

Getting Started with vRealize Automation Cloud Assembly

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vRealize Automation 8.1

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

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What is vRealize Automation Cloud Assembly

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vRealize Automation Cloud Assembly is a cloud-based service that you use to create and deploy machines, applications, and services to your cloud infrastructure.

As a cloud administrator, you can:

- Configure the cloud vendor infrastructure to which your users deploy their blueprints.
- Set up projects to link the service users with the infrastructure resources.
- Import blueprints and OVA files to support blueprint developers using the marketplace.
- Delegate the user management and blueprint infrastructure to project managers, freeing you up to focus on your cloud resources.

As a blueprint developer, you can:

- Create and iterate on blueprints until they meet your development needs.
- Deploy blueprints to the supporting cloud vendors based on your project membership.
- Manage the deployed resources throughout the development life cycle.

The screenshot displays the vRealize Automation Cloud Assembly interface, which is divided into several sections:

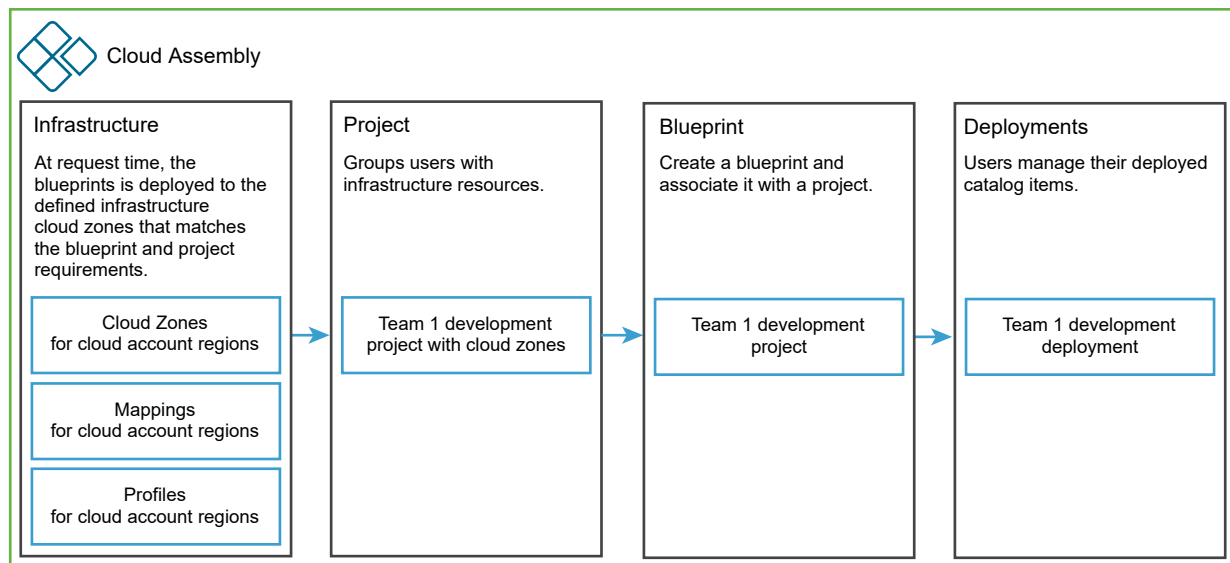
- Projects:** A list of projects including "sb-nxst", "Senthil Test", and "ESO-DONTUSE-1".
- Marketplace - Blueprints:** A section showing various blueprints for deployment, including "Apache HTTP Server using Puppet", "Hybrid RDS/EC2 WordPress", "Drupal Open Source 8 on multi-cluster SQL", and "Jenkins 2.138.1 Single or Multi-Tier on Ubuntu 16.04".
- WordPress-BP:** A detailed view of a WordPress blueprint, showing its configuration and deployment details.
- Deployments:** A list of deployments, including "CMT", "Deployment-db60569a-9048-4...", and "Deployment-3fb2e9e8-714b-4c...".

The interface also includes a sidebar with navigation options such as "Configure", "Resources", "Activity", and "Requests".

What does vRealize Automation Cloud Assembly do

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vRealize Automation Cloud Assembly provides an automation service where your development teams can iteratively develop and deploy blueprints to designated cloud vendors.



The primary purpose of vRealize Automation Cloud Assembly is to create blueprints, and then deploy the blueprints.

As a vRealize Automation Cloud Assembly administrator, generally referred to as a cloud administrator, you configure the infrastructure to support blueprint development and deployment. The infrastructure begins with cloud vendors, then you add vRealize Automation Cloud Assembly users as project members and link them to the cloud account regions as projects. At this point, you can continue to develop blueprints, or you can turn over development to the project administrators and members.

As a project member, use vRealize Automation Cloud Assembly as you iteratively develop and deploy blueprints, until you have a production-worthy product. The deployment locations are configured your cloud administrator as part of the infrastructure. The administrator has the best understanding of your organizations resources and budget.

Before you begin with vRealize Automation Cloud Assembly

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Before you start working in vRealize Automation Cloud Assembly as a cloud administrator, you must gather information about your public and private cloud accounts. Use this checklist to help you begin adding your cloud resources.

Before you onboard with vRealize Automation Cloud Assembly

To...	You need...
Sign up for and log in to vRealize Automation Cloud Assembly	A VMware ID. <ul style="list-style-type: none">■ Set up a My VMware account by using your corporate email address.
Connect to vRealize Automation services	HTTPS port 443 open to outgoing traffic with access through the firewall to: <ul style="list-style-type: none">■ *.vmwareidentity.com■ gaz.csp-vidm-prod.com■ *.vmware.com For more information about ports and protocols, see VMware Ports and Protocols . For related information about required ports and protocols, see: <ul style="list-style-type: none">■ Ports and Protocols in the <i>Installation</i> help■ Port Requirements in the <i>Reference Architecture</i> help

To...	You need...
Add an Amazon Web Services (AWS) cloud account	<p>Provide a power user account with read and write privileges. The user account must be a member of the power access policy (PowerUserAccess) in the AWS Identity and Access Management (IAM) system.</p> <ul style="list-style-type: none"> ■ 20-digit Access Key ID and corresponding Secret Access Key <p>If you are using an external HTTP Internet proxy, it must be configured for IPv4.</p> <p>vRealize Automation actions-based extensibility (ABX) and external IPAM integration may require additional permissions.</p> <p>The following AWS permissions are suggested to allow autoscaling functions:</p> <ul style="list-style-type: none"> ■ Autoscaling actions: <ul style="list-style-type: none"> ■ autoscaling:DescribeAutoScalingInstances ■ autoscaling:AttachInstances ■ autoscaling>DeleteLaunchConfiguration ■ autoscaling:DescribeAutoScalingGroups ■ autoscaling>CreateAutoScalingGroup ■ autoscaling:UpdateAutoScalingGroup ■ autoscaling>DeleteAutoScalingGroup ■ autoscaling:DescribeLoadBalancers ■ Autoscaling resources: <ul style="list-style-type: none"> ■ * <p>Provide all autoscaling resource permissions.</p> <p>The following permissions are required to allow AWS Security Token Service (AWS STS) functions to support temporary, limited-privilege credentials for AWS identity and access:</p> <ul style="list-style-type: none"> ■ AWS STS resources: <ul style="list-style-type: none"> ■ * <p>Provide all STS resource permissions.</p> <p>The following AWS permissions are required to allow EC2 functions:</p> <ul style="list-style-type: none"> ■ EC2 actions: <ul style="list-style-type: none"> ■ ec2:AttachVolume ■ ec2:AuthorizeSecurityGroupIngress ■ ec2>DeleteSubnet ■ ec2>DeleteSnapshot ■ ec2:DescribeInstances ■ ec2>DeleteTags ■ ec2:DescribeRegions ■ ec2:DescribeVolumesModifications ■ ec2>CreateVpc ■ ec2:DescribeSnapshots ■ ec2:DescribeInternetGateways ■ ec2>DeleteVolume ■ ec2:DescribeNetworkInterfaces ■ ec2:StartInstances ■ ec2:DescribeAvailabilityZones ■ ec2:CreateInternetGateway ■ ec2:CreateSecurityGroup ■ ec2:DescribeVolumes

To...	You need...
	<ul style="list-style-type: none"> ■ ec2:CreateSnapshot ■ ec2:ModifyInstanceAttribute ■ ec2:DescribeRouteTables ■ ec2:DescribeInstanceStatus ■ ec2:DetachVolume ■ ec2:RebootInstances ■ ec2:AuthorizeSecurityGroupEgress ■ ec2:ModifyVolume ■ ec2:TerminateInstances ■ ec2:DescribeSpotFleetRequestHistory ■ ec2:DescribeTags ■ ec2:CreateTags ■ ec2:RunInstances ■ ec2:DescribeNatGateways ■ ec2:StopInstances ■ ec2:DescribeSecurityGroups ■ ec2:CreateVolume ■ ec2:DescribeSpotFleetRequests ■ ec2:DescribeImages ■ ec2:DescribeVpcs ■ ec2>DeleteSecurityGroup ■ ec2>DeleteVpc ■ ec2:CreateSubnet ■ ec2:DescribeSubnets ■ ec2:RequestSpotFleet
	<p>Note The SpotFleet request permission is not required for vRealize Automation actions-based extensibility (ABX) or external IPAM integrations.</p>
	<ul style="list-style-type: none"> ■ EC2 resources: <ul style="list-style-type: none"> ■ * <p>Provide all EC2 resource permissions.</p>
	<p>The following AWS permissions are required to allow elastic load balancing functions:</p>
	<ul style="list-style-type: none"> ■ Load balancer actions: <ul style="list-style-type: none"> ■ elasticloadbalancing:DeleteLoadBalancer ■ elasticloadbalancing:DescribeLoadBalancers ■ elasticloadbalancing:RemoveTags ■ elasticloadbalancing>CreateLoadBalancer ■ elasticloadbalancing:DescribeTags ■ elasticloadbalancing:ConfigureHealthCheck ■ elasticloadbalancing:AddTags ■ elasticloadbalancing>CreateTargetGroup ■ elasticloadbalancing>DeleteLoadBalancerListeners ■ elasticloadbalancing:DeregisterInstancesFromLoadBalancer ■ elasticloadbalancing:RegisterInstancesWithLoadBalancer ■ elasticloadbalancing>CreateLoadBalancerListeners

To...	You need...
	<ul style="list-style-type: none">■ Load balancer resources:<ul style="list-style-type: none">■ * <p>Provide all load balancer resource permissions.</p> <p>The following AWS Identity and Access Management (IAM) permissions can be enabled, however they are not required:</p> <ul style="list-style-type: none">■ iam:SimulateCustomPolicy■ iam:GetUser■ iam:ListUserPolicies■ iam:GetUserPolicy■ iam:ListAttachedUserPolicies■ iam:GetPolicyVersion■ iam:ListGroupsForUser■ iam:ListGroupPolicies■ iam:GetGroupPolicy■ iam:ListAttachedGroupPolicies■ iam:ListPolicyVersions

To...	You need...
Add a Microsoft Azure cloud account	<p>Configure a Microsoft Azure instance and obtain a valid Microsoft Azure subscription from which you can use the subscription ID.</p> <p>Create an Active Directory application as described in How to: Use the portal to create an Azure AD application and service principal that can access resources in Microsoft Azure product documentation.</p> <p>If you are using an external HTTP Internet proxy, it must be configured for IPv4.</p> <p>Make note of the following information:</p> <ul style="list-style-type: none"> ■ Subscription ID <p>Allows you to access to your Microsoft Azure subscriptions.</p> ■ Tenant ID <p>The authorization endpoint for the Active Directory applications you create in your Microsoft Azure account.</p> ■ Client application ID <p>Provides access to Microsoft Active Directory in your Microsoft Azure individual account.</p> ■ Client application secret key <p>The unique secret key generated to pair with your client application ID.</p> <p>The following permissions are needed for creating and validating Microsoft Azure cloud accounts:</p> <ul style="list-style-type: none"> ■ Microsoft Compute <ul style="list-style-type: none"> ■ Microsoft.Compute/virtualMachines/extensions/write ■ Microsoft.Compute/virtualMachines/extensions/read ■ Microsoft.Compute/virtualMachines/extensions/delete ■ Microsoft.Compute/virtualMachines/deallocate/action ■ Microsoft.Compute/virtualMachines/delete ■ Microsoft.Compute/virtualMachines/powerOff/action ■ Microsoft.Compute/virtualMachines/read ■ Microsoft.Compute/virtualMachines/restart/action ■ Microsoft.Compute/virtualMachines/start/action ■ Microsoft.Compute/virtualMachines/write ■ Microsoft.Compute/availabilitySets/write ■ Microsoft.Compute/availabilitySets/read ■ Microsoft.Compute/availabilitySets/delete ■ Microsoft.Compute/disks/delete ■ Microsoft.Compute/disks/read ■ Microsoft.Compute/disks/write ■ Microsoft Network <ul style="list-style-type: none"> ■ Microsoft.Network/loadBalancers/backendAddressPools/join/action ■ Microsoft.Network/loadBalancers/delete ■ Microsoft.Network/loadBalancers/read ■ Microsoft.Network/loadBalancers/write ■ Microsoft.Network/networkInterfaces/join/action ■ Microsoft.Network/networkInterfaces/read ■ Microsoft.Network/networkInterfaces/write ■ Microsoft.Network/networkInterfaces/delete ■ Microsoft.Network/networkSecurityGroups/join/action ■ Microsoft.Network/networkSecurityGroups/read

To...	You need...
	<ul style="list-style-type: none"> ■ Microsoft.Network/networkSecurityGroups/write ■ Microsoft.Network/networkSecurityGroups/delete ■ Microsoft.Network/publicIPAddresses/delete ■ Microsoft.Network/publicIPAddresses/join/action ■ Microsoft.Network/publicIPAddresses/read ■ Microsoft.Network/publicIPAddresses/write ■ Microsoft.Network/virtualNetworks/read ■ Microsoft.Network/virtualNetworks/subnets/delete ■ Microsoft.Network/virtualNetworks/subnets/join/action ■ Microsoft.Network/virtualNetworks/subnets/read ■ Microsoft.Network/virtualNetworks/subnets/write ■ Microsoft.Network/virtualNetworks/write ■ Microsoft Resources <ul style="list-style-type: none"> ■ Microsoft.Resources/subscriptions/resourcegroups/delete ■ Microsoft.Resources/subscriptions/resourcegroups/read ■ Microsoft.Resources/subscriptions/resourcegroups/write ■ Microsoft Storage <ul style="list-style-type: none"> ■ Microsoft.Storage/storageAccounts/delete ■ Microsoft.Storage/storageAccounts/listKeys/action ■ Microsoft.Storage/storageAccounts/read ■ Microsoft.Storage/storageAccounts/write ■ Microsoft Web <ul style="list-style-type: none"> ■ Microsoft.Web/sites/read ■ Microsoft.Web/sites/write ■ Microsoft.Web/sites/delete ■ Microsoft.Web/sites/config/read ■ Microsoft.Web/sites/config/write ■ Microsoft.Web/sites/config/list/action ■ Microsoft.Web/sites/publishxml/action ■ Microsoft.Web/serverfarms/write ■ Microsoft.Web/serverfarms/delete ■ Microsoft.Web/sites/hostruntime/functions/keys/read ■ Microsoft.Web/sites/hostruntime/host/read ■ Microsoft.web/sites/functions/masterkey/read

If you are using Microsoft Azure with action-based extensibility, the following permissions are required, in addition to the minimal permissions:

- Microsoft.Web/sites/read
- Microsoft.Web/sites/write
- Microsoft.Web/sites/delete
- Microsoft.Web/sites/config/read
- Microsoft.Web/sites/config/write
- Microsoft.Web/sites/config/list/action
- Microsoft.Web/sites/publishxml/action
- Microsoft.Web/serverfarms/write
- Microsoft.Web/serverfarms/delete

