

Using the vRealize Orchestrator OpenStack Plug-In 2.0

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Using the vRealize Orchestrator VMware Integrated OpenStack Plug-In 2.0

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Using the vRealize Orchestrator OpenStack Plug-In 2.0 provides information and instructions about how to configure and use the VMware[®] vRealize Orchestrator plug-in for OpenStack.

Intended Audience

This information is intended for anyone who is installing and configuring the plug-in, using the plug-in API, or using the workflow library. The information in *Using the vRealize Orchestrator OpenStack Plug-In 2.0* is written for experienced users who are familiar with VMware virtual machine technology, Orchestrator workflow development, and VMware Integrated OpenStack.

For more information about Orchestrator, see

http://www.vmware.com/support/pubs/orchestrator_pubs.html.

VMware Technical Publications Glossary

VMware Technical Publications provides a glossary of terms that might be unfamiliar to you. For definitions of terms as they are used in VMware technical documentation, go to

<http://www.vmware.com/support/pubs>.

Introduction to the OpenStack Plug-In for vRealize Automation

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The OpenStack plug-in for vRealize Automation allows the integration of vRealize Automation and OpenStack through vRealize Orchestrator workflows. vRealize Automation uses these workflows to deploy and delete OpenStack Heat stacks.

OpenStack Heat is the main project in the OpenStack Orchestration program. It implements an orchestration engine to launch multiple composite cloud applications based on templates in the form of text files that can be treated like code. The mission of the OpenStack Orchestration program is to create a service for managing the entire life cycle of infrastructure and applications within OpenStack clouds.

You can use the OpenStack plug-in to run multiple workflows.

Compatibility

Using the OpenStack Plug-In for vRealize Automation with other OpenStack distributions, different from VMware Integrated OpenStack is possible but is not supported.

The following table shows the VMware product compatibility for the OpenStack plug-in for vRealize Automation.

Product	Compatible versions
vRealize Automation	7.2.x, 7.3.x
VMware Integrated OpenStack	3.1, 4.0

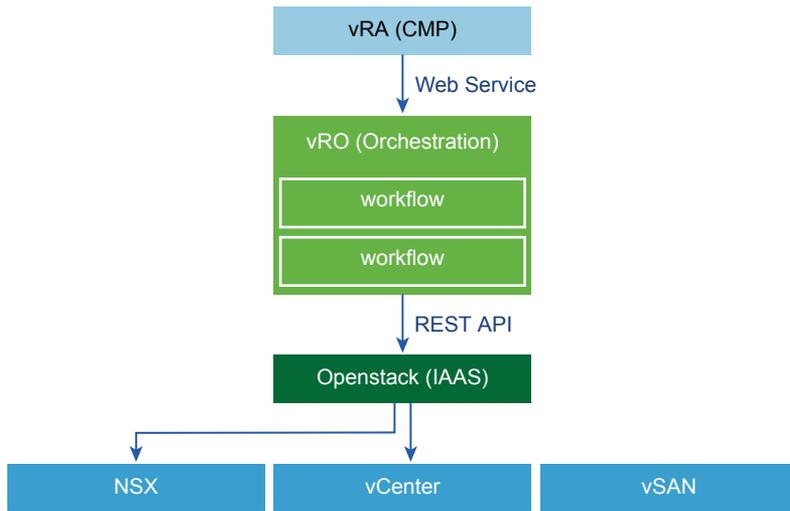
Note The OpenStack Plug-In supports GlanceV2 API for all workflows, except the *deploy an image* workflow that is still using GlanceV1 API .

Role of vRealize Orchestrator with the OpenStack Plug-In

You use the Orchestrator client to run and create workflows and access the plug-in API. You can use either the embedded vRealize Orchestrator instance in your vRealize Automation installation, or an external vRealize Orchestrator server.

vRealize Orchestrator powers the OpenStack plug-in. vRealize Orchestrator is a development and process-automation platform that provides a library of extensible workflows to manage the VMware cloud stack and third-party technologies.

vRealize Orchestrator allows integration with management and administration solutions through its open plug-in architecture.



Deploy the vRealize Orchestrator OpenStack Plug-In

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You install and deploy the OpenStack plug-in through the vRealize Orchestrator Control Center.

Procedure

1 Download the `o11n-openstack-plugin.2.0.0-XXX.vmoapp` file on your local file system from http://Your_OMS_server_IP/o11n-openstack-plugin/.

