



9. Wait 5 to 10 seconds. The floating IP will be displayed in the **IP** field of the instance. Record the IP address for later use.



Name	Status	Task	Image	Size	IP	Key Pair	Power State
myUbuntu	Active	N/A	ubuntu-need-key	m1.small	Int-netA 192.168.11.107 10.90.6.180	my_key	Running
cirrosB	Active	N/A	cirros	m1.tiny	Int-netB 192.168.22.102	N/A	Running

Step10: Access the Instance with the Floating IP via SSH

This step will verify that the instance was successfully launched and that it can be accessed with the floating IP via SSH.

Here we use a Linux client as an example to access the instance.

1. Ping the floating IP of the instance.

```
$ ping <Instance_Floating_ip>
```

```
karen Downloads $  
karen Downloads $ ping 10.90.6.180  
PING 10.90.6.180 (10.90.6.180) 56(84) bytes of data.  
64 bytes from 10.90.6.180: icmp_seq=1 ttl=61 time=0.766 ms  
64 bytes from 10.90.6.180: icmp_seq=2 ttl=61 time=0.510 ms  
64 bytes from 10.90.6.180: icmp_seq=3 ttl=61 time=0.589 ms  
^C  
--- 10.90.6.180 ping statistics ---  
3 packets transmitted, 3 received, 0% packet loss, time 1998ms  
rtt min/avg/max/mdev = 0.510/0.621/0.766/0.110 ms  
karen Downloads $
```

2. Log in to the instance with the key pair

```
$ ssh -i <Private_Key_File> <account>@<Instance_Floating_ip>
```

```
karen Downloads $ ssh -i my_key.pem ubuntu@10.90.6.180
Welcome to Ubuntu 14.04.2 LTS (GNU/Linux 3.13.0-52-generic x86_64)

* Documentation:  https://help.ubuntu.com/

System information as of Tue May 10 09:59:08 UTC 2016

System load:  0.21           Processes:            73
Usage of /:   3.8% of 19.65GB Users logged in:     0
Memory usage: 2%           IP address for eth0: 192.168.11.107
Swap usage:   0%

Graph this data and manage this system at:
  https://landscape.canonical.com/

Get cloud support with Ubuntu Advantage Cloud Guest:
  http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.

Last login: Tue May 10 09:59:11 2016 from 10.90.7.33
ubuntu@myubuntu:~$ █
```