To...	You need...
	<ul style="list-style-type: none">■ Microsoft.Web/sites/hostruntime/functions/keys/read■ Microsoft.Web/sites/hostruntime/host/read■ Microsoft.Web/sites/functions/masterkey/read <p>If you are using Microsoft Azure with action-based extensibility with extensions, the following permissions are also needed:</p> <ul style="list-style-type: none">■ Microsoft.Compute/virtualMachines/extensions/write■ Microsoft.Compute/virtualMachines/extensions/read■ Microsoft.Compute/virtualMachines/extensions/delete

To...	You need...
Add a Google Cloud Platform (GCP) cloud account	<p>The Google Cloud Platform cloud account interacts with the Google Cloud Platform compute engine.</p> <p>The Project Admin and Owner credentials are required for creating and validating Google Cloud Platform cloud accounts.</p> <p>If you are using an external HTTP Internet proxy, it must be configured for IPv4.</p> <p>The compute engine service must be enabled. When creating the cloud account in vRealize Automation, use the service account that was created when the compute engine was initialized.</p> <p>The following compute engine permissions are also needed, depending on the actions that the user can take:</p> <ul style="list-style-type: none"> ■ roles/compute.admin <p>Provides full control of all compute engine resources.</p> ■ roles/iam.serviceAccountUser <p>Provides access to users who manage virtual machine instances that are configured to run as a service account. Grant access to the following resources and services:</p> <ul style="list-style-type: none"> ■ compute.* ■ resourcemanager.projects.get ■ resourcemanager.projects.list ■ serviceusage.quotas.get ■ serviceusage.services.get ■ serviceusage.services.list ■ roles/compute.imageUser <p>Provides permission to list and read images without having other permissions on the image. Granting the compute.imageUser role at the project level gives users the ability to list all images in the project. It also allows users to create resources, such as instances and persistent disks, based on images in the project.</p> <ul style="list-style-type: none"> ■ compute.images.get ■ compute.images.getFromFamily ■ compute.images.list ■ compute.images.useReadOnly ■ resourcemanager.projects.get ■ resourcemanager.projects.list ■ serviceusage.quotas.get ■ serviceusage.services.get ■ serviceusage.services.list ■ roles/compute.instanceAdmin <p>Provides permissions to create, modify, and delete virtual machine instances. This includes permissions to create, modify, and delete disks, and also to configure shielded VMBETA settings.</p> <p>For users that manage virtual machine instances (but not network or security settings or instances that run as service accounts), grant this role to the organization, folder, or project that contains the instances, or to the individual instances.</p> <p>Users that manage virtual machine instances that are configured to run as a service account also need the roles/iam.serviceAccountUser role.</p> <ul style="list-style-type: none"> ■ compute.acceleratorTypes ■ compute.addresses.get ■ compute.addresses.list ■ compute.addresses.use

To...	You need...
	<ul style="list-style-type: none"> ■ compute.autoscalers ■ compute.diskTypes ■ compute.disks.create ■ compute.disks.createSnapshot ■ compute.disks.delete ■ compute.disks.get ■ compute.disks.list ■ compute.disks.resize ■ compute.disks.setLabels ■ compute.disks.update ■ compute.disks.use ■ compute.disks.useReadOnly ■ compute.globalAddresses.get ■ compute.globalAddresses.list ■ compute.globalAddresses.use ■ compute.globalOperations.get ■ compute.globalOperations.list ■ compute.images.get ■ compute.images.getFromFamily ■ compute.images.list ■ compute.images.useReadOnly ■ compute.instanceGroupManagers ■ compute.instanceGroups ■ compute.instanceTemplates ■ compute.instances ■ compute.licenses.get ■ compute.licenses.list ■ compute.machineTypes ■ compute.networkEndpointGroups ■ compute.networks.get ■ compute.networks.list ■ compute.networks.use ■ compute.networks.useExternallp ■ compute.projects.get ■ compute.regionOperations.get ■ compute.regionOperations.list ■ compute.regions ■ compute.reservations.get ■ compute.reservations.list ■ compute.subnetworks.get ■ compute.subnetworks.list ■ compute.subnetworks.use ■ compute.subnetworks.useExternallp ■ compute.targetPools.get ■ compute.targetPools.list

To...	You need...
	<ul style="list-style-type: none"> ■ <code>compute.zoneOperations.get</code> ■ <code>compute.zoneOperations.list</code> ■ <code>compute.zones</code> ■ <code>resourceManager.projects.get</code> ■ <code>resourceManager.projects.list</code> ■ <code>serviceusage.quotas.get</code> ■ <code>serviceusage.services.get</code> ■ <code>serviceusage.services.list</code> ■ <code>roles/compute.instanceAdmin.v1</code> <p>Provides full control of compute engine instances, instance groups, disks, snapshots, and images. Also provides read access to all compute engine networking resources.</p> <hr/> <p>Note If you grant a user this role at the instance level, that user cannot create new instances.</p> <hr/> <ul style="list-style-type: none"> ■ <code>compute.acceleratorTypes</code> ■ <code>compute.addresses.get</code> ■ <code>compute.addresses.list</code> ■ <code>compute.addresses.use</code> ■ <code>compute.autoscalers</code> ■ <code>compute.backendBuckets.get</code> ■ <code>compute.backendBuckets.list</code> ■ <code>compute.backendServices.get</code> ■ <code>compute.backendServices.list</code> ■ <code>compute.diskTypes</code> ■ <code>compute.disks</code> ■ <code>compute.firewalls.get</code> ■ <code>compute.firewalls.list</code> ■ <code>compute.forwardingRules.get</code> ■ <code>compute.forwardingRules.list</code> ■ <code>compute.globalAddresses.get</code> ■ <code>compute.globalAddresses.list</code> ■ <code>compute.globalAddresses.use</code> ■ <code>compute.globalForwardingRules.get</code> ■ <code>compute.globalForwardingRules.list</code> ■ <code>compute.globalOperations.get</code> ■ <code>compute.globalOperations.list</code> ■ <code>compute.healthChecks.get</code> ■ <code>compute.healthChecks.list</code> ■ <code>compute.httpHealthChecks.get</code> ■ <code>compute.httpHealthChecks.list</code> ■ <code>compute.httpsHealthChecks.get</code> ■ <code>compute.httpsHealthChecks.list</code> ■ <code>compute.images</code> ■ <code>compute.instanceGroupManagers</code> ■ <code>compute.instanceGroups</code> ■ <code>compute.instanceTemplates</code>

To...	You need...
	<ul style="list-style-type: none"> ■ compute.instances ■ compute.interconnectAttachments.get ■ compute.interconnectAttachments.list ■ compute.interconnectLocations ■ compute.interconnects.get ■ compute.interconnects.list ■ compute.licenseCodes ■ compute.licenses ■ compute.machineTypes ■ compute.networkEndpointGroups ■ compute.networks.get ■ compute.networks.list ■ compute.networks.use ■ compute.networks.useExternalIp ■ compute.projects.get ■ compute.projects.setCommonInstanceMetadata ■ compute.regionBackendServices.get ■ compute.regionBackendServices.list ■ compute.regionOperations.get ■ compute.regionOperations.list ■ compute.regions ■ compute.reservations.get ■ compute.reservations.list ■ compute.resourcePolicies ■ compute.routers.get ■ compute.routers.list ■ compute.routes.get ■ compute.routes.list ■ compute.snapshots ■ compute.sslCertificates.get ■ compute.sslCertificates.list ■ compute.sslPolicies.get ■ compute.sslPolicies.list ■ compute.sslPolicies.listAvailableFeatures ■ compute.subnetworks.get ■ compute.subnetworks.list ■ compute.subnetworks.use ■ compute.subnetworks.useExternalIp ■ compute.targetHttpProxies.get ■ compute.targetHttpProxies.list ■ compute.targetHttpsProxies.get ■ compute.targetHttpsProxies.list ■ compute.targetInstances.get ■ compute.targetInstances.list ■ compute.targetPools.get

To...	You need...
	<ul style="list-style-type: none"> ■ compute.targetPools.list ■ compute.targetSslProxies.get ■ compute.targetSslProxies.list ■ compute.targetTcpProxies.get ■ compute.targetTcpProxies.list ■ compute.targetVpnGateways.get ■ compute.targetVpnGateways.list ■ compute.urlMaps.get ■ compute.urlMaps.list ■ compute.vpnTunnels.get ■ compute.vpnTunnels.list ■ compute.zoneOperations.get ■ compute.zoneOperations.list ■ compute.zones ■ resourceManager.projects.get ■ resourceManager.projects.list ■ serviceusage.quotas.get ■ serviceusage.services.get ■ serviceusage.services.list
Add an NSX-T cloud account	<p>Provide an account with the following read and write privileges:</p> <ul style="list-style-type: none"> ■ NSX-T Enterprise Administrator role and access credentials ■ NSX-T IP address or FQDN <p>Administrators <i>also</i> require access to the vCenter Server as described in the following <i>vSphere agent requirements for vCenter-based cloud accounts</i> section on this page.</p>
Add an NSX-V cloud account	<p>Provide an account with the following read and write privileges:</p> <ul style="list-style-type: none"> ■ NSX-V Enterprise Administrator role and access credentials ■ NSX-V IP address or FQDN <p>Administrators <i>also</i> require access to the vCenter Server as described in the following <i>vSphere agent requirements for vCenter-based cloud accounts</i> section on this page.</p>

To...	You need...
Add a vCenter cloud account	<p>Provide an account with the following read and write privileges:</p> <ul style="list-style-type: none"> ■ vCenter IP address or FQDN <p>Administrators <i>also</i> require access to the vCenter Server as described in the following <i>vSphere agent requirements for vCenter-based cloud accounts</i> section on this page.</p>
Add a VMware Cloud on AWS (VMC) cloud account	<p>Provide an account with the following read and write privileges:</p> <ul style="list-style-type: none"> ■ The cloudadmin@vmc.local account or any user account in the CloudAdmin group ■ NSX Enterprise Administrator role and access credentials ■ NSX Cloud Admin access to your organization's VMware Cloud on AWS SDDC environment ■ Administrator access to your organization's VMware Cloud on AWS SDDC environment ■ The VMware Cloud on AWS API token for your VMware Cloud on AWS environment in your organization's VMware Cloud on AWS service ■ vCenter IP address or FQDN <p>Administrators <i>also</i> require access to the vCenter that is used by your target VMware Cloud on AWS SDDC that has all the permissions listed in the following <i>vSphere agent requirements for vCenter-based cloud accounts</i> section on this page.</p> <p>For more information about the permissions needed to create and use VMware Cloud on AWS cloud accounts, see <i>Managing the VMware Cloud on AWS Data Center</i> in VMware Cloud on AWS product documentation.</p>

vSphere agent requirements for vCenter-based cloud accounts

The following table lists the permissions needed to manage VMware Cloud on AWS and vCenter cloud accounts. The permissions must be enabled for all clusters in the vCenter Server, not just clusters that host endpoints.

For all vCenter Server-based cloud accounts - including NSX-V, NSX-T, vCenter, and VMware Cloud on AWS - the administrator must have vSphere endpoint credentials, or the credentials under which the agent service runs in vCenter, that provide administrative access to the host vCenter Server.

For more information about vSphere agent requirements, see [VMware vSphere product documentation](#).

Table 3-1. Permissions Required for vSphere Agent to Manage vCenter Server Instance

Attribute Value	Permission
Datastore	<ul style="list-style-type: none"> ■ Allocate space ■ Browse datastore ■ Low level file operations
Datastore Cluster	Configure a datastore cluster
Folder	<ul style="list-style-type: none"> ■ Create folder ■ Delete folder
Global	<ul style="list-style-type: none"> ■ Manage custom attributes ■ Set custom attribute

Table 3-1. Permissions Required for vSphere Agent to Manage vCenter Server Instance (continued)

Attribute Value	Permission
Network	Assign network
Permissions	Modify permission
Resource	<ul style="list-style-type: none"> ■ Assign VM to Res Pool ■ Migrate powered off virtual machine ■ Migrate powered on virtual machine
Content Library	<p>To assign a permission on a content library, an administrator must grant the permission to the user as a global permission. For related information, see Hierarchical Inheritance of Permissions for Content Libraries in <i>vSphere Virtual Machine Administration</i> at VMware vSphere Documentation.</p> <ul style="list-style-type: none"> ■ Add library item ■ Create local library ■ Create subscribed library ■ Delete library item ■ Delete local library ■ Delete subscribed library ■ Download files ■ Evict library item ■ Evict subscribed library ■ Probe subscription information ■ Read storage ■ Sync library item ■ Sync subscribed library ■ Type introspection ■ Update configuration settings ■ Update files ■ Update library ■ Update library item ■ Update local library ■ Update subscribed library ■ View configuration settings
Tags	<ul style="list-style-type: none"> ■ Assign or unassign vSphere tag ■ Create a vSphere tag ■ Create a vSphere tag category ■ Delete vSphere tag ■ Delete vSphere tag category ■ Edit vSphere tag ■ Edit vSphere tag category ■ Modify UsedBy field for category ■ Modify UsedBy field for tag

Table 3-1. Permissions Required for vSphere Agent to Manage vCenter Server Instance (continued)

Attribute Value	Permission
vApp	<ul style="list-style-type: none"> ■ Import ■ vApp application configuration <p>The <code>vApp.Import</code> application configuration is required for OVF templates and to provision VMs from the content library.</p> <p>The <code>vApp.vApp</code> application configuration is required when using cloud-init for cloud configuration scripting. This setting allows for modification of a vApp's internal structure, such as its product information and properties.</p>
Virtual Machine - Inventory	<ul style="list-style-type: none"> ■ Create from existing ■ Create new ■ Move ■ Remove
Virtual Machine - Interaction	<ul style="list-style-type: none"> ■ Configure CD media ■ Console interaction ■ Device connection ■ Power off ■ Power on ■ Reset ■ Suspend ■ Tools install
Virtual Machine - Configuration	<ul style="list-style-type: none"> ■ Add existing disk ■ Add new disk ■ Remove disk ■ Advanced ■ Change CPU count ■ Change resource ■ Extend virtual disk ■ Disk change tracking ■ Memory ■ Modify device settings ■ Rename ■ Set annotation ■ Settings ■ Swapfile placement
Virtual Machine - Provisioning	<ul style="list-style-type: none"> ■ Customize ■ Clone template ■ Clone virtual machine ■ Deploy template ■ Read customization specs
Virtual Machine - State	<ul style="list-style-type: none"> ■ Create snapshot ■ Remove snapshot ■ Revert to snapshot

How do I set up vRealize Automation Cloud Assembly

4

To set up and verify your vRealize Automation Cloud Assembly instance, you can use a quick start wizard and a guided setup. The wizard asks you to provide values that are used to configure vRealize Automation Cloud Assembly and vRealize Automation Service Broker. The guided setup provides instructions in a support panel that guide you through a vRealize Automation Cloud Assembly configuration process in the user interface.

- [How do I get started with vRealize Automation using the VMware vCenter Server Quickstart](#)

If you are new to vRealize Automation, the Quickstart is a great way to get started. The Quickstart helps you, the cloud administrator, set up your on-premises vCenter Server so that you can provision resources using vRealize Automation, populate the self-service catalog, and deploy your first blueprint to your vSphere instance.

- [How do I get started with vRealize Automation using the VMware Cloud Foundation Quickstart](#)

If you use VMware Cloud Foundation to manage your SDDC, the Quickstart helps you connect it to vRealize Automation so that you can provision resources and then manage the life cycle of those resources.

- [Take me on a tour of vRealize Automation to see what the Quickstart did](#)

If you run the vRealize Automation Quickstart, the wizard configures cloud accounts, some infrastructure, a project, and some blueprints. It also deploys a blueprint. Follow the steps in this procedure to see what was added. You can also use this tour to learn about some of the vRealize Automation Cloud Assembly and vRealize Automation Service Broker features.

- [How do I get started with vRealize Automation Cloud Assembly using the Guided Setup](#)

To set up and verify your vRealize Automation Cloud Assembly instance, you configure the infrastructure based on the cloud accounts, and then you create and deploy blueprints to ensure that everything is flowing through the system.

How do I get started with vRealize Automation using the VMware vCenter Server Quickstart

If you are new to vRealize Automation, the Quickstart is a great way to get started. The Quickstart helps you, the cloud administrator, set up your on-premises vCenter Server so that you can

provision resources using vRealize Automation, populate the self-service catalog, and deploy your first blueprint to your vSphere instance.