2 Log in to the vRealize Orchestrator Control Center as **root**.

You can log in to either the vRealize Orchestrator embedded in your vRealize Automation server or the external vRealize Orchestrator connected to the vRealize Automation server.

3 On the Control Center page, click **Manage Plug-Ins**.

The Manage Plug-Ins page appears.

4 In the Install Plug-In section, click **Browse**.

5 Select the `o11n-openstack-plugin.2.0.0-XXX.vmoapp` file from the local file system.

6 Click **Install**.

The vRealize Orchestrator server installs the plug-in. After the plug-in is installed, the **Manage Plug-Ins** page refreshes and indicates that the installation was successful. The page also displays a message prompting you to restart the vRealize Orchestrator server.

7 Click **Startup Options** to access controls to restart the vRealize Orchestrator server.

8 (Optional) Navigate to the plug-in list and confirm that the OpenStack plug-in is included.

What to do next

You can now use the workflows provided by the OpenStack plug-in to design blueprints to create, deploy, and delete OpenStack projects, among other objectives.

Designing and Publishing Blueprints

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You can design blueprints to run any of the available workflows. For example, you can design blueprints to create or delete OpenStack projects, and to deploy or delete Heat stacks.

Service Accounts for vRealize Orchestrator Workflows

You can use service accounts for authentication when you design blueprints. These accounts are used by default for authentication of the OpenStack REST API and users do not have to enter credentials every time they request services. When you use service accounts, set the credentials related parameters as not visible to the users. You create these accounts as standard OpenStack users.

This section includes the following topics:

- [Design an XaaS Blueprint for Creating or Deleting OpenStack Projects](#)
- [Design an XaaS Blueprint for Deploying or Deleting Heat Stacks](#)
- [Design an XaaS Blueprint for Creating or Deleting VM Instances](#)
- [Design an XaaS Blueprint for Creating or Deleting an SSH Pair](#)
- [Design an XaaS Blueprint for Creating or Deleting a Glance Image](#)
- [Design an XaaS Blueprint for Creating or Deleting a Network](#)
- [Design an XaaS Blueprint for Creating or Deleting a Subnet](#)
- [Design an XaaS Blueprint for Creating or Deleting a Floating IP](#)
- [Design an XaaS Blueprint for Creating or Deleting a Logical Router](#)
- [Design an XaaS Blueprint for Creating or Deleting a Security Group](#)
- [Design an XaaS Blueprint for Creating or Deleting a Cinder Volume](#)
- [Design an XaaS Blueprint for Attaching or Detaching a Cinder Volume](#)

Design an XaaS Blueprint for Creating or Deleting OpenStack Projects

You can design blueprints that create OpenStack projects when consumed.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > Deploy an OpenStack project** or **Delete an OpenStack project**, and click **Next**.

The blueprint form appears.

- 5 Complete the text boxes in the blueprint form.

Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the Project name parameter and the mandatory ones.

Parameter	Label	Value	Visibility to user
keystone_url	Keystone URL	Provide the URL to the Keystone Public Service.	False
admin_username	Admin Username	Provide a valid Active Directory or LDAP user name with administrative permissions.	False
admin_password	Admin Password	Provide a valid password for the Active Directory or LDAP user name.	False
admin_project_name	Admin Project Name	Enter the name for the administrative OpenStack project name where the OpenStack instances will be provisioned. The default is admin .	False
keystone_domain_name	Keystone Domain Name	Specify the Keystone domain for OpenStack user authentication. Keystone is the OpenStack Identity Service component. The default domain name is default.	False
new_project_name	New Project Name	Specify the name of the new OpenStack project where the OpenStack instances will be provisioned. You can leave this value empty, which enables the catalog user to specify the name.	True

Parameter	Label	Value	Visibility to user
user_name	Username	The catalog user's OpenStack account name with the Active Directory or LDAP domain suffix omitted.	True
quotas	quotas settings	<p>Configure the predefined quota keys and values for the new project.</p> <ul style="list-style-type: none"> ▪ nova_instances = 120 ▪ neutron_subnet = 130 ▪ cinder_snapshots = 140 <p>The quota key names use the <i>servicename_quotaname</i> format, where <i>servicename</i> is the name of the standard OpenStack service and <i>quotaname</i> is the name of the standard OpenStack service quota .</p>	False

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Deploying or Deleting Heat Stacks

You can design blueprints that deploy Heat stacks when consumed as a service.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > Deploy a Heat stack** or **Delete a Heat stack**, and click **Next**.
- 5 Select the template to be published and click **Next**.