Using the vCenter Server Quickstart, you do the following tasks in vRealize Automation Cloud Assembly and vRealize Automation Service Broker.

- Add a vCenter Server cloud account. Cloud accounts are the credentials that are used to collect data from and deploy resources to your vCenter Server instance.
- Add an NSX-T or NSX-V cloud account and associate it with the vCenter Server account. The NSX cloud accounts are the credentials that are used to create and deploy NSX network resources.
- Select a datacenter. The datacenter is added as a cloud account region.
- Create a sample machine blueprint that you can deploy.
- Create a project. The project links your users with cloud account regions, so that they can deploy application templates and blueprints with networks and storage resources to your vCenter Server instance.
- Create lease and machine naming policies. The lease policy controls how long a deployment is active. The naming policy provides a standardized naming convention for the resources.
- Add the templates to the catalog.
- Deploy a machine from the catalog.

After you run the Quickstart the first time, the Quickstart is added as a tile on the console services page. You can run it again to add new vCenter Server or Cloud Foundation instances.

Much of this terminology might be new to you. As you go through the Quickstart and the tour, we explain the new concepts in more detail. After you run the Quickstart, use the [Take me on a tour of vRealize Automation to see what the Quickstart did](#) to tour the results.

The Quickstart is not an option under the following circumstances.

- If you do not use vSphere and want to add a different type of cloud account, you can use the Guided Setup as your first-time guide to the process.
- You can only run the Quickstart once. You cannot run it a second time. Consider using the Guided Setup.
- For more about the Guided Setup, see [How do I get started with vRealize Automation Cloud Assembly using the Guided Setup](#).

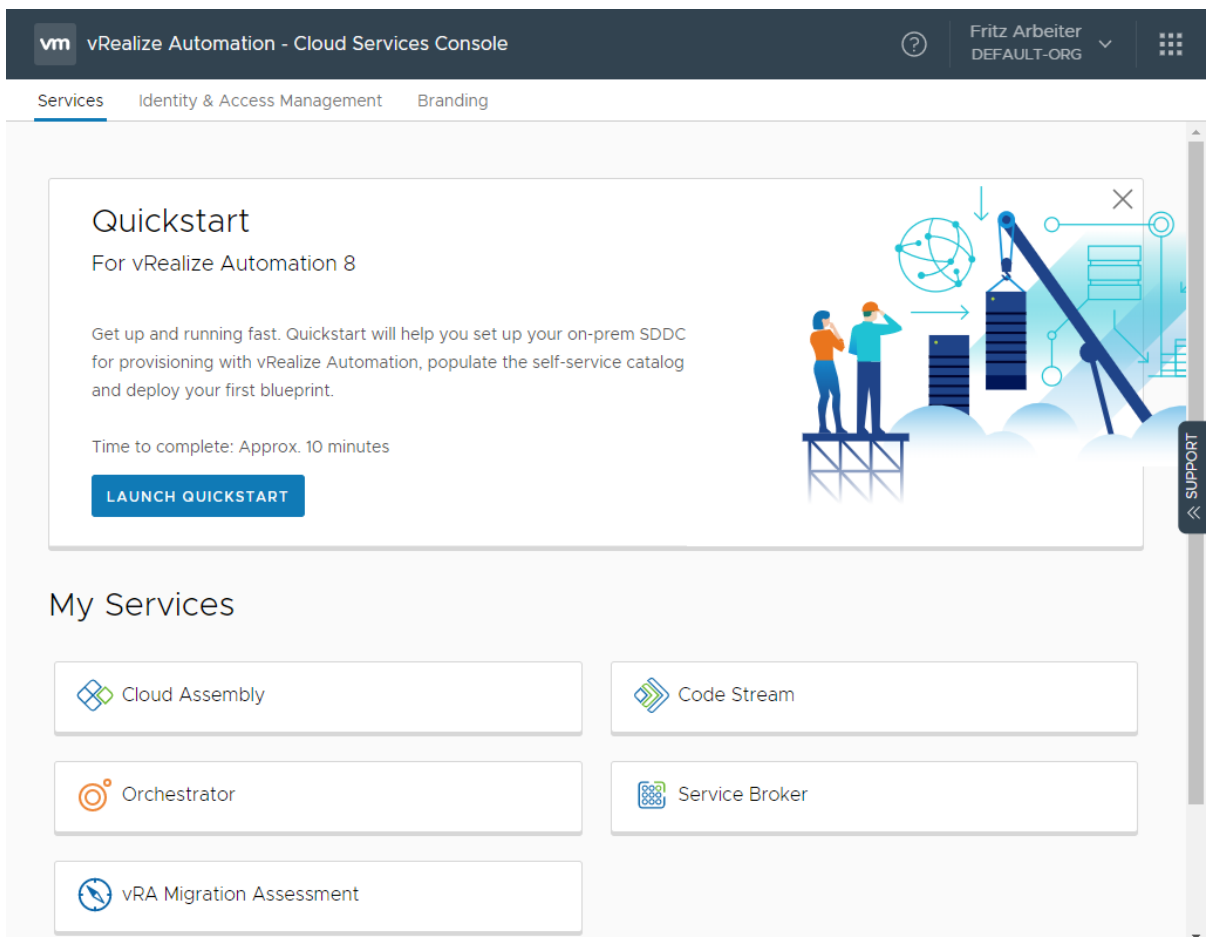
In this procedure, we provide sample values to illustrate the workflow. Substitute these samples with values that are relevant to your environment.

Prerequisites

- Verify that you have the IP address or FQDN for the vCenter Server that you are adding as a cloud account. You must also have the credentials for a vCenter Server user account with the necessary permissions. See the vCenter Server requirements in [Chapter 3 Before you begin with vRealize Automation Cloud Assembly](#).
- Verify that you have the IP address or FQDN for the NSX-V or NSX-T instance that you are adding as a cloud account. You must also have the credentials for a user account that has create, read, edit, and delete permission. See the NSX requirements in [Chapter 3 Before you begin with vRealize Automation Cloud Assembly](#).

Procedure

- 1 After you install vRealize Automation and log in for the first time, click **Launch Quickstart**.



- 2 Click **VMware vCenter Server**.

3 Add your vCenter Server.

Quickstart

Add a new vCenter Server account ▾

vCenter Server IP address/FQDN *

server.cmpany.com ⓘ

Username *

your.name ⓘ

Password *

.....

VALIDATE

CREATE AND GO TO NEXT STEP

> 2 NSX	Add the NSX Manager that is registered with your vCenter Server instance.
> 3 Blueprint	Select the blueprint configuration and deployment options
> 4 Policies	Apply basic governance policies
> 5 Summary	Review and apply your changes

Remember that all values here are use case samples. Your account values depend on your environment.

Avoid any beginning or trailing spaces when you enter the values.

- Enter the address and credentials.
- Click **Validate**.

If your certificates are not configured, a warning appears regarding the untrusted certificate. You can resolve the trust or you can click **Accept** and continue.

- c Select the data centers that you want to deploy to.

Quickstart

Add a new vCenter Server account ▾

vCenter Server IP address/FQDN *
sqa-nsxt-vc2.sqa.local ⓘ

Username *
admin ⓘ

Password *
.....

VALIDATE

✔ Credentials validated successfully. ✕

Allow provisioning to these datacenters *

☒ Datacenter ⓘ

CREATE AND GO TO NEXT STEP

Each data center is added as an account region cloud zone in vRealize Automation.

- d Click **Create and go to next step**.
- 4 Add the NSX instance that is associated with your vCenter Server.
- For this example, the values are for NSX-T.

2 NSX

Add the NSX Manager that is registered with your vCenter Server instance.

Configuring an NSX instance enables out-of-the-box provider infrastructure as code as well as on-demand network and security services.

NSX Version * ☒ NSX-T ☐ NSX-V ☐ None ⓘ

NSX-T IP address/FQDN * ⓘ

Username * ⓘ

Password *

ⓘ Endpoint created successfully ✕

Tier-0 logical router * ⓘ

Edge cluster * ⓘ

- a Select the NSX version.
Select the NSX version that you use. If you do not have NSX, select **None**.
- b Enter the address and credentials.
- c Review the information, and then click **Validate and Create**.
- d Select the **Tier 0 Router** and the **Edge Cluster** that you want to use in your network profile.
- e Click **Next step**.

5 Set up your first blueprint and where it is deployed.

This process sets up the elements in your infrastructure. The terms that are used in vRealize Automation Cloud Assembly and vRealize Automation Service Broker are provided so that you become familiar with them and how they are used in the UI.

- a Click in the text box to activate the collected values and select the **Datacenter**.

The other possible values on this page are collected from your vCenter Server instance based on the provided credentials. This data center becomes a cloud zone in vRealize Automation Cloud Assembly.

- b Select the vCenter Server **Template** that you want to deploy.

This template is a virtual machine template on your vCenter Server instance.

You can use the automatic search by clicking in the text field.

- c Select the **Datastore / cluster**.

This datastore becomes a storage profile.

- d Select the **Default network**.

If you are configuring NSX, select the NSX network, not the vCenter Server network.

This network becomes a cloud zone that supports the network profile.

- e To select and configure a DHCP or static IP connection type, click **Configure** and provide the values specific to your environment.

The network connection that you configure becomes a network profile.




- f Click **Next Step**.

As part of this configuration process, a Quickstart project is defined for you. The project eventually links your users, infrastructure, and provisioning templates. You can see the project in the tour.

- 6 Provide a lease policy and a machine naming policy so that all the deployments have the same lease time and follow a standard naming convention.

4 Policies
Apply basic governance policies

These policies are applied to the QuickStart deployments.

	Project	vCenter Server	Create or select a project.	EDIT
	Lease	1 month	Configure the how long the Quickstart	EDIT
	Machine	Project name - 001	Configure how the deployed machines are	EDIT

NEXT STEP

These policies are applied to deployments associated with the Quickstart project. The Quickstart creates the project for you. You define the policies.

- Edit the project name.
- Edit the lease and select the time after which the resources are destroyed if not renewed by the user.
- Edit the machine name and select the naming convention that you want to use.
- Click **Next Step**.

7 Verify your configuration requests on the Summary page.

5
Summary
Review and apply your changes

vCenter Server
sqa-nsxt-vc2.sqa.local
1 datacenters
enabled

NSX
NSX-T
sqa-nsxt-mgr-1.sqa.local

Blueprint
WebTinyCentOS65x86
nsxt-px-67
dhcp

Policies
Project - vCenter Server Quickstart
Project 4
Lease - 1 month
Naming - Project name - 001

☒
Automatically deploy my template when Quickstart completes

☒
Add sample NSX-T blueprints to the catalog

RUN QUICKSTART

- If you want to immediately deploy the template so that you can see the results in Cloud Assembly and on your vCenter Server instance, select the check box. If you do not select the check box, the infrastructure, the blueprint, and the catalog item are created, but they are not deployed.
- If you want to add the NSX blueprints to the catalog, select the check box. The NSX blueprint includes a network, a load balancer, a firewall, and a tier 1 router. If you do not select the check box, the blueprints are created, but they are not released to the catalog.

8 Click **Run Quickstart**.

What to do next

Take a tour of vRealize Automation Cloud Assembly and vRealize Automation Service Broker to discover more about how you manage your infrastructure, create blueprints, and deploy and manage resources. See [Take me on a tour of vRealize Automation to see what the Quickstart did.](#)

How do I get started with vRealize Automation using the VMware Cloud Foundation Quickstart

If you use VMware Cloud Foundation to manage your SDDC, the Quickstart helps you connect it to vRealize Automation so that you can provision resources and then manage the life cycle of those resources.

Using the Cloud Foundation Quickstart, you do the following vRealize Automation Cloud Assembly and vRealize Automation Service Broker tasks that are used in this procedure.

- Add a vCenter Server cloud account for the vCenter Server instance associated with the selected SDDC Manager workload domain. Cloud accounts are the credentials that are used to collect data from and deploy resources to your vCenter Server instance.
- Add an NSX-T cloud account. The NSX cloud accounts are the credentials that are used to create and deploy NSX network resources.
- Select a datacenter. The datacenter is added as a cloud account region.
- Create a sample machine blueprint that you can deploy.
- Create a project. The project links your users with cloud account regions, so that they can deploy application templates and blueprints with networks and storage resources to your vCenter Server instance.
- Create lease and machine naming policies. The lease policy controls how long a deployment is active. The naming policy provides a standardized naming convention for the resources.
- Add the templates to the catalog.
- Deploy a machine from the catalog.

After you run the Quickstart the first time, the Quickstart is added as a tile on the console services page. You can run it again to add new vCenter Server or Cloud Foundation instances.

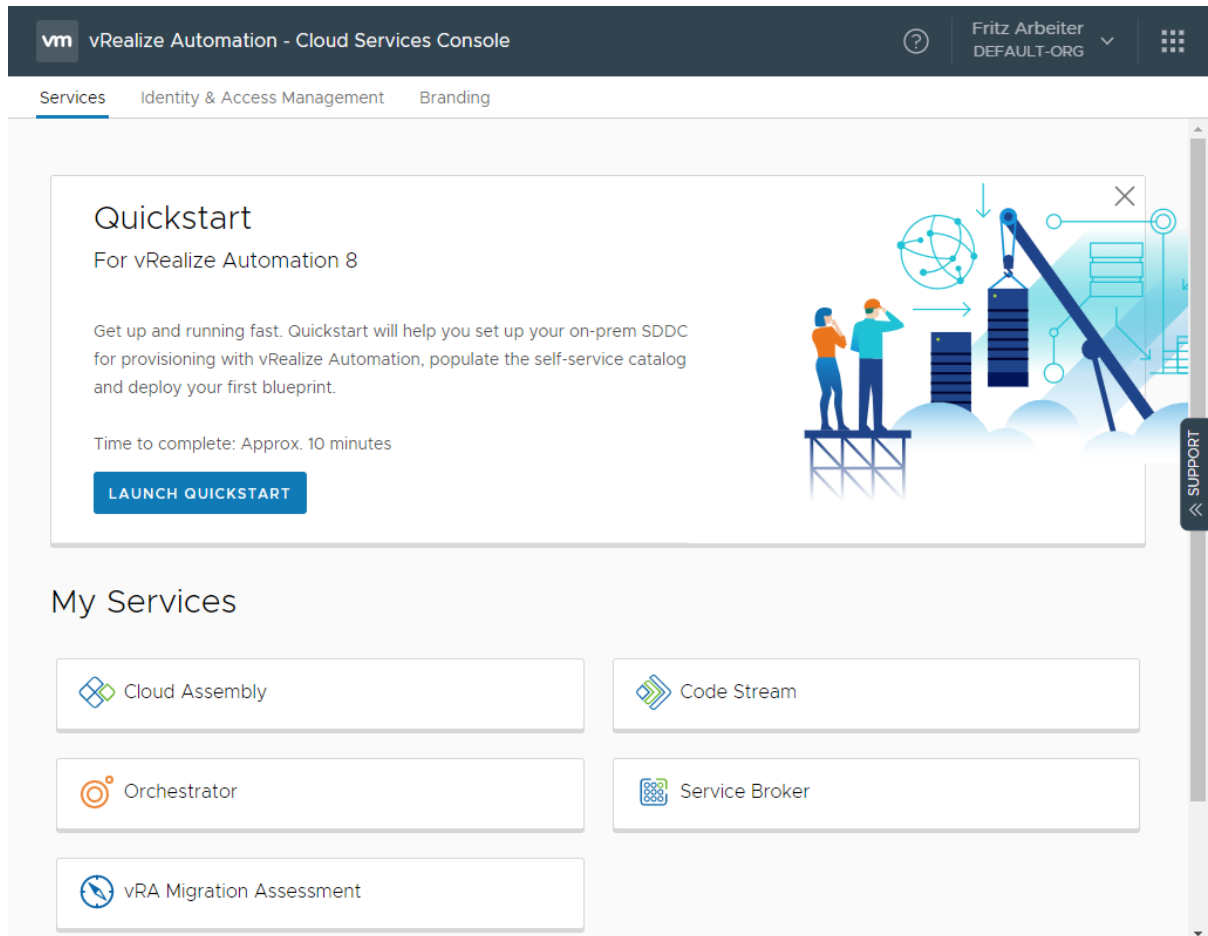
Much of this terminology might be new to you. As you finish the Quickstart, review the tour. Although the tour is based on the vCenter Server Quickstart, the tour applies to Cloud Foundation. In the tour, you are introduced to the new concepts in more detail. For more information, see [Take me on a tour of vRealize Automation to see what the Quickstart did](#).

Prerequisites

- Verify that you have the IP address or FQDN for the Cloud Foundation SDDC Manager that you are adding as a cloud account. You must also have the credentials for a SDDC Manager user account with the necessary permissions.
- Verify that the following exists in your Cloud Foundation instance.
 - A deployed NSX-T Edge
 - A default network
 - A tier-0 router
- Verify that you have a deployable virtual machine template that vRealize Automation can deploy as part of the Quickstart.

Procedure

- 1 After you install vRealize Automation and log in for the first time, click **Launch Quickstart**.



- 2 Click **VMware Cloud Foundation**.

3 Add your SDDC Manager.

Quickstart

1 SDDC Manager

Add a Cloud Foundation SDDC Manager and select a workload domain

SDDC Manager FQDN *

server.company.com, ⓘ

SDDC Manager admin *

admin.username ⓘ

SDDC Manager password *

.....

VALIDATE

CREATE AND GO TO NEXT STEP

> 2 vCenter Server

Add a vCenter Server and enable datacenters for provisioning

> 3 NSX

Add the NSX Manager that is registered with your vCenter Server instance

> 4 Blueprint

Select the blueprint configuration and deployment options

Remember that all values here are use case samples. Your account values depend on your environment.

Avoid any beginning or trailing spaces when you enter the values.

- a Enter the address and credentials.
- b Click **Validate**.

If your certificates are not configured, a warning appears regarding the untrusted certificate. You can resolve the trust or you can click **Accept** and continue.

- c Select the workload domain that you want to deploy to.

Quickstart

1

SDDC Manager

Add a Cloud Foundation SDDC Manager and select a workload domain

SDDC Manager FQDN *

cmbuvcsddcmgr.eng.vmware.com

SDDC Manager admin *

administrator@vsphere.local

SDDC Manager password *

.....

VALIDATE

✓

Credentials validated successfully.

✕

Workload domain *

☐ MGMT

☐ vra-vi-wld

CREATE AND GO TO NEXT STEP

2

vCenter Server

Add a vCenter Server and enable datacenters for provisioning

The workload domain is added as an account region cloud zone in vRealize Automation.



- d Click **Create and go to next step**.

- 4 Verify the vCenter Server associated with the workload domain, and then select the data centers.

Quickstart

> 1 SDDC Manager Add a Cloud Foundation SDDC Manager and select a workload domain

▼ 2 vCenter Server Add a vCenter Server and enable datacenters for provisioning

Workload domain	MGMT
vCenter Server	cmbuvcfmgmtvc.eng.vmware.com
Username *	administrator@vsphere.local ⓘ
Password *
	<div>VALIDATE</div> <div>  Credentials validated successfully.  </div>
Datacenter *	<input checked="" type="checkbox"/> SDDC-Datacenter ⓘ

CREATE AND GO TO NEXT STEP

> 3 NSX Add the NSX Manager that is registered with your vCenter Server instance

- a Review the information, provide the credentials, and then click **Validate and Create**.
- b Select the data centers that you want to deploy to.
Each data center is added as an account region cloud zone in vRealize Automation.
- c Click **Create and go to next step**.

- 5 Verify the NSX-T associated with the workload domain, and then select the router and Edge.


Quickstart

3

NSX

Add the NSX Manager that is registered with your vCenter Server instance

The NSX Manager is added as a cloud account with the API credentials that were generated when you connected to the SDDC Manager.

Workload domain	MGMT	
NSX-T	cmbuvcfnsxmgr.eng.vmware.com	
	<div>VALIDATE AND CREATE</div> <div>  Endpoint created successfully </div>	<div>✕</div>
Tier-0 logical router *	<input type="text" value="vra-vcf-tier-0"/> <div>?</div>	<div>?</div>
Edge cluster *	<input type="text" value="EdgeCluster"/> <div>?</div>	<div>?</div>

NEXT STEP

4

Blueprint

Select the blueprint configuration and deployment options

- Review the information, and then click **Validate and Create**.
- Select the **Tier 0 Router** and the **Edge Cluster** that you want to use in your network profile.
- Click **Next Step**.

6 Set up your blueprint.

This process sets up the elements in your infrastructure. The terms that are used in vRealize Automation Cloud Assembly and vRealize Automation Service Broker are provided so that you become familiar with them and how they are used in the UI.

- a Select the vCenter Server **Template** that you want to deploy.

This template is a virtual machine template on your vCenter Server instance.

You can use the automatic search by clicking in the text field.

Quickstart

> 1	SDDC Manager	Add a Cloud Foundation SDDC Manager and select a workload domain
> 2	vCenter Server	Add a vCenter Server and enable datacenters for provisioning
> 3	NSX	Add the NSX Manager that is registered with your vCenter Server instance
▼ 4	Blueprint	Select the blueprint configuration and deployment options

This information is used to create and deploy your Quickstart blueprint on the selected datacenter.

Datacenter	Q cmbuvcfmgmtvc.eng.vmware.com / SDDC-Datacer	
Template	Q cent-os	
Datastore / cluster	Q datastore1 (102)	
Default network	overlay	BROWSE
IP assignment type	DHCP CONFIGURE	

[NEXT STEP](#)

- b Select the **Datastore / cluster**.

This datastore becomes a storage profile.

- c Select the **Default network**.

If you are configuring NSX, select the NSX network, not the vCenter Server network.

This network becomes a cloud zone that supports the network profile.

- d To select and configure a DHCP or static IP connection type, click **Configure** and provide the values specific to your environment.

The network connection that you configure becomes a network profile.

- e Click **Next Step**.

As part of this configuration process, a Quickstart project is defined for you. The project eventually links your users, infrastructure, and provisioning templates. You can see the project in the tour.

- 7 Create a project and provide a lease policy and a machine naming policy so that all the deployments have the same lease time and follow a standard naming convention.

Quickstart


> 4 Blueprint

Select the blueprint configuration and deployment options

▼ 5 Policies

Apply basic governance policies


These policies are applied to the QuickStart deployments.

 Project

Quickstart Project 1

Create or select a project.


EDIT

 Lease

1 week

Configure the how long the Quickstart

EDIT

 Machine

Requestor name -

Configure how the deployed machines are

EDIT

NEXT STEP

> 6 Summary

Review and apply your changes

These policies are applied to deployments associated with the Quickstart project. The Quickstart creates the project for you based on the default name or one that you provide. You define the policies.

- a Edit the lease and select the time after which the resources are destroyed if not renewed by the user.

Lease

×

Remove deployments after a specified duration unless the lease is renewed.
This policy is applied at the project level

1 week

1 day
1 week
2 weeks
1 month

CANCEL

SAVE

- b Edit the machine name and select the naming convention that you want to use.

Machine Name Prefix

×

Name and numbering method for new machines

Requestor name - 001

Requestor name - 001
Project name - 001
none

CANCEL

SAVE

- c Click **Next Step**.

8 Verify your configuration requests on the Summary page.

5
Summary
Review and apply your changes

vCenter Server
sqa-nsxt-vc2.sqa.local
1 datacenters
enabled

NSX
NSX-T
sqa-nsxt-mgr-1.sqa.local

Blueprint
WebTinyCentOS65x86
nsxt-px-67
dhcp

Policies
Project - vCenter
Server Quickstart
Project 4
Lease - 1 month
Naming - Project
name - 001

☒
Automatically deploy my template when Quickstart completes

☒
Add sample NSX-T blueprints to the catalog

RUN QUICKSTART

- If you want to immediately deploy the template so that you can see the results in Cloud Assembly and on your vCenter Server instance, select the check box. If you do not select the check box, the infrastructure, the blueprint, and the catalog item are created, but they are not deployed.
- If you want to add the NSX blueprints to the catalog, select the check box. The NSX blueprint includes a network, a load balancer, a firewall, and a tier 1 router. If you do not select the check box, the blueprints are created, but they are not released to the catalog.

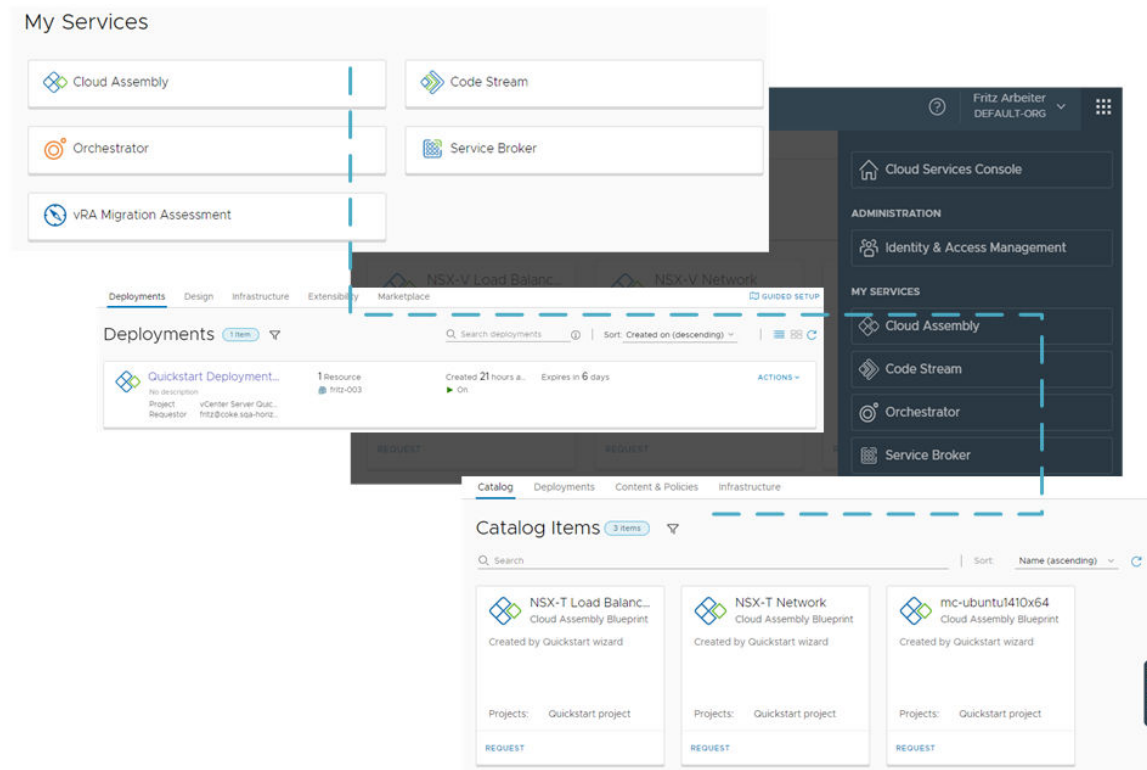
9 Click **Run Quickstart**.

What to do next

Take a tour of vRealize Automation Cloud Assembly and vRealize Automation Service Broker to discover more about how you manage your infrastructure, create blueprints, and deploy and manage resources. See [Take me on a tour of vRealize Automation to see what the Quickstart did..](#)

Take me on a tour of vRealize Automation to see what the Quickstart did

If you run the vRealize Automation Quickstart, the wizard configures cloud accounts, some infrastructure, a project, and some blueprints. It also deploys a blueprint. Follow the steps in this procedure to see what was added. You can also use this tour to learn about some of the vRealize Automation Cloud Assembly and vRealize Automation Service Broker features.



The information presented in this tour is based on the vCenter Server Quickstart, but the results are similar if you run the VMware Cloud Foundation Quickstart.

The tour follows the basic workflow that you use as you add new cloud accounts, develop your own blueprints, and make them available to your consumers as a catalog. To expand your configured infrastructure to support a diverse range of development operation team projects, you must broaden your infrastructure so that you can create more refined blueprints. This tour is only a starting point. It is intended to familiarize you with the user interface and how to use it.

You begin with the console, then vRealize Automation Cloud Assembly, where cloud administrators and blueprint developers do most of their work. This is followed by vRealize Automation Service Broker, which you configure to provide catalog items that your consumers can request and manage.

Prerequisites

- The procedure assumes that you ran the Quickstart. See [How do I get started with vRealize Automation using the VMware vCenter Server Quickstart](#).
- If you did not, you can use the Guided Setup to get started creating your cloud infrastructure. See [How do I get started with vRealize Automation Cloud Assembly using the Guided Setup](#).

- Log in as a user with a cloud administrator role.

Procedure

1 [Tour of the Quickstart changes to vRealize Automation Cloud Assembly](#)

This tour of vRealize Automation Cloud Assembly shows you what the Quickstart configured and deployed. It is designed to guide your through the user interface and help you understand some of the tasks you might later perform on your own.

2 [Tour of the Quickstart changes to vRealize Automation Service Broker](#)

vRealize Automation Service Broker is where you provide your users with a catalog of blueprints and other templates that they can deploy to the cloud accounts that you provide. In this part of the tour, you can see what the Quickstart configured for you.

Tour of the Quickstart changes to vRealize Automation Cloud Assembly

This tour of vRealize Automation Cloud Assembly shows you what the Quickstart configured and deployed. It is designed to guide your through the user interface and help you understand some of the tasks you might later perform on your own.

When you log in to vRealize Automation, you might see the Identity and Access Management and Branding tab. These tabs are not covered as part of the tour. You use them as you add users and manage your organizations.

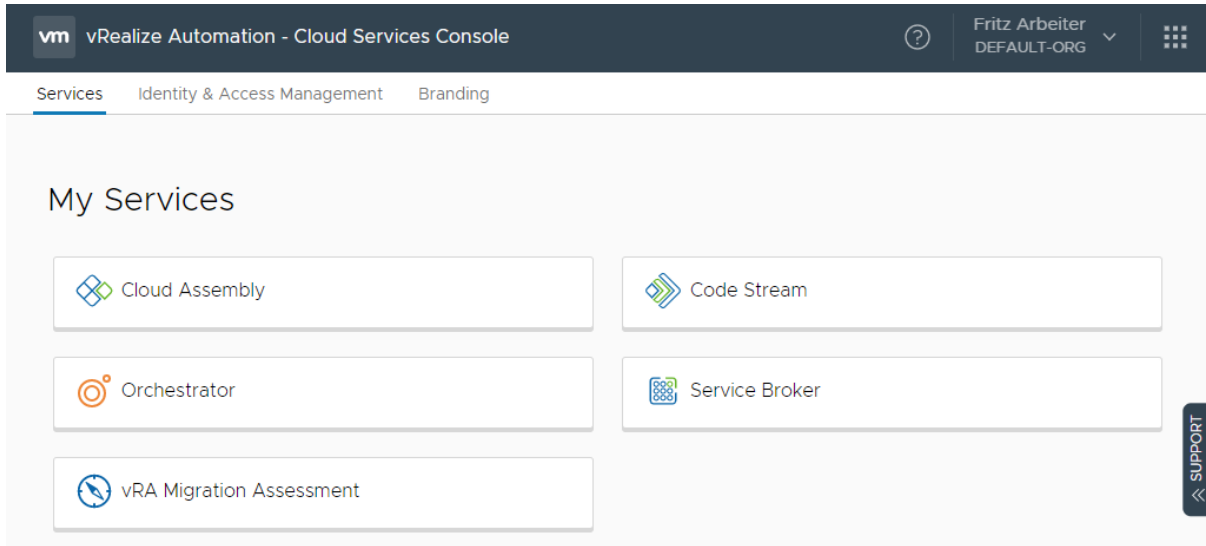
For more about identity management and branding, see [Administering vRealize Automation](#)

Prerequisites

- This procedure assumes that you ran the QuickStart. See [How do I get started with vRealize Automation using the VMware vCenter Server Quickstart](#).
- Log in as a user with an administrator role.

Procedure

- 1 As a cloud administrator, log in to vRealize Automation.