The blueprint form appears.

6 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Label	Value	Visibility to user
stack_name	New Stack Name	Specify the name for the new Heat stack. You can leave this value empty to allow the catalog user to specify the new stack name.	True
template_content	Template Content	Provide the Heat template file content to be published. Configure as text area. A Heat template is a static architectural design of the orchestrated application, and are written in the HOT (Heat Orchestration Template) format.	True
environment_content	Environment Content	Provide the Heat environment file content. Configure as text area. The Heat environment file contains values for specific parameters in the Heat template. For authoring information, see the OpenStack documentation.	False
timeout	timeout in minutes	Specify the timeout period for this service in minutes.	False

7 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

8 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting VM Instances

You can design blueprints that create or delete VM instances.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.

- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create an instance** or **delete an instance**, and click **Next**.

The blueprint form appears.

- 5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description	Visibility to user
Instance name	Enter name for the VM.	True
Image name	Name of the VM image to clone from. Instance source is the template used to create an instance. You can use a snapshot of an existing instance, an image, or a volume, if enabled. You can also select to use persistent storage by creating a new volume.	True
Flavor name	Name of the flavor. Flavors manage the sizing for the compute, memory and storage capacity of the instance.	True
Network name	Enter name of an existing network. Networks provide the communication channels for instances in the cloud.	True
Keypair name	Select an existing key pair, import a key pair, or generate a new key pair. A key pair allows you to connect over SSH to your newly created instance.	True
Availability zone	Optional. Defines the placement for allocation of virtual machines.	True
Timeout	Timeout for the workflow to wait for creation complete.	True

- 6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

- 7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting an SSH Pair

You can design blueprints that create or delete SSH pairs.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a keypair or delete a keypair**, and click **Next**.

The blueprint form appears.

- 5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints.

Parameter	Description of the Value	Visibility to Users
Keypair name	Name for the keypair	True

- 6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

- 7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Glance Image

You can design blueprints that create OpenStack projects when consumed.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create an image or delete an image**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
Image name	Name of the new image.	True
Disk format	Format of the image file, for example: vmdk , qcow2 , etc.	True
Image location	URL to the image file, for example: https://ip:port/image1.vmdk	True
Is public	If you select true , image is shared with other projects, false restricts it to the current project.	True
Disk type	Enter the disk type, for example: streamOptimized or sparse .	True
Adapter type	Enter adapter type, for example lsiLogic .	True
Container format	Enter the container format, for example bare .	True
Timeout	Timeout in seconds for the workflow to wait for the image creation to finish.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Network

You can design blueprints that create or delete provider networks.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a network** or **delete a network**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
network name	Enter name for the network.	True
network type	Enter the type of the physical network. For example: flat , vlan , portgroup , or vxlan .	True
physical network	Enter the corresponding physical network for this new virtual network.	True
project name for this network	Enter the keystone project where this new virtual network is created.	True
is shared	If you select <code>true</code> , network is shared with other projects, <code>false</code> restricts it to the current project.	True
is admin state up	Select the state to start the network in.	True
segmentation_id	Enter the segmentation id of the physical network.	True
is external	Select whether this virtual network is an external network.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Subnet

You can design blueprints that create or delete subnets.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a subnet or delete a subnet**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
Subnet name	Name for the subnet	True
Network name	Name of the network that the subnet is created under.	True
CIDR	IP address range in CIDR format.	True
DHCP	True or false according to your needs.	True
IP start	IP address starting allocation.	True
IP end	IP address ending allocation.	True
Gateway IP	IP address of the gateway.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Floating IP

You can design blueprints that create or delete a floating IP address.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a floating ip** or **delete a floating ip**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
Floating IP	Enter the IP address of this floating IP.	True
External network name	Enter the name of the external network, where the floating IP is allocated from.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Logical Router

You can design blueprints that create or delete logical routers.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a router or delete a router**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
Router name	Enter name of the router.	True
External network	Enter name of the network where the router is uplinked.	True
Is admin state up	Select the state to start the router in.	True
Is distributed	Select whether the router is distributed or not.	True
Router type	Select between exclusive or shared.	True
Router size	Select between compact, large, or extra large.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Security Group

You can design blueprints that create or delete a security group.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a security group** or **delete a security group**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
Name	Name for the security group.	True
Description	(Optional) Enter a description for that group.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Creating or Deleting a Cinder Volume

You can design blueprints that create or delete cinder volumes.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

1 Log in to the vRealize Automation tenant as a service architect.

2 Select **Design > XaaS > XaaS Blueprints**.

3 Click **New**.

4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > create a volume or delete a volume**, and click **Next**.