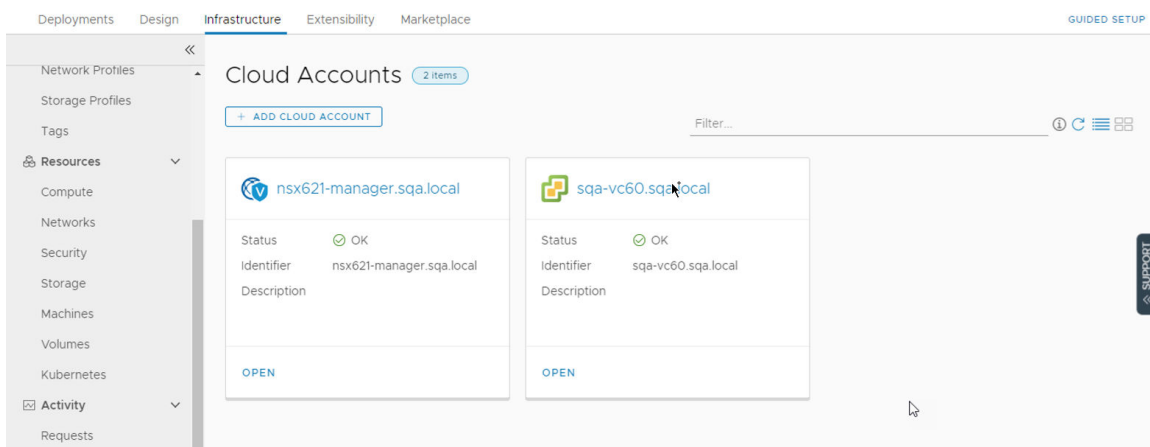


- 2 Click **Cloud Assembly**.

vRealize Automation Cloud Assembly opens with the Deployments tab active.

The deployments in vRealize Automation Cloud Assembly are the blueprints that are provisioned on your cloud account platforms. A successfully deployed blueprint represents your final goal as an administrator or blueprint designer. Because this tour is to help you understand your workflow, we start with connecting to cloud accounts first and return to deployments later.

- 3 To learn how the vCenter Server QuickStart configured vRealize Automation Cloud Assembly to support the deployment, begin by selecting **Infrastructure > Connections > Cloud Accounts**.



Cloud accounts provide the credentials that are used to connect to your target systems. Using the provided credentials, vRealize Automation Cloud Assembly can monitor the status, collect information, and deploy workloads to those systems. In this example, you can see the NSX and vSphere instances that you provided in the QuickStart.

Each time you run the QuickStart, a new cloud zone is added.

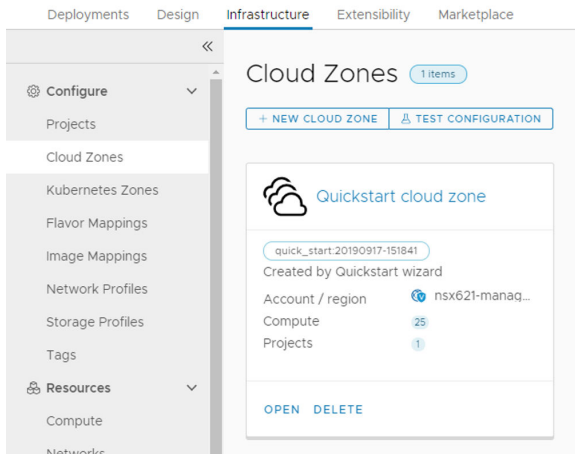
- a Click the vSphere cloud account name.

The screenshot shows the configuration page for a vSphere cloud account named **sqa-vc60.sqa.local**. At the top right is a **DELETE** link. Below the title is a **Status** section with three green checkmarks indicating successful operations: "Data collection completed 9 minutes ago.", "Image synchronization completed 1 hour ago.", and "Available for deployment.". To the right of the first two status items are information icons. To the right of the third status item is an **UPDATE** button. Above the **Image synchronization** status is a **SYNC IMAGES** button. Below the status section is the **vCenter Server Credentials** section, which contains three input fields: "vCenter IP address/FQDN" with the value **sqa-vc60.sqa.local**, "Username" with the value **admin**, and "Password". Below these fields is a **VALIDATE** button. At the bottom right, there is a blue information box with the text "Validate credentials before making changes." and a close button (X).

Notice that the account name is based on the vCenter Server FQDN and that the NSX endpoint matches the NSX instance that you provided.

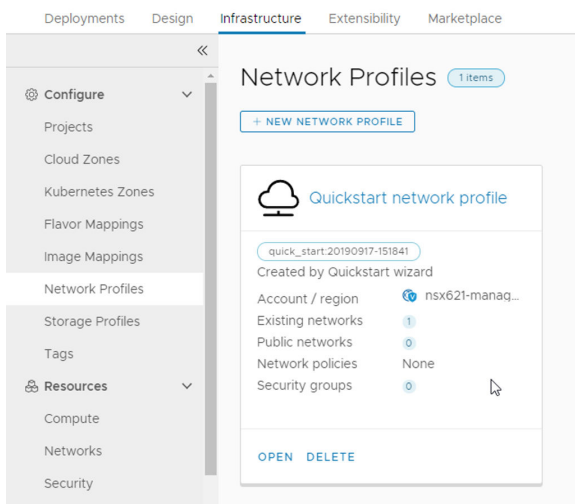
If you look at the NSX cloud account, you see same relationships regarding name and vSphere endpoint. The endpoint, in this user interface, is the cloud account.

- 4 Let's look at the cloud zones that were created from the cloud accounts. Select **Infrastructure > Configure > Cloud Zones**



Cloud zones are the account regions or data centers that are associated with your cloud account. If your cloud account includes more than one region, then multiple cloud zones might be created from that cloud account. For example, you might have more than one data center or region, and each one becomes a cloud zone. Cloud zones are then associated with projects, allowing you to grant users permission to deploy to a specific set of cloud resources.

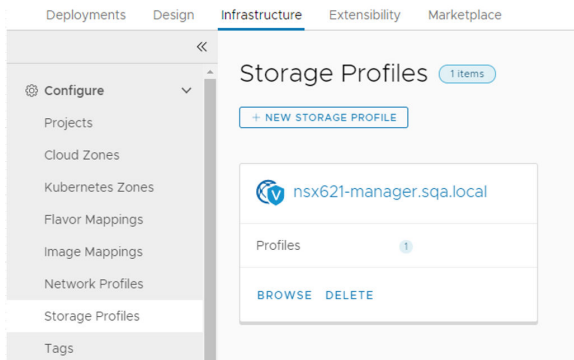
- 5 To see the network you configured, select **Infrastructure > Configure > Network Profiles**.



A network profile defines a group of networks and network settings that are available for a cloud account in a particular region or data center.

If you run the QuickStart more than once, a network profile is added each time you run it.

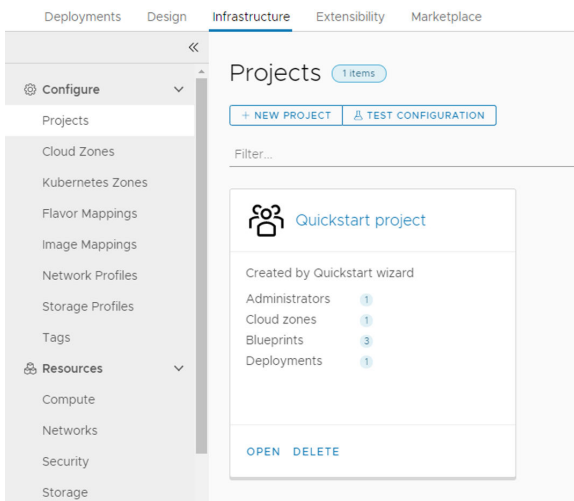
- 6 To see the storage you configured, select **Infrastructure > Configure > Storage Profiles**.



Storage profiles are organized under cloud-specific regions. One cloud account might have multiple regions, with multiple storage profiles under each region.

If you run the QuickStart wizard more than once, a storage profile is added to the associated datacenter each time you run the wizard.

- 7 To see the project that was created, even though you provided no specific values, select **Infrastructure > Configure > Projects**.



Projects link users and resources so that users can only deploy to the cloud zones that you specify. You might later create other projects to support different development teams.

- a Click the project name, and then click the **Users** tab.

This tab is where you can add more users to a project.

- b Click the **Provisioning** tab.

This tab is where you add or remove the cloud zones. Notice that you have the `Quickstart` cloud zone.

- c Scroll down the provisioning page and locate **Custom Naming**.

Notice that the custom naming template has the machine name prefix format that you selected in the policies section in the QuickStart. The custom naming is associated with projects.

- 8 To see the blueprints that were created, click the **Blueprints** tab.

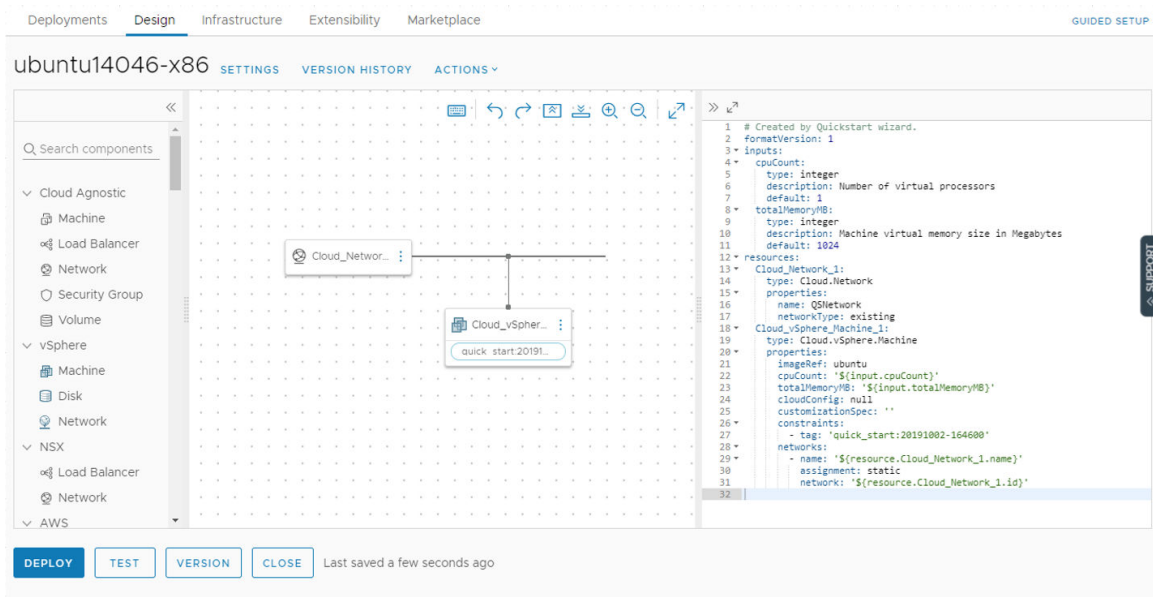
	Name	Source Control	Project	Last Updated	Updated By	Released Versions
<input type="checkbox"/>	> ubuntu14046-x86		Quickstart project	Oct 2, 2019, 10:51:35 AM	fritz@coke.sqa-horizon.local	1 out of 1
<input type="checkbox"/>	> NSX-T Load Balancer		Quickstart project	Oct 2, 2019, 10:51:34 AM	fritz@coke.sqa-horizon.local	1 out of 1
<input type="checkbox"/>	> NSX-T Network		Quickstart project	Oct 2, 2019, 10:51:33 AM	fritz@coke.sqa-horizon.local	1 out of 1

As part of the QuickStart, you have three blueprints. The machine blueprint was deployed, the NSX-T network and load balancer blueprints are provided as examples and were not deployed.

If you run the QuickStart wizard more than once, you will have blueprints that are created for each wizard configuration.

- a In the Project column, notice that blueprints are associated with the Quickstart project.
- b In the Released Versions column, notice that each blueprint is released.

- c To see the blueprint canvas and where you release the blueprints, click the name of the blueprint that you selected in the QuickStart. In this example, the blueprint name begins with ubuntu.



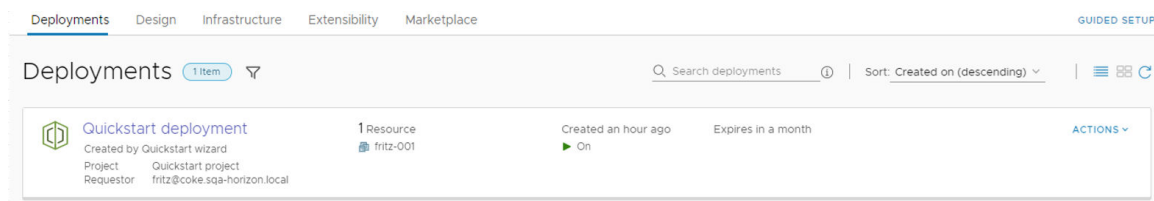
- d In the center is the canvas where you drag components and connect them.
- e On the right is the blueprint-as-code YAML editor where you can refine all the details for a blueprint.

The YAML defines the blueprint components.

- f On the left is the searchable list of components that you can add to the blueprint.
- g To version the blueprint, click **Version** and notice that there is already a released version of the blueprint.

You can deploy blueprints in vRealize Automation Cloud Assembly that are released or unreleased. To make blueprints available in vRealize Automation Service Broker, they must be released.

9 Click the **Deployments** tab.



If you ran the QuickStart wizard more than once, you will have deployments as validation for each wizard configuration.

a Review the information that is provided on the deployment card.

- Deployment name is Quickstart deployment.
- Project is Quickstart project.
- Requestor is Fritz. In your environment, it is the user account that you used to run the QuickStart.
- Resource name is fritz-001. This name is based on the custom naming that you defined in the Quickstart. If you deploy another resource using this naming convention, the name is likely to be fritz-002.
- Power status indicates that the resource is On.
- Expires in the month is the starting lease period. The value will count down to the expiration date.
- Actions are the deployment level changes you can make, including power off or destroy.

b Click the deployment name in the deployments list so that you can see the deployment details and review the available information.

The screenshot displays the vRealize Automation Cloud Assembly interface. At the top, a deployment card for 'Quickstart deployment' is shown with a green 'Create Successful' status. Below the card, a table lists deployment details:

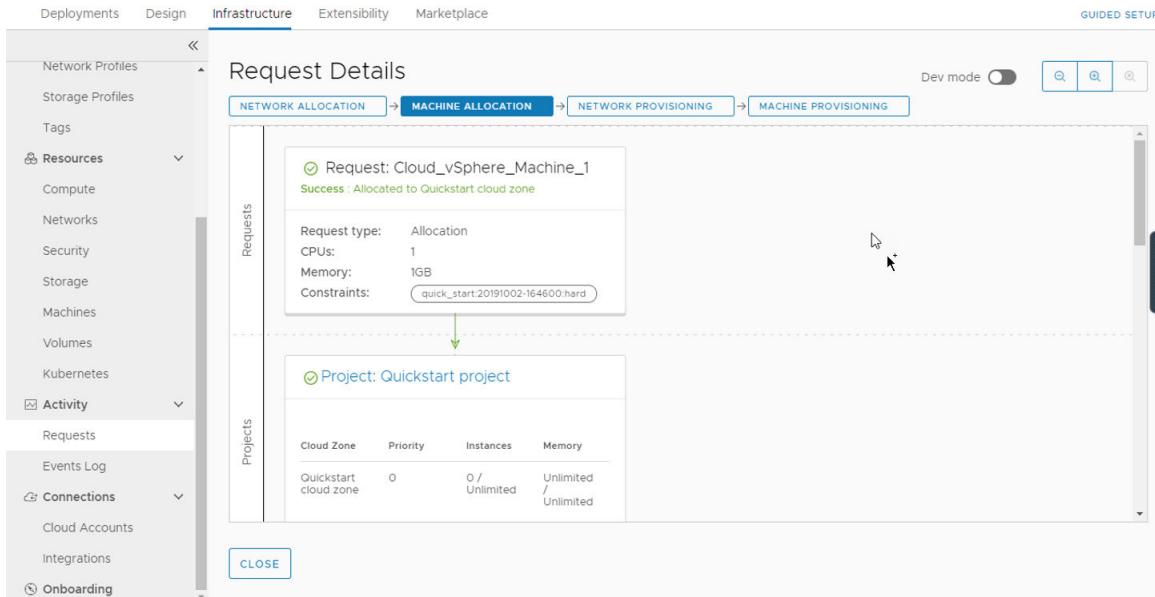
Property	Value	Property	Value
Requestor	fritz@coke.sqa-horizon.local	Expires on	Nov 3, 2019, 10:25:00 AM
Project	Quickstart project	Last updated	Oct 4, 2019, 11:29:21 AM
Blueprint	ubuntu14046-x86	Created on	Oct 4, 2019, 11:25:10 AM

Below the table, there are tabs for 'Topology', 'History', and 'Monitor'. The 'Topology' tab is active, showing a visual representation of the deployment components: 'Cloud_Networ...' and 'Cloud_vSpher...'. A right-hand panel provides details for 'Cloud_vSphere_Machine_1', including a list of actions such as 'Add Disk', 'Connect to Remote Console', 'Create Snapshot', 'Delete', 'Delete Snapshot', 'Get Private Key', 'Power Off', 'Power On', 'Reboot', 'Remove Disk', 'Reset', and 'Resize'.

- Name of the blueprint that was used to create the deployment. In this example, it is the template that you selected in the QuickStart.
- The Topology tab provides a visualization of the relationship between the deployed components. This example is a simple machine. If the deployment had multiple machines, networking, and storage, you can see a more robust topology.
- Tabs for History and Monitor. History as the log of the deployment and any changes that you make using the actions. Monitor is relevant if you integrate with vRealize Operations Manager.

- Account regions where the resource was deployed.
- Actions that you can run on the selected resource.

10 To understand how the deployment was provisioned, select **Infrastructure > Activity > Requests**, and click the deployment name.



The Request Details provide a graphical view of how the deployment request is processed and provisioned. You can look at the project, the machine, and the network allocation and provisioning to see where the workload was placed.

As you create your infrastructure and blueprints, the request details provide insights that you can use to troubleshoot unexpected behavior or deployment failures.

What to do next

Continue your tour in vRealize Automation Service Broker.

Tour of the Quickstart changes to vRealize Automation Service Broker

vRealize Automation Service Broker is where you provide your users with a catalog of blueprints and other templates that they can deploy to the cloud accounts that you provide. In this part of the tour, you can see what the Quickstart configured for you.

The tour gets you started learning the user interface and understanding some of the tasks you can later perform on your own.

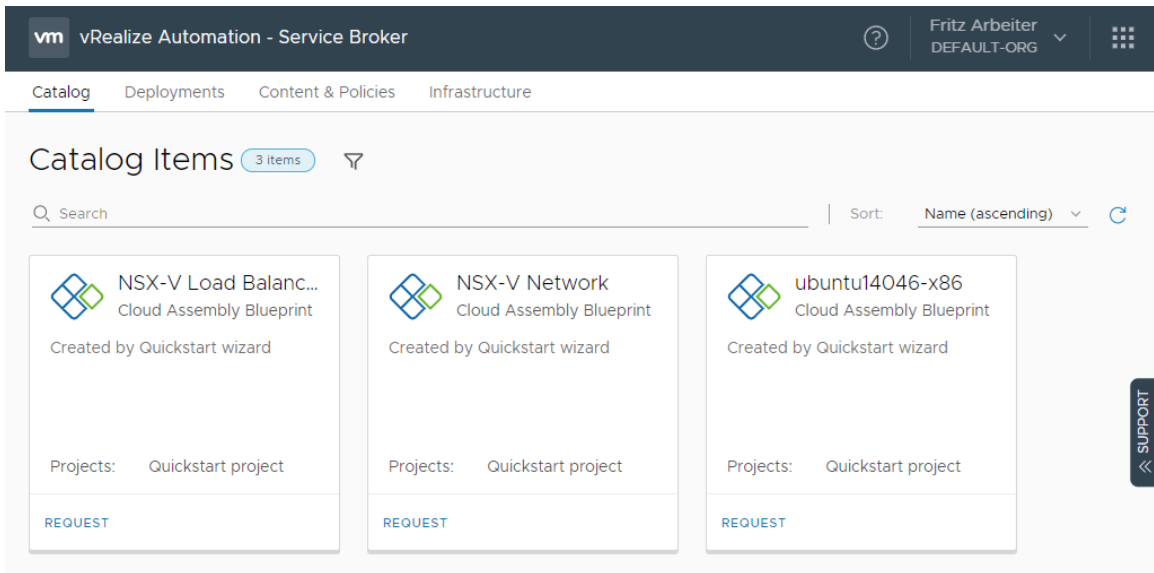
If you run the Quickstart wizard more than once, you will see representative examples for each run as you progress through this tour.

Prerequisites

Review the tour of Cloud Assembly. See [Tour of the Quickstart changes to vRealize Automation Cloud Assembly](#).

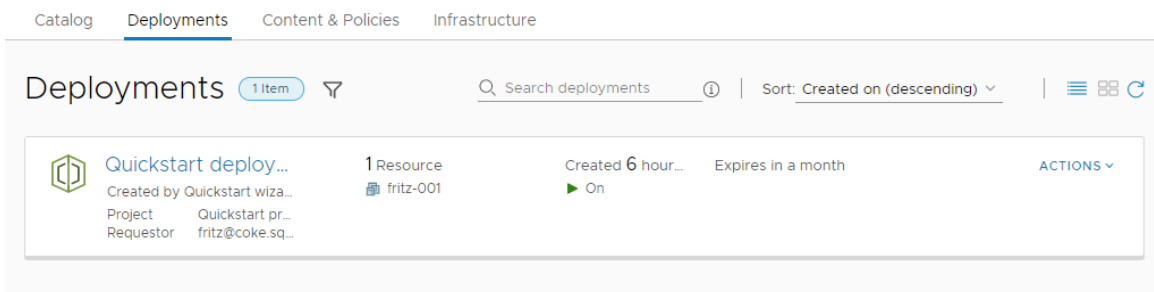
Procedure

- 1 To see how your consumers deploy blueprints and other templates, navigate to vRealize Automation Service Broker using the menu in the upper right corner.
 - a Click the navigation matrix in the upper right corner.
 - b Select **Service Broker**.



Notice that the three catalog items are the released blueprints from vRealize Automation Cloud Assembly.

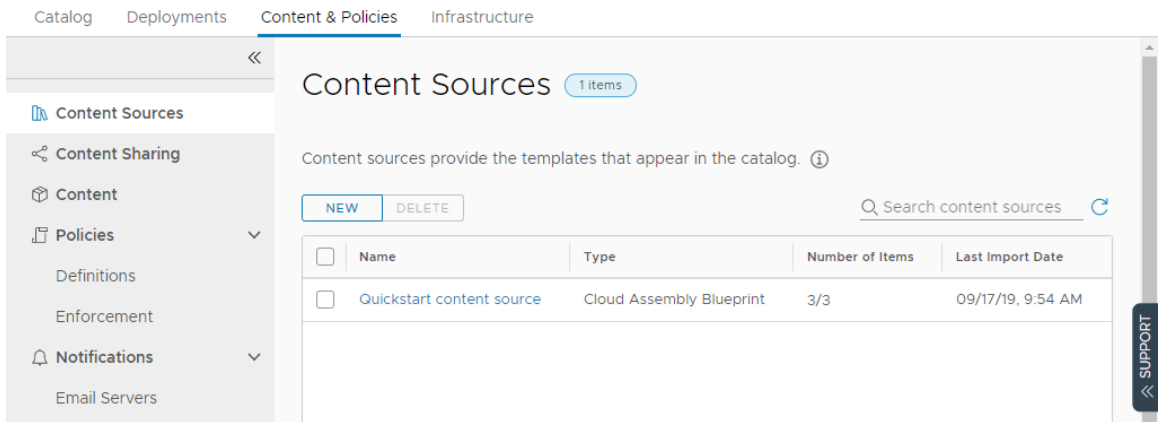
- c To see what the Quickstart deployed, click the **Deployments** tab.



Notice that this deployment is the same one that we saw in vRealize Automation Cloud Assembly.

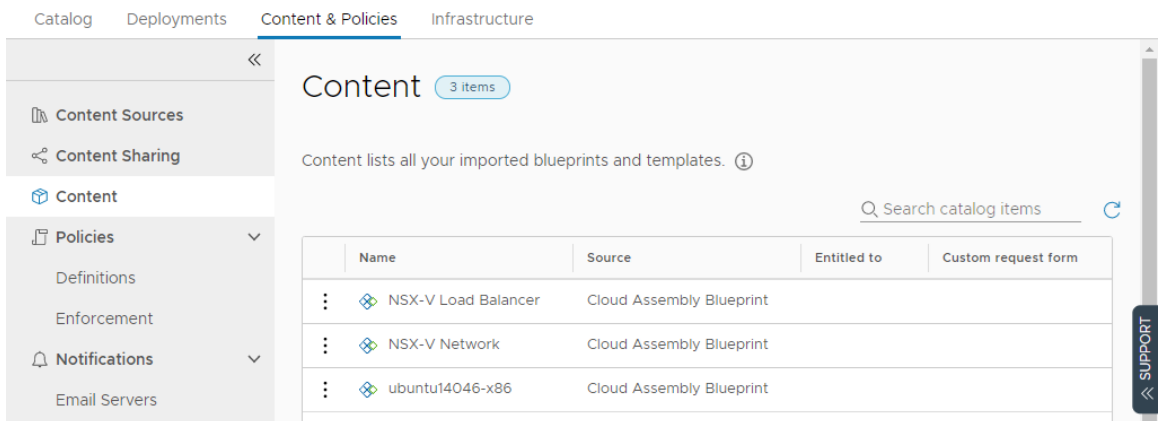
- 2 To review how Quickstart configured vRealize Automation Service Broker to provide the blueprints in the catalog, select **Content and Policies**.

- a Click **Content Sources**.

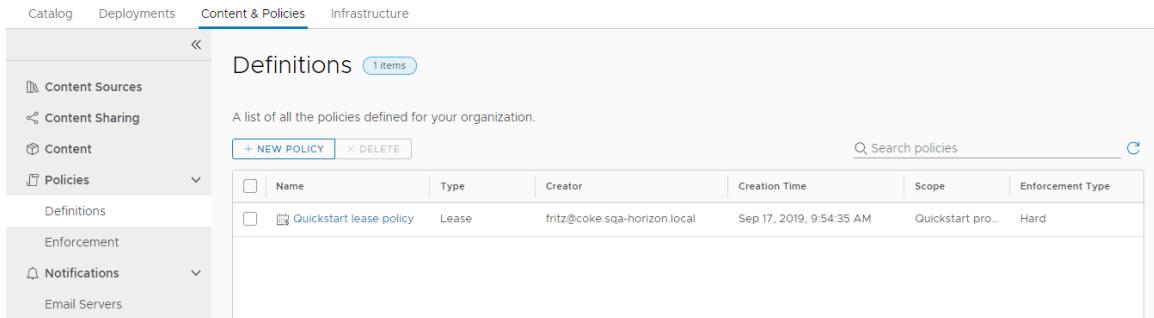


In this case, the Cloud Assembly blueprints are the content source. You can also add Amazon Web Services CloudFormation templates, vRealize Orchestrator workflows, and templates that you want to provide to your consumers.

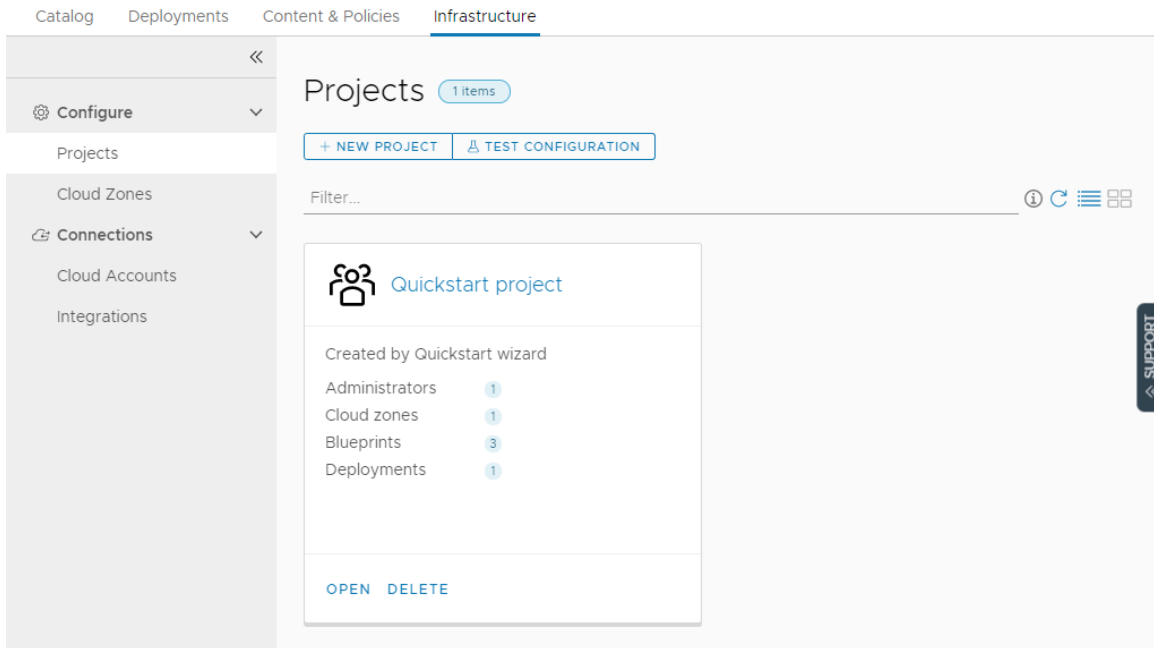
- b Click **Content**.



This is where you see the list of all the content in vRealize Automation Service Broker, including the blueprints from vRealize Automation Cloud Assembly.

c Select **Policies > Definitions**.

You create and manage policies in vRealize Automation Service Broker, including lease policies that apply to vRealize Automation Cloud Assembly deployments.

d To review the project and the custom name that you created in the Quickstart, and that you saw in the vRealize Automation Cloud Assembly part of the tour, select **Infrastructure > Configure > Projects**.

Notice that only a limited number of the infrastructure options that you saw in vRealize Automation Cloud Assembly are available in vRealize Automation Service Broker. Only the options that you must use to set up the catalog for your consumers are provided.

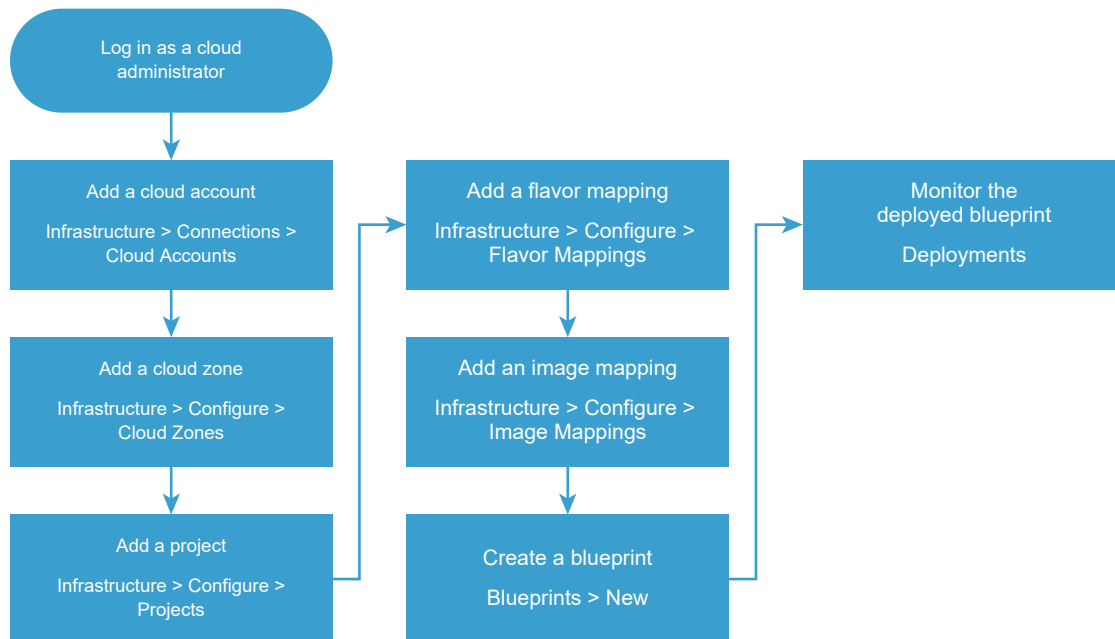
What to do next

To add another cloud account, configure the infrastructure to support it, and deploy a blueprint to support it, use the guided setup. See [How do I get started with vRealize Automation Cloud Assembly using the Guided Setup](#).