The blueprint form appears.

5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visible to Users
Volume name	Enter name for the volume.	True
Size (GB)	Volume size in GB.	True
Availability zone	(Optional) Define the placement for volume allocation.	True
Timeout	Timeout in seconds for the workflow to wait for the creation to complete.	True

6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Design an XaaS Blueprint for Attaching or Detaching a Cinder Volume

You can design blueprints that attach or detach volumes to the server.

Prerequisites

- Verify that you have **service architect** user privileges to access the plug-in.
- Verify that the OpenStack Keystone service is connected to an Active Directory server for automatic synchronization. This configuration automatically synchronizes user accounts in Keystone

Procedure

- 1 Log in to the vRealize Automation tenant as a service architect.
- 2 Select **Design > XaaS > XaaS Blueprints**.
- 3 Click **New**.
- 4 Select the workflow **Orchestrator > Library > VMware Integrated OpenStack > attach volume to server** or **detach volume to server**, and click **Next**.

The blueprint form appears.

- 5 Complete the text boxes in the blueprint form.

You must enter custom labels for all parameters. Parameters listed below are specific for this blueprint. Keystone URL, Project name, Keystone domain name, User name, and Password parameters are mandatory for all blueprints. For the delete blueprint you only need the first parameter from the table and the mandatory ones.

Parameter	Description of Value	Visibility to Users
Instance name	Enter the name of the VM to attach to.	True
Volume name	Enter the name of the volume to be attached.	True

- 6 Click **Finish**.

The newly created blueprint appears in the list of XaaS blueprints.

- 7 To publish the blueprint, select it from the list and click **Publish**.

A blueprint becomes available for consumption only after you publish it.

Publish XaaS Blueprints as Catalog Items

5

After an XaaS blueprint is designed, you must publish it to the catalog to make it available to service catalog users. All catalog items must be associated with a service so that you can entitle users and groups to access the services. .

Prerequisites

Verify that you have **tenant administrator** user privileges to access the plug-in.

Procedure

- 1 Log in to the vRealize Automation tenant as a tenant administrator.
- 2 Select **Administration > Catalog Management > Services**.
- 3 Click the **New** icon.
- 4 Enter a name and description.

These values appear in the service catalog for the catalog users. For example, if it does not exist already, you can create the **OpenStack Services** category.

- 5 (Optional) To associate the OpenStack icon with the new service, click **Browse** and select the OpenStack icon.
- 6 Click **Finish**.
- 7 Select OpenStack Services and click **Manage Catalog Items** from the drop-down menu.
- 8 Click the **Add** icon and select the desired blueprints.
- 9 Add the selected blueprints to the current service and click **OK**.
- 10 Select OpenStack Services and click **Activate** from the drop-down menu.
- 11 (Optional) Select **Administration > Catalog Management > Catalog Items** and to update the added services with the OpenStack icon.

What to do next

You can now configure entitlements for users and groups to use the new OpenStack services. See the [vRealize Automation product documentation](#).

Request an OpenStack Service

Catalog users with the required entitlement can request the running of a configured service through the services catalog in vRealize Automation.

For more information about using entitlements and how they determine which users and groups can request specific catalog items or perform specific actions, see the [vRealize Automation product documentation](#).

Prerequisites

- Verify that you have the user privileges to access the plug-in as a **catalog user**.
- Verify that your user account possesses the required entitlement to access and request OpenStack Services.

Procedure

- 1 Log in to the vRealize Automation tenant as a catalog user.
- 2 Select **Catalog > OpenStack Services**.
- 3 Click **Request** for the service that you need.

The actual name of this service is determined by the person who creates the source blueprint.

The New Request page displays the parameters you need to supply.

- 4 On the **Request Information tab**, enter a brief description.
- 5 Click the **Step** tab and provide the required configurations.
- 6 Click **Submit**.

The request is submitted. After the request is approved, depending on the approval policy associated with the catalog service, the OpenStack service request runs.

- 7 To confirm if the request was successful, you can log in to OpenStack to verify that the OpenStack service request completed successfully.

You must log in to OpenStack as the same user who requested the new service.