How do I get started with vRealize Automation Cloud Assembly using the Guided Setup

To set up and verify your vRealize Automation Cloud Assembly instance, you configure the infrastructure based on the cloud accounts, and then you create and deploy blueprints to ensure that everything is flowing through the system.

This use case helps you, a cloud administrator, through your first time using vRealize Automation Cloud Assembly. You add an Amazon Web Services cloud account and configure the infrastructure related to that account. The infrastructure consists of a cloud account region, a project to link users to the region, and some size and image mapping that you use at deployment time. To test the infrastructure, you next create and deploy a simple blueprint.



To help you with this getting started process, the instructions are available as a Guided Setup in the user interface.

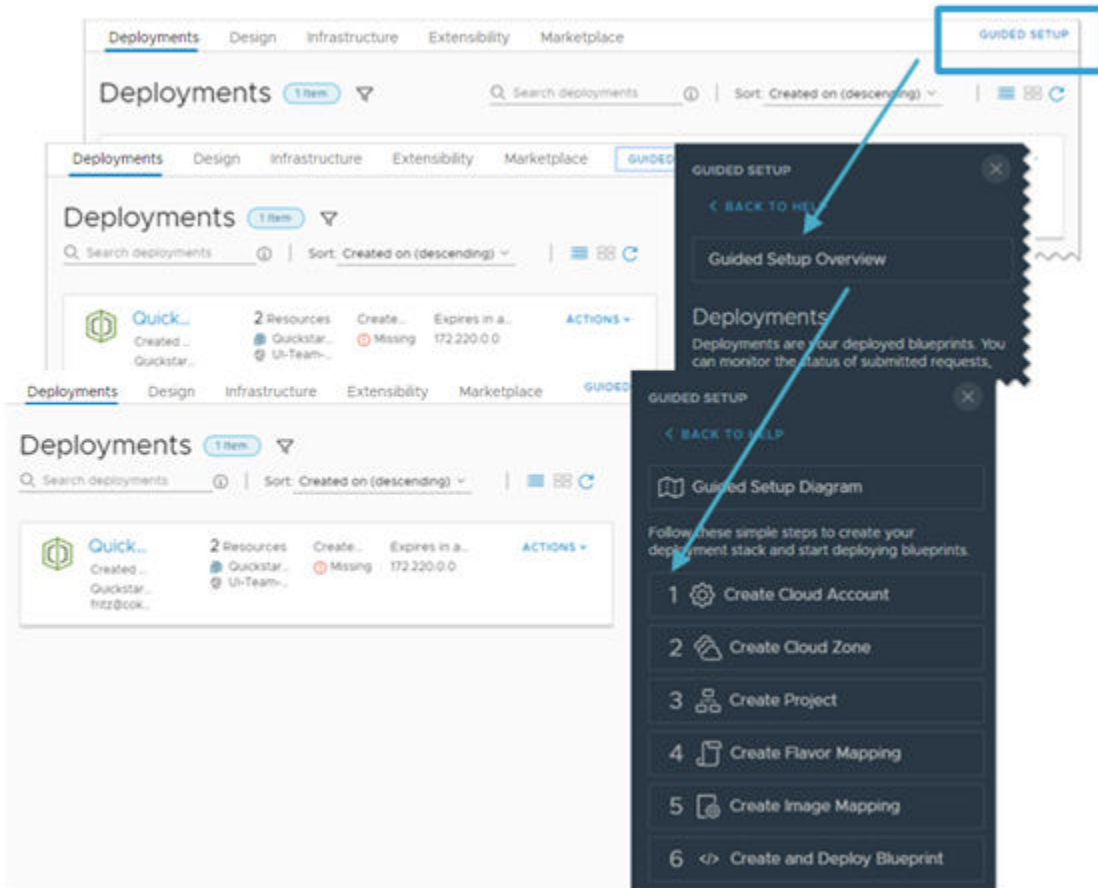
The first time that you log in to vRealize Automation Cloud Assembly, you might encounter the Guided Setup Diagram. The diagram illustrates how the components that you configure process a blueprint at request time. Click **Continue** and configure your cloud account.

Prerequisites

- Log in as a cloud administrator.
- Verify that you have the credentials required to connect to the cloud account. If you have an Amazon Web Services account, consider using those credentials. See [Chapter 3 Before you begin with vRealize Automation Cloud Assembly](#) for details.

Procedure

- 1 Open the **Guided Setup**.



- a Click **Guided Setup** on the tab bar.
- b In the support panel, click **Guided Setup Overview**.

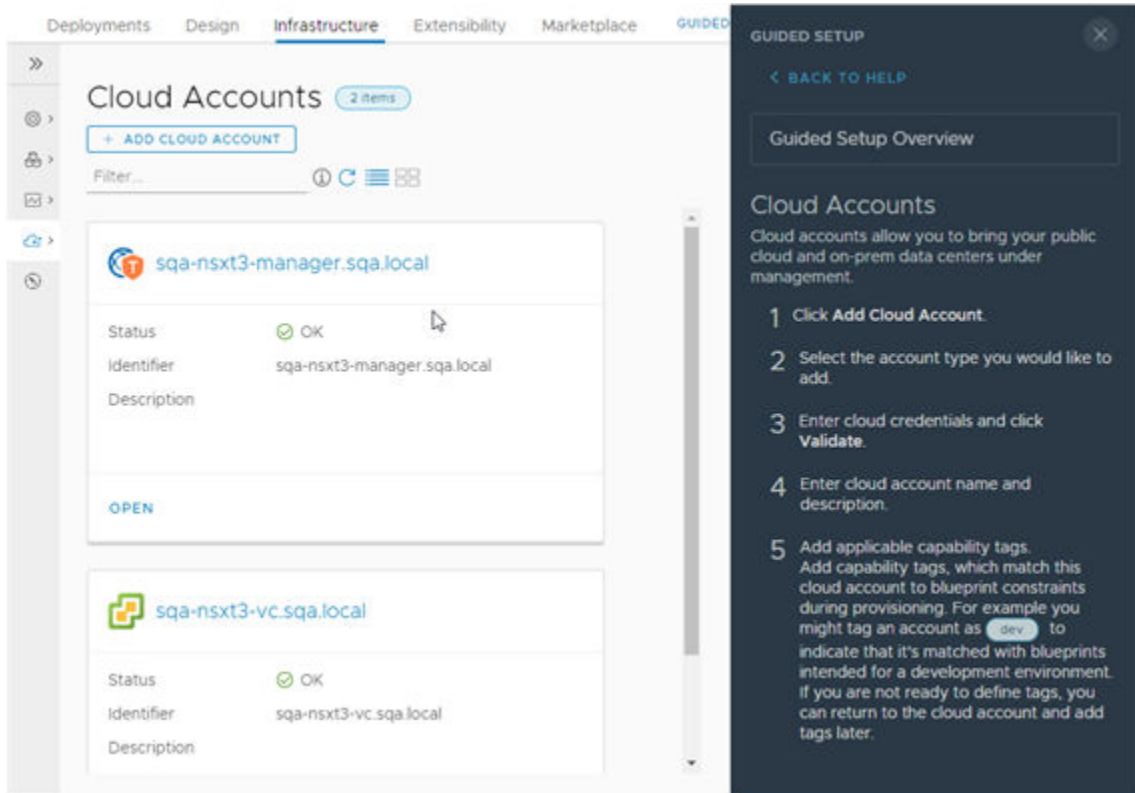
The Guided Setup is context sensitive to the page that you are on in the user interface. The initial Guided Setup topic that opens depends on the page you are on in the user interface. The link to the Guided Setup overview is at the top of each getting started topic.

- c In the step list, click **Create Cloud Account** to begin.

The guided opens the cloud account topic and opens the page in the UI.

Use the information in the support panel and the built in workflow to set up your infrastructure, create a blueprint, and deploy the blueprint.

2 Add a cloud account.



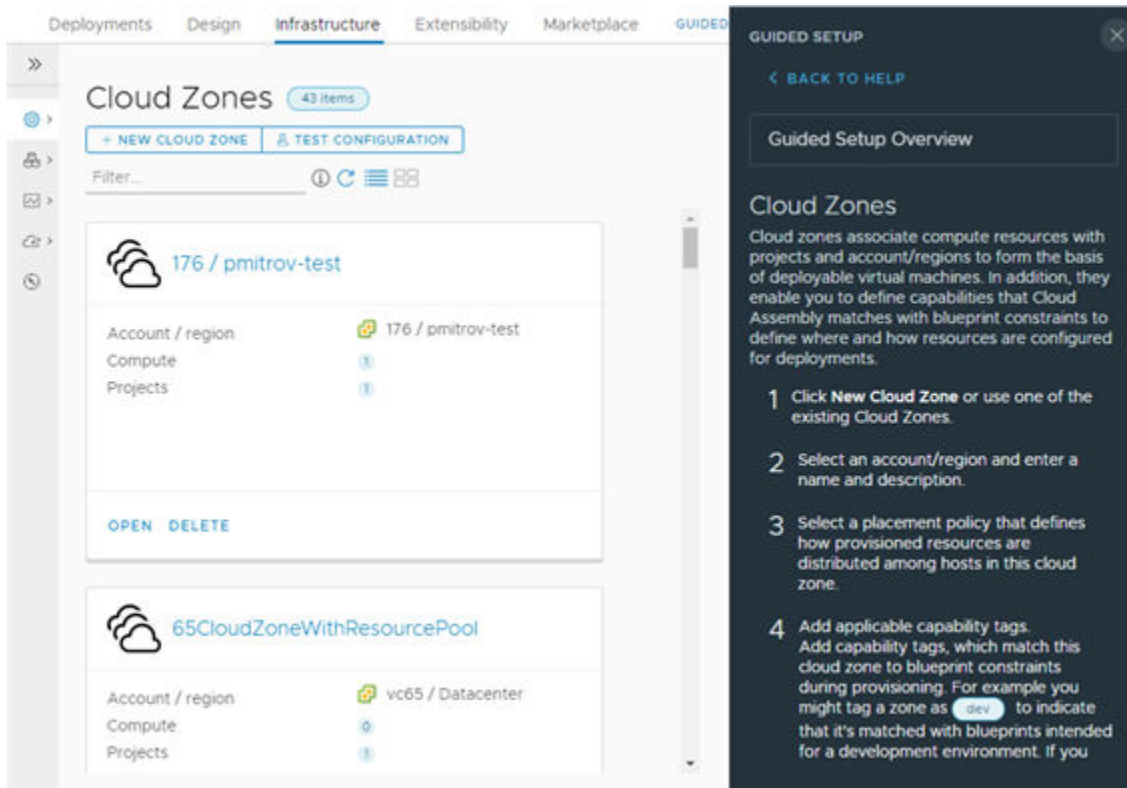
The screenshot shows the 'Cloud Accounts' page in the vRealize Automation Cloud Assembly interface. The page has a sidebar with navigation icons and a main content area. The main content area displays a list of cloud accounts. Two accounts are visible:

- sqa-nsxt3-manager.sqa.local**: Status is OK, Identifier is sqa-nsxt3-manager.sqa.local, and Description is empty. An 'OPEN' button is at the bottom.
- sqa-nsxt3-vc.sqa.local**: Status is OK, Identifier is sqa-nsxt3-vc.sqa.local, and Description is empty.

The 'GUIDED SETUP' sidebar on the right contains the following steps:

- 1 Click **Add Cloud Account**.
- 2 Select the account type you would like to add.
- 3 Enter cloud credentials and click **Validate**.
- 4 Enter cloud account name and description.
- 5 Add applicable capability tags. Add capability tags, which match this cloud account to blueprint constraints during provisioning. For example you might tag an account as `dev` to indicate that it's matched with blueprints intended for a development environment. If you are not ready to define tags, you can return to the cloud account and add tags later.

3 Create a cloud zone for one of your Amazon Web Services regions.



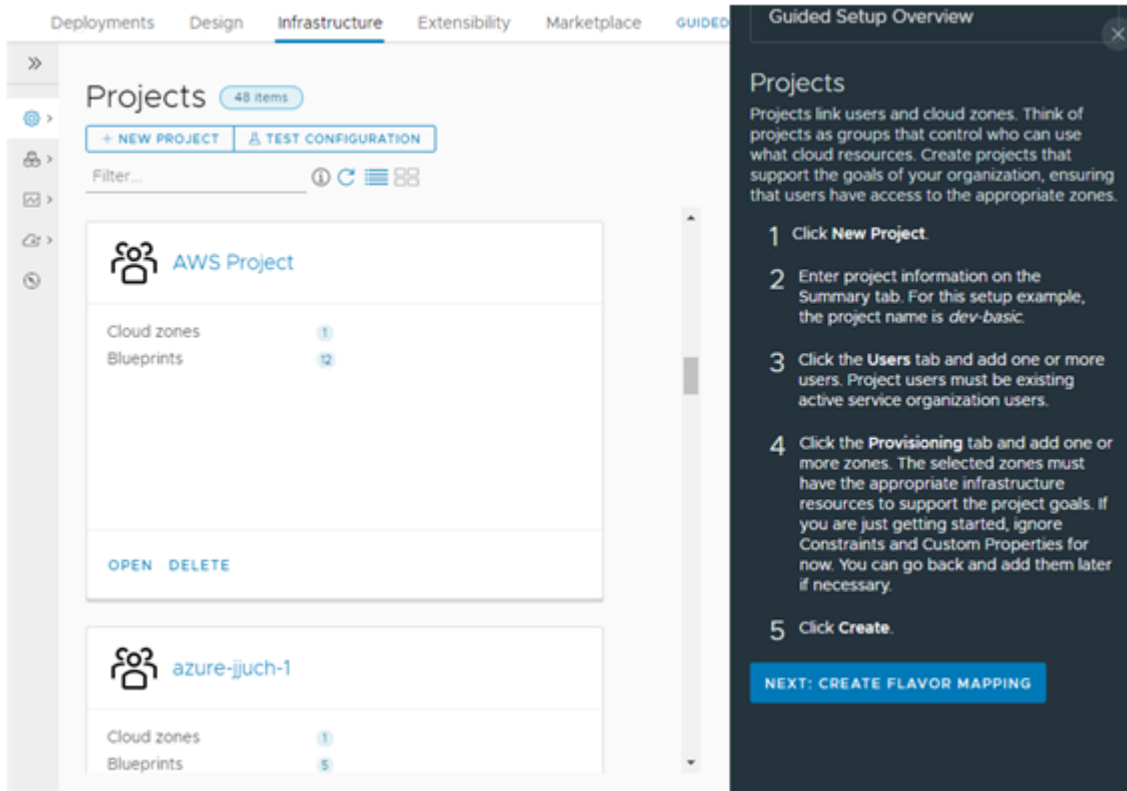
The screenshot shows the 'Cloud Zones' page in the vRealize Automation Cloud Assembly interface. The page has a sidebar with navigation icons and a main content area. The main content area displays a list of cloud zones. Two zones are visible:

- 176 / pmitrov-test**: Account / region is 176 / pmitrov-test, Compute is 1, and Projects is 1. 'OPEN' and 'DELETE' buttons are at the bottom.
- 65CloudZoneWithResourcePool**: Account / region is vc65 / Datacenter, Compute is 0, and Projects is 1.

The 'GUIDED SETUP' sidebar on the right contains the following steps:

- 1 Click **New Cloud Zone** or use one of the existing Cloud Zones.
- 2 Select an account/region and enter a name and description.
- 3 Select a placement policy that defines how provisioned resources are distributed among hosts in this cloud zone.
- 4 Add applicable capability tags. Add capability tags, which match this cloud zone to blueprint constraints during provisioning. For example you might tag a zone as `dev` to indicate that it's matched with blueprints intended for a development environment. If you

4 Create a project with users and the cloud zone.



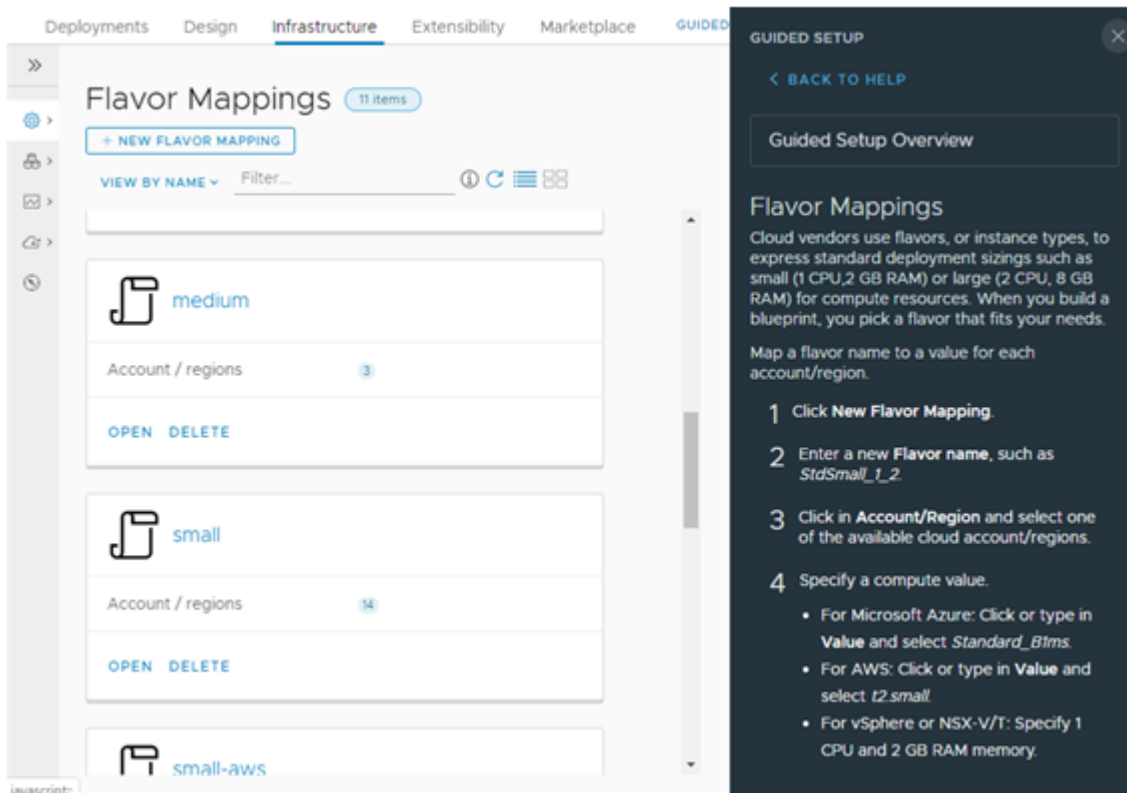
The screenshot shows the 'Infrastructure' tab in the vRealize Automation Cloud Assembly interface. The main panel displays the 'Projects' page with 48 items. It includes a '+ NEW PROJECT' button and a 'TEST CONFIGURATION' button. Below these are two project cards: 'AWS Project' and 'azure-ijuch-1'. Each card shows 'Cloud zones' and 'Blueprints' counts. The 'AWS Project' card has 1 cloud zone and 12 blueprints, while the 'azure-ijuch-1' card has 1 cloud zone and 5 blueprints. Each card has 'OPEN' and 'DELETE' buttons.

The 'Guided Setup Overview' sidebar on the right provides instructions for creating a project:

- 1 Click **New Project**.
- 2 Enter project information on the **Summary** tab. For this setup example, the project name is *dev-basic*.
- 3 Click the **Users** tab and add one or more users. Project users must be existing active service organization users.
- 4 Click the **Provisioning** tab and add one or more zones. The selected zones must have the appropriate infrastructure resources to support the project goals. If you are just getting started, ignore Constraints and Custom Properties for now. You can go back and add them later if necessary.
- 5 Click **Create**.

A blue button at the bottom of the sidebar says 'NEXT: CREATE FLAVOR MAPPING'.

5 Create a small flavor mapping.

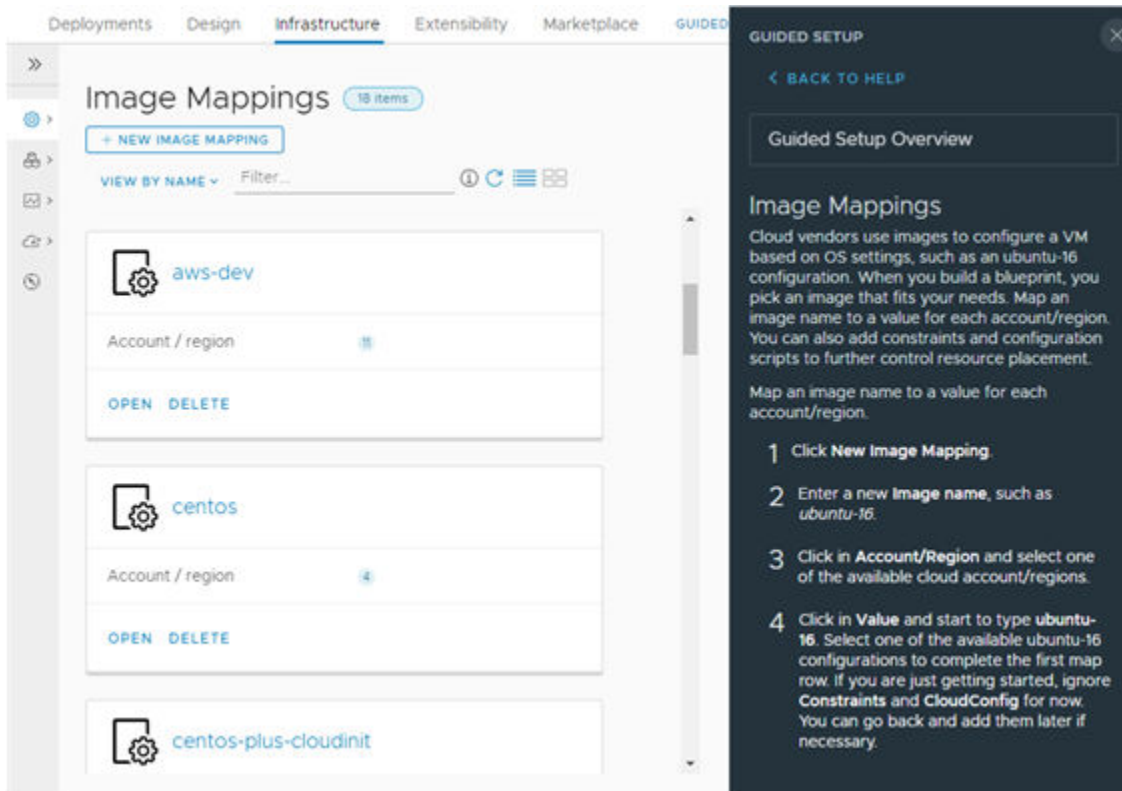


The screenshot shows the 'Infrastructure' tab in the vRealize Automation Cloud Assembly interface. The main panel displays the 'Flavor Mappings' page with 11 items. It includes a '+ NEW FLAVOR MAPPING' button and a 'VIEW BY NAME' dropdown. Below these are three flavor mapping cards: 'medium', 'small', and 'small-aws'. Each card shows 'Account / regions' counts. The 'medium' card has 3 account/regions, the 'small' card has 14, and the 'small-aws' card has 1. Each card has 'OPEN' and 'DELETE' buttons.

The 'GUIDED SETUP' sidebar on the right provides instructions for creating a flavor mapping:

- 1 Click **New Flavor Mapping**.
- 2 Enter a new **Flavor name**, such as *StdSmall_1_2*.
- 3 Click in **Account/Region** and select one of the available cloud account/regions.
- 4 Specify a compute value.
 - For Microsoft Azure: Click or type in **Value** and select *Standard_B1ms*.
 - For AWS: Click or type in **Value** and select *t2.small*.
 - For vSphere or NSX-V/T: Specify 1 CPU and 2 GB RAM memory.

6 Create an ubuntu-16 image mapping.



The screenshot shows the 'Image Mappings' page in the vRealize Automation Cloud Assembly interface. The 'aws-dev' mapping is selected, showing 'Account / region' and 'Value' fields. A 'GUIDED SETUP' sidebar on the right provides instructions for creating a new image mapping.

GUIDED SETUP

[BACK TO HELP](#)

Guided Setup Overview

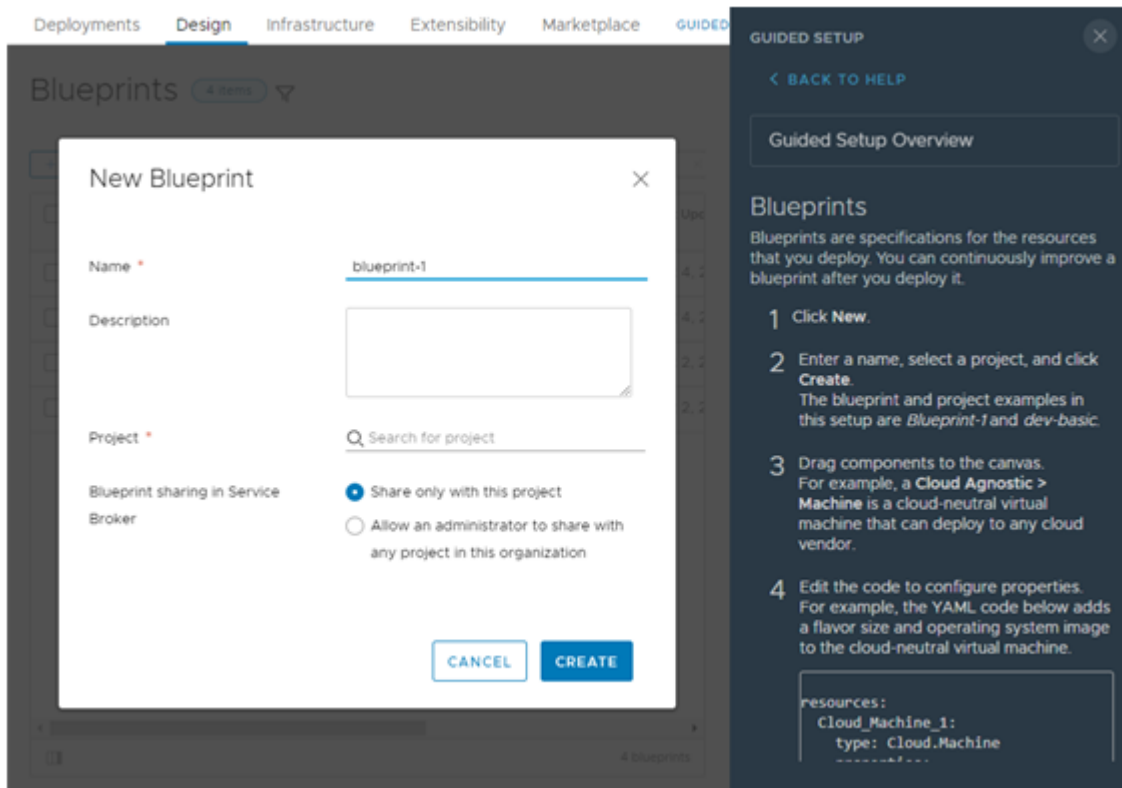
Image Mappings

Cloud vendors use images to configure a VM based on OS settings, such as an ubuntu-16 configuration. When you build a blueprint, you pick an image that fits your needs. Map an image name to a value for each account/region. You can also add constraints and configuration scripts to further control resource placement.

Map an image name to a value for each account/region.

- 1 Click **New Image Mapping**.
- 2 Enter a new **Image name**, such as **ubuntu-16**.
- 3 Click in **Account/Region** and select one of the available cloud account/regions.
- 4 Click in **Value** and start to type **ubuntu-16**. Select one of the available ubuntu-16 configurations to complete the first map row. If you are just getting started, ignore **Constraints** and **CloudConfig** for now. You can go back and add them later if necessary.

7 Create a simple blueprint that deploys a small machine with the ubuntu-16 operating system.



The screenshot shows the 'Blueprints' page in the vRealize Automation Cloud Assembly interface. The 'New Blueprint' dialog is open, showing fields for Name, Description, Project, and Blueprint sharing in Service Broker. A 'GUIDED SETUP' sidebar on the right provides instructions for creating a new blueprint.

GUIDED SETUP

[BACK TO HELP](#)

Guided Setup Overview

Blueprints

Blueprints are specifications for the resources that you deploy. You can continuously improve a blueprint after you deploy it.

- 1 Click **New**.
- 2 Enter a name, select a project, and click **Create**. The blueprint and project examples in this setup are *Blueprint-1* and *dev-basic*.
- 3 Drag components to the canvas. For example, a **Cloud Agnostic > Machine** is a cloud-neutral virtual machine that can deploy to any cloud vendor.
- 4 Edit the code to configure properties. For example, the YAML code below adds a flavor size and operating system image to the cloud-neutral virtual machine.

```
resources:
  Cloud_Machine_1:
    type: Cloud.Machine
    -----
```

8 Check on your deployed blueprint.

The screenshot shows the 'Deployments' page in the vRealize Automation Cloud Assembly interface. The page has a navigation bar with tabs: Deployments, Design, Infrastructure, Extensibility, and Marketplace. The 'Deployments' tab is active, showing a list of 20 items (3 of 22 visible). The list is sorted by 'Created Time (descending)'. There are three deployment cards visible:

- dm-aws-puppet...**: 4 Resources, 1 Month to go, Created 5 min., Expires 1... ACTIONS +
- hnguyenMonday...**: 3 Resources, 1 Month to go, Created 37 min., Expires 1... ACTIONS +
- testDelete1**: 0 Resources, 1 Month to go, Created 2 hour., Expires 1... ACTIONS +

Each card also shows a 'Project' and 'Requestor'.

On the right sidebar, under the heading 'Deployments', there is a description: 'Deployments are your deployed blueprints. You can monitor the status of submitted requests, keep track of your deployed resources, and manage those resources using actions.' Below this, there are three numbered steps:

- 1 Monitor the request status.**
 - Track the provisioning process on the deployment card status bar.
 - If the deployment status is Running, your application is deployed and running. The IP address is also available.
- 2 Troubleshoot failed requests.**
 - Click the deployment name and review the History tab for error messages.
- 3 Manage deployed resources.**
 - Click the deployment name and review the Topology tab to understand the deployment structure and access the external link to the application on the cloud resource. You must have a valid login for the

What else can I do with vRealize Automation Cloud Assembly

5

As a cloud administrator, you use vRealize Automation Cloud Assembly to provide blueprints to your developers so that they can deploy blueprints. To manage your cloud resources, you configure the accounts, the regions, the policies, and the projects. If it suits your organization, you can delegate the blueprint creation to project members, or you can create them yourself.

In addition to the following suggestions, you can assign roles to your users. See [Administering vRealize Automation](#).

To learn about...	See in <i>Using and Managing vRealize Automation Cloud Assembly</i> ...
Adding more cloud accounts and integrations.	Setting up Cloud Assembly for your organization
Building out your infrastructure.	Building your Cloud Assembly resource infrastructure
Using projects effectively.	How Do I Set Up Cloud Assembly Projects
Creating a multi-tier blueprint.	The WordPress Use Case
Building blueprints.	How Do I Create and Deploy Cloud Assembly Blueprints
Troubleshooting failed deployments.	What Can I Do If a Deployment Fails